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Anasazi Communities at Dolores: Early Small Settlements in the Dolores River Canyon and Western Sagehen Flats Area

Timothy A. Kohler

William D. Lipe

Allen E. Kane

David A. Breternitz

Department of the Interior- Bureau of Reclamation

Dolores Archaeological Program:

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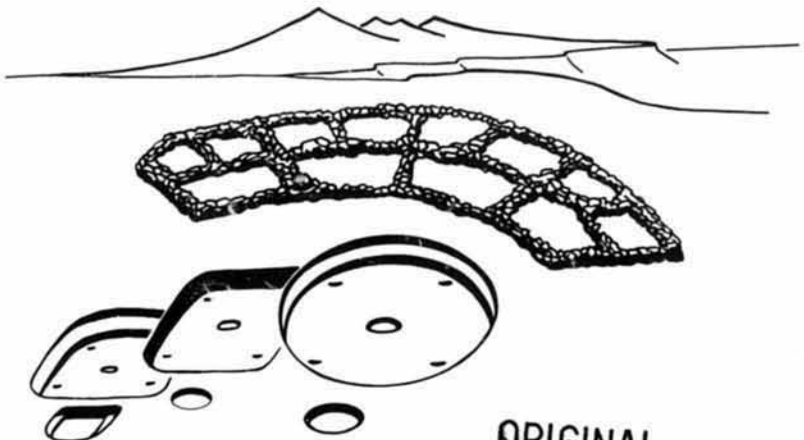

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16. ABSTRACT

This volume reports on a series of investigations in the Dolores River canyon and the western Sagehen Flats area of the Dolores Project. Included in the collection are an overview of the Grass Mesa Locality (with a summary of Dolores Archaeological Program systematics), the results of the 1979-1980 Grass Mesa Locality Testing Program, and 6 site reports that describe excavations undertaken between 1979 and 1983.

The excavated sites reported include: (1) LeMoc Shelter (5MT2151), which exposed 5 Anasazi occupations between A.D. 750 and 950; (2) Prince Hamlet (5MT2161), a Pueblo I habitation occupied between A.D. 720-840; (3) Hamlet de la Olla (5MT2181), with a primary occupation between A.D. 780 and 810 and a later field house manifestation; (4) Kin Tl'ish (5MT2336), with multiple occupations assigned to the A.D. 760-850, A.D. 850-975, and A.D. 1050-1200 periods; (5) Pozo Hamlet (5MT4613), a pithouse and associated features with construction traits of both Basketmaker III and Pueblo I periods between A.D. 600 and 780; and (6) Poco Tiempo (5MT2378), a Basketmaker III site dating between A.D. 690 and 730.

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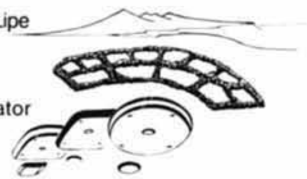
Compiled by Timothy A. Kohler, William D. Lipe and Allen E. Kane

Prepared under the supervision of
Dr. David A. Breternitz, Principal Investigator
University of Colorado
Dolores Archaeological Program
Dolores, Colorado



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Chapter 1

INTRODUCTION TO THE EARLY SMALL SETTLEMENTS IN THE DOLORES RIVER CANYON AND WESTERN SAGEHEN FLATS AREA

ABSTRACT

This chapter is an introduction to a series of investigations in the Dolores River canyon and the western Sagehen Flats area of the Dolores Project. Included in the collection are an overview of the Grass Mesa Locality, the results of a testing program in the Grass Mesa Locality, and 6 site reports that describe excavations in the canyon and western Sagehen Flats areas. This introduction includes an overview of the volume, a summary of Dolores Archaeological Program systematics, and some background information about the reports in this collection.

Chapter 1

INTRODUCTION TO THE EARLY SMALL SETTLEMENTS IN THE DOLORES RIVER CANYON AND WESTERN SAGEHEN FLATS AREA

Timothy A. Kohler

The DAP (Dolores Archaeological Program) is a large data recovery project responsible for mitigating adverse effects on cultural resources scheduled to be impacted by the construction of the McPhee Dam and related features. The dam is a Bureau of Reclamation water impoundment and distribution project near the town of Dolores in southwestern Colorado.

Three series of reports resulted from the project: (1) in-house reports, which usually are preliminary reports on excavations in progress or other incidental information more fully reported elsewhere; (2) reports available through National Technical Information Service; and (3) technical reports published by the Bureau of Reclamation. Many reports documenting basic excavation results, such as those in this volume, were included in the technical report series if they were considered of sufficient professional interest by the DAP and the Bureau of Reclamation. Other reports in the technical series offer provisional (Dolores Archaeological Program 1984) or final (Breternitz et al. 1985) syntheses and interpretations of the local archaeological record.

This technical series volume is composed of 4 reports dealing with the Grass Mesa Locality, which is located at the downstream end of the project area; 2 reports concerning sites near the upstream end of the project area; 1 report on a site at the western extreme of the project area; and 1 report on a site near the middle of the project area (fig 1.1). Except for chapter 9, a consistent focus is on the riverine portions of the project area, and all the reports describe relatively small sites, most often Anasazi habitations. In other respects, however, this is an eclectic set of reports that spans the geographic and temporal extremes of the project area. Table 1.1 lists and provides an administrative summary of the sites reported in this volume.

VOLUME OVERVIEW

One purpose of this introductory chapter is to provide readers having no prior exposure to the DAP with definitions of some terms that may be used in a special or unfamiliar manner. A second purpose is to provide references to other DAP documents that contain important background information, more up-to-date interpretations, or broader syntheses of the basic information provided by these and the other descriptive reports.

Chapter 2 sets the stage for 3 chapters concerning investigations in the Grass Mesa Locality. Chapter 2, written in 1979, is the oldest report in a volume that includes reports of investigations conducted over the entire 6-year span of DAP fieldwork (1978 to 1983). Originally, yearly syntheses on the results of work-in-progress in each spatial administrative subarea (locality) were planned; chapter 2 was one of these locality reports. It was soon realized that the basic descriptive site reports, plus broader, project-wide syntheses and model building and testing, would more than fill the time available for writing, and the idea of the locality report was abandoned after the 1979 analysis year. The Grass Mesa Locality report is retained because it sketches the environmental background for the following chapters and because it analyzes site locations in terms of a series of possibly relevant environmental variables as they were understood at that time. Results of more recent environmental and paleoenvironmental analyses for the entire project area are now available in a volume compiled by Petersen et al. (1985). These data are used for site location analysis in the project area as a whole by Orcutt (1985).

The third chapter in this volume discusses a testing program undertaken at 18 sites in the Grass Mesa Locality during the 1979 and 1980 field seasons. Excavation was conducted at 6 of these sites, although only on a testing

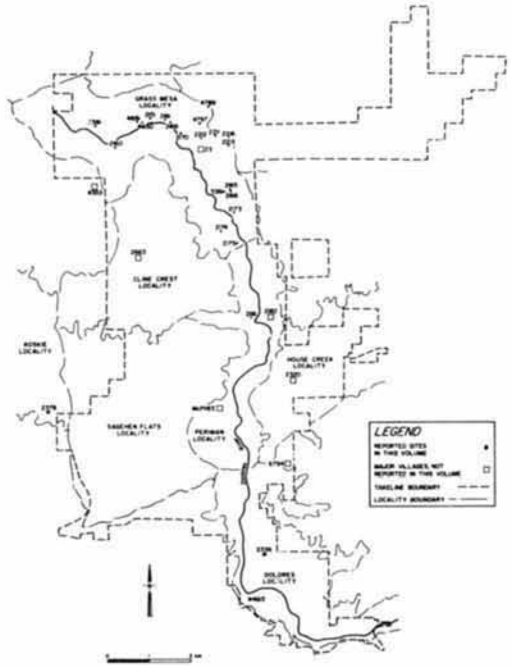

Figure 1.1 - Locations of sites discussed in this volume, and Pueblo I villages in the Dolores Project area.

basis. Such subsurface investigations that are sampling oriented, or simply exploratory, are called Track 2 investigations (Knudson et al. 1984). Track 2 investigations may include formal probability sampling approaches, as undertaken at Hanging Rock Hamlet (Site 5MT4650). The other 12 sites in the Grass Mesa Locality that Gross describes in chapter 3 underwent Track 3 investigations, which consist of total surface collection, often within a formal grid system. Many of the sites in this locality were initially located in the early 1970's, and surface artifacts were collected using "grab sample" techniques. One purpose of the investigations reported in chapter 3 was to obtain new surface artifact assemblages from these poorly known sites so that they could be characterized in the same fashion as sites originally discovered and surface collected by DAP personnel.

Of special interest in chapter 3 is a report on the 1980 excavations at Cougar Springs Cave (Site 5MT4797), a small rockshelter overlooking Dry Canyon, a seasonal tributary to the Dolores River. Results of the test excavations suggest that this site represents an Archaic or Basketmaker II occupation of the Grass Mesa Locality. Because presumed Archaic sites are rare in the project area, and Basketmaker II occupations are otherwise unknown, Cougar Springs Cave was further tested in 1982.

Table 1.1 - Administrative summary of sites reported in this volume

Site name	Site No.	Year(s) investigated	Locality	Project feature	Labor (CW)*	Chapter
LeMoc Shelter	5MT2151	1978, 1979	Grass Mesa	Reservoir	10.9	4
-	5MT2160	1979	Grass Mesa	Reservoir	0.1	3
Prince Hamlet	5MT2161	1979, 1980	Grass Mesa	Reservoir	9.2	5
-	5MT2165	1980	Grass Mesa	Reservoir	0.1	3
-	5MT2166	1980	Grass Mesa	Reservoir	<0.1	3
-	5MT2169	1979	Grass Mesa	Reservoir	0.1	3
-	5MT2170	1979	Grass Mesa	Reservoir	<0.1	3
-	5MT2173	1980	Grass Mesa	Borrow area B	<0.1	3
Dos Cuartos House	5MT2174	1980	Grass Mesa	Borrow area B	0.4	3
-	5MT2175	1980	Grass Mesa	Borrow area B	<0.1	3
Hamlet de la Olla	5MT2181	1980	Periman	Borrow area B	2.2	6
-	5MT2211	1980	Grass Mesa	Reservoir	<0.1	3
-	5MT2212	1980	Grass Mesa	Reservoir	<0.1	3
-	5MT2213	1980	Grass Mesa	Reservoir	<0.1	3
-	5MT2216	1980	Grass Mesa	Reservoir	<0.1	3
Kin Tl'iish	5MT2336	1982	Dolores	Reservoir	†13.9	7
Poco Tiempo Hamlet	5MT2378	1983	Koskie	Dove Creek Canal Reach 1		9
-	5MT2381	1980	Grass Mesa	Takeline	<0.1	3
Pozo Hamlet	5MT4613	1981	Dolores	Reservoir	0.7	8
Hanging Rock Hamlet	5MT4650	1979, 1980	Grass Mesa	McPhee Dam	4.7	3
Calmate Shelter	5MT4651	1979	Grass Mesa	McPhee Dam	0.6	3
Quasimodo Cave	5MT4789	1979, 1980	Grass Mesa	Reservoir	0.6	3
Cougar Springs Cave	5MT4797	1980, 1982	Grass Mesa	Reservoir	1.2	3
DTA Site	5MT5361	1980	Grass Mesa	Borrow area B	0.7	3

* Estimated labor in CW (crew-weeks) based on crews of 10 people, crew chief, and assistant crew chief.
† Includes Washington State University field school of volunteer labor.

The results of the second season are reported elsewhere (Gross 1984). Obsidian samples submitted for hydration analysis, additional radiocarbon dates, and the discovery of corn during the 1982 season provided strong corroboration for the assignment of this site to the Basketmaker II period.

The fourth chapter in this volume describes the intensive excavations at LeMoc Shelter (Site 5MT2151). Located high above the flood plain in a steep, narrow portion of the canyon close to the axis of McPhee Dam, this site was one on which the DAP began excavations immediately after the initial contract was issued in the late spring of 1978. Excavations continued through the 1979 field season, as the site proved to be both complex (and therefore time consuming) and rewarding. Unlike many of the sites at which the DAP conducted intensive excavations, it was totally inaccessible to heavy equipment. Hogan documents the presence of 5 successive occupations at the site between A.D. 750 and A.D. 950, during which the inferred functional position of the site in the settlement system changed at least twice.

Chapter 5 reports excavations at a small, open habitation just upstream from, and lower in elevation than, LeMoc Shelter. Prince Hamlet (Site 5MT2161) was excavated in 1979 and 1980. Its environmental setting and occupational history is typical of many small habitations in the riverine portions of the project area. Its location on an old river terrace above the active flood plain of the Dolores River at the foot of the steep canyon wall combined a southern exposure, proximity to water and proximity to probably arable soil and small terrace remnants. Sebastian reports that occupation began with colonization by a single household about A.D. 780, and expanded into a multiple-household settlement by about A.D. 840 (after a possible hiatus in the occupation). At least a century later, the location was revisited for some temporary or seasonal purpose. Atypical aspects of the site included heavy masonry lining in the pitstructures and a unique ceramic foot, presumably from a human effigy, recovered from one of the surface rooms.

The cultural dynamics of the Grass Mesa Locality cannot be understood without reference to the large village that dominated the locality, demographically if not politically, during at least the last half of the ninth century A.D. The results of intensive excavation at Grass Mesa Village (Site 5MT23) are discussed elsewhere (Lipe et al. 1985).

Proceeding upstream toward the modern town of Dolores from the Grass Mesa Locality, one passes into the downstream portions of the Periman Locality, still in an incised stretch of the Dolores River. Dominating this portion of the project area is another large village (Rio Vista Village, Site 5MT2182 [Wilshusen 1985]) also dating primarily to the last half of the ninth century A.D. To the west, across the Dolores River from Rio Vista Village, is Hamlet de la Olla (Site 5MT2181), a small site reported in chapter 6 of this volume. Track 2 test excavations at this site in 1980 documented a pithouse and associated surface structures in use between about A.D. 780 and 810. Twenty-one reconstructable ceramic vessels were recovered from the site. One of these vessels, a large Chapin Gray olla, inspired the name Hamlet de la Olla for the site.

As one continues upstream from Hamlet de la Olla toward the town of Dolores, the Dolores River valley gradually becomes less incised. The valley wall soon breaks away on the west side, opening into a large pediment created by a 150-m downward slippage along the northwest-southeast-trending House Creek Fault and subsequent erosion along the steep south side of this fault (Leonhardy and Clay 1985). Not far from the river in this area is a dense cluster of Anasazi habitations known as the McPhee Community. These sites date primarily between A.D. 840 and 920, and are reported in Kane and Robinson (1985). West of McPhee Pueblo, the area known as the Sagehen Flats Locality supported a large number of small Anasazi habitations dating primarily from A.D. 600 to 840. Many of these small sites are reported in Dolores Archaeological Program (1983) and Kane and Gross (1985). Most of these early residences were located away from the river on the north side of a marshy area referred to as the Sagehen Marsh.

Continuing west from Sagehen Flats, on a gently rolling plain 2 km west of the Dolores River, one encounters Poco Tiempo Hamlet (Site 5MT2378). This small habitation was both the westernmost and one of the last sites excavated by the DAP (chapter 9), thus the name Poco Tiempo (little time) Hamlet. The site lies just west of the administrative boundary of the Sagehen Flats Locality in the Koskie Locality, within the right-of-way of the Dove Creek Canal Reach 1. A pitstructure with antechamber, associated with a number of small, detached surface rooms, proved to have been occupied sometime between the years A.D. 690 and 730. Remarkably, the pitstructure contained a redundancy of habitation features in its main chamber and antechamber, and the crawlway connecting these 2 chambers was sealed off at some point, leading Brisbin to suggest that 2 households occupied this single pitstructure for an unknown period of time.

Returning to the Dolores River valley and continuing upstream toward the town of Dolores, one encounters Kin Tl'iish (Site 5MT2336) on a second terrace on the east side of the river (chapter 7). This site, in the Dolores Locality, began to be used for residential purposes near the end of the A.D. 700's or early 800's and witnessed perhaps 2 additional periods of occupation prior to about A.D. 910. Then, after a period of disuse, the site was reoccupied seasonally during the late McPhee or early Sundial Phases. Since the site was close to the southern end of the project area and relatively accessible from the town of Dolores, the excavations at Kin Tl'iish, conducted during the 1982 field season, were open to the public. Unlike any of the other excavations reported in this volume, they were conducted as a field school through Washington State University.

On the opposite side of the river from Kin Tl'iish, 1 km upstream toward the town of Dolores, lies Pozo Hamlet (Site 5MT4613). This small habitation, reported in chapter 8 by Nelson, was excavated in 1981. It is near the southern limit of the full pool for McPhee Reservoir and near another reservoir feature, the Dolores Tunnel, for which the site was named (the Spanish word "pozo" can be translated as tunnel). One pitstructure and the associated surface rooms were interpreted as having been constructed and used by a single household sometime between A.D. 700 and 750. A few isolated sherds from later periods suggest that this site, similar to most of the others discussed, was later revisited at least occasionally for nonresidential purposes.

BRIEF REVIEW OF DOLORES ARCHAEOLOGICAL PROGRAM SYSTEMATICS

Three series of terms are used in the following chapters to functionally describe sites and to place them into hierarchical spatial and temporal divisions. These terms are described very briefly here for the benefit of the reader to whom they are unfamiliar. More detailed presentations of these concepts, from which the following is abstracted, can be found in Kane (1983, 1984).

Site Typology

The DAP functional site typology follows an approach with a long history in the Southwest. Three major site types are identified, based on the inferred length of use and the inferred diversity of activities that took place at the location. These 3 types are the habitation, the seasonal locus, and the limited activity locus. In practice, these distinctions are often drawn along architectural lines using characteristics visible from the surface, since most sites are known only from survey. Sites with both pitstructures and surface rooms ordinarily are considered to represent habitations; sites with surface rooms only are usually considered to represent some sort of seasonal use (for example, as a field house); sites with neither of the above are ordinarily classified as limited activity loci. In a study of the surface artifact assemblages from a sample of DAP sites, Schlanger and Orcutt (1984) demonstrate that these architectural criteria do, indeed, correlate with artifactual differences in the predicted directions, lending additional credence to the architectural classification. The site typology is presented in concise form in table 1.2, showing some of the major subdivisions recognized within each of the 3 major site types.

Spatial Series

Two kinds of spatial typologies are commonly used in the DAP. The first of these, composed most importantly of the site and the locality, is solely for administrative convenience; thus, for example, Washington State University was chiefly responsible for investigations in the Grass Mesa Locality. The localities represented by sites in this volume are identified in figure 1.1. A measure of the unimportance of the site concept is that the spatial units used most often in DAP analyses (the household cluster, interhousehold cluster, and community cluster) frequently subdivide or crosscut sites.

A second series of terms represents an attempt to impose a hierarchical, behaviorally oriented classification on the space used by the Anasazi in the project area. Comprehensive discussions of these terms may be found in Kane (1983: 19-27); a brief summary of the concepts relevant to this volume is presented here.

At the smallest scale, activity areas represent the inferred space habitually used by an individual or a small group for a particular activity, such as grinding corn.

On a slightly larger scale, related activity areas may be grouped into a use area. For example, the open plaza in front of a row of surface rooms and surrounding a pitstructure, may be identified as a use area in which a limited set of activities took place.

Still larger in scale is the household cluster, which represents the space and facilities habitually used, for residential purposes, by a single household. The concepts of

Table 1.2 - Dolores Archaeological Program site typology

I. Limited activity loci. Limited activity sites are characterized by brief use periods and a minimal range of activities.
  A. Economic or technical loci
    1. Procurement loci (quarries, kill sites, gathering sites, agricultural sites, water control sites)
    2. Processing loci (butchering sites, chipping stations)
    3. Maintenance loci
    4. Storage loci
    5. Consumption loci
    6. Discard loci
  B. Social or ceremonial loci (shrines, petroglyph panels, sentry posts)
  C. Communications loci (roads and trails, boundary markers)

II. Seasonal loci. Seasonal loci were occupied on a short-term basis, but often periodically or seasonally. Activities performed at these sites were diversified, but the sites were established for a definite purpose.
  A. Economic or technical loci
    1. Procurement/processing loci
    2. Agricultural camps or field houses
    3. Reservoirs or irrigation systems
  B. Social or ceremonial loci
    1. Towers
    2. Forts
    3. Isolated kivas or great kivas
  C. Communications loci

III. Habitations. Habitations are locations in which a wide range of activities were performed; they were occupied continuously or for a major part of the year.
  A. Small hamlets
  B. Large hamlets
  C. Villages
  D. Specialized habitations

Source: Adapted from Kane (1983: table 5) and Eddy et al. (1983: table 2).

the activity area and household owe much to the analogous terms introduced by Flannery and his coworkers for Formative sites in Oaxaca (Flannery 1976). The terms "dwelling unit" and "house" are used to describe the architectural portion of the household space. In some sites, particularly those assigned to the later portions of the DAP temporal sequence, households appear to form cooperating groups that are referred to as interhousehold clusters.

The largest-scale division is the community cluster (units larger than the interhousehold cluster, but smaller than the community cluster, are recognized in McPhee Phase villages, but they are not used in the reports in this volume). Community clusters were formed on the basis of propinquity, and usually are composed of more than one site. Early in the Anasazi sequence in the project area, community clusters were "neighborhoods" composed of household or interhousehold clusters with no clear central focus, as in the case of the small, early sites in the Sagehen Flats Locality mentioned previously. Later community clusters were composed of a single aggregated village or had a strong focus at a central site, but also had some dispersed household or interhousehold clusters.

Formal (Chronological) Series

A hierarchical series is also used to describe the chronological placement of archaeological materials and structures. The smallest units in this series are the element and the episode. Episodes are used to describe apparently brief, transitory uses of a place, such as might be expected at a residential site for foragers or a nonresidential site for logistically organized groups, to use Binford's (1980) terminology.

The element also represents a relatively brief time interval, on the order of a generation (thought to be approximately equivalent to the uselife of structures in the project area), but it is reserved for more permanent occupations, such as that expected at a habitation or residential base.

Elements and episodes are in turn assigned to subphases. Subphases, as well as the phases that they partition, are defined primarily on architectural and inferred organizational criteria. Although these criteria may have strong temporal correlates, the date of construction or use, by itself, does not determine the phase or subphase to which an element or episode is assigned.

Phases, in turn, are grouped into either the Archaic Tradition or the Anasazi Tradition, for the prehistoric portions of the DAP sequence. In table 1.3, this hierarchy of terms is assigned to the elements and episodes discussed in the following chapters. The brief summary of the phases and subphases that follows will emphasize aspects of sites reported in this volume.

The Archaic Tradition (Approximately 5000 B.C.-A.D. 500)

Only a few sites in the project area contain deposits that can be more or less securely assigned to the Archaic Tradition. In this volume, the only site that probably represents this tradition is Site 5MT2173, the surface collections from which are discussed in chapter 3. The difficulties in distinguishing Archaic sites from aceramic Anasazi or post-Anasazi sites are great, and some deposits could have been misidentified. Archaic sites (and aceramic sites in general) are considered in detail in Gross and Kane (1985).

The Anasazi Tradition (Approximately A.D. 1-1200)

The vast majority of the known prehistoric deposits in the Dolores Project area date to the Anasazi Tradition. The DAP has recognized 4 local phases within this tradition.

Cougar Springs Phase (A.D. 1-600). – This phase was defined after the 1982 field season to accommodate the Cougar Springs Cave Site (Site 5MT4797) currently the only site assigned to this phase, which is roughly the local equivalent of the Basketmaker II period. Use of corn during this period, suggesting that some food storage was practiced, probably indicates that settlement systems during the Cougar Springs Phase tended to be logistically organized. If this was the case, residential bases have not been identified within the project area during this phase, since the Cougar Springs Cave site appears to reflect a brief occupation. Coprolite analysis from Turkey Pen Ruin in Grand Gulch, southeast Utah, shows that corn was already the dominant macrofossil preserved in Basketmaker II feces (Aasen 1984:62).

Sagehen Phase (A.D. 600-850). – Intensive, year-round use of the project area seems to have begun shortly after A.D. 600. The Sagehen Phase is a period of relatively rapid population growth that appears to have resulted from both immigration and internal population growth. Typical sites were occupied by only 1 or 2 households, and Kane (1983:44) suggests that these households constitute more or less economically independent units.

The earliest portion of this period, until about A.D. 700, is defined as the Tres Bobos Subphase. The best-known representative of this subphase among the sites reported in this volume is Poco Tiempo Hamlet (Site 5MT2378), which was built during the final years of this period (chapter 9). Site 5MT2170, briefly reported in chapter 3, probably was occupied during this time also.

The pitstructure at Poco Tiempo is typical of Tres Bobos Subphase pitstructures. It has 2 chambers, chamber construction is D-shaped, habitation features are present, and a storage bin is located south of one of the wingwalls. Likewise, the detached, shallow surface rooms north of the pitstructure (Rooms 1 and 2) are typical of Tres Bobos

Table 1.3 – Spatial-temporal assignments for sites reported in this volume

Site No.	Element/ episode No.	No. of IHH	No. of HH	Tradition/phase/ subphase	Estimated use dates (A.D.)	Site type/subtype	Community cluster	No. of FS's	Percent of FS's troweled or screened
5MT2151	Element 1	0	1	Anasazi/Sagehen/Sagehill	720-760	Habitation/small hamlet	Hoppe Point	48	97.9
	Element 2	1	2	Anasazi/Sagehen/Dos Casas	800-840	Habitation/small hamlet	LeMoc	165	83.6
	Element 3	1	3	Anasazi/McPhee/Periman	840-880	Habitation/small hamlet	Grass Mesa	81	90.1
	Element 4	U	U	Anasazi/McPhee/Grass Mesa	880-900	Seasonal locus/field house	Grass Mesa	41	78.0
	Episode 1	U	U	Anasazi/McPhee/Grass Mesa	880-900	Limited activity/unknown	Grass Mesa	35	8.6
	Episode 2	U	U	Anasazi/McPhee/Grass Mesa	940-980	Limited activity/unknown	Grass Mesa	67	82.1
	Episode 3	U	U	Anasazi/Sundial/Marshview	980-1025	Limited activity/unknown	Marshview	109	65.2
5MT2160	Element 1	U	U	Anasazi/McPhee/Unknown	720-840	Seasonal locus/field house	Grass Mesa	14	0.0
5MT2161	Element 1	1	2	Anasazi/Sagehen/Dos Casas	780-800	Habitation/small hamlet	LeMoc	6	100.0
	Element 2	1	2	Anasazi/Sagehen/Dos Casas	800-840	Habitation/small hamlet	LeMoc	8	100.0
	Element 3	2	6	Anasazi/McPhee/Periman	840-880	Habitation/large hamlet	Grass Mesa	106	100.0
	Element 4	2	6	Anasazi/McPhee/Periman	880-900	Habitatoin/large hamlet	Grass Mesa	323	56.3
5MT2165	Element 1	n.a.	1	Anasazi/Sagehen/Dos Casas	800-840	Habitation/small hamlet	LeMoc	2	0.0
5MT2166	Element 1	n.a.	1	Anasazi/Sagehen/Sagehill	660-700	Habitation/small hamlet	LeMoc	27	0.0
5MT2169	Element 1	U	1	Anasazi/McPhee/Periman	720-800	Habitation/small hamlet	Grass Mesa	53	0.0
5MT2170	Element 1	n.a.	1	Anasazi/Sagehen/Tres Bobos	720-800	Habitation/small hamlet	Hoppe Point	22	0.0
5MT2173	Episode 1	n.a.	U	Archaic/Great Cut/n.a.	pre-600	Limited activity/unknown	North Marsh	2	0.0
5MT2174	Element 1	U	U	Anasazi/Sagehen/Dos Casas	820-840	Seasonal locus/field house	Grass Mesa	7	42.9

Table 1.3 – Spatial-temporal assignments for sites reported in this volume – Continued

Site No.	Element/ episode No.	No. of IHH	No. of HH	Tradition/phase/ subphase	Estimated use dates (A.D.)	Site type/subtype	Community cluster	No. of FS's	Percent of FS's troweled or screened
5MT2175	Episode 1	n.a.	U	Anasazi/Sagehen/Unknown	600-1250	Limited activity/unknown	LeMoc	2	0.0
5MT2181	Element 1	1	3	Anasazi/Sagehen/Dos Casas	780-800	Habitation/small hamlet	Lucero	45	33.3
	Element 2	U	U	Anasazi/McPhee/Periman	840-920	Seasonal locus/field house	Rio Vista	53	15.1
	Episode 1	U	U	Anasazi/McPhee/Unknown	840-980	Limited activity/mortuary	Rio Vista	1	100.0
5MT2211	Element 1	n.a.	1	Anasazi/Sagehen/Dos Casas	800-840	Habitation/small hamlet	LeMoc	3	0.0
5MT2212	Episode 1	n.a.	U	Anasazi/Sagehen/Unknown	600-800	Limited activity/unknown	LeMoc	1	0.0
	Episode 2	U	U	Anasazi/Sundial/Unknown	920-1250	Limited activity/unknown	Marshview	1	0.0
5MT2213	Unknown	n.a.	U	Anasazi/Sagehen/Sagehill	720-800	Limited activity/unknown	LeMoc	12	0.0
5MT2216	Element 1	n.a.	1	Anasazi/Sagehen/Unknown	600-920	Habitation/small hamlet	LeMoc	4	0.0
	Element 2	U	U	Anasazi/Sundial/Unknown	920-1250	Seasonal/field house	Marshview	0	0.0
5MT2336	Element 1	1	2	Anasazi/Sagehen/Dos Casas	780-840	Habitation/small hamlet	Big Bend	77	100.0
	Element 2	1	2	Anasazi/McPhee/Periman	820-880	Habitation/small hamlet	May Canyon	26	73.1
	Element 3	1	5	Anasazi/McPhee/Periman	840-860	Habitation/small hamlet	May Canyon	134	91.0
	Element 4	2	4	Anasazi/McPhee/Cline	920-980	Habitation/large hamlet	May Canyon	22	86.4
	Episode 1	U	U	Anasazi/Sundial/Marshview	940-1025	Limited activity/mortuary	Marshview	5	80.0
	Episode 2	U	U	Anasazi/Sundial/Marshview	940-1025	Limited activity/mortuary	Marshview	9	88.9
	Episode 3	U	U	Anasazi/Sundial/Marshview	940-1025	Limited activity/mortuary	Marshview	1	100.0
5MT2378	Element 1	n.a.	1	Anasazi/Sagehen/Tres Bobos	660-700	Habitation/small hamlet	Unknown	92	93.5
	Element 2	n.a.	2	Anasazi/Sagehen/Tres Bobos	700-760	Habitation/small hamlet	Unknown	168	92.3
	Episode 1	U	U	Anasazi/Unknown/Unknown	720-1250	Limited activity/unknown	Unknown	1	0.0
	Episode 2	U	U	Anasazi/Unknown/Unknown	720-1250	Limited activity/unknown	Unknown	1	0.0

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Table 1.3 - Spatial-temporal assignments for sites reported in this volume - Continued

Site No.	Element/ episode No.	No. of IHH	No. of HH	Tradition/phase/ subphase	Estimated use dates (A.D.)	Site type/subtype	Community cluster	No. of FS's	Percent of FS's troweled or screened
5MT2381	Element 1	n.a.	1	Anasazi/Sagehen/Sagehill	720-800	Habitation/small hamlet	LeMoc	3	0.0
5MT4613	Element 1	n.a.	1	Anasazi/Sagehen/Sagehill	700-720	Habitation/small hamlet	Big Bend	201	13.9
	Episode 1	U	U	Anasazi/McPhee/Periman	920-1250	Limited activity/unknown	High View	1	0.0
5MT4650	Element 1	n.a.	1	Anasazi/Sagehen/Sagehill	840-860	Habitation/small hamlet	Hoppe Point	4	100.0
	Element 2	2	6	Anasazi/McPhee/Periman	860-880	Habitation/large hamlet	Grass Mesa	156	63.5
	Episode 1	U	U	Anasazi/McPhee/Periman	880-980	Limited activity/unknown	Grass Mesa	1	100.0
5MT4651	Element 1	n.a.	1	Anasazi/Sagehen/Sagehill	720-840	Habitation/small hamlet	Hoppe Point	14	0.0
	Element 2	U	U	Anasazi/Sundial/Unknown	1025-1250	Seasonal locus/field house	Marshview	3	0.0
5MT4789	Episode 1	U	U	Anasazi/Sundial/Unknown	920-1250	Limited activity/storage	Marshview	56	48.2
5MT4797	Element 1	n.a.	U	Anasazi/Cougar Springs/n.a.	pre-600	Limited activity/unknown	Dry Creek	108	62.0
5MT5361	Episode 1	U	U	Anasazi/Unknown/Unknown	600-1250	Limited activity/unknown	Unknown	2	0.0

FS - Field provenience designation (the basic unit of collection).
HH - Household.
IHH - Interhousehold.
U - Unknown.
n.a. - Not applicable.

Subphase surface structures in their position and in their apparent lack of building stone for construction. Atypical attributes at Poco Tiempo Hamlet include the presence of hearths in some of the surface rooms, and the probable occupancy of the pitstructure and antechamber by two separate households sometime during its use.

Sites with more than 1 household and more substantial surface rooms increasingly used for living space are more typical of later subphases in the Anasazi sequence, and fittingly, use of this site continues into the A.D. 700's. In a study of locations of all sites in the project area, Orcutt (1985: 33-34) notes that the habitations from the A.D. 600-720 period are frequently located in such a way that their 1-km catchments incorporate more big sagebrush, good or adequate soil, and low to moderate risk of crop damage from cold air drainage, than do 1-km catchments around a su'te of randomly located points. These indications and the absence of identified seasonal sites assigned to this subphase suggest that there was a high level of residential sedentism and that the initial selection of habitation locations was strongly influenced by potential field locations.

The period from A.D. 700 to 780, known as the Sagehill Subphase, is better represented in this volume (table 1.3) and in the project area in general. Estimated population growth rates tabulated by Schlanger (1984:106) can be used to calculate an average population growth rate of roughly 0.025 for the project area between A.D. 660 and 760, compared to a theoretical maximum of between 0.015 and 0.024 if no growth were due to immigration (these figures are based on a number of assumptions that cannot be fully reproduced here; the reader is referred to Schlanger's report for more detail). Perhaps in part as a result of these increased populations, habitations dating between A.D. 720 and 800 are located in such a way that they incorporate more land of marginal soil quality, subject to moderate cold air drainage risk within 1-km catchments, than do habitations of the preceding period (Orcutt 1985:27). Otherwise, locational preferences documented by Orcutt differ little from the preceding period.

The earliest occupations at Pozo Hamlet (chapter 8) and LeMoc Shelter (chapter 4) are assignable to the Sagehill Subphase. The pitstructure at Pozo Hamlet illustrates some of the structural features typical of this subphase: deep, subrectangular, and single-chambered construction with a ventilator shaft. Its three-quarter bench and upright slab and adobe wingwall, however, are more reminiscent of earlier (Tres Bobos Subphase) pitstructures. Any surface rooms north of this pitstructure were destroyed by the late-19th-century construction of a canal; preserved rooms south and west of the pitstructure were circular or oval, noncontiguous, nonmasonry structures with no visible postholes. These are typical characteristics of Tres Bobos or Sagehill Subphase rooms, which were used primarily for storage.

During the Dos Casas Subphase, from approximately A.D. 760 to 850, habitation sites typically are composed of several presumably interdependent households, called an interhousehold cluster. The major villages, such as that on Grass Mesa, that would reach their peak size in the McPhee Phase begin to grow significantly larger than their contemporaries during this subphase. This aggregation takes place in the context of a population growth rate that is actually slowing down; Schlanger (1984: 106) estimates the growth rate between A.D. 760 and 820 at roughly 0.008, a rate that could be achieved without immigration. A great kiva, in use at Grass Mesa Village during the very late A.D. 700's or the very early A.D. 800's, may be evidence for increasing social integration during this period and is symptomatic of an increasing spatial aggregation of population. That seasonal sites appear in the local archaeological record for the first time during this subphase may be partly a consequence of increased travel times to fields resulting from the population aggregation at larger, widely spaced sites. Dos Cuartos House, Site 5MT2174 (chapter 3), is an example of a seasonal site probably assignable to the Dos Casas Subphase.

The residential occupation at Hamlet de la Olla (chapter 6) has also been assigned to this subphase. The small roomblock in Area 2 of this site, with its large, lightly constructed front rooms and small back rooms that appear to be somewhat more substantial, are good examples of the local Pueblo I style. The 1-km catchments around habitation sites in use between A.D. 800 and 840 differ from those in use between A.D. 720 and 800 in that they have more lands of marginal soil quality, with low or low to moderate cold air drainage risk (Orcutt 1985: 27-28).

McPhee Phase (A.D. 850-975). – During this phase the local population reaches a peak, then rapidly declines. In general, most Anasazi in the Dolores Valley during this time are living in large villages, such as Grass Mesa Village and McPhee Village, and are probably traveling some distance to their fields. Three subphases, which partially overlap in time, are recognized within the McPhee Phase.

The period of peak population in the project area is the Periman Subphase, dating from about A.D. 850 to 900. Schlanger (1984: 106) estimates the growth rate between the years A.D. 820 and 860 at about 0.038, a rate much in excess of that achievable through internal growth alone. Orcutt (1985: 36) finds a continued preference, from A.D. 840 to 880, for habitation placement within 1-km catchments that, in contrast to those around random points, maximize the best agricultural situations and minimize the amounts of marginal-quality arable land.

The later occupations at Prince Hamlet, Site 5MT2161 (chapter 5), and the middle occupations at Kin Tl'iish, Site 5MT2336 (chapter 7), provide good examples of smaller sites still in residential use during this period, while Element 2 at Hamlet de la Olla, Site 5MT2181 (chapter 6), exemplifies the seasonal sites then in use. Kane (1983: 47-48) considers the cooperating group of 2 to 4 households (the interhousehold) to be the basic economic unit at this time. There appear to have been 2 different models for pitstructures during this period: some (e.g., Pitstructure 2 at Kin Tl'iish) were quite small, with purely residential features, whereas others (possibly Pitstructure 1 at LeMoc Shelter) were larger, and incorporated certain ceremonical or ritual features (Hewitt et al. 1983).

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Characterizing the post-A.D. 880 occupation of the downstream and upstream portions of the project area with a single phase scheme becomes impossible. For the project area as a whole, Schlanger (1984: 106) estimates a population growth rate at about −0.018 between A.D. 860 and 900, further decelerating to about −0.055 between A.D. 900 and 940, by which time population levels are lower than at any time since A.D. 720. Whatever events precipitated this decline seem to have had an earlier effect on the downstream portions of the project area, in the Grass Mesa and Periman Localities, where the unusual Grass Mesa Subphase, dating between about A.D. 880 and 925, has been defined. None of the sites reported in this volume appear to be assignable to the Grass Mesa Subphase, characteristics of which include, among the distinctive features, small, relatively impermanent pitstructures and few or no surface rooms. Kohler and Blinman (1985) suggest that these are the results of an increasingly seasonal occupation, with summer residential movement to fields that are located at increasing distances from the winter residential sites.

In the downstream portion of the project area, the period from A.D. 900 to 975 follows a more typical Pueblo II pattern. This period, called the Cline Subphase has as its only possible representative in this volume 2 small circular pitstructures (Pitstructures 4 and 5) at Kin Tl'iish. Unlike most similar structures from farther north in the McPhee Community Cluster, these 2 pitstructures do not appear to have served as kivas; they contain evidence for domestic activities, and evidence for ceremonial activities is not clear-cut. Similar to the kivas from this same time, however, the pitstructures at Kin Tl'iish lacked wingwalls and one may have had a bench.

Sundial Phase (Approximately A.D. 1050-1200). – The final episodes of use at LeMoc Shelter (Site 5MT2151), Kin Tl'iish (Site 5MT2336), Site 5MT2212, Calmate Shelter (Site 5MT4651), and Quasimodo Cave (Site 5MT4789), are the representatives in this volume of the final Anasazi occupation of the project area. Except for within the extreme southwest portion of the project area, there does not appear to have been any residential occupation in the Dolores valley after about A.D. 975. The limited activities at these Sundial Phase sites may have been taking place during seasonal use of the project area by large populations residing in aggregated villages to the south and west (Kane 1983: 50-51). Even this seasonal use was finally discontinued by the end of this phase.

BACKGROUND TO THE REPORTS

Occasional discrepancies occur between the information reported in table 1.3 and that presented in the individual chapters when chronological assignments of various elements are discussed. This is a result of continuing refinement in the ability to correctly identify increasingly small chronological subdivisions. Similarly, relatively minor changes in interpretations about the nature of the social units of these sites have also been made. It should be remembered that site excavations and report writing took place over a span of 7 years. If 7 years of excavation and analysis had not lead to changing interpretations of the archaeological record, then this project probably should not have been as large as it was. In every case of discrepancy, table 1.3 gives the most recent interpretation, reflecting the state of the DAP data base as of early February 1985.

Some reports contain task specialist appendixes and others do not. Originally, these appendixes were to accompany each site report. Later, however, it was decided that most of the information would be synthesized and presented in chapter form. These analytical chapters appear in selected DAP volumes. Kane et al. (1984: 59-64) provide more background on report production and changing analysis systems over the lifetime of the DAP.

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Notes:

* This report will be published in a volume in this series entitled *Dolores Archaeological Program: Aceramic and Late Occupations at Dolores*, in preparation, Bureau of Reclamation, Engineering and Research Center, Denver.

† This report will be published in a volume in this series entitled *Dolores Archaeological Program: Anasazi Communities at Dolores: Early Anasazi Sites in the Sagehen Flats Area*, in preparation, Bureau of Reclamation, Engineering and Research Center, Denver.

§ This report will be published in a volume in this series entitled *Dolores Archaeological Program: Research Designs and Initial Survey Results*, in preparation, Bureau of Reclamation, Engineering and Research Center, Denver.

** This report has been published in a volume in this series entitled *Dolores Archaeological Program: Studies in Environmental Archaeology*, Bureau of Reclamation, Engineering and Research Center, Denver, August 1985.

Chapter 2

GRASS MESA ARCHAEOLOGICAL LOCALITY OVERVIEW, 1979

ABSTRACT

The history of survey and excavation in the Grass Mesa Locality of the Dolores Archaeological Program through the completion of the 1979 field season is briefly examined. Available project documents and regional publications are reviewed to provide an overview of the present climate and environment of the locality, which is the furthest downstream (northwest) of the localities intensively studied by the program. Several sources of paleoenvironmental information are compared in an attempt to build a picture of climate and environment in the locality during the period of maximum prehistoric occupation from A.D. 600 to 900. The results of a surface collection and sampling program on four sites in the locality are presented, and potential biases in grab sample techniques and the collection of surface materials are discussed. Finally, the methods and results of previous studies of environmental correlates of site location in the northern Southwest are reviewed and compared. Analysis of the prehistoric settlement pattern in Grass Mesa Locality indicates that sites of all types and ages, taken as a group, are nonrandomly located with respect to many environmental features. Onsite variables appear to be important in determining the suitability of a particular location for any activity, but the type and duration of activities carried out at that location depend more on the characteristics of the area surrounding the site itself.

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Of the many people associated with the University of Colorado and Washington State University sections of the Dolores Archaeological Program whom I **should** thank for help with one aspect or another of this report, the following highly selected list will have to suffice. Figure 2.4 was originally drafted by Eric Blinman. Much data entry and debugging associated with the settlement pattern analysis was performed by Donald Howes. Problems raised during writing were often referred to Eric Blinman, Cory Breternitz, Karen Dohm, Alice Emerson, Sarah Schlanger, and especially William Lipe. Their assistance and the comments of the Dolores Archaeological Program Senior Staff reviewer, Christine Robinson, are gratefully acknowledged.

Chapter 2

GRASS MESA ARCHAEOLOGICAL LOCALITY OVERVIEW, 1979

Timothy A. Kohler

Grass Mesa Locality, encompassing an area of approximately 12.8 km², is the most northwestern of the Escalante Sector localities in which the DAP (Dolores Archaeological Program) has undertaken excavations (fig. 2.1). The Dolores canyon is narrower and steeper-walled in Grass Mesa Locality than elsewhere in the sector. The markedly linear distributions of landforms, soil types, and potential natural vegetation in this locality are reflected in the aboriginal settlement pattern.

Although J. Walter Fewkes conducted a brief archaeological reconnaissance of the Dolores River valley in 1918 (Fewkes 1919), and even commented on the site that gives the locality its name (Grass Mesa Village, Site 5MT23), no intensive archaeological surveys in the locality were undertaken until the 1970's when necessitated by the planned construction of the McPhee Reservoir. These surveys, by Breternitz and Martin (1973), Kane (1975), and Toll (1974, 1977), were complemented by U.S. Forest Service surveys of adjacent upland areas (Zier and Robinson 1975; Zier 1977). The surveys varied in intensity, collection techniques, and goals.

The areas within the Grass Mesa Locality first investigated during these surveys have been resurveyed by the DAP, and another 16 sites have been added to the inventory, bringing to 38 the number of sites currently known for the locality (excluding hand- and toe-holds). The survey methods were those of an intensive class III survey.

By the end of the 1979 field season, the full pool area in the locality had been completely investigated, and survey had been conducted in some of the north central portion of the locality on the canyon rim. The full pool survey in Grass Mesa Locality includes portions of the Dolores River valley below about 2110 m (6924 ft) plus the lower elevations of Beaver Creek and Dry Canyon, which drain into the Dolores River from the east and northeast in the center of the locality.

The full pool and upland surveys provided intensive coverage of only 41 percent of the locality. However, complete survey of the locality will probably not raise the site total dramatically, because the areas that remain to be surveyed are mostly steep canyon slopes that are not likely to have a high site density.

Several sites were excavated during the 1978 and 1979 field seasons. In 1978, excavations were begun at LeMoc Shelter (5MT2151) on the north wall of the Dolores River canyon (Hogan 1979). This rockshelter was given a high priority for excavation because of its potential for preceramic occupation, because preservation was expected to be better than in the open sites in the locality, and because the dam was to be built less than 500 m downstream from the site.

Although no preceramic component was found, two occupations at the site were recognized. During the earlier occupation, dating to the Sagehen Phase, the site seems to have functioned as a habitation (refer to Kane 1980 for a discussion of the DAP phase system). Tree-ring dates place this occupation from about A.D. 750 to 825. In a later, undated occupation during the Sundial Phase, the site apparently functioned as an occasional camp. Excavations at LeMoc Shelter were completed during the 1979 field season (Hogan 1980a; Chapter 4, this volume).

The major excavations in Grass Mesa Locality during the 1979 field season were at Grass Mesa Village. Located in the central portion of the locality on a narrow point at the confluence of Beaver Creek and the Dolores River, this site is the largest in the locality and one of the largest in the Escalante Sector. Tree-ring dates for the site suggest an occupation dating from about A.D. 800 to 900, or the terminal Sagehen through the middle McPhee Phases. The results of the 1979 and 1980 investigations at this site will be discussed in another report.

Two other sites in the locality, both near LeMoc Shelter, underwent less extensive excavations during the 1979 season. The more intensively excavated of the 2, Prince Hamlet (5MT2161), cannot yet be dated using any but architectural and ceramic criteria, which suggest an occupation during the early or middle portions of the McPhee Phase. Prince Hamlet is a habitation site located on the first terrace on the northeast side of the Dolores

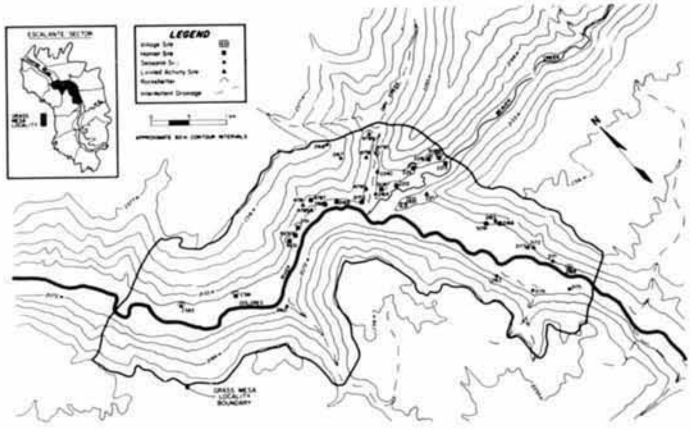

Figure 2.1–Sites in Grass Mesa Locality

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River. The preliminary excavations at this site are reported in Sebastian and Hogan (1980). The second site, Calmate Shelter (5MT4651), is a small rockshelter about 200 m downstream from LeMoc, almost within the dam axis. The site appears to have functioned as a small habitation during the Sagehen Phase and as a camp or some other type of limited activity site after A.D. 900 (Harper 1979).

In addition to these excavated sites, several sites (5MT2169, 5MT4650, and 5MT2160) were investigated by establishing a horizontal grid and collecting all visible portable artifacts on the surface of each grid unit. A plane table contour map was made of 5MT4650, which apparently is a habitation site similar in size to 5MT2161 and is located downslope and slightly south of Site 5MT4651. These sites and 5MT4651 are discussed in the section of this chapter entitled "Intensive Surface Collection and Testing at Grass Mesa Locality Sites in 1979."

THE NATURAL ENVIRONMENT IN GRASS MESA LOCALITY

The dominant physiographic feature of Grass Mesa Locality is the Dolores River valley (fig. 2.2), which ranges in width from only 130 m at a point near the downstream end of the locality to about 450 m near its upstream end. The present river is a permanent stream with a flow varying between a daily minimum of 8 ft³/s (0.2 m³/s) and a daily maximum of 10 000 ft³/s (283.2 m³/s), according to a 51-year record compiled at Dolores, Colorado (Colorado Water Conservation Board and United States Department of Agriculture 1972:III-38). This record indicates an average discharge of 440 ft³/s (12.5 m³/s) at the town of Dolores, located about 15 river km upstream from the center of the locality. The average annual precipitation at Dolores during the 17-year period from 1943 to 1960 was 460 mm (18 in), and the average annual precipitation throughout the Escalante Sector ranged from 405 to 510 mm (16 to 20 in) during the same period (Colorado Water Conservation Board and United States Department of Agriculture 1972:III-2; map interpolated from data points at Dolores, Mancos, Cortez, Yellow Jacket, Rico, and Dove Creek, Colorado). Climatic data summarized by Kane (1979:10) indicate an average of 124 consecutive frost-free days (s=17.9) from 1964 to 1975 at a station at Yellow Jacket, which is at about the same elevation as the valley floor in the locality, but which would be exposed to less cold air drainage than would the valley floor.

Figure 2.2-The Dolores River valley in Grass Mesa Locality, looking southeast. Grass Mesa Village is in the approximate center of the photograph (DAP 10119).

Geology[1]

The alluvial deposits in the valley floor (fig. 2.3) are composed of rounded to subrounded, boulder- to clay-sized particles. The igneous and metamorphic pebbles and gravels that predominate in these deposits originate in the Rico, San Miguel, and San Juan mountain ranges to the east and northeast. They provide a source of mineral nutrients for the vegetation and a source of high-quality materials for the manufacture of flaked stone tools. Table 2.1 lists the geologic formations that underlie the locality by the percentages of horizontal area within the locality for which they provide the substratum.

The canyon in the locality is up to 300 m deep, has a V-shaped transverse profile, and has walls sloping at approximately 20 degrees (fig. 2.4). The formation that outcrops along the lower portion of the canyon walls is Junction Creek Sandstone, which here is a light brown to buff unit with extensive eolian cross-bedding. This formation has been more resistant to erosion than the formations above it and in some places presents a sheer vertical face to the valley floor. Elsewhere it has been partially or completely covered by colluvium from the overlying Morrison, Burro Canyon, and Dakota Formations. In several places in the locality, the seepage of water along bedding planes in the Junction Creek Sandstone resulted in the formation of alcoves that provided shelters for prehistoric occupation.

Overlying the Junction Creek Sandstone is the Morrison Formation, which consists of flood plain, fluvial, and lacustrine deposits of sandstones, shales, siltstones, limestones, quartzites, and cherts. The contact between the Junction Creek and Morrison Formations in this locality is at about 2150 m (7054 ft) above sea level, approximately 40 m above the McPhee Reservoir full pool line. The major sources of lithic materials suitable for flaked lithic tool manufacture outside the flood plain are found in this unit and in the Burro Canyon Formation; elevations between 2130 and 2310 m (6988 and 7579 ft) in the locality are thickly blanketed with lithic materials of various flaking qualities. Clay sources have also been noted within this complex at elevations of about 2190 to 2220 m (7185 to 7283 ft).

Table 2.1 – Geologic formations in Grass Mesa Locality

Formation	Area (m²)*	Percent of total area
Junction Creek	3 614 000	28.3
Morrison	3 346 000	26.2
Burro Canyon	2 005 000	15.7
Dakota	1 315 000	10.3
Alluvial deposits (Quaternary)	2 490 000	19.5
Total area	12 770 000	100.0

*The total area figures given in 2.1 through 2.4 differ due to measurement error inherent in the electronic digitizing planimeter technique used to estimate the size of the component subareas.

Near the top of the canyon walls, at an elevation of approximately 2255 to 2320 m (7398 to 7612 ft), the highly variable and discontinuous Burro Canyon Formation is sometimes visible by the break it defines in the slope of the canyon wall. Originating from flood plain, fluvial, and lacustrine deposits, the formation is composed of sandstones, shales, siltstones, limestones, and cherts. The jasper occasionally seen in the locality may originate in this formation. An orthoquartzite that is quite common at some Grass Mesa Locality sites (e.g., Site 5MT4797) is also believed to originate here.

The uppermost unit in the canyon wall profile of Grass Mesa Locality is the Dakota Sandstone, another variable series of deposits originating from flood plain, lagoonal, littoral, and paludal environments. This formation can clearly be seen outcropping along the top of the canyon throughout the locality; its tan and gray sandstones are interlayered with carbonaceous mudstones and coals. The canyon rim ranges in elevation from 2380 m (7808 ft) along the northwestern margin of the locality to 2255 m (7398 ft) at the southern, upstream end.

The Mancos Shale outcrops above the Dakota Sandstone in one small area on the Dolores Canyon rim in Grass Mesa Locality. This area is too small for planimetric measurement and is excluded from table 2.1. Gray to dark gray shales and thinly bedded limestones deposited in a marine environment characterize this formation, which may have been used as a ceramic clay resource.

Landforms

During the Tertiary and Quaternary periods, the Dolores River cut a deep canyon through sandstones and shales of varying resistance. Masswasting aided in sculpting the canyon walls, particularly in the retreat of shaly layers. The resultant canyon walls are the landform that dominates the locality (table 2.2).

First terraces are defined as the most recent terraces above the present flood plain; the greatest expanse of first terrace

[1]For a complete discussion of the geology, landforms, and soils of the project area, refer to Leonhardy and Clay (1982).

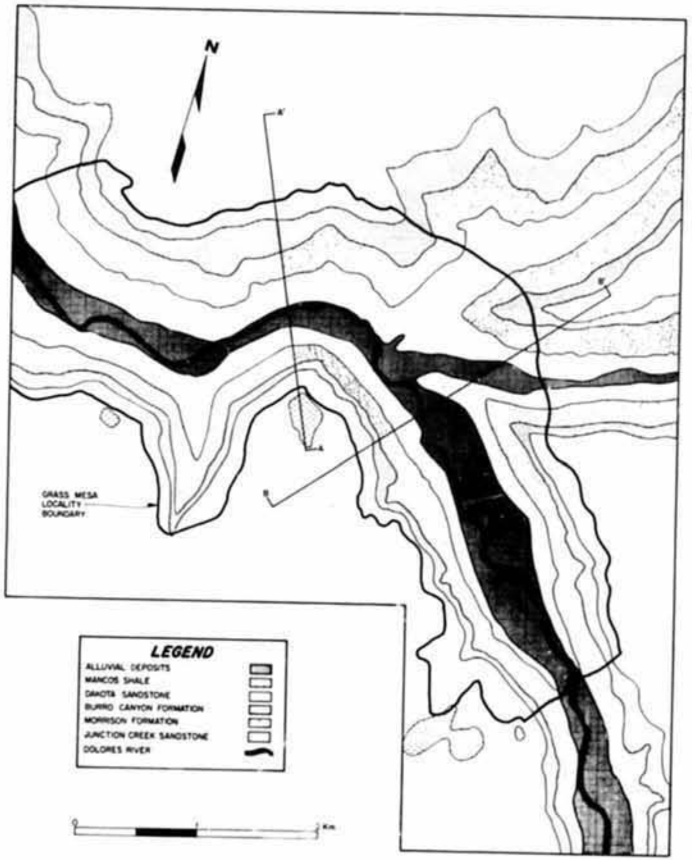

Figure 2.3–Geologic formations in Grass Mesa Locality (adapted from Leonhardy and Clay [1982]; AA' and BB' correspond to AA' and BB' in figure 2.4).

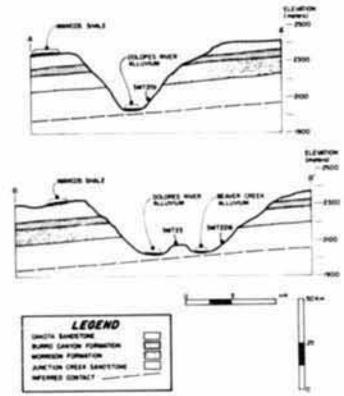

Figure 2.4–Geologic profiles of Grass Mesa Locality. AA' and BB' correspond to AA' and BB' in figure 2.3.

Table 2.2 – Landforms in Grass Mesa Locality

Landform	Area (m²)	Percent of total area
Canyon wall	9 953 000	77.9
Flood plain	2 520 000	19.7
Second terrace	115 000	0.9
First terrace	81 000	0.6
Dip slope	73 000	0.6
Alluvial fan	18 000	0.1
Hillock	10 000	0.1
Total area	12 770 000	100.0

in the locality is along the northern side of Beaver Creek, approximately 0.9 km above its confluence with the Dolores River. Second terraces are older and occur at elevations of 30 to 50 m (100 to 160 ft) above the flood plain. The major expanses of second terraces in the locality are found at the confluence of Dry Canyon and Beaver Creek (the location of Sites 5MT5087 and 5MT2164) and at the confluence of the Dolores River and Beaver Creek (the location of Grass Mesa Village).

Soils

The soils in Grass Mesa Locality are listed in table 2.3. The predominant soils in the locality are the thin, excessively drained soils that cover the steep canyon walls. These are mapped as the Batterson-Gladel-Rock outcrop complex. They are unsuitable for modern agriculture.

The flood plain soils in the locality are separated into 2 categories depending on whether or not they are within the currently active channel. Soils on the flood plain but outside the present channel appear to be poorly suited for agriculture for 2 reasons. First, they are weakly developed fluvents that are often reworked by floodwaters during the peak flow periods in the late spring and early summer. Second, these soils are located on the floor of the deep canyon, which acts as a cold air reservoir, limiting the length of the growing season (cf. Hack 1942:7). Data from the lower DAP experimental garden located on the flood plain upstream from the Grass Mesa Locality suggest that the abundance on the flood plain of rhizomatous perennials such as *Apocynum* and *Glycyrrhiza* may also severely limit farming with hand tools (Shuster 1979).

Otero fine sandy loams develop on alluvial fan and terrace deposits and on colluvium that fills the margins of the valley floor. They have a generally linear distribution with the largest areas located on first terraces on the north side of Beaver Creek and along the base of the eastern canyon wall in the middle portion of the locality south of Grass Mesa Village. These deep, well-drained soils are fairly suitable for agriculture but are quite limited in extent. Because of their localized distribution, some soils that appear to correspond to the definition for Otero fine sandy loams do not appear on the 1:24,000 DAP soils map (Leonhardy and Clay 1979). Therefore, the numbers in table 2.3 may slightly underestimate the true extent of this unit.

The Cheyenne sandy loams are deep, well-drained, mature soils that have developed in sandy alluvium overlying fluvial deposits in the Dolores River valley. Fairly extensive linear deposits of these soils occur in the valley floor in the southern portions of the locality, but not in the narrower canyon floor to the north. Because of their proximity to the water table, soils of this unit stay wet all year and might sustain agriculture even in quite dry years. On the other hand, their distribution adjacent to the flood plain suggests that problems of short growing seasons brought on by poor cold air drainage may also affect these soils.

Gladel fine sandy loam is one of the most common soils in the Escalante Sector, but it occurs only along the margins of the Grass Mesa Locality that overlook the canyon. Although generally a shallow and excessively drained soil, the unit contains many localized pockets of colluvium that are deeper, that retain considerable water, and that might be suitable for agriculture.

Table 2.3 - Soils in Grass Mesa Locality

Soil series	Soil Conservation Service classification	Area (m^2)	Percent of total area	Agricultural ranking*
Batterson-Gladel-Rock outcrop complex	Entisol	9 805 000	76.9	4
Fluvents	Entisol	1 208 000	9.5	4
Stream channel	—	854 000	6.7	4
Otero fine sandy loam	Entisol: coarse loamy, mixed (calcareous) mesic ustic Torriorthent	473 000	3.7	3
Cheyenne sandy loam	Mollisol: fine loamy over sandy or sandy-skeletal, mixed, mesic Haplustoll	301 000	2.4	2
Gladel stony fine sandy loam	Entisol: loamy, mixed (calcareous) mesic lithic ustic Torriorthent	73 000	0.6	3
Granath loam	Mollisol: fine silty, mixed aridic Argiboroll	31 000	0.2	1
Total		12 745 000	100.0	

*Rankings for agricultural purposes are ordinal, with lower numbers indicating higher agricultural potential. Rankings are derived from Leonhardy and Glaser (1979) and should be interpreted as providing only very general indications as to suitability for prehistoric agriculture.

Granath loam, the least extensive soil unit in Grass Mesa Locality, is also regarded as having the highest agricultural potential. The only occurrence of this unit in the locality is on a second terrace, under the Grass Mesa Village site. This deep, well-drained soil has a dark profile and is developed out of loess or alluvium derived from loess.

Vegetation and Fauna

A consideration of the edaphic and climatic factors mentioned briefly above, coupled with observation of modern vegetation, has led to the identification of five general "potential vegetation" zones in the Escalante Sector (Bye 1981), all of which are believed to have existed prehistorically in Grass Mesa Locality. Potential vegetation refers to the vegetation that would result if the present-day environment were permitted to reach equilibrium with present climatic conditions; it is believed to reflect past vegetation, prior to human alteration, during periods when paleoclimates resembled the present climate. In Grass Mesa Locality, the present vegetation and presumed potential vegetation are very similar. The five potential vegetation zones and the approximate area that they occupy in Grass Mesa Locality (based on the DAP potential vegetation map [Bye 1979]) are shown in table 2.4.

The pinyon-juniper zone is the most widely distributed zone in the locality. It occurs along the west- and south-facing slopes of the canyon wall and on much of the high dip slope south and west of the canyon, where interrupted by more open patches of sagebrush-dominated vegetation. The Douglas-fir zone, on the other hand, is primarily limited to the cooler and moister north- and east-facing slopes of the canyon wall. Scrub oak is an important species in both these zones today, and a variety of shrubs and herbs complete the dense vegetation typical on both sides of the Dolores Canyon.

The ponderosa pine zone is the most common on the somewhat higher dip slope to the north and east of the canyon; in some areas, it gives way to a sagebrush-dominated vegetation. Finally, a dense and diverse riparian

Table 2.4 - Potential vegetation zones in Grass Mesa Locality

Zone	Area (m^2)	Percent of total area
Pinyon-juniper	7 070 000	55.3
Douglas-fir/mountain shrub	3 197 000	25.0
Riparian	1 672 000	13.1
Ponderosa pine	643 000	5.0
Sagebrush	197 000	1.5
Total	12 779 000	100.0

vegetation is found on the flood plains of the Dolores River and Beaver Creek.

The present fauna in the Escalante Sector has been reviewed by Emslie (1981) and discussed for neighboring localities by Greenwald (1981) and Schlanger (1979). Faunal remains that have been found in archaeological sites in the sector but that are not part of the current community include pika (*Ochotona princeps*), snowshoe hare (*Lepus americanus*), marten (*Martes americana*), and rough-legged hawk (*Buteo lagopus*). Since all but the hawk are currently found at higher elevations north of Grass Mesa Locality, the presence of these elements may indicate a cooler climate during some portion of the occupation of the sector than today. This supports Petersen's (1979) reconstruction of the paleoclimate in the nearby La Plata Mountains from A.D. 800 to 1100 (see the following section), unless the presence of these species in archaeological contexts is due to hunting outside the locality at higher elevations.

THE PALEOENVIRONMENT IN GRASS MESA LOCALITY

Results of several major paleoenvironmental studies conducted in the Northern San Juan Area may be used to help reconstruct the paleoclimate in the Escalante Sector. High-altitude pollen data from the La Plata Mountains near the headwaters of the Dolores River, northeast of the Escalante Sector, have been analyzed by Petersen (1979), who focuses on the behavior of 2 ratios. The first, the ratio of counts of coniferous to nonarboreal pollen, provides information concerning summer temperatures from pollen data derived from sites near the upper tree line. This ratio is expected to decrease in response to continued cooler summer temperatures as the conifers move downslope. The second ratio, spruce to pine pollen, is believed to reflect past moisture regimes near the lower spruce forest border, since this border moves upwards in response to drier conditions. Therefore, the spruce/pine ratio from such a site should decrease under dry conditions as the lower boundary of the spruce forest moves upslope.

Taken together, these ratios suggest that precipitation from A.D. 800 to 1050 was about the same as that of the present century (i.e., the 1920's), but that the period from A.D. 800 to 1100 was somewhat cooler than at present, though not so cool as from A.D. 1200 to 1900. Precipitation conditions from A.D. 1050 to 1150 and temperatures from A.D. 1100 to 1200 were similar to those of the present. According to Petersen's reconstruction, the climate of southwestern Colorado became substantially colder and drier around A.D. 1200 and remained so until the late 19th century, when relatively warm and moist conditions returned. Historic records from the mid-19th century indicate that maize could not have been grown in areas that now support agriculture under the conditions that prevailed from about A.D. 1200 to the mid-1880's.

Closer to the Escalante Sector, at Mesa Verde, studies of Douglas-fir showed greater-than-averaga mean ring width from about A.D. 665 to 705 and from A.D. 790 to 810; very distinct peaks were observed between A.D. 850 and 865 and between A.D. 1055 and 1145 (Fritts et al. 1965). Markedly narrow series of rings developed between A.D. 580 and 635, A.D. 840 and 850, A.D. 995 and 1050, and A.D. 1150 and 1190. Most of the 70-year period from A.D. 870 to 940 produced rings of less-than-average width, despite a few series, ranging from two to six years in length, of above-average rings. The authors present evidence that tree-ring widths in Douglas-fir on Wetherill Mesa (approximately 35 km south of Grass Mesa Locality) are responding to both precipitation and temperature, with precipitation having the greater influence. (Since Douglas-fir is to some extent responsive to summer moisture as well as winter moisture, it may provide a better proxy for the moisture requirements of maize than do either pinyon or juniper, which are predominantly sensitive to winter and spring precipitation.) Specifically, narrow rings in Douglas-fir seem to be produced by "a hot, dry previous June; a dry, late summer; a dry autumn; a dry winter; a dry, cool spring; and a dry June," in approximate order of decreasing importance (Fritts et al. 1965:120).

Another category of evidence for paleoclimates is derived from pollen samples obtained from strata within or near archaeological sites. Such records are available for the Wetherill Mesa Archaeological Program (Martin and Byers 1965) and for the Navajo Reservoir District (Schoenwetter and Eddy 1964; Schoenwetter and Dittert 1968).

Steven D. Emslie, Center for Western Studies, personal communication

The Wetherill Mesa pollen project sampled nine profiles of prehistoric cultural deposits in sites dating predominantly to the Pueblo II and Pueblo III periods. The pollen diagrams reflected a rise in the relative frequencies of pine and juniper pollen in late occupational and postoccupational deposits, which the authors attributed either to secondary plant succession following clearing or to climatic change; given the context of the pollen records, the two possibilities could not be differentiated (cf. Wycoff 1977).

The paleoenvironmental work in the Navajo Reservoir District, approximately 120 km southeast of Grass Mesa Locality, sought to integrate information from pollen profiles in prehistoric cultural deposits, alluviation sequences in the Pine and San Juan Rivers, and species composition of fauna in archaeological sites. The authors concluded that from A.D. 600 to 700 the climate of the district was very similar to that of today. However, the authors inferred a significant change to a summer-dominant storm pattern accompanied by a thinning of tree cover and the beginning of flood plain entrenchment between A.D. 700 and 800. This hypothesized pattern prevailed until about A.D. 1050, after which there is a hiatus in the pollen and sediment records. These conclusions may be at variance with Petersen's (1979) statement that precipitation during the A.D. 800 to 1000 period was generally similar to that of today.

Recently Euler et al. (1979) have attempted to synthesize a wide variety of paleoenvironmental information over large portions of the southern Colorado Plateau. These authors conclude that a "first-order drought" from A.D. 850 to 900 was immediately followed by a 250-year period of relatively high precipitation.

Because the Escalante Sector is cooler and moister than most of the Anasazi culture area (refer to Euler et al. 1979:1091, fig. 2), it seems safe to assume that fluctuations in rainfall might be less likely to necessitate changes in cultural adaptation than would changes in temperature of a similar magnitude (cf. Hogan 1980b). On the other hand, if cool and wet conditions are correlated, and if the suggested climatic shifts between A.D. 800 and 1150 are regional in character, then relatively wet and cool periods may have favored population increase in drier portions of the Southwest, while dry and warm conditions would have resulted in population movement into the cooler and better-watered Mesa Verde District (Euler et al. 1979:1098). Since "the interval from A.D. 950 to 1150 is one of the best documented periods of increased effective moisture on the Colorado Plateaus" (Euler et al. 1979:1096), the depopulation of the Escalante Sector after A.D. 950 may have resulted from population movement towards the somewhat lower, drier areas to the south or southwest.

In the Escalante Sector, changes in precipitation and temperature – if these conditions are not perfectly correlated – would be expected to have different effects on settlement. Several possibilities for climatic influence on settlement are presented in table 2.5. Wet but warm climates might slightly favor settlement in the river valley over settlement on the adjacent uplands, while wet but cool conditions would favor settlement only of uplands, where there is superior cold air drainage. Dry and warm conditions would heavily favor river valley settlement, while dry and cool conditions might slightly favor settlement of the uplands bordering the valley. Table 2.5 was constructed assuming that habitations are placed as close as possible to fields in cultivation (refer to Judge 1978:99) and that the limiting factors on field location are temperature (first), and moisture (second).

Until more work is done in the Mesa Verde Anasazi area to separate the effects of precipitation from temperature in the high-resolution tree-ring records, the best source for examining large-scale regional climatic changes is Petersen (1979). The relatively cool and moist conditions he reconstructs for the A.D. 800-1100 period might be expected to slightly favor settlement of the uplands and valley rims unless the growing season was so short as to prohibit agriculture in these areas. Karlstrom's "first-order drought" of the late A.D. 800's (in Euler et al. 1979), and the relatively dry conditions shown for the late A.D. 800's by the Mesa Verde tree-ring series (Fritts et al. 1965), might have favored flood plain farming in the Dolores River valley, unless these conditions were also accompanied by cooler temperatures. These changes are reflected in Petersen's pollen indices, since the lowest spruce/pine ratio does center in the mid-A.D. 800's.

Just as important as knowing the mean values for temperature and precipitation in the sector is a knowledge of the annual variability in the behavior of these values. The hypothesis could be made that climatic regimes consistent from year to year would have resulted in a settlement pattern reflecting that regime. On the other hand, no single optimum site location for a highly variable climatic regime would result, and the response to such conditions might be variable location of habitations and fields coupled with cultural mechanisms for exchange or redistribution. The complexities of rainfall patterns, the

Table 2.5 – Four possibilities for climatic influence on local settlement

	Cool	Warm
Wet	Heavily favors upland settlement	Slightly favors river valley settlement
Dry	Slightly favors upland settlement	Heavily favors river valley settlement

subtle interactions of temperature and rainfall, and the vagaries and differing resolutions of the various proxy records available for both make it difficult to arrive at an uncontestable reconstruction for paleoclimates in Grass Mesa Locality.

INTENSIVE SURFACE COLLECTION AND TESTING AT GRASS MESA LOCALITY SITES IN 1979

Since most of the discussion in the remainder of this chapter is based on surface collection information, a brief discussion of problems that emerged during the investigation of 4 sites in the locality that were intensively surface collected or test excavated during the 1979 field season is worthwhile (those more intensively excavated are reported elsewhere).

Three of these sites (5MT4650, 5MT2169, and 5MT4651) are on the east-northeast side of the Dolores River, the location of all but four of the known sites in the locality. Site 5MT4650 and Site 5MT2160 are open sites located on a narrow first terrace between the flood plain and the canyon wall in vegetation dominated by dense scrub oak, pinyon, juniper, various shrubs, annuals, and grasses. Neither of these sites had been plowed, although the central portion of 5MT4650 was partially cleared sometime in the last few years.

Hanging Rock Hamlet (5MT4650) (fig. 2.5) was identified during the 1978 inventory survey as a probable Basketmaker III/Pueblo I habitation site based on a grab sample of about 25 percent of the site area and on a 3- by 5-m surface room marked by vertical slabs. One core, one hammerstone, four utilized flakes, and four unifaces were collected from the site (tables 2.6 and 2.7), in addition to ceramics (table 2.8).

Late in the 1979 field season, the site was completely cleared of the dense scrub oak that obscured much of its western and northern portions and was intensively recollected in 4- by 4-m grid units (tables 2.6, 2.7, and 2.8). At least 4 surface rooms (fig. 2.5) and 2 possible pitstructure depressions were identified. Figure 2.5 demonstrates that even after the site was cleared of overgrowth, artifact densities were high primarily in the previously cleared area. The presence of the structures and the diversity and abundance of artifacts corroborated the initial survey identification of the site as a habitation; based on the ceramic collection, the site was dated to A.D. 775-875. Test excavation will be undertaken at Hanging Rock Hamlet during the 1980 field season.

Comparison of the ceramics collected from Hanging Rock Hamlet using the 2 different survey techniques employed in 1978 and 1979 (table 2.8) suggests that the hypothesis that the two samples are drawn from the same population cannot be rejected (chi-square = 2.49, df = 4, contingency coefficient = 0.12). While the expected cell frequencies are too small to put much faith in the significance level of the chi-square statistic, the result gives some confidence that the grab sample technique used in the 1978 inventory survey does yield a representative sample of the ceramics on the site surface.

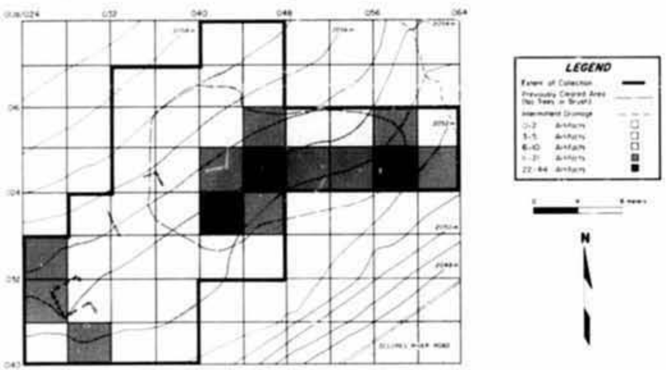

Figure 2.5–Results of intensive surface collection at Site 5MT4650.

Table 2.6 – Flaked lithic tools and debitage from selected Grass Mesa Locality sites

	5MT2160	5MT2169	5MT4650		5MT4651	
	1979 ISC	1979 ISC	1978 Survey	1979 ISC	1978 Survey	1979 Testing
Total debitage	16	20	22	100	35	40
Debitage with cortex (%)	13	45	42	20	66	25
Utilized flake	0	0	4	29	4	8
Core, not used	1	1	1	1	1	0
Used core	0	0	0	3	0	0
Thick uniface, end- or side-worked	0	0	2	1	1	2
Thick uniface, end- and side-worked	0	0	1	4	0	0
Thin uniface	0	2	1	2	0	0
Thick biface	0	0	0	3	0	0
Thin biface	0	0	0	2	0	0
Drill, expanded base	0	0	0	0	1	0
Projectile point	0	0	0	0	1	0

ISC - Intensive surface collection (artifacts collected from site surface within gridded units).

Table 2.7 – Nonflaked lithic tools from selected Grass Mesa Locality sites

	5MT2160	5MT2169	5MT4650		5MT4651	
	1979 ISC	1979 ISC	1978 Survey	1979 ISC	1978 Survey	1979 Testing
Polishing stone	0	0	0	1	0	0
Unworked hammerstone	0	0	1	1	1	0
Hammerstone	0	0	0	1	0	0
One-hand mano	0	1	0	3	0	0
Two-hand mano	0	0	0	2	0	0
Metate fragment	0	0	0	2	0	0
Trough metate fragment	2	0	0	0	0	0
Notched item, indeterminate	0	0	0	1	0	0

ISC - Intensive surface collection (artifacts collected from site surface within gridded units).

Table 2.8 – Ceramics from selected Grass Mesa Locality sites

	5MT2160	5MT2169	5MT4650		5MT4651	
	1979 ISC	1979 ISC	1978 Survey	1979 ISC	1978 Survey	1979 Testing
Early Pueblo Gray	7	27	16	164	38	11
Chapin Gray	0	0	0	4	1	1
Moccasin Gray	0	0	4	15	0	0
Corrugated Body Sherds	0	0	0	0	2	2
Dolores Corrugated	0	0	0	0	1	0
Early Pueblo White	4	2	1	9	0	3
Early Pueblo Red	0	1	0	1	0	0

ISC - Intensive surface collection (artifacts collected from site surface within gridded units).

Site 5MT2169 was recorded during the Dolores River Project survey in 1972 (Breternitz and Martin 1973) as a "sherd and lithic area" of probable Basketmaker III/Pueblo I age. Artifacts collected during the 1979 intensive surface collection are described and tallied in tables 2.6, 2.7, and 2.8. The vegetative cover and topographic situation of the site is very similar to that of Site 5MT4650 except that there was no previously cleared area when the gridding and brushing operation took place in 1979. During clearing, at least 1 surface room of vertical sandstone slabs similar in construction to those seen at 5MT4650 was revealed. The dense vegetal litter that had built up under the vegetation may have obscured some cultural material, or the artifacts may simply never have been abundant due to a short occupation or other factors. In any case, the materials were much fewer in number than at 5MT4650, although they were sufficient to place the date of site use broadly between A.D. 750 and 900. On the basis of the surface information it is not clear whether this site should be classed as a field house or a habitation. Chi-square was not computed for 5MT2169 because earlier survey collections that would have provided a basis for comparison were not available for study.

Still on the east side of the Dolores River, about 150 m downstream from 5MT4650 and 100 m above the first terrace on which 5MT4650 is located, is Calmate Shelter (5MT4651). This small rockshelter was located during the 1978 DAP survey. Two components were identified at Calmate Shelter on the basis of ceramics: the earlier dating to the Basketmaker III/Pueblo I periods, the later to the Pueblo II/Pueblo III periods. A possible retaining wall in front of the shelter, a possible pitstructure depression, and beams or logs eroding out of the floor sediments led to a tentative identification of Calmate Shelter as a habitation site. The materials collected in the course of a grab sample of 50 percent of the site made by the 1978 survey crew are recorded in tables 2.6, 2.7 and 2.8. Late in the 1979 field season, three small sondages were excavated in the shelter (Harper 1979). A probable surface structure and a pitstructure were discovered during the excavation of these test pits; several hearths in an upper stratum appeared to relate to a later, posthabitational use of the site. The tests confirmed the status of the shelter as a habitation site during an initial occupation dated on the basis of ceramics to A.D. 600-750, with later, probably short-duration reuse dating to A.D. 900-1200.

Cross-tabulation of the ceramics from the 1978 grab sample and the 1979 subsurface testing program at Calmate Shelter (table 2.8) indicates that the two samples are significantly different (chi-square = 10.1, df = 4, contingency coefficient = 0.38). While the small sample sizes prevent strict inferential interpretation of the chi-square statistic, the relative overrepresentation of Early Pueblo Gray on the surface suggests that white wares, rim sherds, and textured gray wares from the later occupation may have been differentially collected by amateurs.

Finally, intensive surface collections were made during 1979 at 5MT2160, one of four sites on the west side of the Dolores River in Grass Mesa Locality. The site was originally recorded during the DAP survey in 1972 as a "sherd, lithic, and mano area;" it could not be precisely dated. Like the other three sites in the locality on this side of the river, it is located on or directly adjacent to a substantial alluvial fan. Except for an open area near its center, the site supports a dense vegetation composed primarily of scrub oak. During the original survey only seven artifacts were collected and some piles of rock in the scrub oak that were believed to be natural in origin were noted. The intensive surface collection in 1979 yielded about 20 additional artifacts including two trough metate fragments (tables 2.6, 2.7 and 2.8), but on the basis of the ceramic collection, the site could be dated only between A.D. 600 and 900. No surface structures were noted at this time either, but due to the depositional environment at the site and the dense vegetation, this negative evidence is unconvincing. While subsurface testing of the site would have been desirable, a shortage of time and the pressing nature of other work priorities preclude such an investigation. The location of the site, the presence of manos and metates, and the possibility that surface structures do exist, however, favor a tentative identification of the site as a field house. Again, the chi-square statistic was not computed for 5MT2160 because the earlier survey collections were not available for study.

Experience on these 4 sites suggests that the grab sample technique used by survey in previous years may have resulted in a more or less representative sample of the materials present on the surface of the site. Unfortunately, it also appears that the surface materials may not always be representative of the total site content; in some cases this may be due to prior selective removal of material from the site surface. Further evidence for this effect comes from another habitation site in the locality, 5MT2161, which was surface collected and sampled in 1979 and intensively excavated in 1980 (Sebastian and Hogan 1980; chapter 5, this volume). Bifaces, cores, projectile points, and painted wares were dramatically underrepresented in the surface collections when compared with the subsurface excavations. When a survey is conducted in heavily vegetated areas, the presence of structures may not be recognized or the number of structures at a site may be seriously underestimated.

ENVIRONMENTAL CORRELATES OF SITE LOCATION

Before considering how sites in the locality were located in relation to environmental features, it is useful to briefly review the environmental factors that other researchers

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in the Northern San Juan Area have found to be important in determining site location. The minimum set of environmental correlates that the Southwestern Anthropological Research Group agreed was necessary to approach this problem (Plog and Hill 1971:25-26) included the following:

1. Landform on which site is located.
2. Landform unit in which site occurs (this may differ from the first point when the resolution of the landform map is low).
3. Plant community in which site is located.
4. Plant community unit in which site occurs.
5. Number of plant communities within 1-km radius of site.
6. Number of plant communities within 5-km radius of site.
7. Distance to nearest drainage.
8. Type of nearest drainage (e.g., stream rank).
9. Distance to other water sources within 1 km of site.
10. Type of other water sources within 1 km of site.
11. Distance to other water sources within 5 km of site.
12. Type of other water sources within 5 km of site.

Plog and Hill recommended comparison of the observed site locations in relation to these environmental parameters with the distribution suggested by a purely random locational model where the expected distribution of sites is directly proportional to the frequency of those parameters in the study universe. The plan called for examination of onsite data, distances to critical resources, and diversity (operationalized as number of resource types within 1- and 5-km radii of the site).

One application of a similar model using only distances to critical resources as correlates of site location was Dee F. Green's (1974) study of site locations in southeastern Utah. Comparing actual site locations through all periods with randomly generated locations, Green noted the largest departures of observed from expected locations (the term "variability" was used to describe this departure) on the variables "distance from water" and "distance from alluvium" in both drainages examined (these variables are probably highly intercorrelated). Somewhat different results were found when sites were divided by inferred function (habitation versus limited activity) or by time period (Basketmaker III through Pueblo II). The data seem to indicate that the locations of habitation sites are less heavily influenced by environmental variables than are the locations of limited activity sites. Green hypothesized that differences in site location between periods, which seem to vary in the two drainages examined, might be affected by the small sample size for 2 of the periods in one of the drainages, or might be the result of differences in the physical environment in the two drainages. A comparison of the coefficients of variation between the actual distances to critical environmental variables and those predicted by the random model was not carried out but would have been useful.

A second family of methods used to study site location in relation to natural environment attempts to combine the effects of the several complementary and competing correlates of site location into a smaller number of underlying synthetic variables. Such approaches recognize the fact that the distributions of many variables in the natural landscape are highly correlated (for example, slope, landform, soil type, and vegetative cover in many areas) and therefore can be summarized succinctly as a smaller set of new variables that are linear combinations of the old. In these multivariate analyses a series of environmental variables may be used to generate similarity coefficients between sites (the *Q*-mode approach) or correlation coefficients between environmental variables at and surrounding sites (the *R*-mode approach). From the resultant matrix of coefficients, a technique such as multidimensional scaling or factor analysis is used to derive constellations of sites responding to similar environmental constraints (in the *Q*-mode approach) or linear combinations of variables representing underlying environmental factors related to site location (the *R*-mode approach).

In an attempt to apply this latter approach to a sample of 18 upland sites in the Piedra District of southwestern Colorado, Adams (1974) used the following set of variables:

1. Elevation.
2. Vertical distance above the floor of the nearest drainage.
3. Horizontal distance to the floor of the nearest drainage.
4. Horizontal distance to the nearest cultivable alluvial land.
5. Horizontal distance to nearest cultivable nonalluvial land.

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6. Horizontal distance to the nearest temporary water.

7. Horizontal distance to the nearest permanent water.

8. Vertical distance to the nearest permanent water.

9. Horizontal distance to the nearest contemporary habitation site.

10. Horizontal distance to the second-nearest contemporary habitation site.

11. Horizontal distance to the third nearest contemporary habitation site.

12. Horizontal distance to the fourth-nearest contemporary habitation site.

13. Horizontal distance to the fifth-nearest contemporary habitation site.

14. Horizontal distance to the nearest village site.

Although the results of this common factor analysis are of little substantive interest here (the sample consists only of highland sites, and the process by which Adams selected only 18 such habitation sites from the population of 62 approximately contemporaneous habitation sites is unknown), three significant factors were derived from the analysis, which separated the natural and cultural correlates of site location. The most important factor was composed of the highly positively correlated variables (variables 1 through 3, 6 and 8) and the negatively correlated variable (variable 5). The second factor, on the other hand, was defined almost entirely by variables of the cultural environment – that is, distance to first- through fifth-order habitation site neighbors. The final factor, much less important than the first two, is defined by the nearly identical variables of distance to nearest cultivable alluvial land and distance to nearest permanent water. Interpretations were based on an orthogonally rotated factor matrix (Adams 1974:26).

The only attempt to carry out a *Q*-mode multivariate approach to understanding site location in the Northern San Juan Area to date is that of Matson (1974:4) in the Cedar Mesa area in southeastern Utah. Only onsite environmental information was used, and this information was restricted to presence/absence counts for 72 plant species (Matson 1974; refer also to Camilli 1975). After calculating Dice similarity coefficients between all pairs of sites on these attributes, the matrix of coefficients was transformed into orthogonal vectors using multidimensional scaling. Matson interpreted the first and most important vector as reflecting soil depth at the sites and the second as describing an altitudinal gradient in the vegetation; the third and following vectors were less readily interpretable. Plotting sites by their positions on the first two vectors differentiated Pueblo II/Pueblo III sites from earlier Basketmaker II/Basketmaker III sites to a certain degree. There is no discussion as to whether factors of differential cultural enrichment of soils at some of the sites might have influenced the present vegetation, introducing a dimension to the analysis that is not strictly one of natural environment; nor is it clear which plant species were most important in defining the vectors along which the sites were located.

It does appear that the multivariate analyses attempted in these 2 studies have some advantages over the more traditional univariate approaches, which typically entail a series of chi-square tables and *t*-tests examining the hypothesis that sites are located randomly in respect to particular environmental variables. The 3 main advantages of a multivariate approach are as follows:

1. The possibility of combining both positively and negatively correlated variables into a single new function.

2. The possibility of arriving at relative weights for those environmental variables that are influential conditioners of site location.

3. The possibility of separating the effects of environmental and cultural factors influencing site location.

GRASS MESA LOCALITY SETTLEMENT ANALYSIS

In an overview of the Grass Mesa Locality written after the 1978 field season, Hogan (1980b) made several observations concerning site location and subsistence in the locality, some of which will be examined more closely in the following section. He observed that the small hamlets dating to the most intensive phase of occupation of the locality tend to be spaced evenly along a linear path upstream and downstream from Grass Mesa Village, and that the latter seems to command a proportionately greater amount of flood plain land than do the small hamlets. This implies a two-tier hierarchy of habitation site types composed of small hamlets and villages such as Grass Mesa. (Limited activity sites that may have been used by inhabitants of the locality can be found on the canyon rim overlooking the river valley. These typically are sparse lithic scatters that are currently undated.) From these patterns, Hogan inferred that competition for arable soils on the flood plain and on the first terrace affected spacing of habitation sites in the locality.

The Sample

For the purposes of this analysis, the entire locality was assumed to have been surveyed for sites. While not true, the completion of survey of the canyon walls would likely result in the discovery of relatively few additional sites.

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To proceed with the analysis, the sites must be classified by time and function (site type). Most sites can only be given age assignments on the basis of temporally diagnostic artifacts recovered during survey or, in a few cases, during excavation. Because of the variable resolution of these materials and because of the often sparse nature of survey collections, definition was limited to 4 broad temporal periods that roughly correspond to DAP temporal systematics (Kane 1980). Definitional criteria for the 4 periods are listed in table 2.9 along with the site components assigned to them. Eighteen site components could not be attributed to a specific period and are listed as either unassigned or are assigned to the broader Anasazi Tradition. Several of the sites included artifacts indicative of more than one period, and in these cases, individual site components were assigned to time periods. In such cases it was necessary to decide which phase constituted the major occupation at the site and which the minor. (This is not to imply that such sites were necessarily inhabited discontinuously.) This decision was made simply by counting the number of diagnostic artifacts from each phase, with the primary component designated as that with the highest number of assignable artifacts. Although such a procedure entails several assumptions (for example, earlier components are not obscured by later occupations, diagnostic artifacts occur in about the same relative frequency in all phases), no other practical criteria seemed available. Future studies would profit from using absolute dates or finer temporal categories, such as element.

Three broad site types are used for the classification in table 2.9: *H* = habitation, *S* = seasonal (such as a field house or procurement and processing camp), and *LA* = limited activity (for example, quarry, storage, water control, or trail sites; or indeterminate artifact scatters).

Table 2.9 - Temporal and functional assignments for Grass Mesa Locality sites

Temporal period	Criterion artifacts	Components assigned		Site type
Four Corners Desert Tradition (ca. 5000 B.C.-A.D. 500)	Projectile point typologies, lack of ceramics	5MT4789	(S)	LA
		5MT4797		S?
Sagehen Phase (ca. A.D. 600-850)	Moccasin Gray, Piedra Black-on-white, Abajo Red-on-orange, Chapin Black-on-white, Lino Gray, Lino Black-on-white, Bluff Black-on-red, Tallahogan Red	5MT0023	(S)	H
		5MT2151	(P)	H
		5MT2161	(S)	H
		5MT2164	(P)	S
		5MT2165	(P)	S
		5MT2166		H
		5MT2169		H?
		5MT2171		LA
		5MT2211		H
		5MT2213	(P)	H?
		5MT4650	(P)	H
		5MT4651	(P)	H
		5MT4783		LA
		5MT4787		H
		5MT5087	(S)	H
		5MT5091		H?
McPhee Phase (ca. A.D. 850-975)	Mancos Gray, Cortez Black-on-white, Deadmans Black-on-red, Crozier Black-on-white, Mancos Corrugated	5MT0023	(P)	H
		5MT2161	(P)	H
		5MT2164	(S)	S
		5MT2165	(S)	S
		5MT2170		H
		5MT2188		LA
		5MT2213	(S)	H
		5MT2216		H
		5MT4650	(S)	H
		5MT4651	(S)	LA
		5MT5087	(P)	H

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Table 2.9 - Temporal and functional assignments for Grass Mesa Locality sites - Continued

Sundial Phase (ca. A.D. 1050-1200)	Dolores Corrugated, Mesa Verde Corrugated, McElmo Black-on-white, Mancos Black-on-white, Mesa Verde Black-on-white	5MT2151	(S)	S?
		5MT4789	(P)	LA
Anasazi Tradition (not further specified: ca. A.D. 600-1200)	Projectile points, manos, metates, or ceramics not assignable to a particular phase within the Anasazi Tradition	5MT2160		S
		5MT2167		S
		5MT2168		S
		5MT2174		S
		5MT2207		LA
		5MT2212		H?
		5MT2240		LA
		5MT2381		H
Unassigned	Lithic artifacts only; no projectile points or ground stone tools definitely assignable to the Four Corners Desert or Anasazi Traditions	5MT2163		S
		5MT2172		LA
		5MT2173		LA
		5MT2175		S
		5MT2283		LA
		5MT4781		LA
		5MT4785		LA
		5MT4791		LA
		5MT4795		LA
		5MT5089		H?

All site type and phase assignments are tentative; those types followed by a question mark are particularly uncertain.

Although Moccasin Gray, Piedra Black-on-white, and Bluff Black-on-red also occur during the McPhee Phase (when they will be associated with one or more of the later types listed for McPhee), sites with these artifacts have been arbitrarily assigned a Sagehen Phase component, since in the case where these types occur with McPhee Phase materials, there is no way of knowing whether or not the site occupation spans portions of the two phases.

Date ranges implied by ceramic types and assemblages of types are taken from Lucius (Dolores Archaeological Program, personal communication). Sites with corrugated body sherds but no other diagnostic artifacts were arbitrarily assigned to the post-A.D. 900 portion of the McPhee Phase but may equally well have been occupied during the Sundial Phase.

In the case of multiple-component sites, the parenthetic designation following the site number indicates whether this is the primary component at the site (P) or the secondary component (S).

Site type abbreviations H, S, and LA indicate whether the site is classified as a habitation, seasonal, or limited activity site, respectively.

No sites of the Four Corners Paleo-Indian Tradition, Shoshonean Tradition,[1] or Athabascan Tradition have been positively identified in the locality. The lack of Paleo-Indian sites is generally characteristic of the Colorado Plateau (Schroedl 1977). More surprisingly, only 2 sites with Archaic components have been identified in the Grass Mesa Locality, whereas 15 are known for the Sagehen Flats Locality. Two explanations for this are possible: some of the aceramic sites in Grass Mesa Locality may belong to this tradition but cannot be definitely assigned to it at this time; or perhaps the unique resource of the Sagehen Flats marsh was particularly attractive to the wild-food-oriented visitors who probably came only seasonally to the sector during the Archaic period.

[1]With respect to Ute presence in the area, it is sometimes stated that the Battle (or Massacre) of Beaver Canyon of 20 June 1885, took place on Trimble Point - perhaps on or near Site 5MT2164. Some longtime local residents report, however, that the confrontation was further up Beaver Creek, outside Grass Mesa Locality (Cory Breternitz, Dolores Archaeological Program, personal communication). This is also the position of Forrest (1970:8-13), who places the battle at the head of Beaver Canyon in Dolores County some 25 or 30 miles from the town of Dolores.

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In this analysis, 3 different perspectives were distinguished to study site location in relation to natural resources. The first examines the locations of the site itself, using these variables:

1. Elevation.
2. Aspect.
3. Type of landform at site.
4. Geological formation underlying site.
5. Soil type at site.
6. Vegetation association at site.

The second perspective examines the distance from the site to the following critical resources:

1. Horizontal and vertical distance to nearest permanent water (using modern evaluations from U.S. Geological Survey maps).
2. Horizontal and vertical distance to nearest water source.
3. Horizontal and vertical distances to nearest arable soils (using ranks 1 and 2 in the ordering adapted from Leonhardy and Glaser [1979]; refer to table 2.3).

In the third approach, the composition of a 1-km radius catchment around each site is recorded using the following variables:

1. Percentage surveyed.
2. Percentage of each of the 13 landforms identified in the sector.
3. Percentage of each of the six geological formations identified in the sector.
4. Percentage of each of the 23 soil types identified in the sector.
5. Percentage of each of the six vegetation associations identified in the sector.

These data permitted the computation of additional synthetic descriptive statistics such as diversity indices for the soils and vegetation in each catchment. (The Shannon-Weiner diversity index, $\overline{H}$, which measures both richness and evenness, was chosen for this analysis. Logarithms to base 10 were used in the computations. This is a nonstandard use of this index, which normally would be used to describe the diversity of species present in the study area. In this case, the index measures diversity on a higher scale - the diversity of vegetation associations and soil types in the catchments. For the formula used in this study, refer to R.L. Smith [1974:242].) During data coding, many of the environmental maps currently available (all at the scale of 1:24,000) did not have detail sufficient to correctly locate the sites in relation to small environmental zones. This was particularly crucial on the landform and soil maps where many of the sites along the narrow first terrace north of the river valley were placed either in the river valley or on the canyon wall by the landform map, and either on Fluvents or on the thin, rocky soils characteristic of the canyon wall on the soils map. These shortcomings were corrected when it was possible to do so from the site forms or from personal knowledge.

The analyses that follow are preliminary and are designed to accomplish 2 major goals. The first is the generation of hypotheses concerning site location and adaptation to guide future work in the locality. The second is the identification of weaknesses in the data base that can be corrected during future field seasons.

Contrasting Site Locations with Random Points

To determine which variables of the natural environment may have been important in determining site location, the natural correlates of site locations have been compared with those that exist for the same number of random points within the surveyed area. This comparison is done first for the metric variables, then for the nonmetric variables, lumping together all sites, regardless of phase or function. The metric variables used for this analysis were selected on the basis of a priori evidence that they might be important in affecting site location. Except for elevation, an onsite variable, these are distances to critical resources and percentages of catchments composed of selected environmental features. Since the problem is to distinguish 2 predefined groups on the basis of ratio-level variables, and since the analysis is exploratory in nature, discriminant analysis was chosen (refer to appendix 2A for details of quantitative analyses). These variables were entered in a step-wise discriminant analysis:

1. Elevation in tens of meters above sea level.
2. Distance to nearest permanent water in tens of meters using present USGS maps for evaluating permanency.
3. Distance to nearest water source in tens of meters.
4. Percentage of arbitrary 1-km radius catchment underlain by fluvial deposits.
5. Percentage of catchment underlain by the Burro Canyon Formation.
6. Percentage of catchment underlain by the Morrison Formation. (The Burro Canyon and Morrison Formations were chosen from the five identified in the locality as the most important in terms of materials suitable for flaked lithic tool manufacture.)

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7. Percentage of catchment underlain by Granath loam.

8. Percentage of catchment underlain by Cheyenne sandy loam.

9. Percentage of catchment underlain by Ackmen loam. Although this soil type does not occur in the locality, it does fall within some of the 1-km radius catchments. Granath loam, Cheyenne sandy loam, and Ackmen loam were those ranked most suitable for agriculture by Leonhardy and Glaser (1979).

10. Distance in tens of meters to the nearest of these favorable soil types.

11. Percentage of catchment with ponderosa pine as the potential natural vegetation.

12. Percentage of catchment with Douglas-fir as the potential natural vegetation.

13. Percentage of catchment with pinyon-juniper as the potential natural vegetation.

14. Percentage of catchment with the riparian association as the potential natural vegetation. (The ponderosa pine, Douglas-fir, pinyon-juniper, and riparian vegetation zones were chosen on the basis of the wood resources they contain.)

15. Shannon-Weiner diversity index for potential natural vegetation.

16. Shannon-Weiner diversity index for soils. These diversity indices were chosen on the basis of abundant evidence that environmental diversity was an important determinant of prehistoric site location throughout the Southwest (Judge 1978:95).

After building the discriminant function, the program enters a classification phase and each of the original observations (both sites and random points) is reclassified according to the values that these cases have on the variables making up the discriminant function. The percentage of cases that are classified into the groups from which they originated is the percentage of successes for the analysis. In exploratory analyses where the necessary assumptions of multivariate normality and equal group covariance matrices cannot be guaranteed, a high percentage of correct classifications suggests both that the mathematical model is reasonable and that any failure to meet the assumptions is not very harmful (Klecka 1980:62).

The first discriminant analysis undertaken here shows that it is possible to find a linear recombination of these 16 original variables that discriminates between the real sites and the random locations with 78 percent accuracy during the reclassification phase. The 7 variables selected by the stepwise approach to form the canonical discriminant function are shown in table 2.10 (refer to appendix 2A for the standardized discriminant function coefficients). Note that several of the variables important in the function are not, by themselves, good discriminators between the two groups.

Surprisingly, random point locations have both a higher soil diversity and a marginally higher percentage of Granath loam – a presumed high-value soil – in their catchments than do real sites. In fact, 7 sites that were misclassified (5MT23, 5MT2160, 5MT2164, 5MT2169, 5MT2170, 5MT2174, and 5MT2381) are in locations of high soil diversity in the Dolores River valley near the flood plain. The reason for this is that in situations where there are fewer real sites than random locations, the analysis will build a linear function that misclassifies those sites as random locations during the classification portion of the discriminant analysis. That the locations for 5MT23, 5MT2164, 5MT2169, and 5MT2170 are more unusual for real sites than they would have been for random locations within the surveyed area illustrates that the spacing of sites in this portion of the locality is less dense than would have been expected by chance. This strengthens Hogan's (1980b) hypothesis of competition for arable soils along the river valley and first terrace by emphasizing the vacuum immediately upstream from Grass Mesa Village. Other relatively unusual locations for sites in the locality are on the west bank of the Dolores, where other misclassified sites, 5MT2174 and 5MT2160, are located. The most dramatic and interpretable of the remaining information in table 2.10 is the much lower average distance of the real sites than the random locations to the nearest arable soil and permanent water. The variability in types and ages of sites in the sample probably weakens many of the other differences between the sites and the random locations.

Table 2.10 – Metric variables distinguishing sites from random points

Variable	Real sites $\bar{x}$	Real sites s	Real sites CV	Random locations $\bar{x}$	Random locations s	Random locations CV
Diversity of soils in catchment	0.40	0.02	34.9	0.45	0.01	22.9
Cheyenne sandy loam in catchment (%)	2.5	2.6	103.1	2.0	2.4	118.6
Douglas-fir in catchment (%)	17.4	12.9	74.0	19.8	16.7	84.4
Distance to permanent water	30.6	27.6	90.0	38.2	32.9	86.2
Morrison Formation in tens of meters underlying catchment (%)	22.0	3.3	15.1	19.3	3.2	16.4
Granath loam in catchment (%)	0.3	0.4	166.0	0.3	0.5	158.8
Distance to arable soil in tens of meters	73.2	68.9	94.2	120.7	119.0	98.5

NOTE: $\bar{x}$ - Mean.
s - Standard deviation.
CV - Coefficient of variation, or $(s/\bar{x})100$.

A second analysis, this one dealing with onsite nonmetric natural correlates of site location, reveals further distinctions between real sites and random locations. The variables cross-tabulated with the real site versus random point dichotomy were vegetation, soil, geological formation, landform type on site, and the directional aspect of the location. Each of these relationships proved to be significant, although in every case the tables are sparse enough that chi-square may not be a valid test of significance. For landform, the actual sites show a greater-than-expected preference for canyon walls and a clear avoidance of the flood plain in their locations. (The strength of the dependence of the difference between real sites and random points on landform types, as measured by asymmetric lambda, is 0.316.) To a certain extent this may be due to accidents of site discovery, since sites located in aggrading situations may not have been discovered. (During the 1980 field season, a gravel test by the construction contractor confirmed this by exposing secondarily deposited Anasazi materials at a depth of more than 2 m in the flood plain. Whether nonredeposited sites also underlie fluvial or colluvial materials in the locality is not yet known.) However, the flood plain is believed to have been so active since A.D. 1200 that most sites formed prior to that date would have been destroyed.

A similar pattern is revealed by the greater-than-expected avoidance of the real sites for the alluvial deposits in the flood plain, and a much greater than expected selection of location on or in Junction Creek Sandstone. More surprising is the slight observed avoidance – in comparison with the random locations – that the sites exhibit towards the Dakota Sandstone and the Morrison Formation. The assymmetric lambda for the relationship between geological formations and real vs. random sites is 0.605, with geological formation independent.

The patterns of location in relation to soil types further refine the picture. The active Fluvents of the flood plain are avoided, as well as the Cheyenne sandy loams at the base of the canyon walls slightly above the flood plain. On the other hand, more sites appear to be located on the Batterson-Gladel-Rock outcrop complex than would be expected by chance (assymetric lambda = 0.289).

Finally, the potential vegetation at the real sites is much more commonly pinyon-juniper than would be expected by chance, and there is a clear avoidance of the riparian zone for site location (assymetric lambda = 0.368).

The site aspect variable shows an avoidance of situations with no directional orientation – especially the flat flood plain – and with a western orientation, in favor of locations with a southeastern or southwestern aspect. All other directional orientations occur about as often as would be expected by chance (assymetric lambda = 0.474).

In summary, the best nonmetric discriminators between real sites and random locations, as measured by a strength of association coefficient, are underlying geological formation and aspect. When sites are defined broadly to include all types and phases, only such gross indicators provide reliable guidelines as to where sites may or may not be located in the Grass Mesa Locality.

Contrasting Habitation Sites with Limited Activity and Seasonal Sites

Considering all sites together, significant departures from the hypothesis of random location clearly occur in relation to environmental variables. The next question of interest in whether and to what extent these environmental constraints on site location act differently on habitation sites than on SLA (seasonal or limited activity) sites. Following, in part, Lipe and Matson (1971:134), it is expected that SLA sites will be closely associated with particular resource zones, but that habitation sites, where several resource-dependent and nonresource-dependent activities were carried out, will be located so as to maximize access to several resource zones. Such environmental diversity is operationalized in this analysis by the soil and vegetation diversity indices. Habitation sites are also anticipated to exhibit less leeway in aspect and distance to permanent water than SLA sites, assuming that habitation sites are occupied during both cold and dry times of the year. In this analysis, only the function of the primary component is used for sites assigned more than one site function in table 2.9. The resultant sample size is 20 SLA and 18 habitation sites.

Table 2.11 - Metric variables distinguishing habitation and SLA sites

Variable	Habitation sites $\bar{x}$	Habitation sites s	Habitation sites CV	SLA sites $\bar{x}$	SLA sites s	SLA sites CV
Diversity of soils in catchment	0.39	0.11	27.2	0.40	0.16	41.2
Distance to nearest water in tens of meters	16.4	7.2	44.2	10.1	9.7	95.7
Cheyenne sandy loam in catchment (%)	2.4	2.6	109.6	2.6	2.6	100.1
Elevation in tens of meters	207.0	2.0	1.0	209.0	5.4	2.6
Diversity of vegetation in catchment	0.50	0.03	5.8	0.42	0.07	16.0
Pinyon-juniper in catchment (%)	54.8	5.2	9.6	61.0	9.5	15.6
Distance to permanent water in tens of meters	18.8	6.8	36.1	41.3	34.4	83.4
Ponderosa pine in catchment (%)	7.7	2.8	36.6	8.9	5.8	66.0

NOTE: $\bar{x}$ - Mean.
s - Standard deviation.
CV - Coefficient of variaiton, or $(s/\bar{x})100$.

Considering the same 16 metric variables used earlier, the results of discriminant analysis indicate a linear function allowing an 87 percent accurate reclassification of sites into the two functional categories. This is a better discrimination than that achieved by the analysis of the differences between locations of all the real sites and the same number of random points, indicating that there are greater differences between the metric environmental correlates of habitation and SLA site locations than between those for all sites and random locations. The variables that are most important in this discrimination are listed in table 2.11 (refer to appendix 2A for more detail).

As expected, habitation sites exhibit a much higher diversity of potential natural vegetation zones in their catchments than do SLA sites; they are also located much closer to a permanent water source. An examination of the coefficients of variation for the variables in table 2.11 shows that habitation sites exhibit less latitude than SLA sites on all the important discriminating variables except percentage of Cheyenne sandy loam in catchment, which is highly variable for both groups. The higher mean soil type diversity in SLA catchments than in the catchments of habitations is contrary to expectation. When combined with the higher mean percentage of Cheyenne sandy loam in the catchments of SLA sites, this may indicate that a significant subset of the SLA sites was devoted to agricultural pursuits, a conclusion reached earlier on other grounds. The higher mean percentages of ponderosa pine and pinyon-juniper in the catchments of the SLA sites suggests that another, different subset of these sites may be involved in the extraction or processing of animals or plants from these potential natural vegetation zones. Of course, the high coefficients of variation for the SLA sites on all the variables suggest that more than one distinct subgroup is contained within this classification.

Considering the nonmetric variables, habitation sites and SLA sites cannot be differentiated by their placements on landform, geological formation, or soil. The SLA sites show a slight but nonsignificant tendency to be located in the ponderosa pine zone more frequently than are the habitation sites (assymetric lambda = 0.056). The only (and barely) significant difference between the 2 groups is in site aspect, where the habitation sites heavily favor south and southwest orientations, while the SLA sites will accept any orientation with some preference toward southeast and southwest (assymetric lambda = 0.389).

The poor ability of the onsite nonmetric environmental variables to distinguish between habitation and SLA sites when the metric variables for catchment values and distances to critical resources provided such excellent discrimination between the 2 groups is particularly interesting. In the earlier analysis of the differences between the locations of real sites and a series of random locations, the nonmetric onsite variables provided at least as good discrimination between the two categories as did catchment values and distances to critical resources. Taken together, these results suggest that the possibility of site location (for any activity) is determined primarily by onsite characteristics such as underlying geological formation and aspect (both of which are also correlated with an important variable not measured here - slope). Given that a location is within the permissible range on these variables, however, the type of site that would be located there can be better predicted by a knowledge of the catchment characteristics than by onsite characteristics. This suggests that future phases of the site location analysis program, which will explain changing site location through time for sites of various types, should concentrate on catchment analysis and distances to various critical resources rather than on onsite environmental variables.

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SUGGESTIONS FOR FUTURE STUDY

This capsule review of what is known about the Grass Mesa Locality in 1979 has emphasized the environmental correlates of site location at the expense of variables in the social environment, which were no doubt of importance as well. Further excavations in the locality planned for the 1980 field season will greatly augment the present small sample of only 2 sites with any intensive excavations (5MT23 and 5MT2151) and two sites with minimal testing (5MT2161 and 5MT4651). These excavations, combined with a more accurate temporal placement of sites known only from surface collections (which will be possible when the seriation now underway is complete) will make it possible to address the social dimension of site location with more authority than is now possible. Nor have questions of change through time in either site location or site content and structure been addressed here. These questions will be considered in other DAP reports where the sample of sites will be drawn from the whole sector rather than from a single locality.

To briefly review the occupational history of the locality, there are currently no known Paleo-Indian sites, which is perhaps not unusual given what is known about Paleo-Indian site placement in other areas of the Southwest. If the model for site set and placement developed by Judge (1973) for Folsom and Belen sites in the central Rio Grande Valley in New Mexico can be extended to the Escalante Sector, sites might be expected in locations that satisfy three criteria: access to water, proximity to a "hunting area," and location on or near an overview (Judge 1973:311). The area in the Escalante Sector that most closely resembles the "broad, open areas relatively unobstructed by sharp topographical relief, which could have supported a large game population" (Judge 1973:311) is probably the Sagehen Flats Locality. Although direct evidence is currently lacking, it seems possible that the present Sagehen Flats marsh was at that time an intermittent lake or marsh that may have fulfilled a function analogous to that of the playas in the Central Rio Grande Valley of New Mexico. The hillocks and resequent fault-line scarps bordering the locality could have provided the overlooks required for both base camps and permanent sites, while processing camps may have been located on first or second terraces nearer to the Dolores River.

Relatively little is known about Archaic settlement patterns in the northern Southwest, since, until recent times, the unimposing Archaic sites frequently have been disregarded or not recognized by survey crews. From the Arroyo Cuervo region of northwestern New Mexico, Irwin-Williams (1973) reports that settlement first concentrates on cliff tops at canyon heads, a location later complemented and eventually supplanted by cliff base sites near canyon heads. By contrast, the only two known sites with possible Archaic components in the Grass Mesa Locality (5MT4797, 5MT4789) are in rockshelters on either side of Dry Creek. The function of these sites and their relationship to the much larger complex of Archaic sites that appear to focus on the marsh resources in the Sagehen Flats Locality are problems to be investigated by the anticipated excavations at these two sites during the 1980 field season.

The earliest Anasazi adition occupation in the sector probably dates to the middle Sagehen Phase (perhaps to the Sagehill Subphase, dated to A.D. 600-760). While sites from this subphase are fairly common in the Sagehen Flats Locality, and have recently been reported from the Cline Crest Locality as well (Schlanger 1979), the only site of the many shown in table 2.9 as having components dating to the Sagehen Phase that can be placed with any confidence in the Sagehill Subphase is Site 5MT4651, Calmate Shelter.

Although this impression may be altered by further investigation, it now seems likely that substantial use of Grass Mesa Locality began shortly after A.D. 750. The logical inference is that the Grass Mesa Locality was colonized by people from areas to the southwest (for example, Sagehen Flats Locality) or the west (for example, the vicinity of Yellow Jacket [Wheat 1955]), since these areas are known to have supported populations during the early portion of the Sagehen Phase. The mode of this colonization is of great interest, however, and future investigations in the locality should be shaped so as to be able to distinguish between several plausible alternatives for the settlement of the locality. If the locality was settled primarily as a result of competition for arable tracts in adjacent areas, then field houses might be the first obvious evidence of Anasazi use of the locality. If, on the other hand, competition for arable lands among peoples living at some distance from the locality was the impetus for first settlement there, the early sites should be small farmsteads. Given that the first Anasazi settlers were already fully agricultural, it seems likely that the earliest sites in the locality were located adjacent to the most attractive arable land available; investigation of these sites would provide additional information concerning what were the most desirable arable soils, under the climatic conditions then prevalent.

The ratio of 12 habitations with Sagehen Phase components to 7 habitations with McPhee Phase components, which can be drawn from table 2.9, apparently is not indicative of the population history of the locality. On the contrary, the dominance of the locality by Grass Mesa Village, which during the McPhee Phase supported 100 or more pithouses, suggests that the small but dispersed population present during the Sagehen Phase was much smaller than the more aggregated population of the McPhee Phase. The processes allowing and favoring such aggregation are a major project-wide research question, since similar aggregation processes during this phase ap-

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parently occurred in at least the Sagehen (Kane 1979) and Cline Crest (Schlanger 1979) Localities, and probably the House Creek and Periman Localities as well. The movement from reciprocity to redistribution is often invoked to explain such aggregation (cf. Plog 1974), and the only obvious candidate for a structure with a probable community-wide integrative function at Grass Mesa Village is the great kiva in Area 5. Other DAP excavations at Grass Mesa Village must place a high priority on dating and characterizing this stucture.

Both the placement of the large Grass Mesa Village and the importance of Cheyenne sandy loams in the discriminant analyses suggest that this soil type, and the other fine loamy or silty Mollisols in the sector, may have been the preferred soils for agriculture. Yet, little is known about the physical characteristics, including the major nutrients and trace elements, present in this or the other soils in the sector.

The role of paleoclimatic variability in the aggregation of population and the inferred development of redistributive mechanisms is testable and deserves further consideration. The dismissal of paleoclimatic instability as a major factor in the appearance of redistributive mechanisms would clear the way for testing of alternative hypotheses focusing on the roles of the rise of intracommunity and intercommunity specialization, unequal distribution of resources, intensified competition for scarce resources, and changing concepts of territoriality and land tenure.

By A.D. 900, or shortly thereafter, the locality was no longer apparently used for habitation. Thus, the depopulation of Grass Mesa Locality slightly precedes that of Sagehen Flats Locality, which is precisely what might be expected if cold and dry conditions limited farming both at the bottom of the steep canyon and on the elevated rims on either side but permitted agriculture in areas such as Sagehen FLats where cold air drainage would be expected to be less severe. Continued usage of Grass Mesa Locality until abandonment of the sector around A.D. 1200 seems to be limited to occasional camping, probably in the course of hunting or foraging activities, and perhaps storage. By the time of the earliest land patents in the 1890's, the locality appears once again to have been warm and wet enough to permit agriculture in the bottomlands, although stockkeeping seems to have been the more common activity in historic times.

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NOTE: References marked by* or § represent DAP reports that were published after this chapter was written. Those marked with a * may be found in *Dolores Archaeological Program: Field Investigations and Analysis – 1978.* Bureau of Reclamation, Engineering and Research Center, Denver, 1983; and those marked with a § may be found in *Dolores Archaeological Program: Studies in Environmental Archaeology,* compiled by Kenneth Lee Petersen, Vickie L. Clay, Meredith H. Matthews, and Sarah H. Neusius, Bureau of Reclamation, Engineering and Research Center, Denver, 1985.

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APPENDIX 2A

DETAILS ON THE COMPUTERIZED APPLICATIONS

In most of the chi-square analyses presented here, results are reported as significant when the probability of wrongly rejecting the null hypothesis of no relationship is 0.05 or less. The only exception to this is in the final cross-tabulation reported between site type and aspect. Here, the results reported as "barely significant" had an associated alpha level of 0.16. This exception appears defensible on the basis of the relatively high value for the strength of association measure.

Throughout, strength of association measures are relied on more than significance of association measures, given the sparse nature of the cross-tabulation tables (all tables had at least 1 cell with an expected frequency of less than 5). The strength of association measure chosen was assymetric lambda with site type dependent. This measure was selected from the many available because of its straightforward interpretation and because of its independence from the chi-square value. Assymetric lambda is a proportional reduction in error measure that quantifies the degree to which an estimate of the value for the dependent variable (for instance, site type = habitation) is improved by knowledge of the value for the independent variable (for example, geological formation = Junction Creek). When knowing the value for the independent variable does not improve the guess as to the value for the dependent variable, the measure takes on a value of 0; if knowing the value of the independent variable allows perfectly accurate estimation of the value for the dependent variable, the measure takes on a value of 1.0. In a few cases, the contingency coefficient was used instead of the lambda measure. This chi-square-based measure is less easy to interpret since it may take on values less than 1.0 even in cases of perfect association. It may, therefore, be regarded as a conservative measure.

The 2 discriminant analyses reported were run on Version H of SPSS (Statistical Package for the Social Sciences) Release 8.1 (Hull and Nie 1979). Variables were selected for inclusion one at a time using as selection criterion the maximization of the Mahalanobis distance between the 2 predefined groups on that variable.

The first discriminant analysis went through 7 steps to select 7 variables to make up the single discriminant function (only one dimension of variability can be found between 2 groups). The standardized canonical discriminant function coefficients are shown in table 2A.1 for each of the selected variables, along with the step at which that variable was entered in the analysis. The absolute values of these coefficients are an indication of the relative importance of each variable in determining the discriminant scores for the cases.

Table 2A.1 – Variables in the first discriminant analysis

Variable	Coefficient	Step
Junction Creek Sandstone in catchment (%)	−0.78	1
Granath loam in catchment (%)	0.67	2
Cheyenne sandy loam in catchment (%)	−1.10	3
Soil diversity in catchment	1.51	4
Distance to nearest permanent water	0.82	5
Douglas-fir in catchment (%)	0.86	6
Distance to nearest arable soil	−0.41	7

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The group centroid for the actual site locations on this function was −0.84; for the random locations, the centroid was 0.84.

The same methods were used in the second discriminant analysis to identify those variables that best differentiated the locations of habitation sites from SLA sites. This time, 8 variables were selected in 10 steps (percent of ponderosa pine in the catchment was selected in the second step but discarded in the fifth step). The standardized canonical discriminant function coefficients for the retained variables and the step in which they were selected are shown in table 2A.2.

The group centroid on this function for the habitation sites was 1.43; for the SLA sites, −1.29.

Table 2A.2 – Variables in the second discriminant analysis

Variable	Coefficient	Step
Diversity of vegetation associations in catchment	0.93	1
Distance to nearest water	1.11	3
Elevation	−0.95	4
Pinyon-juniper in catchment (%)	0.67	6
Ponderosa pine in catchment (%)	−0.48	7
Diversity of soil types in catchment	−1.60	8
Cheyenne sandy loam in catchment (%)	1.08	9
Distance to nearest permanent water	−0.52	10

Chapter 3

THE GRASS MESA LOCALITY TESTING PROGRAM, 1979-1980

ABSTRACT

Eighteen sites were tested in the Grass Mesa Locality during the 1979 and 1980 field seasons. Test excavations, including both probability and judgmental excavation, were conducted at Hanging Rock Hamlet (Site 5MT4650), Cougar Springs Cave (Site 5MT4797), Quasimodo Cave (Site 5MT4789), Dos Cuartos House (Site 5MT2174), Calmate Shelter (Site 5MT4651), and DTA Site (Site 5MT5361). The remaining 12 sites were investigated through surface collection, occasionally augmented by shovel scraping or minimal excavation. The goal of the program was to obtain sufficient information to allow the placement of these sites in the Dolores Archaeological Program spatial and temporal systems with better accuracy than was possible from survey records alone. This chapter describes the investigations at each of these sites and discusses the structures, features, and artifacts encountered. Temporal and functional assignments are made for each of the sites.

ACKNOWLEDGMENTS

The work reported here was accomplished by a number of individuals. Crew composition and crew directorship varied from site to site. Hanging Rock Hamlet (5MT4650), Cougar Springs Cave (5MT4797), DTA Site (5MT5361) and Quasimodo Cave (5MT4789) were tested in 1980 under the direction of T. Gross. D. Howes was assistant crew chief during the excavations at Cougar Springs Cave and at the first period of excavation at DTA Site. M. Gould was assistant crew chief for the second session of excavation at DTA Site and for the testing of Quasimodo Cave. Crew members working at these sites at various times included the following individuals: K. Aasen, N. Aker, E. Blinman, M. Cavanaugh, D. Cifani, M. Cravalho, R. Darsie, G. Glennie, M. Gross, B. Haase, P. Kakos, C. Kenoyer, S. King, K. Kleber, R. Kopperud, R. Lambert, G. Lothson, K. Miller, S. Miller, K. Murray, D. Pittenger, G. Qualey, T. Rowe, A. Salerno, M. Samuels, P. Slayton, R. Sullivan, L. Toburen, K. Torgerson, and H. Wallace.

Dos Cuartos (5MT2174), Sites 5MT2173, 5MT2166, and 5MT2165 were tested in 1980 by a small crew supervised by E. Huber. The crew consisted of R. Kopperud, G. Qualey, I. Qualey, and L. Toburen.

In 1980 seven other sites (5MT2170, 5MT2175, 5MT2211, 5MT2212, 5MT2213, 5MT2216, and 5MT2381) were tested under the direction of P. Harden. Crew members included R. Darsie, D. Pederson, and K. Torgerson.

During the 1979 field season testing operations were conducted at three sites. R. Harper supervised a crew, consisting of J. Ellis and L. Wheelbarger, that conducted test excavations at Calmate Shelter (Site 5MT4651). T. Kohler supervised surface collections at 2 sites (Sites 5MT2160 and 5MT2169). The crew for the surface collection in 1979 consisted of R. Beatty, J. Ellis, and T. Sampson-Brown.

The author is grateful to Pat Hogan, Lynne Sebastian, Carl Phagan, and Cory Breternitz for advice on problems encountered in the excavation of those sites supervised by the author and to Carl Phagan, Bill Lucius, and Eric Blinman for help in understanding the lithic and ceramic artifact collections from the tested sites.

Chapter 3

THE GRASS MESA LOCALITY TESTING PROGRAM, 1979-1980

G. Timothy Gross

INTRODUCTION

This chapter presents the results of DAP (Dolores Archaeological Program) testing operations at 18 sites in the Grass Mesa Locality. The testing operations were conducted at the Track 2 and Track 3 levels as described in the DAP mitigation design (Knudson et al. 1984). Investigations ranged from brief site visits to test excavation. Temporally the sites range from the Archaic through the Sundial Phase. They include limited activity, seasonal, and habitation sites.

Environmental Setting

The environmental characteristics of the Grass Mesa Locality have been summarized by Kohler (chapter 2) and Lipe (1984), and reports on various aspects of the environment of the project area as a whole have been prepared. Bye (1982) has discussed the current distribution of plants; Leonhardy and Clay (1982) have reviewed the geology; and Emslie (1982) has listed the fauna observed in the project area. Table 3.1 summarizes the environmental settings of the sites discussed in this chapter. The locations of the sites are presented in figure 3.1.

As the table indicates, most of the sites occur on the canyon wall and on Batterson-Gladel-Rock outcrop complex soils; most are underlain by the Junction Creek Sandstone Formation. Five sites occur on the flood plain, and one is located on the first terrace of the Dolores River. Three sites occur on Otero fine sandy loam soils, and five sites (all on the flood plain) are underlain by Quaternary alluvium.

The vegetation zones in which sites occur show more variation than landforms, soils, or geologic formations. Nine sites occur in the pinyon-juniper woodland zone, four sites in the ponderosa pine-oak forest zone, three sites in the riparian grassland/shrubland zone, and two in the Douglas-fir-mountain shrubland zone.

Investigative Strategy

Research Objectives

The major goal of the 1979 and 1980 Grass Mesa Locality testing program was to collect sufficient data to allow sites to be placed in the DAP temporal-functional scheme as mandated by the program implementation design (Knudson et al. 1984). Of particular interest were sites that contained evidence of temporal periods or site functions that were not well represented in the project area or in the locality site inventories. For this reason, special attention was paid to sites that were tentatively assigned to either the Archaic Tradition (5000 B.C. - A.D. 500) or to the Sundial Phase (A.D. 1050-1200) (for a comprehensive discussion of the DAP phase scheme, refer to Kane 1981:57-80), and to site types that had not been extensively examined in the locality. Many of the sites that were tested in 1979 and 1980 had not yielded sufficient material from survey surface collections to allow temporal-functional placement.

The documentation of unusual aspects such as petroglyphs, possible structures in rockshelters, or artifacts in deeply buried contexts, was another research goal at several of the sites.

Investigative Methods

The testing program is designed to produce specific types of data with a minimum investment of labor. Lipe (1984) estimates that only 10 percent of total effort expended on investigations in the Grass Mesa Locality was devoted to the testing program. Considering that three sites have received 90 percent of the labor expended in the locality, the difference between testing and more intensive investigation becomes apparent.

Intensity of investigation varied from site to site within the testing program. Six of the sites were examined by techniques classed as Track 2 investigation methods (Knudson et al. 1984; Lipe 1984). Research at these sites

Table 3.1 - Summary of the environmental setting of the tested sites in the Grass Mesa Locality

Site No.	Elevation	Landform	Soil type	Geologic unit	Vegetation zone
5MT4650	2054	Canyon wall	M2-CE	Junction Creek Sandstone	Pinyon-juniper woodland
5MT4797	2130	Canyon wall	M2-CE*	Junction Creek Sandstone	Douglas-fir mountain shrubland
5MT4789	2103	Canyon wall	M2-CE	Junction Creek Sandstone	Ponderosa pine-oak forest
5MT4651	2073	Canyon wall	M2-CE*	Junction Creek Sandstone	Riparian woodland
5MT2174	2054	Canyon wall	M2-CE	Junction Creek Sandstone	Pinyon-juniper woodland
5MT5361	2048	Flood plain	VO	Quaternary alluvium	Riparian grassland/shrubland
5MT2160	2038	Flood plain	Fluvents	Quaternary alluvium	Douglas-fir-mountain shrubland
5MT2165	2073	Canyon wall	M2-CE	Junction Creek Sandstone	Pinyon-juniper woodland
5MT2166	2067	Canyon wall	M2-CE	Junction Creek Sandstone	Pinyon-juniper woodland
5MT2169	2048	Canyon wall	M2-CE	Junction Creek Sandstone	Pinyon-juniper woodland
5MT2170	2054	Flood plain	M2-CE	Junction Creek Sandstone	Ponderosa pine-oak forest
5MT2173	2073	Canyon wall	VO	Junction Creek Sandstone	Pinyon-juniper woodland
5MT2175	2060	Flood plain	M2-CE†	Quaternary alluvium†	Riparian grassland/shrubland†
5MT2211	2073	Canyon wall	M2-CE	Junction Creek Sandstone	Pinyon-juniper woodland
5MT2212	2042	Flood plain	M2-CE	Quaternary alluvium	Ponderosa pine-oak forest
5MT2213	2054	Terrace 1	VO	Quaternary alluvium	Ponderosa pine-oak forest
5MT2216	2103	Canyon wall	M2-CE*	Junction Creek Sandstone	Pinyon-juniper woodland
5MT2381	2067	Canyon wall	M2-CE	Junction Creek Sandstone	Pinyon-juniper woodland

*These sites are in rockshelters with little soil development. Listed are the soil types surrounding the site.

† This site is in a border zone. See site discussion.

Elevations are estimated for the Trimble Point 7.5' U.S. Geological Survey Quadrangel Map, converted to meters, and rounded to the nearest meter.

M2-CE - Batterson-Gladel-Rock outcrop complex.
VO - Otero fine sandy loam.

SOURCE: Landforms from Clay et al. (1979a), soil types from Leonhardy and Clay (1982), geologic units from Clay et al. (1979b), and vegetation zones from Bye (1982:16-17).

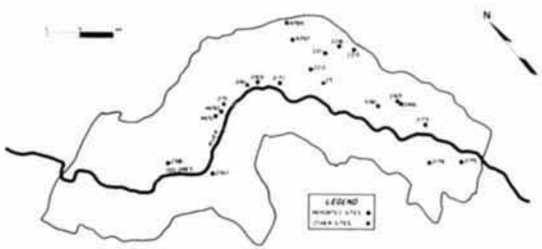

Figure 3.1 - Locations of sites covered in this chapter. Locations for Grass Mesa (5MT23), LeMoc Shelter (Site 5MT2151), and Prince Hamlet (Site 5MT2161) are also shown.

ranged from full probability sampling with limited expansion beyond the probability squares, to judgmental sampling and hand expansion of backhoe trenches.

Twelve sites were examined using Track 3 investigation methods (Knudson et al. 1984; Lipe 1984). Activities at these sites were primarily limited to surface collection and site description. Detailed site maps were seldom prepared for Track 3 sites, and few photographs were taken. Small shovel tests were performed at several of these sites. Where artifact density and distribution warranted it, artifacts were collected by grid unit. In some cases, sites were divided into surficially distinct areas that formed the basis for surface collection. At a few sites, collections were made from the entire site surface without subdivision. Specific investigative methods are summarized in table 3.2.

The methods employed in testing sites in the Grass Mesa Locality differ significantly from those employed in other areas of the DAP in that sites in the Grass Mesa Locality were generally not accessible to graders or backhoes. The use of heavy equipment to remove overburden at sites in other localities investigated by the DAP has been a major step in Track 2 testing operations (Hewitt 1983; Greenwald 1980). DTA Site is the only site where heavy equipment was used. Because the majority of the excavations reported were carried out by hand, the sites cannot be reported with the same detail as other Track 2 sites in the DAP area.

Table 3.2 - Summary of investigative methods employed at the tested sites in the Grass Mesa Locality

Site No.	Number of units surface collected		Number of units excavated		Investigative track	Comments
	grid	nongrid	probability	judgmental		
5MT4650	41		13	4	2	4- by 4-m surface collection units (surface collection conducted in 1979 [Kohler 1983]); minimal expansion beyond probability squares
5MT4797	38			12	2	2- by 2-m surface collection units
5MT4789	23		4	3	2	4- by 4-m surface collection units
5MT2174		1		4	2	Judgmental excavation of two surface rooms
5MT4651		1		3	2	No intensive surface collection other than that done by the original survey
5MT5361				2	2	Two trenches divided into 1-m-long segments were excavated after overburden had been removed by power equipment. Four additional backhow trenches were excavated
5MT2160					3	Surface materials were point located in the field and then provenienced by grid square
5MT2165	1				3	
5MT2166	25				3	4- by 4-m surface collection units
5MT2169	51				3	4- by 4-m surface colleciton units
5MT2170	20				3	8- by 8-m surface collection units
5MT2173		1			3	
5MT2175		1			3	
5MT2211		2			3	
5MT2212					3	Brief re-examination of the site. No new surface collection made
5MT2213	9				3	8- by 8-m surface collection units
5MT2216		1			3	
5MT2381		1		1	3	Preliminary surface collection; 1 small shovel test

Temporal and Functional Placement of Sites

As mentioned above, one of the major goals of the testing program in the Grass Mesa Locality was refinement of the temporal-functional placement of DAP sites. For the 6 sites examined by Track 2 investigations, the placement will be relatively easy since there are excavated samples upon which to rest arguments of chronology and function. For the 12 sites examined by Track 3 methods, the temporal and functional assignments must rest on data composed almost exclusively of surface collection and other information observable without excavation. For these sites, it is necessary to briefly discuss both how well surface materials can be expected to reflect the artifact content of the site as a whole and the criteria for assigning this material to temporal and functional categories.

The Nature of Surface Artifact Assemblages

Before discussing the surface criteria employed to assign sites to temporal and functional units, the ways in which artifacts become visible on the surfaces of sites must be discussed. Artifacts are generally deposited on surfaces and those surfaces are subsequently covered by sediments after the abandonment of the site. Several authors have discussed forces that cause artifacts to be moved within sites (Wood and Johnson 1978) and ways in which artifacts move from insite contexts to the site surface (Flannery 1976:62; Ahler and Benz 1980). Those processes of artifact transport which seem most applicable to the Grass Mesa Locality include construction activities of prehistoric site occupants, erosion, faunal turbation (the action of various earthmoving animals), and floral turbation (root disturbance and tree-fall), cryoturbation (freezing-thawing), and site looting. All of these processes should serve to bring artifacts from their original depositional context up to the surface of the site. The nature of the artifacts present on the site surface will be, at least in part, a function of size (Baker 1978) and material type. Most of these processes would act differently on different classes of material. For example, rodents are more likely to bring flakes and flaked lithic tools to the surfaces of their burrows than they are to bring whole metates. The very processes that result in the presence of artifacts on the surface of archaeological sites will tend to skew the assemblage present.

Once artifacts are visible on the site surface, other factors that affect the likelihood of collection of various items come into play. One notable factor is the prior collection of materials from the site surface either by relic hunters or by prehistoric inhabitants. The relic hunter is likely to select items that have some aesthetic value, such as whole tools and painted ceramics. The prehistoric inhabitants of the area are likely to have removed whole or nearly whole tools that could have been sharpened and reused (cf. Ascher 1968) and, perhaps, decorated sherds (Stanislawski 1978:20). Whole artifacts and decorated ceramics are more likely to be collected than are broken items, debitage, or plain ceramics.

Two other factors will affect the likelihood of an item being collected. Perhaps the foremost of these is the extent of vegetation cover on the site. Kohler (chapter 2) demonstrated that the greatest concentrations of artifacts collected at Hanging Rock Hamlet (Site 5MT4650) were from areas that lacked vegetation. The second factor is the nature of the artifact: Larger artifacts are more likely to be noted than are small items, and artifacts whose colors contrast with the sediment or vegetation of the site are more likely to be noticed than are artifacts that tend to blend in with their background. A number of factors would seem to bias surface collections, often in relatively unpredictable ways. However, some correlation should exist between the material collected from the surface of a site and various activities carried out at the site prehistorically. Any measure of site function based on artifact collections from the modern ground surfaces of archaeological sites will have to be geared toward those classes of artifacts likely to be included in such collections. The absence of artifacts such as whole metates or painted ceramics cannot be allowed too much weight.

The Dolores Archaeological Program Site Typology

A functional typology of sites in the Escalante Sector has been presented by Kane (1983a, 1983b) and forms the basis for the functional typology to be employed in this chapter. The first major division in this typology is into 3 classes: limited activity loci, seasonal loci, and habitations. These classes are defined by the following criteria: the diversity of activities performed at the sites, the number of people (and their organization) involved, and the length of use of the site.

Limited activity loci. – These sites are defined by Kane (1983b:35). The period of use for these sites is short, ranging from a few hours to a few days. The number of people involved in the use of a limited activity loci is small, and may be only one individual. Activities are limited and generally only one activity is assumed to have taken place at such sites.

Seasonal loci. – Seasonal loci are sites that were used for short time periods (a few days to several weeks). The number of people using the site is assumed to have been small. The activities performed at seasonal loci were diverse but were more restricted than those that occurred at habitation sites. Because people were staying at these sites for some period of time, there may have been some sort of shelter constructed or sought out (e.g., rockshelters).

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Habitations. – A habitation site is considered to have been the home base for a population where a wide range of activities were carried out. Occupation at these sites was continuous for at least a major portion of the year. At least one household cluster should have been located at any habitation site, and, during the Anasazi portion of the prehistory of the area, substantial architecture should have been present to house the population.

Implications of the Site Typology

The implications of this three-part site type classification are presented in table 3.3. If archaeological expressions of the variables listed in table 3.3 can be determined, and if these variables can be measured in surface examination of sites and subsequent artifactual analysis, then surface-collected sites can be placed into the typology. One major problem is understanding how these variables will be reflected in the archaeological record, and particularly in that portion of the record observable on the surface of the site.

The presence or absence of architecture and the diversity of activities performed at a site seem to be the two variables that will have the most readily observable expression in surface examination of sites. Number of individuals using a site and the intensity of use should be reflected to a degree by site size and artifact density (artifacts per unit area). Both of these measures would depend on the accurate measurement of site area. There are differences in the methods by which the 1972 survey crew and the 1980 testing personnel estimated site areas. Also, problems with the definition of site boundaries cause difficulties in obtaining consistent and comparable estimates of site areas from the site records. The problem of measures of site area in the Grass Mesa Locality is further compounded by the differing amounts of brush cover and the fact that a number of the sites considered in this report are rockshelters where the size of the shelter limits the amount of space that can be occupied. For these reasons, criteria for placing sites into functional classes will rest on evidence of architecture and on estimates of the diversity of activities performed at a site.

The type of architecture often associated with habitation sites is generally substantial. If architecture was present at a site, some surface evidence in the form of rubble mounds, burned jacal, or pitstructure depressions should be present. There are times, however, when such evidence may be obscured by vegetation or by postoccupational processes such as rapid sedimentation or erosion.

The diversity of activities carried out at a site should be reflected, to a degree, in the diversity of artifacts present at that site. To the extent that the site surface collections are representative of total site contents, it should be possible to develop some measure of variability that will reflect the diversity of activities performed at the site prehistorically. This does not, however, assume that a one-to-one correlation exists between artifact type and activity. Since several types of tools may be necessary to perform a single task, and multipurpose tools are probably the rule rather than the exception, the measure of artifact diversity will have to be a relative measure. On a comparative basis, a simple count of flaked lithic tool and nonflaked lithic tool morpho-use classes will be used, combined with the number or ceramic wares present. Attention is paid to the presence of the various ceramic wares (i.e., gray ware, white ware, and red ware) based on the assumption that these wares served different functions (refer to Lucius 1982).

Consideration of the measures just presented in light of the disturbance factors discussed earlier suggests that the effects of selective transport of artifacts to site surfaces, and the effects of the selective removal of materials from sites, need to be considered. The measures selected should be those that are least susceptible to skewing processes. These processes will most directly affect the measure of artifact diversity. It will be assumed that the presence of items such as painted ceramics, projectile points, manos, and metates in a surface collection will be good indicators of the nature of the use of the site in question. The absence of such materials, however, cannot be taken as direct evidence of their not having been used at the site. Painted ceramic sherds may well have been removed from site surfaces by previous collectors, but the presence of unpainted sherds from wares that are usually decorated provides good evidence that such ceramics were used at a given site.

Table 3.3 – Predicted values for several variables for the three major site types

Variable	Limited activity loci	Seasonal loci	Habitation
Architecture	None	Limited if present	Substantial
Diversity of activities	Low	Medium	High
Number of individuals	Few	Indeterminate	One or more households
Intensity of use	Low	Medium	High

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Temporal Placement of Sites

Several methods were employed in an attempt to provide date estimates for the sites. Where charred wood was encountered, samples were collected and submitted for tree-ring assessment or for radiocarbon dating. Two samples each from Cougar Springs Cave (5MT4797) and DTA Site (5MT5361) were dated using this latter technique. One site, Hanging Rock Hamlet (5MT4650), produced sufficiently burned sediment for archaeomagnetic dating.

The results of these dating efforts were disappointing. None of the samples submitted for tree-ring dating provided to be adequate, and no dates were obtained. The results of the four radiocarbon dates are confusing: they contradict date assignments for the sites based on the artifact assemblage and in neither case do two dates from a site agree with one another. The archaeomagnetic samples from Hanging Rock Hamlet produced dates that are not supported by other lines of evidence.

The temporal placement of sites in this report, then, must rest on date estimates that are based on the artifact assemblages, site architecture (where present), and stratigraphy. The ceramic collections from sites are the most useful materials in this regard. Blinman (1984) presents procedures for estimating dates for DAP ceramic collections and provides date ranges for ceramic types presented in this chapter. Evaluation of type occurrences at sites can often produce a relatively narrow date range for the site if the ceramic collections are large enough.

Two other artifact-based approaches are useful in temporal placement of sites discussed in this report. The first is dating based on changes in coil heights of neckbanded ceramics through time. The basis for this approach is described in Blinman (1981), but the technique, the equations, and the resulting dates have been revised (Blinman 1982a). These revised dates will be used in discussing the temporal placement of three sites in this report.

The second approach, developed for the DAP by Phagan (1981), is the use of lithic profiles. This approach examines the percentage representation of selected lithic attributes in groups of sites. Groupings can reflect temporal, functional, or both temporal and functional classes of sites. When these grouped data are compared to the lithic collections from specific sites, an assessment can be made as to whether or not the lithic technology at the site in question is similar to the technology exhibited in the assemblages from any of the groups of sites. The method allows for the comparison of site collections to assemblages grouped by subphase, phase, or tradition, but it does not provide specific dates for the materials in question. Lithic profiles will be used only when other evidence is not available, or provides contradictory date assignments.

The specific lines of evidence used in the temporal placement of sites in this report will be discussed in the individual sections on site chronology.

Plan of the Report

The results of the Grass Mesa Locality Testing Program will be presented with the sites grouped by investigation track. Sites investigated using Track 2 methods will be discussed first, in order by intensity of excavation. Following this will be a discussion of the sites examined using Track 3 methods.

The presentations of the various sites in this report will vary for several reasons. The most obvious is that the sites were investigated at different levels of intensity; more data are available for the Track 2 sites than are available from the Track 3 sites. The sites were investigated by several crews under the supervision of several crew chiefs. These differences have led to some variation in the amount and kinds of data recorded at each site. Finally, the sites themselves are quite different.

While the author has attempted to keep the presentations of the individual sites as consistent as possible, there will be some differences. One notable difference is the level of artifact presentation for the sites. Artifact tables in the sections on Track 2 sites will present standard DAP tables which include breakdowns of selected attributes for the various types of artifacts. For the Track 3 sites, investigated primarily through surface collection, artifact summary tables will be presented. In addition, as indicated earlier, few maps or photographs were made during the Track 3 investigations. For that reason, there will be few illustrations appearing with the reports on Track 3 sites.

HANGING ROCK HAMLET (SITE 5MT4650)

Hanging Rock Hamlet was first recorded by the DAP on 18 October 1978. Surface artifacts and vertical slab alinements defining a 3- by 5-m surface room provided evidence for the presence of the site, thought to be a Basketmaker III/Pueblo I habitation. The site is located on the first terrace of the Dolores River (figs. 3.2 and 3.3) in the NE 1/4 of the SW 1/4 of sec. 1, T38N, R16W. The UTM grid coordinates for this location are 4,161,650 mN, 714,600 mE, zone 12. Hanging Rock Hamlet is located west of LeMoc Shelter (5MT2151), and Prince Hamlet (5MT2161) and is near the northwest abutment of the McPhee Dam. Calmate Shelter (5MT4651) is located just to the west of Hanging Rock Hamlet. Initial collections from the site surface include manos, metates, hammerstones, cores, and bifaces, as well as ceramics.

A surface collection was made during the 1979 field season after the site had been cleared of the thick scrub oak

Figure 3.2 - Aerial view of Hanging Rock Hamlet during excavation, looking north (DAP 061602).

Figure 3.3 - View of Hanging Rock Hamlet, looking east (DAP 048501).

(*Quercus gambelii*) covering. A grid was established and the artifacts were collected from 4- by 4-m grid units. A topographic map was also prepared (fig. 3.4).

In discussing the results of this investigation, Kohler (chapter 2) notes the presence of additional surface rooms and 2 depressions that indicated the locations of possible pitstructures. Based on this evidence and on the nature of the surface artifacts, he agreed with the classification of the site as a habitation. Results of the analysis of the ceramics from the surface collection suggest that the occupation of the site occurred sometime between A.D. 775 and 875.

Research Objectives and Investigative Strategy

Hanging Rock Hamlet was selected for Track 2 investigations for several reasons. First, only one other open hamlet (Prince Hamlet, Site 5MT2161) had been investigated in the Grass Mesa Locality, and at least one more such site investigation was necessary to understand some of the variability present within this class of sites. The similarity between Hanging Rock Hamlet and Prince Hamlet made the choice of Hanging Rock quite logical for such purposes. Refining of both the temporal and functional assessments of the site was also necessary. The major field objective, then, was the collection of a representative sample of site material that would allow the unbiased estimation of populations of artifacts and features, as well as provide materials for more accurate temporal and functional placement of the site. Additional goals were to explore building sequences, to determine the function of structures at the site, and to obtain skeletal, faunal, and stratigraphic information about the site as time permitted.

Throughout the course of the investigations at Hanging Rock Hamlet, the crew was operating under severe time constraints. Initiation of work at the site was delayed and the schedule of construction activities in the area set the end date for site testing. Five weeks were spent in intensive testing during July and early August, followed by several short visits to the site by smaller crews to complete the sampling.

Hanging Rock Hamlet was divided into three areas on the basis of surface evidence (fig. 3.5). Area 1 was the area of the suspected roomblock and was defined on the basis of the extent of the rock rubble and the vertical slab alinements. Area 2 was defined as that portion of the site where pitstructures were most likely to be encountered. The Area 2 boundaries were drawn to include the two

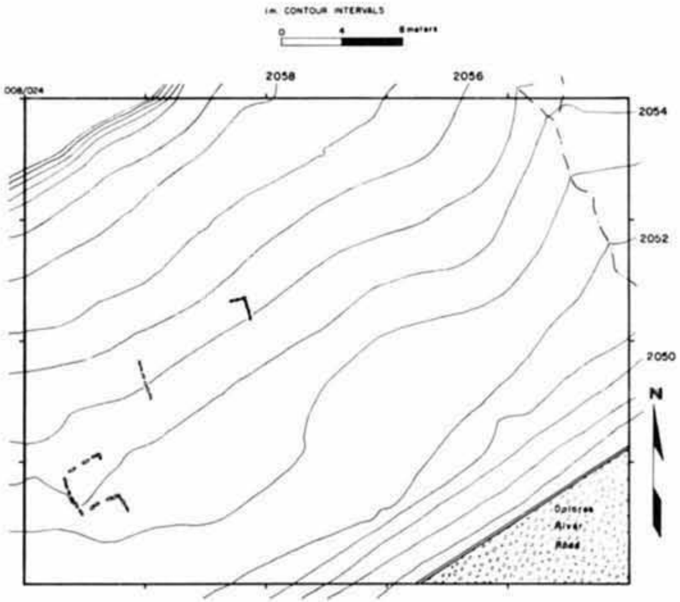

Figure 3.4 - Topographic map of Hanging Rock Hamlet showing the site grid and the locations of rock alinements visible after brush clearing

visible depressions mentioned earlier. The remainder of the site was designated Area 3 and consisted of two noncontiguous subareas: Subarea 1, located south of Areas 1 and 2 in what was suspected to be the remains of the site midden; and Subarea 2, located north of Areas 1 and 2.

A stratified cluster sample consisting of 13 probability squares was excavated at Hanging Rock Hamlet (fig. 3.5). Seven of these probability squares were excavated in arbitrary 20-cm levels, three were excavated according to natural stratigraphy, and three (located in shallow areas of the site) were excavated without vertical subdivisions. All of the sediments from these units (with the exception of the fills of features) were processed through one-quarter-inch mesh screens. Feature fill was processed through one-eighth-inch mesh screens.

The time constraints placed upon the investigation of this site allowed for only minimal work beyond the probability sample. One additional 2- by 2-m unit in Pitstructure 1, a 1- by 2-m trench in Nonstructural Unit 1, a small trench in Room 1, and a 1- by 2-m trench in midden deposits were excavated. Where possible, sections of wall in the roomblock were exposed by shovel excavation in an attempt to define the surface structures at the site.

Surface Investigations

Surface Evidence

The results of the surface collections at the site are presented by Kohler (chapter 2). He notes that the artifact distributions are primarily a result of the amount of

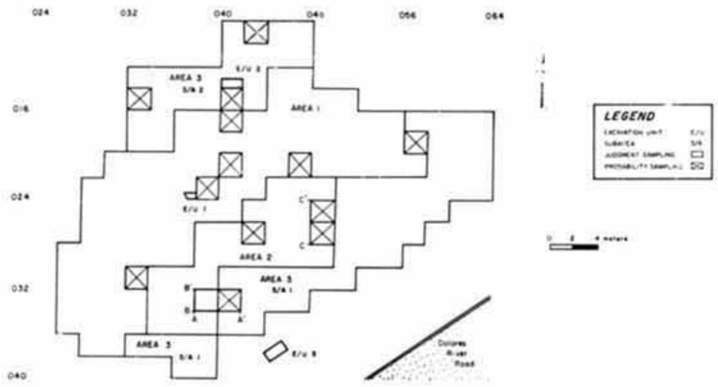

Figure 3.5 - Location of site areas and excavated units at Hanging Rock Hamlet.

ground cover and resulting leaf litter, and probably do not reflect cultural patterning across the site as a whole.

Because the site was not divided into areas prior to the surface collection, the boundaries of the collection units do not always coincide with the boundaries of site areas. In the discussion that follows, where collection units fall within more than one area, the totals for the collection unit have been divided by the proportion of the surface area of the unit that falls in the site area under discussion.

Surface Artifact Collections

The surface artifact collections from Hanging Rock Hamlet are summarized by site area in table 3.4. This table presents only those artifacts collected during the 1979 fieldwork because there was no way to determine which areas of the site had produced the material collected during the survey recording of the site. Further, one entire 4- by 4-m surface collection square, and half of four other squares fell outside the site area boundaries. These two factors will result in some discrepancies between table 3.4 and the "modern ground surface" columns of the material culture summary tables to be presented later in this section. If table 3.4 is compared with the summary tables in Kohler's (chapter 2:tables 2.6, 2.7, and 2.8) chapter, there will also be some differences resulting from the exclusion of those units falling outside the defined site areas and from changes in the analytic systems since Kohler's tables were prepared.

Ceramic items comprised the most abundant class of material recovered, followed by flaked lithic debitage, flaked lithic tools, and nonflaked lithic tools.

Surface Evidence of Structures

After the oak brush was cleared from the site surface, remnants of several masonry rooms were evident. The single room originally noted by the survey crew was found to be part of a series of at least three rooms as evidenced by the presence of walls both to the northwest and southeast of the originally noted room. Two additional short, vertical slab alinements were noted in Area 1 (fig. 3.4). Large amounts of rock rubble, indicating the approximate location of a roomblock, were also noted in this area.

Two depressions noted in the southeast portion of the site formed the basis for the definition of Area 2. The southwestern depression was relatively well defined. The northeastern depression, on the other hand, was irregular and suggested the presence of 1 or perhaps 2 pitstructures. No surface evidence of structures was observed in either subarea of Area 3.

Predictability of Subsurface Cultural Material

The distribution of cultural material on the surface of the site seems to reflect the distribution of recent vegetation more closely than it does subsurface distributions of cultural material. However, alinements of building stone and the presence or rock rubble do reflect, to a degree, the distribution of surface structures. Some distortion of the pattern was caused by downslope movement of building stone. The southeast boundaries of the surface rooms encountered in excavation occurred 1 to 2 m upslope from the southeastern limit of rockfall.

The depressions were good indicators of the presence of pitstructures. Probability squares in both of the depressions encountered pitstructures.

Table 3.4 - Surface artifact distribution by areas at Hanging Rock Hamlet*

Artifact class Artifact type	Area 1	Area 2	Area 3 Subarea 1	Area 3 Subarea 2	Total
Ceramic items:					
Early Pueblo Gray	74.50	39.50	37.00	5.00	156.00
Polished White	3.25	0.25	2.50	0	6.00
Early Pueblo Red	0.25	0.75	0	0	1.00
Chapin Gray	1.00	1.00	3.00	0	5.00
Moccasin Gray	7.25	3.00	2.25	1.00	13.50
Total	86.25	44.50	44.75	6.00	181.50
Flaked lithic debitage:					
Medium grained	0.75	0	2.25	0	3.00
Fine grained	0.75	0	1.25	0	2.00
Very fine grained	32.25	13.50	10.25	4.00	60.00
Microscopic grained	15.25	2.75	5.00	1.00	24.00
Total	49.00	16.25	18.75	5.00	89.00
Flaked lithic tools:					
Utilized flake	14.75	7.00	5.25	0	27.00
Core	0.25	0.75	0	0	1.00
Used core/cobble tool	2.50	0	0	0	2.50
Thick uniface	1.75	0.75	2.50	1.00	6.00
Thin uniface	0.50	0	0.50	0	1.00
Thick biface	1.25	0	0.75	1.00	3.00
Thin biface	0.25	0	0.75	0	1.00
Total	21.25	8.50	9.75	2.00	41.50
Nonflaked lithic tools:					
Miscellaneous	1.00	0	0	0	1.00
Hammerstone	0.75	0.75	0.50	0	2.00
One-hand mano	0.50	0.50	2.00	0	3.00
Two-hand mano	1.25	0.	0.75	0	2.00
Metate fragment	1.00	0	0	0	1.00
Hafted item	1.25	0	0.75	0	2.00
Total	5.75	1.25	4.00	0	11.00

*This table presents only those artifacts collected during the 1979 fieldwork.

The fractional values in the tables result from the fact that the surface collection was performed before the site had been divided into areas. Surface collection units often fell in more than one area of the site. Artifact counts are derived by dividing the number of artifacts in a class by the proportion of the surface collection square that fell within the area in question. The process was repeated for each collection unit and the resulting figures were summed for each area of the site. Several units of the surface collection fell partly or completely outside the defined areas at the site and are not reflected in the above figures. Survey artifacts are also not presented above.

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Probability Excavations

Characteristics of the Sample

As mentioned earlier, the probability sample at Hanging Rock Hamlet was a stratified cluster sample. The site was divided into 3 sampling strata that were coincident with Areas 1, 2, and 3 (fig. 3.4). Numbers were assigned to all of the possible 2- by 2-m squares located within each area of the site, and units were selected for excavation from a table of random numbers. Thirteen units were selected: 6 from Area 1, 3 from Area 2, and 4 from Area 3 (one in Subarea 1 and three in Subarea 2). Approximately 7 percent of the surface area of the site was included in the probability sample.

Description of Sampling Units - Area 1

Probability square 16S/40E. - Probability square 16S/40E is located along the northern boundary of Area 1 and is the northwesternmost excavated unit in this area. The general topography in this portion of the site slopes toward the southeast at an angle of approximately 20°. This area of the site was not covered by scrub oak and seems to have suffered erosion in recent times.

Portions of the wall and floor of Room 2 were encountered in the excavation of probability square 16S/40E. One hearth (Feature 15) was also present in this unit.

Probability square 18S/56E. - This probability square is the easternmost unit excavated at Hanging Rock Hamlet and is located on the eastern boundary of Area 1. The unit is located at the base of the slope in an area where the topography becomes more level (slope approximately 15°). The unit is located at the southeast end of a long, massive retaining wall that was built along a small ephemeral drainage. The end of this wall was the major surface evidence located within this square. Surface artifact densities were high in this portion of the site. No surfaces or structures other than the retaining wall were encountered during the excavation of this unit.

Probability squares 20S/40E and 22S/38E. - Probability squares 20S/40E and 22S/38E are situated adjacent to one another (the southwest corner of 20S/40E adjoined the northeast corner of 22S/38E). These two units are located near the center of Area 1 where the slope is nearly 20°. This portion of the site is an area of heavy surface concentrations of building stone, and a vertical slab alinement was observed on the surface just to the west of 22S/38E. Surface artifact concentrations were heavy in the 4- by 4-m unit that included 20S/40E and light in the 4- by 4-m collection unit containing 22S/38E. Surface 1 of Room 1 was encountered in these two probability units. Room 1 will be discussed in a following section.

Probability square 20S/46E. - Probability square 20S/46E is located in Area 1; the southern edge of the square coincides with the boundary between Areas 1 and 2. This square is on a relatively steep slope and appears to be in an area of surface drainage. The concentration of surface artifacts in this area was high, and numerous building stones were observed on the surface of this square. No surfaces, structures, or features were encountered in this excavation.

Probability square 30S/32E. - This square is the westernmost and southernmost unit excavated in Area 1. The topography of this portion of the area is less sloping than in most other sections of the area. Surface artifact distribution in this area of the site was very low (0 to 2 artifacts per 4- by 4-m square); but then, this area was covered by a heavy growth of scrub oak prior to surface collection. Building stone was not as heavily concentrated in this area as in other excavated squares in Area 1. Although a vertical slab alinement was evident on the surface 3 m north of this square, no features, surfaces, or structures, were encountered in excavation.

Stratigraphy. - The stratigraphy in Area 1 was relatively uniform from probability square to probability square. Two units could generally be recognized, although they were occasionally subdivided in the field. The upper of the two units was a brown (10YR 5/3) sandy loam that was poorly sorted and massive. This stratum ranged from 20 to 25 cm in thickness. The upper 10 to 20 cm of the deposit was usually unconsolidated, whereas the lower portions were hard packed. Numerous rock inclusions (wall fall) and charcoal flakes were noted in the stratum. The other major stratum was a massive silt loam, which is the uppermost culturally sterile stratum at the site (details of the noncultural stratigraphy were not recorded in this area). This unit was light brown (7.5YR 6/4) and was devoid of cultural material. In the area of 20S/40E a light brown (no Munsell color recorded) sandy stratum was noted overlying the sterile stratum. Since this was in the area of Room 2, this may represent sediments derived from the melting of jacal or mortar. This was the only area in which such a stratum was observed.

Area 1 synthesis. - Area 1 at Hanging Rock Hamlet provides another example of a phenomenon noted at Prince Hamlet (chapter 5). Slope wash and the accompanying downslope movement of building rubble and artifacts has tended to distort the surface evidence of the roomblock. The southeastern limit of surficial building stone concentrations seems to be 2 to 3 m southeast of the actual limit of the roomblock.

Description of Sampling Units - Area 2

Probability square 26S/42E. - Probability square 26S/42E is located near the base of the slope in a relatively

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large number of sherds, as well as flaked lithic debitage and animal bone. Nine flaked lithic tools, one cobble hammerstone, and a fragment of petrified wood were also recovered. The underlying stratum was brown and was culturally sterile.

Nonstructural Unit 1

Nonstructural Unit 1 is the area just to the northwest of Room 2. It was defined on the basis of the occurrence of a burned pit (Feature 11) that was encountered in the course of excavating probability square 14S/40E. The limits of this use area are unknown, as excavation was confined to the probability square and to an adjacent 1- by 2-m unit to the north.

Burned pit (Feature 11). – Feature 11 is oval in plan; the walls are irregular. The long dimension of the pit was not completely exposed in excavation and only 44 cm of the feature length were excavated. The feature was estimated to be over 160 cm long. The width of the feature was 120 cm, and the depth in the area excavated was 50 cm.

The fill of the feature was a dark charcoal-rich sediment mixed with clean sand. Artifacts encountered in the excavation of Feature 11 included sherds, flaked lithic debitage, and animal bone. The presence of charred corn in this feature is notable.

Roomblock

Sections of roomblock wall that were visible on modern ground surface were traced and a search for additional sections that were not immediately visible on the surface was initiated. The portions of wall that were located were in varying states of preservation. The effects of slope wash and of the slope of the site obscured walls in some areas and made locating walls difficult. No room floors were encountered when tracing the walls. The general configuration of the roomblock can be seen, albeit roughly, in figure 3.7. The traceable walls indicate an arc-shaped roomblock composed of a double row of rooms. The back (north) row seems to have been narrower than the front, and the back rooms apparently were smaller. The back wall of the roomblock consisted of coursed masonry (fig. 3.8), but most of the rest of the walls were of vertical-slab construction.

To the southwest of the main roomblock is a detached set of what appear to be three masonry rooms. The middle room is the best defined (the only one for which 4 walls are indicated) and is the "lone room" indicated on the original survey form. This set of 3 rooms is separated from the main roomblock by a small, ephemeral drainage channel.

During the course of clearing for construction, portions of wall were exposed in the general area of the roomblock.

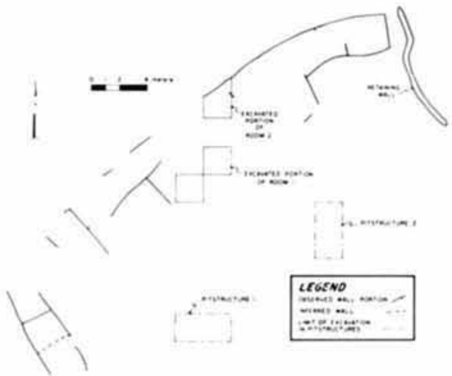

Figure 3.7 - Extent of surface walls exposed at Hanging Rock Hamlet. Limit of excavation in surface rooms and pitstructures is also indicated.

Figure 3.8 - View of coursed masonry wall exposed during wall tracing, Hanging Rock Hamlet, looking north (DAP 054606). The section shown is part of the back wall of the roomblock located northeast of Room 2.

Figure 3.9 - View of hearth (Feature 15), Room 2, Hanging Rock Hamlet (DAP 054604).

and one area of charcoal-stained sediment was observed (King 1983:1).

Room 1. – During excavation of probability squares 20S/40E and 22S/38E, a use-compacted surface was discovered. The presence of this surface and the vertical slab alinements forms the basis for defining Room 1. Excavation was limited to the probability squares and one small judgmental trench (excavation unit 1). The west wall was indicated by the presence of vertical slabs, and the north wall was suggested by the presence of displaced building stones and some additional vertical slabs. No evidence of the locations of the east or south walls was found. No features or floor artifacts were encountered in the excavation of this room.

Room 2. – A section of the northwest wall and the floor of this room were encountered in the excavation of probability square 16S/40E. Because excavation was limited to the probability square, room dimensions cannot be provided. The floor of Room 2 consisted of a layer of clean adobe. The one wall encountered consisted of three courses of sandstone. On the basis of the presence of a number of pieces of sandstone in the fill of the room, the entire wall, or at least a major portion of it, is inferred to have been masonry. The only feature encountered on the exposed portion of Room 2 was a hearth (fig. 3.9).

Hearth (Feature 15). The hearth is an oval basin, 45 cm long, 38 cm wide, and 10 cm deep. No internal stratigraphy was observed, and no artifacts were recovered from fill.

No floor artifacts were recovered from the portion of Room 2 that was excavated. Fifteen sherds from a Bluff Black-on-red bowl were found in the fill of the structure. The fill also contained additional sherds, debitage, flaked lithic tools, and a bone.

Retaining Wall

An alinement of large boulders was noted along the northeast edge of the site, following the bank of the intermittent drainage that formed the boundary of the site in that area; in some places, the alinement consists of two to three courses of stone. This alinement appears to be a retaining wall that extends from a point near the northeast corner of probability square 18S/56E. Since only that portion of the structure that fell within the probability square was excavated, no height was recorded. Based on the excavation of probability square 18S/56E, the wall did not extend much, if any, above the prehistoric ground surface and served only to keep the side of the roomblock and the associated areas in front of the rooms from being eroded by the intermittent drainage.

Pitstructure 1

A portion of the east wall of Pitstructure 1 was encountered during the excavation of probability square 32S/42E. Excavation was expanded to the west so that a greater portion of the structure could be explored. This adjacent 2- by 2-m square (32S/38E) was excavated according to natural strata (rather than in 20-cm levels), but most of the fill from this square was not screened. Floor contact materials (0 to 5 cm above the floor) and feature fills were screened, however, following standard DAP procedures (Kane et al. 1981). Excavation was limited to the two squares, but additional data on the shape, size, and arrangement of the pitstructure was gathered when the site was destroyed (King 1983).

Stratigraphy. – The stratigraphy of the fill at Pitstructure 1 is depicted in figure 3.10 and is summarized in table 3.5. The stratigraphic profile indicates primarily natural infilling processes. The laminated sediments indicate that water collected in the pit after the structure was abandoned. Note, however, that the roof fall was not visible

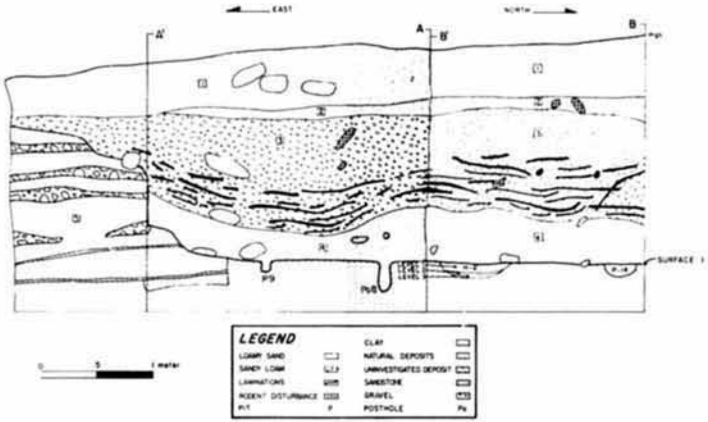

Figure 3.10 – Stratigraphic profile, Pitstructure 1, Hanging Rock Hamlet. Location of profile is shown in figure 3.11.

Table 3.5 – Summary of the stratigraphy of Pitstructure 1, Hanging Rock Hamlet

Stratum	Color	Texture	Structure
1	10YR 4/2	Loamy sand	Moderate subangular blocky
2	10YR 5/3 10YR 3/4	Loamy sand to sandy	Massive, with some weak subangular blocky
3	10YR 5/3 10YR 4/2 10YR 4/1	Sand to sandy loam	Massive to weak, fine to medium subangular blocky
4	10YR 4/2	Loamy sand	Massive
6	7.5YR 5/4 7.5YR 7/4 7.5YR 5/6 7.5YR 4/4 10YR 7/2 10YR 6/3 10YR 4/4	Sands, clays, gravels	Alternating beds

in the stratigraphic profile, and that no evidence of intentional trash disposal in this structure was observed.

Architecture. – The one portion of the wall of the pitstructure that was observed during excavation had been dug into pre-occupation sediments. No sign of plaster was observed on the wall, but the wall was so severely disturbed by root growth and by rodents that its original condition is uncertain. The floor of the structure consisted of adobe over a sandy subbase.

Characteristics of the 12 features encountered in the excavated portion of the structure are summarized in table 3.6; the locations of these features are shown in figure

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Table 3.6 – Feature summary, Surface 1, Pitstructure 1, Hanging Rock Hamlet

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/ height (cm)
2	Hearth	Round	Basin	65.0	*60.0	14.0
3	Unburned pit	Oval	Basin	22.0	22.0	10.0
4	Unburned pit	Oval	Basin	12.0	10.0	4.0
5	Slab-lined pit	Other	Other	30.0	26.0	19.0
6	Posthole	Round	Cylindrical	9.0	8.0	12.0
7	Unburned pit	Oval	Basin	15.0	12.0	6.0
8	Posthole	Round	Cylindrical	. . .	. . .	18.0
9	Unburned pit	Round	Cylindrical	*10.0	*10.0	8.0
10	Posthole	Round	Cylindrical	8.5	9.0	20.0
12	Posthole	Round	Basin	30.0	24.0	10.5
14	Unburned pit	Round	Cylindrical	29.0	30.0	20.0
17	Bench	. . .	. . .	. . .	50.0	10.0

*Inferred dimension.
Refer to figure 3.11 for location of artifacts.
. . . - Information not available.

3.11. The excavated portion of the structure included approximately half of a hearth (Feature 2), five unburned pits, four postholes, one slab-lined pit and a bench. The features classified as postholes are so designated by shape and depth. Feature 12 was thought to be a posthole because it had a slab in the bottom that would have helped to carry weight. By no means is it certain that any of the features held posts. Further, the placement of these features relative to the hearth (see fig. 3.11) is not what would be expected based on posthole patterns from other structures in the DAP area (Kane 1981:95-98).

A low platform believed to be a bench (Feature 17) occurred along the east wall. The platform was irregular and poorly defined and was only 10 cm higher than the pitstructure floor. Although this feature is designated as a bench, the platform may be the result of wall slumping after abandonment of the structure. The irregular surface and outline of the platform, as well as its height above the pitstructure floor, suggests that it is not a constructed bench.

Several additional bits of information about the architecture of this pitstructure were revealed when the site was bladed (King 1983). The stain representing the fill of the structure was dark and quite apparent after topsoil had been removed. A round stain representing the ventilator shaft was noted. The vent stain was 1.2 m across and was located approximately 1.2 m south of the southern end of the pitstructure stain. The presence of two alinements of sandstone slabs in the southern end of the pitstructure suggests that it had masonry wingwalls. Evidence in the form of three burned post fragments and burned adobe suggests that the structure had burned. This conclusion is particularly interesting in light of the fact that no evidence of burning was present in the small portion of the pitstructure that was excavated.

Although only a portion of Pitstructure 1 was excavated, it is possible to estimate the area of the structure based on calculations for other pitstructures in the Dolores area. In Fields and Nelson (1983), the relationship between the average distances between support posts and the average lengths of 8 pitstructures was examined. Although the pitstructures in Fields data set were earlier in time than Pitstructure 1 at Hanging Rock Hamlet, the results seem appropriate. Fields also provided a correction for deriving the actual area from the estimated area by multiplying the length times the width. From the observations made by King (1983) during the destruction of Hanging Rock Hamlet, the distance between the southwest corner post and the northwest corner post of Pitstructure 1 was 3.25 m. The distance between the northwest and the northeast corner posts was 3.56 m. Applying the formulae in Fields and Nelson (1983), an area of 23.46 m^2 is obtained. The estimated floor area is within one standard deviation of the roofed area for pithouses built between A.D. 840 and 880 in the Mesa Verde Region (Hewitt et al. 1983).

Floor artifacts. – Floor artifacts (table 3.7) consist primarily of ceramic sherds, found individually and in clusters. These appear to be the remains of one or more Moccasin Gray and Early Pueblo Gray jars, but of the sherds collected only a few pieces actually fit together. Two pieces of flaked lithic debitage (PL's 16 and 17) were also found on the floor.

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Pitstructure 2

Probability squares 24S/48E and 26S/48E are within Pitstructure 2. Since excavation was limited to the probability squares, only 8 m² of the pitstructure was examined (fig. 3.12). The sediment from both of the probability squares was screened through one-quarter-inch mesh. Vertical control was maintained in probability square 26S/48E by the use of 20-cm levels. Units that approximated the major breaks in the natural strata comprised the vertical subdivisions of probability square 24S/48E.

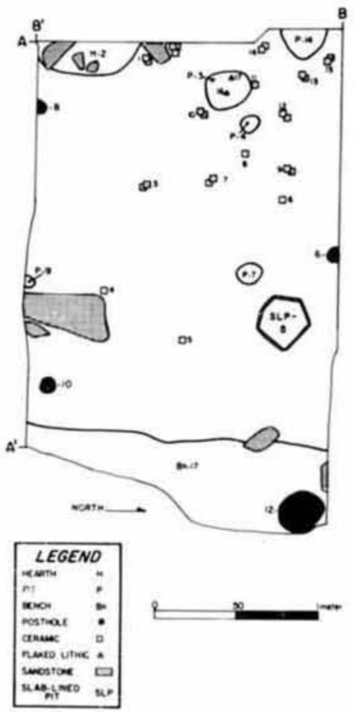

Figure 3.11 – Plan of the excavated portion of Pitstructure 1, Hanging Rock Hamlet. Refer to tables 3.6 and 3.7 for feature and artifact descriptions, respectively.

Stratigraphy. – Seven strata were recognized in the fill of Pitstructure 2. The characteristics of these units are summarized in table 3.8, and the stratigraphy is depicted in figure 3.13.

Stratum 7 consists of sediment that had been intentionally placed on the floor. This is suggested by the lack of both sedimentary structure and artifacts, and the fact that the lower part of the stratum is well sorted. Stratum 6, a sandy loam that shows some laminations, is the first washed-in sediment. Strata 2 through 5 represent wall slump and rapid accumulation of sediments that had a source upslope in the roomblock. Stratum 1 represents the final filling of the structure. This stratum is very disturbed, and speculation on its depositional history is not possible. The lower part of Stratum 1 contains what appears to be intentional trash fill. A poorly defined lens of charcoal-rich sediments is near the boundary between Stratum 1 and Stratum 6, and the area in and around this lens contains a higher proportion of artifacts than the rest of the fill.

Architecture. – Because only a portion of Pitstructure 2 was encountered in the excavation of the probability squares, and because no time for expansion of excavation beyond the boundaries of those squares was available, little architectural detail can be reported for this pitstructure. This pitstructure, like Pitstructure 1, appears to have been excavated into terrace sediments. Three superimposed floors, all plastered with adobe, were identified in Pitstructure 2. Approximately 5 cm of clean sand overlay the lowest floor, Floor 3, and separated it from Surface 2. The fill between Surface 2 and Surface 1 (the uppermost floor) was a silty clay that contained a few charcoal flecks. No artifacts were found in contact with Surfaces 1, 2, or 3 although some artifacts were recovered from the fills between the floors.

Some structural information was gained when the site was bladed as part of the dam construction (King 1983:3-4). Pitstructure 2 did not present as definite a stain as did Pitstructure 1. Evidence of posts was observed in what appeared to have been the northwest, southwest, and southeast corners. Wood approximately 5 cm in diameter was found in the position of the northwest corner post. The other 2 posts were represented by circular charcoal stains, suggesting that the structure had at least partially burned. Four bone awls were found in the area near the northwest corner post, and the area around the southeast corner post contained a concentration of charcoal fragments. King (1983) was also able to measure distances between support posts in Pitstructure 2. The distance from the southwest corner post to the northeast corner

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Table 3.7 – Point-located artifacts, Pitstructure 1, Hanging Rock Hamlet

PL No.	Material class	Item description
1	Ceramic	DL Early Pueblo Gray jar sherds (15)
2	Ceramic	SJ Early Pueblo Gray jar sherd
3	Ceramic	DL Early Pueblo Gray jar sherds (5)
4	Ceramic	DL Early Pueblo Gray jar sherds (18)
5	Ceramic	DL Moccasin Gray jar sherd
6	Ceramic	DL Early Pueblo Gray jar sherd
7	Ceramic	DL Early Pueblo Gray jar sherds (3)
8	Ceramic	DL Early Pueblo Gray jar sherd
9	Ceramic	DL Early Pueblo Gray jar sherds (13)
		DL Moccasin Gray jar sherd
10	Ceramic	DL Moccasin Gray jar sherd
		DL Early Pueblo Gray jar sherds (22)
11	Ceramic	DL Early Pueblo Gray jar sherds (49)
		DL Chapin Gray jar sherds (3)
		DL Moccasin Gray jar sherds (12)
12	Ceramic	DL Early Pueblo Gray jar sherds (34)
13	Ceramic	DL Moccasin Gray jar sherds (3)
		DL Early Pueblo Gray jar sherds (4)
14	Ceramic	DL Early Pueblo Gray jar sherds (13)
		DL Moccasin Gray jar sherds (4)
15	Ceramic	DL Early Pueblo Gray jar sherds (12)
		DL Moccasin Gray jar sherds (2)
16	Flaked lithic	Debitage
17	Flaked lithic	Debitage

Refer to figure 3.11 for artifact locations.
DL - Dolores Manufacturing Tract.
SJ - San Juan Manufacturing Tract.

post was 4.04 m, whereas the distance from the northwest to northeast corner post was 4.70 m. By using the formulae found in Fields and Nelson (1983), an estimated floor area of 38.28 m² is obtained. This figure is more than one standard deviation larger than the mean for pitstructures built in the A.D. 840-860 period, but falls within two standard deviations of that mean (Hewitt et al. 1983).

Bench (Feature 16). The only feature encountered in the pitstructure was a wide bench. The bench is 61.2 cm wide at the point at which it was encountered in excavation, and the top of the bench is 52.5 cm above Surface 1. The sediments that form the bench show undisturbed bedding, which indicates that the bench was cut into the sediments at the time that the original pit was excavated, rather than having been built up after construction of the main pit. The bench was covered with at least two coats of plaster; the earlier coat is associated with Surface 3, whereas the second coating of plaster stops at the level of Surface 1.

Material Culture

The artifacts collected from Hanging Rock Hamlet are summarized in tables 3.9 through 3.14. Those probability squares that did not encounter rooms, pitstructures, or the nonstructural use area are presented together in the column headed "other excavation units."

The presentation of ceramic items in table 3.9 is arranged by the region (culture category) from which the sherds originated. Within the Mesa Verde Culture Category, localized manufacturing tracts are recognized based on attributes of the sherds, such as temper (Blinman 1982b). The tracts for sherds originating within the Mesa Verde region are also presented on table 3.9. Of the 5885 sherds recovered from Hanging Rock Hamlet, 93 percent are from the Mesa Verde Culture Category.

The majority of the ceramic items are Early Pueblo Gray sherds. Moccasin Gray is the most common of the sherds that can be placed into a more specific type. Mancos

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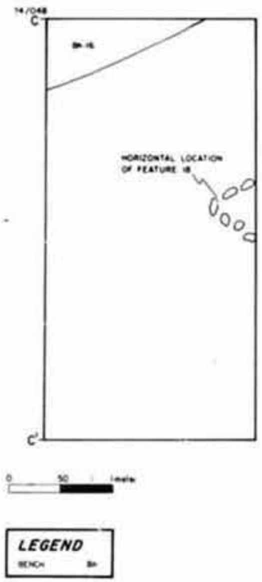

Figure 3.12 – Plan of the excavated portion of Pitstructure 2, Hanging Rock Hamlet.

Gray, Chapin Gray, Dolores Brown, Piedra Black-on-white, Chapin Black-on-white, Abajo Red-on-orange, and Bluff Black-on-red are also present at the site.

Sherds from culture categories other than the Mesa Verde are also present in the collection from Hanging Rock Hamlet. These include 4 from the Cibola area and 11 from either the Cibola or Kayenta areas.

Flaked lithic debitage (table 3.10) was the second largest class of items recovered from the site. Very fine grained materials accounted for 70.6 percent of the total flakes and flake fragments recovered, followed by fine-grained materials (18.9 percent), microscopic-grained materials (7.4 percent) and medium-grained materials (3.1 percent). Only 7 nonlocal items were identified in the flaked lithic debitage.

A total of 263 flaked lithic tools (table 3.11) was collected from the site, with utilized flakes being the most common morpho-use type present. The proportions of materials represented in the total collection of tools are similar to those for the flaked lithic debitage. Very fine grained materials are most common at 69.2 percent, followed by microscopic-grained materials (16.0 percent), fine-grained materials (2.3 percent) and medium-grained materials (2.3 percent). Coarse-grained and irregular materials are also present in the tool collection. Most of the tools (90.1 percent) are complete or nearly complete.

Only 51 nonflaked lithic tools (table 3.12) were recovered. The trough metate is the most frequent morpho-use type encountered. Two ornaments were found during excavation. One was a trapezoidal turquoise pendant recovered from the upper fill of Pitstructure 2. The other was a building stone recovered during the wall tracing operation. The building stone was more carefully shaped than others noted on the site, and had what appeared to be intentionally inscribed lines on one face.

Table 3.8 – Summary of the stratigraphy of Pitstructure 2, Hanging Rock Hamlet

Stratum	Color	Texture	Structure
1	10YR 5/3	Sandy loam	Massive
2	10YR 6/3	Loamy sand	Slightly laminate
3	10YR 5/3	Sandy loam	Massive
4	10YR 7/2	Very fine silt	Massive
5	7.5YR 5/4	Loamy sand	Massive
6	7.5YR 5/4	Sandy loam	Some areas well laminated
7a	7.5YR 7/4	Fine sand in a silt/ clay matrix	Massive
7b	7.5YR 5/4	Well-sorted sand	Massive
8	10YR 4/3	Silty clay	Massive
9	10YR 4/4	Sandy loam	Massive

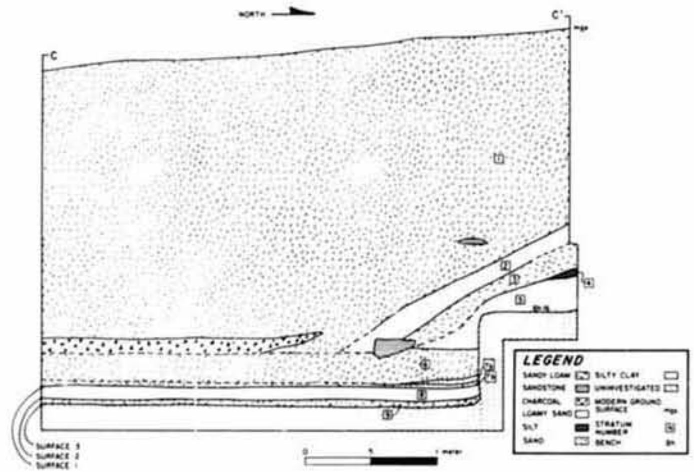

Figure 3.13 – Stratigraphic profile, Pitstructure 2, Hanging Rock Hamlet

Nonhuman bone and vegetal items recovered from the site are summarized in tables 3.13 and 3.14, respectively.

Site Synthesis

Chronology

The ceramic assemblage provides the primary evidence for dating the occupation at Hanging Rock Hamlet. The proportions of types and wares recovered from the site fit the patterns described by Blinman (1984) for assemblages dating to the period A.D. 860-880. Style dates (Blinman 1981) were calculated for the neckbanded ceramics (Moccasin Gray and Mancos Gray) collected during excavation at the site. These style dates support the assignment of the site to the A.D. 860-880 period. The 5 sherds of Late Pueblo Red ceramics from the site are all tempered with crushed sherds. The use of sherd temper in red wares is suggested to range from A.D. 880 to 895 in the project area. All 5 of these sherds appear to be associated with Feature 18, a slab-lined hearth in the fill of Pitstructure 2. Because no sherds of this type were recovered anywhere else on the site, and because of the position of the feature and the sherds in the fill of Pitstructure 2, these sherds likely represent a brief use of the site after initial abandonment.

An archaeomagnetic dating sample obtained from the central hearth (Feature 2) in Pitstructure 1 yielded 3 possible dates: A.D. 750-780, A.D. 850-870, and A.D. 910-950. These dates are derived from an interpretation of the intersection of the paleoplot derived for the sample and the current version of the paleopolar curve presented by Hathaway et al. (1983) and McGuire and Sternberg (1982); the plot position and intersection are given in Hathaway (1983). The A.D. 855-870 dates, although a less likely possibility based on only a partial intersection with the master curve, is probably the correct interpretation based on the other chronological evidence; it is consistent with the dates obtained from the ceramic assemblage and with architectural styles and patterns.

Six samples of charred wood were submitted for tree-ring dating, but none of the samples proved to be datable.

Based on the limited excavation within the pitstructures their attributes can be compared to the architectural seriation developed for the DAP (Hewitt et al. 1983). Based

Table 3.9 – Ceramic data summary, Hanging Rock Hamlet

Culture Category Tract Ware Type	Modern ground surface N	Modern ground surface %wt	Room 1 Floor 3 and features N	Room 1 Floor 3 and features %wt	Room 1 Floor 1 and features N	Room 1 Floor 1 and features %wt	Room 1 noncultural fill N	Room 1 noncultural fill %wt
Mesa Verde								
Dolores Tract								
Gray Ware								
Chapin Gray	4	1.9					1	7.6
Moccasin Gray	19	10.7						
Mancos Gray								
Dolores Brown								
Early Pueblo Gray	180	79.7	4	100.0	12	100.0	27	83.8
White Ware								
Chapin Black-on-white								
Piedra Black-on-white								
Early Pueblo White	10	7.7						
Polished White								
Late Pueblo White								
Red Ware								
Early Pueblo Red								
Smudged Ware								
Smudged								
San Juan Tract								
Gray Ware								
Chapin Gray								
Mancos Gray								
Early Pueblo Gray								
White Ware								
Chapin Black-on-white								
Piedra Black-on-white								
Early Pueblo White								
Cahone Tract								
Gray Ware								
Early Pueblo Gray								
White Ware								
Early Pueblo White								
Sandstone Tract								
Gray Ware								
Chapin Gray								
Early Pueblo Gray							1	1.3
Blanding Tract								
Red Ware								
Abajo Red-on-orange								
Bluff Black-on-red								
Early Pueblo Red	1	0.1					1	7.1
Late Pueblo Red								
Cibola								
White Ware								
Early Pueblo White								
Cibola or Kayenta								
Gray Ware								
Early Pueblo Gray								
White Ware								
Early Pueblo White								
Mogollon								
Brown Ware								
Brown Smudge								
Indeterminate								
Gray Ware								
Unclassifiable Gray								
White Ware								
Unclassifiable White								
Total ceramics	214	100.0	4	100.0	12	100.0	30	100.0
Total wt(g)	1065.5		46.2		94.2		114.1	
Vessel form								
Gray Ware								
Bowl								
Jar	202	92.0	4	100.0	12	100.0	29	92.9
Other	1	0.2						
White Ware								
Bowl	9	7.1						
Jar	1	0.6						
Other								
Red Ware								
Bowl	1	0.1					1	7.1
Jar								
Other								
Brown Ware								
Bowl								
Smudged Ware								
Bowl								

Table 3.9 - Ceramic data summary, Hanging Rock Hamlet - Continued

Culture Category / Tract / Ware / Type	Room 1 total		Room 2 nonculturally fill		Room 2 total		Pitstructure 1 Floor 1 and features	
	No.	%	No.	%	No.	%	No.	%
Mesa Verde								
Dolores Tract								
Gray Ware								
Chapin Gray	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Moccasin Gray			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mancos Gray			[illegible]	[illegible]	[illegible]	[illegible]		
Dolores Brown								
Early Pueblo Gray	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
White Ware								
Chapin Black-on-white								
Piedra Black-on-white								
Early Pueblo White			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Polished White								
Late Pueblo White								
Red Ware								
Early Pueblo Red								
Smudged Ware								
Smudged								
San Juan Tract								
Gray Ware								
Chapin Gray								
Mancos Gray								
Early Pueblo Gray			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
White Ware								
Chapin Black-on-white								
Piedra Black-on-white								
Early Pueblo White			[illegible]	[illegible]	[illegible]	[illegible]		
Cahone Tract								
Gray Ware								
Early Pueblo Gray			[illegible]	[illegible]	[illegible]	[illegible]		
White Ware								
Early Pueblo White								
Sandstone Tract								
Gray Ware								
Chapin Gray								
Early Pueblo Gray	[illegible]	[illegible]						
Blanding Tract								
Red Ware								
Abajo Red-on-orange								
Bluff Black-on-red			[illegible]	[illegible]	[illegible]	[illegible]		
Early Pueblo Red	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
Late Pueblo Red								
Cibola								
White Ware								
Early Pueblo White								
Cibola or Kayenta								
Gray Ware								
Early Pueblo Gray								
White Ware								
Early Pueblo White								
Mogollon								
Brown Ware								
Brown Smudged								
Indeterminate								
Gray Ware								
Unclassifiable gray								
White Ware								
Unclassifiable White								
Total ceramics	[illegible]	100.0	[illegible]	100.0	[illegible]	100.0	[illegible]	100.0
Total wt (g)	[illegible]		[illegible]		[illegible]		[illegible]	
Vessel form								
Gray Ware								
Bowl								
Jar	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Other			[illegible]	[illegible]	[illegible]	[illegible]		
White Ware								
Bowl			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Jar								
Other								
Red Ware								
Bowl	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
Jar			[illegible]	[illegible]	[illegible]	[illegible]		
Other								
Brown Ware								
Bowl								
Smudged Ware								
Bowl								

Table 3.9 - Ceramic data summary, Hanging Rock Hamlet - Continued

Culture Category / Tract / Ware / Type	Pitstructure 1 fill		Pitstructure 1 total	
	No.	%	No.	%
Mesa Verde				
Dolores Tract				
Gray Ware				
Chapin Gray	17	4.2	47	[illegible]
Moccasin Gray	34	[illegible]	41	[illegible]
Mancos Gray				
Dolores Brown				
Early Pueblo Gray	570	[illegible]	858	[illegible]
White Ware				
Chapin Black-on-white	1	0.2	1	[illegible]
Piedra Black-on-white	[illegible]	1.0	[illegible]	[illegible]
Early Pueblo White	[illegible]	1.4	17	[illegible]
Polished White				
Late Pueblo White				
Red Ware				
Early Pueblo Red				
Smudged Ware				
Smudged				
San Juan Tract				
Gray Ware				
Chapin Gray	1	0.2	1	[illegible]
Mancos Gray				
Early Pueblo Gray	14	1.0	15	[illegible]
White Ware				
Chapin Black-on-white	1	0.2	1	[illegible]
Piedra Black-on-white				
Early Pueblo White	[illegible]	[illegible]	[illegible]	[illegible]
Cahone Tract				
Gray Ware				
Early Pueblo Gray	4	[illegible]	4	[illegible]
White Ware				
Early Pueblo White	1	[illegible]	[illegible]	[illegible]
Sandstone Tract				
Gray Ware				
Chapin Gray	1	[illegible]	1	0.2
Early Pueblo Gray	4	0.6	[illegible]	[illegible]
Blanding Tract				
Red Ware				
Abajo Red-on-orange	11	[illegible]	11	1.0
Bluff Black-on-red	3	0.4	3	0.3
Early Pueblo Red	[illegible]	[illegible]	[illegible]	[illegible]
Late Pueblo Red				
Cibola				
White Ware				
Early Pueblo White	4	[illegible]	4	0.3
Cibola or Kayenta				
Gray Ware				
Early Pueblo Gray	4	0.5	4	0.3
White Ware				
Early Pueblo White	1	0.2	1	0.2
Mogollon				
Brown Ware				
Brown Smudged	1	0.1	1	0
Indeterminate				
Gray Ware				
Unclassifiable Gray				
White Ware				
Unclassifiable White				
Total ceramics	757	100.0	[illegible]	100.0
Total wt (g)	4317		[illegible]	
Vessel form				
Gray Ware				
Bowl				
Jar	667	88.5	1013	92.1
Other	6	0.9	6	0.6
White Ware				
Bowl	26	3.8	27	2.7
Jar	6	0.5	6	[illegible]
Other	2	1.2	2	0.8
Red Ware				
Bowl	[illegible]	4.0	38	[illegible]
Jar	[illegible]	0.9	9	0.7
Other	2	0.2	2	0.1
Brown Ware				
Bowl	1	0.1	1	0
Smudged Ware				
Bowl				

Table 3.9 - Ceramic data summary, Hanging Rock Hamlet - Continued

Culture Category / Tract / Ware / Type	Pitstructure 2 Floor 2 and features N	% wt	Pitstructure 2 Floor 3 and features N	% wt	Pitstructure 2 cultural fill N	% wt	Pitstructure 2 mixed fill N	% wt
Mesa Verde								
Dolores Tract								
Gray Ware								
Chapin Gray					4	1.2	20	1.9
Moccasin Gray					12	8.7	62	13.1
Mancos Gray					1	0.9	15	2.7
Dolores Brown							1	0
Early Pueblo Gray	7	81.6	2	100.0	117	72.1	468	73.8
White Ware								
Chapin Black-on-white							1	0.4
Piedra Black-on-white					4	4.9		
Early Pueblo White					6	3.5	20	2.2
Polished White								
Late Pueblo White							1	0.3
Red Ware								
Early Pueblo Red							1	0
Smudged Ware								
Smudged							3	1.5
San Juan Tract								
Gray Ware								
Chapin Gray								
Mancos Gray								
Early Pueblo Gray					6	4.6	4	0.7
White Ware								
Chapin Black-on-white								
Piedra Black-on-white								
Early Pueblo White					2	0.2		
Cabone Tract								
Gray Ware								
Early Pueblo Gray					2	0.4	3	0.4
White Ware								
Early Pueblo White								
Sandstone Tract								
Gray Ware								
Chapin Gray								
Early Pueblo Gray								
Bluff Tract								
Red Ware								
Abajo Red-on-orange					2	1.3	1	0.1
Bluff Black-on-red					2	.7	14	3.4
Early Pueblo Red	2	18.4			3	1.0	1	0.7
Late Pueblo Red							1	0.2
Cibola								
White Ware								
Early Pueblo White								
Cibola or Kayenta								
Gray Ware								
Early Pueblo Gray					1	0.7		
White Ware								
Early Pueblo White								
Mogollon								
Brown Ware								
Brown Smudge								
Indeterminate								
Gray Ware								
Unclassifiable Gray								
White Ware								
Unclassifiable White								
Total ceramics	9	100.0	2	100.0	162	100.0	628	100.0
Total wt (g)	51.1		4.1		1 088.3		4 934.7	
Vessel form								
Gray Ware								
Bowl					2	0.7		
Jar	7	81.6	2	100.0	141	87.6	566	90.1
Other							9	2.1
White Ware								
Bowl					11	7.7	20	2.5
Jar								
Other					1	1.0	2	0.4
Red Ware								
Bowl	2	18.4			3	1.7	17	3.4
Jar					1	0.8	9	0.8
Other					1	0.6	2	0.2
Brown Ware								
Bowl								
Smudged Ware								
Bowl							3	0.5

Table 3.9 - Ceramic data summary, Hanging Rock Hamlet - Continued

Culture Category / Tract / Ware / Type	Pitstructure 2 noncultural fill N	% wt	Pitstructure 2 total N	% wt	Occupation Area 1 Floor 1 and features N	% wt	Occupation Area 1 noncultural fill N	% wt
Mesa Verde								
Dolores Tract								
Gray Ware								
Chapin Gray	36	1.7	60	1.7			6	7.6
Moccasin Gray	110	9.2	184	10.6	3	9.4	2	1.0
Mancos Gray	20	1.0	36	1.8				
Dolores Brown			1	0				
Early Pueblo Gray	1 302	81.6	1 886	78.0	27	60.3	44	69.7
White Ware								
Chapin Black-on-white			1	0.1				
Piedra Black-on-white	1	0.1	5	0.3				
Early Pueblo White	58	3.5	84	2.9				
Polished White			1	0				
Late Pueblo White			1	0.1				
Red Ware								
Early Pueblo Red			1	0				
Smudged Ware								
Smudged	1	0	4	0.2				
San Juan Tract								
Gray Ware								
Chapin Gray								
Mancos Gray	1	0	1	0				
Early Pueblo Gray	9	0.4	19	0.7				
White Ware								
Chapin Black-on-white								
Piedra Black-on-white					2	19.5	2	5.2
Early Pueblo White	4	0.1	8	0.1			2	7.1
Cabone Tract								
Gray Ware								
Early Pueblo Gray	9	0.4	13	0.4				
White Ware								
Early Pueblo White								
Sandstone Tract								
Gray Ware								
Chapin Gray								
Early Pueblo Gray	1	0	1	0				
Bluff Tract								
Red Ware								
Abajo Red-on-orange	17	0.6	18	0.4				
Bluff Black-on-red	8	0.3	24	1.5				
Early Pueblo Red	33	1.0	49	1.0	2	10.8	5	9.1
Late Pueblo Red	2	0.1	7	0.1				
Cibola								
White Ware								
Early Pueblo White								
Cibola or Kayenta								
Gray Ware								
Early Pueblo Gray	2	0.1	3	0.1				
White Ware								
Early Pueblo White								
Mogollon								
Brown Ware								
Brown Smudge								
Indeterminate								
Gray Ware								
Unclassifiable Gray								
White Ware								
Unclassifiable White								
Total ceramics	1 609	100.0	2 400	100.0	30	100.0	61	100.0
Total wt (g)	[illegible]		[illegible]		329.4		413.8	
Vessel form								
Gray Ware								
Bowl			2	0				
Jar	1 471	97.8	2 189	91.5	26	86.7	52	78.4
Other	14	1.6	23	1.7				
White Ware								
Bowl	60	3.4	91	3.3	2	19.5	8	12.5
Jar	2	0	2	0				
Other	1	0	4	0.2				
Red Ware								
Bowl	41	1.5	63	2.3	2	10.8	5	9.1
Jar	17	0.5	29	0.6				
Other			3	0.1				
Brown Ware								
Bowl								
Smudged Ware								
Bowl	1	0	4	0.2				

Table 3.9 – Ceramic data summary, Hanging Rock Hamlet – Continued

Culture Category / Tract / Ware / Type	Occupation Area 1 total N	Occupation Area 1 total %wt	Other excavated units N	Other excavated units %wt	Site total N	Site total %wt
Mesa Verde						
Dolores Tract						
Gray Ware						
Chapin Gray	6	4.3	36	2.6	158	2.3
Moccasin Gray	9	4.7	57	3.8	559	8.4
Mancos Gray			18	0.7	51	1.0
Dolores Brown					1	0
Early Pueblo Gray	67	65.6	1 539	81.9	4 725	78.3
White Ware						
Chapin Black-on-white					2	0.1
Piedra Black-on-white			5	0.5	13	0.4
Early Pueblo White			27	2.4	142	2.5
Polished White					1	0
Late Pueblo White					1	0.1
Red Ware						
Early Pueblo Red					1	0
Smudged Ware						
Smudged					4	0.1
San Juan Tract						
Gray Ware						
Chapin Gray			3	0.3	4	0.1
Mancos Gray					1	0
Early Pueblo Gray			11	0.6	47	0.6
White Ware						
Chapin Black-on-white					1	0
Piedra Black-on-white	4	11.5			4	0.2
Early Pueblo White	2	4.1	11	0.7	27	0.5
Cahone Tract						
Gray Ware						
Early Pueblo Gray			6	0.2	24	0.1
White Ware						
Early Pueblo White			2	0.2	3	0.1
Sandstone Tract						
Gray Ware						
Chapin Gray					1	0
Early Pueblo Gray			8	0.3	18	0.2
Blanding Tract						
Red Ware						
Abajo Red-on-orange			7	1.1	36	0.7
Bluff Black-on-red			3	0.4	57	1.7
Early Pueblo Red	7	9.8	81	4.0	183	2.2
Late Pueblo Red			2	0.1	5	0.1
Cibola						
White Ware						
Early Pueblo White					4	0
Cibola or Kayenta						
Gray Ware						
Early Pueblo Gray			3	0.1	10	0.1
White Ware						
Early Pueblo White					1	0
Mogollon						
Brown Ware						
Brown Smudge			1	0	2	0
Indeterminate						
Gray Ware						
Unclassifiable Gray					1	0
White Ware						
Unclassifiable White			1	0	1	0
Total ceramics	91	100.0	1 820	100.0	5 885	100.0
Total wt (g)	741.2		9 437.8		17 736.1	
Vessel form						
Gray Ware						
Bowl					2	0
Jar	78	74.6	1 674	90.2	5 357	90.1
Other			6	0.4	39	1.1
White Ware						
Bowl	6	15.6	41	3.4	179	3.6
Jar			5	0.3	14	0.2
Other					6	0.2
Red Ware						
Bowl	7	9.8	69	4.8	212	3.9
Jar			23	0.9	64	0.7
Other			1	0.1	6	0.1
Brown Ware						
Bowl			1	0	2	0
Smudged Ware						
Bowl					4	0.1

Table 3.10 – Flaked lithic debitage, Hanging Rock Hamlet

	Modern ground surface N	%	Mean wt(g)	Room 1 Floor 3 and features N	%	Mean wt(g)	Room 1 Floor 1 and features N	%	Mean wt(g)	Room 1 Noncultural fill N	%	Mean wt(g)	Room 1 Total N	%	Mean wt(g)
Flakes/flake frags															
Grain size															
Medium	3	2.5	8	0	0	0	0	0	0	1	7.7	2	1	5.6	2
Fine	2	1.7	10	0	0	0	2	66.7	11	5	38.5	8	7	38.9	9
Very fine	90	74.4	13	2	100.0	5	1	33.3	20	5	38.5	4	8	44.4	6
Microscopic	26	21.5	5	0	0	0	0	0	0	2	15.4	1	2	11.1	1
Total flakes/ Flake frags	121	100.0	11	2	100.0	5	3	100.0	14	13	100.0	5	18	100.0	6
Items with cortex	28	23.1	...	0	0	0	2	66.7	...	5	38.5	...	7	38.9	...
Who'. flakes	54	44.6	...	0	0	0	3	100.0	...	11	84.6	...	14	77.8	...
Nonlocal items	0	0	0	0	0	0	0	0	0	0	0	0	0	0	...
Angular debris	3	100.0	9	0	0	0	3	100.0	3	2	100.0	11	5	100.0	6

frags - Fragments.
... - Information not available.

Table 3.10 – Flaked lithic debitage, Hanging Rock Hamlet – Continued

	Room 2 Noncultural fill N	%	Mean wt(g)	Room 2 total N	%	Mean wt(g)	Pitstructure 1 Floor 1 and features N	%	Mean wt(g)	Pitstructure 1 fill N	%	Mean wt(g)
Flakes/flake frags												
Grain size												
Medium	0	0	0	0	0	0	1	11.1	9	1	2.1	1
Fine	2	9.1	16	2	9.1	16	1	11.1	1	16	33.3	5
Very fine	18	81.8	8	18	81.8	8	6	66.7	7	30	62.5	11
Microscopic	2	9.1	1	2	9.1	1	1	11.1	4	1	2.1	1
Total flakes/ Flake frags	22	100.0	8	22	100.0	8	9	100.0	6	48	100.0	9
Items with cortex	11	50.0	...	11	50.0	...	3	33.3	...	17	35.4	...
Whole flakes	18	81.8	...	18	81.8	...	9	100.0	...	43	89.6	...
Nonlocal items	1	4.5	...	1	4.5	...	0	0	0	0	0	0
Angular debris	13	100.0	18	13	100.0	18	0	0	0	10	100.0	19

Table 3.10 – Flaked lithic debitage, Hanging Rock Hamlet – Continued

	Pitstructure 1 Noncultural fill			Pitstructure 1 total			Pitstructure 2 Floor 2 and features			Pitstructure 2 Floor 3 and features			Pitstructure 2 cultural fill		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:															
Grain size															
Medium	3	2.1	11	5	2.5	9	0	0	0	0	0	0	1	1.8	3
Fine	22	15.2	14	39	19.3	10	3	18.8	5	0	0	0	12	21.8	38
Very fine	108	74.5	8	144	71.3	9	10	62.5	5	1	100.0	1	42	76.4	10
Microscopic	12	8.3	1	14	6.9	1	3	18.8	1	0	0	0	0	0	0
Total flakes/ Flake frags	145	100.0	9	202	100.0	9	16	100.0	4	1	100.0	1	55	100.0	16
Items with cortex	58	40.0	...	78	38.6	...	5	31.3	...	0	0	0	29	52.7	...
Whole flakes	122	84.1	...	174	86.1	...	11	68.8	...	1	100.0	...	45	81.8	...
Nonlocal items	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Angular debris	9	100.0	4	19	100.0	12	6	100.0	4	2	100.0	1	12	100.0	9

Table 3.10 – Flaked lithic debitage, Hanging Rock Hamlet – Continued

	Pitstructure 2 mixed fill			Pitstructure 2 noncultural fill			Pitstructure 2 total			Occupation Area 1 Floor 1 and feature			Occupation Area 1 noncultural fill		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:															
Grain size															
Medium	2	0.9	9	33	4.2	8	36	3.3	8	0	0	0	0	0	0
Fine	52	22.5	31	165	20.9	12	232	21.2	18	4	30.8	6	6	23.1	13
Very fine	166	71.9	14	536	67.8	4	755	69.0	7	6	46.2	9	16	61.5	6
Microscopic	11	4.8	1	57	7.2	1	71	6.5	1	3	23.1	1	4	15.4	2
Total flakes/ Flake frags	231	100.0	17	791	100.0	6	1 094	100.0	9	13	100.0	6	26	100.0	7
Items with cortex	111	48.1	...	252	31.9	...	397	36.3	...	2	15.4	...	12	46.2	...
Whole flakes	50	69.3	...	448	56.6	...	665	60.8	...	9	69.2	...	20	76.9	...
Nonlocal items	0	0	0	6	0.8	...	6	0.5	...	0	0	0	0	0	...
Angular debris	68	100.0	12	376	100.0	6	464	100.0	6	4	100.0	1	16	100.0	3

Table 3.10 – Flaked lithic debitage, Hanging Rock Hamlet – Continued

	Occupation Area 1 total			Other excavated units			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:									
Grain size									
Medium	0	0	0	41	3.3	10	86	3.1	9
Fine	10	25.6	10	228	18.2	8	520	18.9	13
Very fine	22	56.4	7	904	72.1	4	1 941	70.6	6
Microscopic	7	17.9	1	81	6.5	1	203	7.4	2
Total flakes/ Flake frags	39	100.0	7	1 254	100.0	5	2 750	100.0	7
Items with cortex	14	35.9	...	279	22.2	...	814	29.6	...
Whole flakes	29	74.4	...	579	46.2	...	1 533	55.7	...
Nonlocal items	0	0	0	0	0	0	7	0.3	...
Angular debris	20	100.0	3	385	100.0	6	909	100.0	6

primarily on the presence of a bench and the inferred shape of the pitstructures, a date between A.D. 760 and 840 is suggested. The surface architecture also provided some evidence as to the date of construction. Vertical slab architecture was commonly used in construction of surface rooms in the project area between A.D. 750 and 900 (Kane 1983b). The construction of the roomblock and the presence of both vertical slab and horizontal masonry suggests placement in the Periman Subphase (A.D. 850-900) of the McPhee Phase (A.D. 850-975).

In summary, the site appears to date to the last half of the 9th century. The ceramic assemblage as a whole fits best in the A.D. 860-880 period, a placement supported by the style dates for neckbanded ceramics, and the nature of the surface architecture. The style of the pitstructures points to an earlier period, however, and the possible date ranges for the archaeomagnetic sample fall on either side of the ceramic date range.

Site Formation Processes

A tentative reconstruction of the formation processes at Hanging Rock Hamlet can be offered based on site stratigraphy and architectural details. Pitstructure 2 seems to be the earliest pitstructure constructed at the site. This conclusion is suggested by the fact that it was partially filled with trash after it ceased to be used as a structure, and by the fact that it has three superimposed floors. Since Pitstructure 1 has no trash fill, it is assumed to have been abandoned at the same time that people stopped using the rest of the site. The trash fill of Pitstructure 2 indicates [illegible] people were still using Hanging Rock Hamlet, and it is assumed that they were using Pitstructure 1 while this trash was being deposited. The multiple floors in Pitstructure 2 suggests that its use life was longer than that of Pitstructure 1, so that even if the periods of use of the 2 structures overlapped — a possibility that cannot be readily evaluated with the evidence available — Pitstructure 2 was probably constructed first. Style dates for neckbanded ceramics from near the uppermost floor of Pitstructure 2, the trash fill of Pitstructure 2, and the floor of Pitstructure 1 do not contradict this relative sequence.

Not enough time was allowed at the roomblock to determine building sequences. However Room 2 does appear to have been associated with the use of Pitstructure 2. This would be expected on the ground of spatial proximity, but it is also suggested by the fact that the neckband style dates for sherds from the floor of the room are closer to those from Pitstructure 2 than to those from Pitstructure 1.

After the abandonment of the site as a habitation, the depression created by the partially filled Pitstructure 2 received some use. A small slab-lined pit was built into this fill and seems to be associated with the only sherd-tempered red ware sherds recovered from the site.

Applicability of Site Data to the Dolores Archaeological Program Research Design

Excavations at Hanging Rock Hamlet focused on the probability sample, a sampling technique that provides data which has a specified collection history and is strictly comparable to other such collections. This data is most useful for answering project-wide questions. The probability sampling collection techniques do not, however, always provide sufficient information for addressing descriptive questions about sites; nor do these techniques insure the recovery of information useful in addressing the problem domains of the DAP research design at a

Table 3.11 – Flaked lithic tools, Hanging Rock Hamlet

	Modern ground surface			Room 1 Floor 3 and features			Room 1 Floor 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	56	100.0	97	1	100.0	392	2	100.0	7
Tool morpho-use									
Inapplicable									
Indeterminate									
Utilized flake	33	58.9	28				1	50.0	11
Core	2	3.6	121						
Used core, cobble tool	6	10.7	275						
Thick uniface	9	16.1	109						
Thin uniface	2	3.6	108						
Specialized form									
Thick biface	2	3.6	587	1	100.0	392			
Thin biface	2	3.6	117						
Projectile point							1	50.0	2
Grain size									
Coarse									
Medium									
Fine	1	1.8	192						
Very fine	46	82.1	110	1	100.0	392	1	50.0	11
Microscopic	9	16.1	19				1	50.0	2
Irregular									
Item condition									
Indeterminate	1	1.8	2						
Broken									
Indeterminate									
Distal present									
Proximal present									
Medial/lateral present									
Complete/nearly complete	55	98.2	99	1	100.0	392	2	100.0	7
Dorsal face evaluation									
Indeterminate									
Core	5	8.9	168						
Unworked with cortex	13	23.2	153				1	50.0	11
Unworked without cortex	34	60.7	67						
Edged with cortex				1	100.0	392			
Edged without cortex	3	5.4	102						
Primarily thinned									
Secondarily thinned	1	1.8	18				1	50.0	2
Well shaped									
Highly stylized									

Table 3.11 – Flaked lithic tools, Hanging Rock Hamlet – Continued

	Room 1 noncultural fill			Room 1 total			Room 2 noncultural fill		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	1	100.0	10	4	100.0	104	5	100.0	382
Tool morpho-use									
Inapplicable									
Indeterminate							1	20.0	1
Utilized flake				1	25.0	11	2	40.0	20
Core									
Used core, cobble tool							1	20.0	404
Thick uniface									
Thin uniface	1	100.0	10	1	25.0	10			
Specialized form							1	20.0	1 464
Thick biface				1	25.0	392			
Thin biface									
Projectile point				1	25.0	2			
Grain size									
Coarse									
Medium	1	100.0	10	1	25.0	10	1	20.0	1 464
Fine									
Very fine				2	50.0	202	3	60.0	148
Microscopic				1	25.0	2	1	20.0	1
Irregular									
Item condition									
Indeterminate									
Broken									
Indeterminate									
Distal present									
Proximal present									
Medial/lateral present									
Complete/nearly complete	1	100.0	10	4	100.0	104	5	100.0	382
Dorsal face evaluation									
Indeterminate									
Core							1	20.0	404
Unworked with cortex				1	25.0	11	1	20.0	25
Unworked without cortex	1	100.0	10	1	25.0	10	1	20.0	15
Edged with cortex				1	25.0	392	1	20.0	1 464
Edged without cortex							1	20.0	1
Primarily thinned									
Secondarily thinned				1	25.0	2			
Well shaped									
Highly stylized									

Table 3.11 – Flaked lithic tools, Hanging Rock Hamlet – Continued

	Room 2 total			Pitstructure 1 fill			Pitstructure 1 total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	5	100.0	382	20	100.0	47	20	100.0	47
Tool morpho-use									
Inapplicable									
Indeterminate	1	20.0	1						
Utilized flake	2	40.0	20	13	65.0	18	13	65.0	18
Core				3	15.0	124	3	15.0	123
Used core, cobble tool	1	20.0	404	1	5.0	191	1	5.0	191
Thick uniface									
Thin uniface				3	15.0	47	3	15.0	47
Specialized form	1	20.0	1 464						
Thick biface									
Thin biface									
Projectile point									
Grain size									
Coarse									
Medium	1	20.0	1 464						
Fine				1	5.0	8	1	5.0	8
Very fine	3	60.0	148	14	70.0	64	14	70.0	64
Microscopic	1	20.0	1	5	25.0	6	5	25.0	6
Irregular									
Item condition									
Broken									
Indeterminate									
Indeterminate									
Distal present									
Proximal present									
Medial/lateral present									
Complete/nearly complete	5	100.0	382	20	100.0	47	20	100.0	47
Dorsal face evaluation									
Indeterminate									
Core	1	20.0	404	4	20.0	141	4	20.0	140
Unworked with cortex	1	20.0	25	8	40.0	34	8	40.0	34
Unworked without cortex	1	20.0	15	8	40.0	12	8	40.0	12
Edged with cortex	1	20.0	1 464						
Edged without cortex	1	20.0	1						
Primarily thinned									
Secondarily thinned									
Well shaped									
Highly stylized									

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Table 3.11 – Flaked lithic tools, Hanging Rock Hamlet – Continued

	Pitstructure 2 Floor 2 and features			Pitstructure 2 cultural fill			Pitstructure 2 mixed fill		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	1	100.0	12	8	100.0	80	42	100.0	166
Tool morpho-use									
Inapplicable									
Indeterminate							3	7.1	11
Utilized flake				6	75.0	59	11	26.2	78
Core							9	21.4	174
Used core, cobble tool				1	12.5	212	8	19.0	318
Thick uniface	1	100.0	12				4	9.5	375
Thin uniface				1	12.5	73	3	7.1	79
Specialized form									
Thick biface							2	4.8	111
Thin biface							1	2.4	3
Projectile point							1	2.4	3
Grain size									
Coarse									
Medium							1	2.4	157
Fine							6	14.3	328
Very fine	1	100.0	12	7	87.5	88	33	78.6	147
Microscopic							2	4.8	2
Irregular				1	12.5	20			
Item condition									
Indeterminate									
Broken									
Indeterminate							6	14.3	73
Distal present							1	2.4	3
Proximal present									
Medial/lateral present									
Complete/nearly complete	1	100.0	12	8	100.0	80	35	83.3	186
Dorsal face evaluation									
Indeterminate									
Core				1	12.5	212	18	42.9	220
Unworked with cortex	1	100.0	12	5	62.5	67	15	35.7	135
Unworked without cortex				1	12.5	20	3	7.1	49
Edged with cortex				1	12.5	73	4	9.5	208
Edged without cortex							1	2.4	1
Primarily thinned									
Secondarily thinned							1	2.4	3
Well shaped									
Highly stylized									

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Table 3.11 – Flaked lithic tools, Hanging Rock Hamlet – Continued

	Pitstructure 2 noncultural fill			Pitstructure 2 total			Other excavated units			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools	41	100.0	50	92	100.0	105	86	100.0	89	263	100.0	99
Tool morpho-use												
Inapplicable							1	1.2	1	1	.4	1
Indeterminate	2	4.9	12	5	5.4	11	2	2.3	7	8	3.0	9
Utilized flake	15	36.6	22	32	34.8	49	49	57.0	30	130	49.4	33
Core	4	9.8	92	13	14.1	149	10	11.6	163	28	10.6	149
Used core, cobble tool	7	17.1	133	16	17.4	230	7	8.1	360	31	11.8	273
Thick uniface	2	4.9	118	7	7.6	249	6	7.0	73	22	8.4	144
Thin uniface	2	4.9	17	6	6.5	57	2	2.3	159	14	5.3	73
Specialized form							2	2.3	131	3	1.1	575
Thick biface	1	2.4	102	3	3.3	108	3	3.5	129	9	3.4	253
Thin biface				1	1.1	3	1	1.2	615	4	1.5	213
Projectile point	8	19.5	2	9	9.8	2	3	3.5	2	13	4.9	2
Grain size												
Coarse							1	1.2	1 527	1	.4	1 527
Medium				1	1.1	157	3	3.5	43	6	2.3	294
Fine	11	26.8	34	17	18.5	137	4	4.7	78	23	8.7	124
Very fine	21	51.2	78	62	67.4	115	55	64.0	92	182	69.2	104
Microscopic	8	19.5	4	10	10.9	4	16	18.6	8	42	16.0	9
Irregular	1	2.4	1	2	2.2	11	7	8.1	71	9	3.4	58
Item condition												
Indeterminate	1	2.4	149	1	1.1	149	2	2.3	16	4	1.5	46
Broken												
Indeterminate	5	12.2	16	11	12.0	47	5	5.8	69	16	6.1	54
Distal present	2	4.9	2	3	3.3	2				3	1.1	2
Proximal present	1	2.4	1	1	1.1	1				1	.4	1
Medial/lateral present	1	2.4	4	1	1.1	4	1	1.2	1	2	.8	3
Complete/nearly complete	31	75.6	58	75	81.5	120	78	90.7	94	237	90.1	105
Dorsal face evaluation												
Indeterminate	1	2.4	1	1	1.1	1	2	2.3	7	3	1.1	5
Core	10	24.4	109	29	31.5	182	16	18.6	164	55	20.9	176
Unworked with cortex	12	29.3	42	33	35.9	87	34	39.5	51	90	34.2	77
Unworked without cortex	6	14.6	11	10	10.9	23	25	29.1	20	79	30.0	39
Edged with cortex	2	4.9	126	7	7.6	165	4	4.7	700	13	4.9	447
Edged without cortex	2	4.9	55	3	3.3	37	1	1.2	11	8	3.0	53
Primarily thinned							1	1.2	1	1	.4	1
Secondarily thinned	3	7.3	2	4	4.3	2	1	1.2	2	7	2.7	4
Well shaped	3	7.3	3	3	3.3	3	1	1.2	1	4	1.5	3
Highly stylized	2	4.9	3	2	2.2	3	1	1.2	2	3	1.1	2

single-site level. The following discussion is an attempt to point out areas where data from Hanging Rock Hamlet can provide some site-specific answers to such questions. The discussion is organized by the problem domains outlined in the research design (Kane et al. 1983).

Economy and adaptation. – Evidence for the use of plant resources at Hanging Rock Hamlet is presented in table 3.14. The only domesticated plant recovered from the site was maize (*Zea mays*); maize remains were recovered from several contexts in the site. Wild plant foods are represented by seeds of purslane (*Portulaca* sp.), pigweed (*Amaranthus* sp.), pinyon pine (*Pinus edulis*), and blazing star (*Mentzelia* sp.). A variety of plants were used for fuel, as indicated by the charred wood from the hearth in Pitstructure 1. The presence of pinyon pine, juniper

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Table 3.12 – Nonflaked lithic tools, Hanging Rock Hamlet

	Modern ground surface			Room 1 Floor 1 and features			Room 1 noncultural fill		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools	12	100.0	703	2	100.0	670	1	100.0	2 100
Tool morpho-use									
Indeterminate									
Miscellaneous	1	8.3	65	1	50.0	257			
Hammerstone	3	25.0	332						
Mano fragment									
One-hand mano	3	25.0	1 050						
Two-hand mano	2	16.7	1 006	1	50.0	1 082	1	100.0	2 100
Metate fragment	1	8.3	1 004						
Trough metate									
Slab metate									
Hafted item	2	16.7	605						
Ornament									
Blank type									
Indeterminate									
Rounded cobble							1	100.0	2 100
Flattened cobble				1	50.0	1 082			
Thick slab									
Thin slab									
Very thin slab				1	50.0	257			
Completely modified item									
Data not available	12	100.0	703						
Item condition									
Broken									
Unidentifiable	1	8.3	229	1	50.0	257			
Identifiable	6	50.0	680						
Complete/nearly complete	5	41.7	826	1	50.0	1 082	1	100.0	2 100
Production evaluation									
Indeterminate									
Natural (unmodified)	6	50.0	656						
Minimally modified	5	41.7	762	1	50.0	257	1	100.0	2 100
Well shaped	1	8.3	687	1	50.0	1 082			
Stylized									

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Table 3.12 – Nonflaked lithic tools, Hanging Rock Hamlet – Continued

	Room 1 total			Room 2 noncultural fill			Room 2 total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	3	100.0	1 146	1	100.0	356	1	100.0	356
Tool morpho-use									
Indeterminate									
Miscellaneous	1	33.3	257						
Hammerstone				1	100.0	356	1	100.0	356
Mano fragment									
One-hand mano									
Two-hand mano	2	66.7	1 591						
Metate fragment									
Trough metate									
Slab metate									
Hafted item									
Ornament									
Blank type									
Indeterminate				1	100.0	356	1	100.0	356
Rounded cobble	1	33.3	2 100						
Flattened cobble	1	33.3	1 082						
Thick slab									
Thin slab									
Very thin slab	1	33.3	257						
Completely modified item									
Data not available									
Item condition									
Broken									
Unidentifiable	1	33.3	257	1	100.0	356	1	100.0	356
Identifiable									
Complete/nearly complete	2	66.7	1 591						
Production evaluation									
Indeterminate				1	100.0	356	1	100.0	356
Natural (unmodified)									
Minimally modified	2	66.7	1 179						
Well shaped	1	33.3	1 082						
Stylized									

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Table 3.12 – Nonflaked lithic tools, Hanging Rock Hamlet – Continued

	Pitstructure 1 Floor 1 and features			Pitstructure 1 fill			Pitstructure 1 total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	1	100.0	3 200	1	100.0	34 400	2	100.0	18 800
Tool morpho-use									
Indeterminate									
Miscellaneous									
Hammerstone									
Mano fragment									
One-hand mano									
Two-hand mano									
Metate fragment									
Trough metate	1	100.0	3 200	1	100.0	34 400	2	100.0	18 800
Slab metate									
Hafted item									
Ornament									
Blank type									
Indeterminate									
Rounded cobble									
Flattened cobble									
Thick slab				1	100.0	34 400	1	50.0	34 400
Thin slab	1	100.0	3 200				1	50.0	3 200
Very thin slab									
Completely modified item									
Data not available									
Item condition									
Broken									
Unidentifiable	1	100.0	3 200				1	50.0	3 200
Identifiable									
Complete/nearly complete				1	100.0	34 400	1	50.0	34 400
Production evaluation									
Indeterminate	1	100.0	3 200				1	50.0	3 200
Natural (unmodified)									
Minimally modified									
Well shaped				1	100.0	34 400	1	50.0	34 400
Stylized									

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Table 3.12 – Nonflaked lithic tools, Hanging Rock Hamlet – Continued

	Pitstructure 2 cultural fill			Pitstructure 2 mixed fill			Pitstructure 2 noncultural fill		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	2	100.0	313	8	100.0	1 114	4	100.0	474
Tool morpho-use									
Indeterminate									
Miscellaneous	2	100.0	313	1	12.5	162	2	50.0	400
Hammerstone				2	25.0	333			
Mano fragment				3	37.5	835			
One-hand mano									
Two-hand mano							1	25.0	1 096
Metate fragment									
Trough metate				1	12.5	5 000			
Slab metate									
Hafted item				1	12.5	578			
Ornament							1	25.0	1
Blank type									
Indeterminate									
Rounded cobble				3	37.5	276			
Flattened cobble	2	100.0	313	4	50.0	771	3	75.0	632
Thick slab									
Thin slab				1	12.5	5 000			
Very thin slab									
Completely modified item							1	25.0	1
Data not available									
Item condition									
Broken									
Unidentifiable				3	37.5	2 070	1	25.0	244
Identifiable							1	25.0	555
Complete/nearly complete	2	100.0	313	5	62.5	540	2	50.0	549
Production evaluation									
Indeterminate				1	12.5	632	1	25.0	244
Natural (unmodified)	2	100.0	313	5	62.5	540	1	25.0	555
Minimally modified									
Well shaped				2	25.0	2 789	1	25.0	1 096
Stylized							1	25.0	1

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Table 3.12 – Nonflaked lithic tools, Hanging Rock Hamlet – Continued

	Pitstructure 2 total			Other excavated units			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	14	100.0	817	19	100.0	9 541	51	100.0	4 688
Tool morpho-use									
Indeterminate				1	5.3	1 479	1	2.0	1 479
Miscellaneous	5	35.7	317	3	15.8	835	10	19.6	441
Hammerstone	2	14.3	333	2	10.5	1 288	8	15.7	574
Mano fragment	3	21.4	835	1	5.3	1 097	4	7.8	901
One-hand mano							3	5.9	1 050
Two-hand mano	1	7.1	1 096	2	10.5	1 389	7	13.7	1 295
Metate fragment							1	2.0	1 004
Trough metate	1	7.1	5 000	8	42.1	15 900	11	21.6	15 436
Slab metate				1	5.3	34 100	1	2.0	34 100
Hafted item	1	7.1	578				3	5.9	596
Ornament	1	7.1	1	1	5.3	6 100	2	3.9	3 051
Blank type									
Indeterminate				1	5.3	446	2	3.9	401
Rounded cobble	3	21.4	276	1	5.3	176	5	9.8	621
Flattened cobble	9	64.3	623	5	26.3	1 551	15	29.4	963
Thick slab				6	31.6	23 870	7	13.7	22 836
Thin slab	1	7.1	5 000	4	21.1	10 488	6	11.8	8 358
Very thin slab				2	10.5	1 030	3	5.9	772
Completely modified item	1	7.1	1				1	2.0	1
Data not available							12	23.5	703
Item condition									
Broken									
Unidentifiable	4	28.6	1 614	6	31.6	3 622	14	27.5	2 302
Identifiable	1	7.1	555	7	36.8	11 670	14	27.5	6 166
Complete/nearly complete	9	64.3	491	6	31.6	12 402	23	45.1	5 241
Production evaluation									
Indeterminate	2	14.3	438	2	10.5	3 790	6	11.8	2 002
Natural (unmodified)	8	57.1	485	2	10.5	1 288	16	31.4	650
Minimally modified				7	36.8	9 905	14	27.5	5 393
Well shaped	3	21.4	2 225	8	42.1	12 293	14	27.5	10 085
Stylized	1	7.1	1				1	2.0	1

(*Juniperus* sp.), and cottonwood (*Populus* sp.) in this hearth suggests that the vegetation of the canyon wall (the pinyon pine and juniper) and of the riparian areas of the valley (the cottonwood) were being exploited for fuel.

Two types of domestic animals are represented in the collections from Hanging Rock Hamlet: the turkey (*Meleagris gallopavo*) and the dog (*Canis familiaris*). The remainder of the bone is from nondomesticated animals (table 3.13). Bones identified as "large mammal" are the most numerous, followed by bones of medium and small mammals. Of the bones that are identifiable to a finer level, mule deer (*Odocoileus hemionus*) are the most numerous. Cottontail (*Sylvilagus* sp.) and black-tailed jackrabbit (*Lepus californicus*) are also relatively well represented in the collection. Beaver (*Castor canadensis*) and muskrat (*Ondatra zibethicus*), both associated with the riparian environment, are represented in the collection as well.

The evidence bearing on subsistence resources provides no surprises. The inhabitants of Hanging Rock Hamlet were making use of both wild and domesticated plants and animals, and were exploiting both the canyon walls and the riparian areas near the site.

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Table 3.13 – Taxonomic composition of the faunal assemblage from Hanging Rock Hamlet

Taxon	Room 2 fill N	Room 2 fill % total	Pitstructure 1 fill N	Pitstructure 1 fill % total	Pitstructure 2 fill N	Pitstructure 2 fill % total	Non-structural Area 1 N	Non-structural Area 1 % total	Other excavated units N	Other excavated units % total	Site total N	Site total % total
Mammalia:												
Mammalia, small	1	0.2	4	0.9	42	9.6	0	0	3	0.7	50	11.4
Mammalia, medium			3	0.7	62	14.2	2	0.5	23	5.3	90	20.6
Mammalia, large			14	3.2	118	27.0	2	0.5	29	6.6	163	37.3
Lepus californicus black-tailed jackrabbit					15	3.4					15	3.4
Sylvilagus spp. cottontails			2	0.5	13	3.0	1	0.2	2	0.5	18	4.1
Rodentia					1	0.2					1	0.2
Sciuridae					2	0.5					2	0.5
Marmota flaviventris yellow-bellied marmot			2	0.5	1	0.2					3	0.7
Cynomys gunnisoni Gunnison's prairie dog					6	1.4					6	1.4
Geomyidae					1	0.2			2	0.2	3	0.7
Thomomys bottae valley pocket gopher					1	0.2			2	0.5	3	0.7
Castor canadensis beaver					6	1.4			1	0.2	7	1.6
Neotoma sp. wood rat					1	0.2					1	0.2
Neotoma mexicana Mexican wood rat					1	0.2					1	0.2
Ondatra zibethicus muskrat					1	0.2					1	0.2
Erethizon dorsatum porcupine			1	0.2	1	0.2			1	0.2	3	0.7
Canis sp.					1	0.2					1	0.2
Canis familiaris domestic dog					11	2.5					11	2.5
Canis latrans coyote							1	0.2			1	0.2
Ursus sp. bear					2	0.5					2	0.5
Artiodactyla			1	0.2	10	2.3					11	2.5
Cervus elaphus American elk			1	0.2	3	0.7					4	0.9
Odocoileus hemionus mule deer			4	0.9	18	4.1			2	0.5	24	5.5
Ovis canadensis bighorn									2	0.5	2	0.5
Total mammalia	1	0.2	32	7.3	317	72.5	6	1.4	67	15.3	423	96.8
Aves:					3	0.7					3	0.7
Galliformes					2	0.5					2	0.5
Meleagris gallopavo turkey					8	1.8	1	0.2			9	2.0
Total aves					13	3.0	1	0.2			14	3.2
Total assemblage	1	0.2	32	7.3	330	75.5	7	1.6	67	15.3	437	100.0

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Table 3.14 – Vegetal remains, Hanging Rock Hamlet

Taxon: Family / Genus species / Plant part	Room block	Room 1	Pitstructure 1: Fill	Pitstructure 1: Feat 5	Pitstructure 1: Feat 14	Pitstructure 1: Feat 2 Strat 1	Pitstructure 1: Feat 2 Strat 2	Pitstructure 1: Feat 2 Strat 3	Pitstr 2 fill	Nonstr 1 Area 1
Amaranthaceae										
Amaranthus sp.										
seed								1/N		
Cupressaceae										
Juniperus sp.										
scale			6/C		1/C	7/N 13/C				
wood			<1g/C						1g/N	
Juniperus monosperma										
scale			5/N 3/C	1/C				<1g/C		
Fagaceae										
Quercus gambelii										
wood	10g/C		<1g/C	<1g/C	<1g/C	<1g/C	<1g/C	<1g/C		
Gramineae										
leaf								1/N		
Zea mays										
kernel						<1g/C				
cob			2g/C							1g/C
cupule			3/C				1/C			
Loasaceae										
Mentzelia sp.										
seed				1/N						
Pinaceae										
Pinus sp.										
wood			<1g/C		<1g/C	<1g/C		<1g/C	3g/C	
Pinus edulis										
seed						2/C				
needle								1/N 1/C		
wood			<1g/C			<1g/C		<1g/C		
Pinus ponderosa										
needle			1/C							
Pseudotsuga menziesii										
needle					2/C	2/C	2/C			
Portulacaceae										
Portulaca sp.										
seed						3/C				
Rosaceae										
wood			<1g/C			<1g/C	<1g/C			
Cercocarpus sp.										
wood						<1g/C				
Salicaceae										
wood					<1g/C		<1g/C	<1g/C		
Populus sp.										
wood			<1g/C			<1g/C		<1g/C	1g/C	
Salix sp.										
wood								<1g/C		
Solanaceae										
Nicotiana attenuata										
seed			28/N	1/N				2/N		
Dicotyledoneae										
leaf			1/N, 2/C	1/C	1/N	2/N	2/N, 2/C	1/N		
bark						<1g/C				
seed			1/C							
Gymnospermae										
wood			<1g/C	<1g/C	1g/C	1g/C	<1g/C	<1g/C		
Indeterminate										
fruit			2/C			1/N		1/C		
seed			1/N, 1/C	1/N 1/C			3/C			
bark			<1g/C	<1g/C	1g/C	1g/C	1g/C	1g/C		
leaf			<1g/C							
resin			1/C			<1g/C				
gall			<1g/C							
Lower plants										
fruit		1/N								

In the body of the table, numerals to the left of the bar indicate the number of items present, except in those cases where the items have been reported as a weight. In this latter case, the numeral is followed by the abbreviation "g" indicating the number of grams of material present.

C - Charred
N - NonCharred
P - Partially charred
fg - Fragment

Feat - Feature
Strat - Stratum
Nonstr - Nonstructure
Pitstr - Pitstructure

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Extraregional relationships. - Two pieces of evidence for contact with people outside the project area exist at Hanging Rock Hamlet. The first is a turquoise pendant found in the fill of Pitstructure 2. The exact source of the turquoise is unknown, but there is no known source in the project area.

The presence of nonlocal ceramics in the Hanging Rock Hamlet assemblage provides additional evidence for extraregional relationships. Three Early Pueblo Gray sherds have been identified as having come from the Cibola area of northern New Mexico. Eleven sherds originated in either the Cibola area or in the Kayenta area of northeastern Arizona. Ten of these sherds are Early Pueblo Gray and one is Early Pueblo White. The red wares in the collection (Abajo Red-on-orange, Bluff Black-on-red, and Early Pueblo Red) from Hanging Rock Hamlet appear to have come from southeastern Utah as do most of the red wares found in the project area (Lucius and Wilson 1980).

COUGAR SPRINGS CAVE (SITE 5MT4797)

G. Timothy Gross and Donald Howes

Cougar Springs Cave was recorded by the DAP in September 1979 as a "habitation/rockshelter" of indeterminate cultural and temporal affiliation. The survey crew noted a possible lithic-processing activity area and an alinement of vertical slabs in the cave, as well as the track of a mountain lion (hence the name of the site). The upright slabs were thought to be the remains of a structure.

The shelter is located on the south side of Dry Creek in an area of eroded contact bedding planes in the Junction Creek Sandstone (fig. 3.14). It is approximately 200 m east of the bed of Dry Creek in the NW 1/4 of the SW 1/4 of sec. 6, T38N, R15W. The UTM grid coordinates are 4,161,690 mN, 716,020 mE, zone 12.

The shelter is 24 m long by 7 m wide and is situated approximately 40 m above the floor of the canyon. The shelter faces northwest. The roof of the cave slopes upward at a very steep angle and shades the floor of the shelter most of the day during the summer. The back wall of the cave has a number of shallow alcoves, many of which contain seeps or dripping springs.

The heaviest concentration of these seeps is located in the northeast portion of the shelter. During the investigation of the site, the output of one of these seeps was estimated to be 0.7 L per hour. This was not the fastest seep in the shelter, but it was the easiest to measure. The single alcove that contained this seep contained 18 to 24 other drips as well. If flow rate during the field work at the site is not unusual, then there probably would have been an adequate supply of water at this site to support some sort of human occupation.

Figure 3.14 - View of Cougar Springs Cave from across Dry Canyon, looking east (DAP 059311).

The site supported a heavy growth of shrubs along the rear wall (fig. 3.15), and a thick layer of duff was present on the surface of the site. Fauna observed by the field crew included raptorial birds, rabbits, and what appeared to be a long-tailed weasel (*Mustela frenata*). Evidence of mountain lion (*Felis concolor*) (noted by the survey crew), mule deer (*Odocoileus hemionus*) and woodrat (*Neotoma* sp.) was also found in and around the cave.

Research Objectives and Investigative Strategy

The major goal of the investigations at Cougar Springs Cave was to gather sufficient data to allow the site to be placed in the DAP temporal-functional scheme. This required collecting a sample of artifacts and ecofacts, including datable materials. Surface artifacts collected by the survey crew provided no temporally or functionally diagnostic artifacts. Because the site yielded no surface ceramics, it is possible that the site was occupied during the Archaic or Basketmaker II periods.

A second goal of the work was the examination of the vertical slab alinement reported by the survey crew to determine whether or not it was part of a structure. To

Figure 3.15 - View of Cougar Springs Cave prior to the removal of vegetation from the shelter (DAP 054610).

realize the goals of the investigations at Cougar Springs Cave, a judgment sample was deemed appropriate.

The first step taken in the excavation of Cougar Springs Cave was clearing the shelter of surface debris. This entailed thinning several small thickets of shrubs from the front of the shelter, clearing dense brush from the rear, and removing several centimeters of duff from the floor.

Once the shelter had been cleared, a grid was established by use of a transit. Arbitrary horizontal (50S/50E) and vertical (100.0 m) datum points were established on the south wall of the shelter. Both of these points were marked with x's carved into the sandstone. Unlike the other sites in the Dolores Project area, the grid at Cougar Springs Cave was not oriented to magnetic north, but rather was oriented so as to conform to the long axis of the shelter. This orientation placed the north-south axis 24° 10' east of magnetic north. All references to cardinal directions in discussions of Cougar Springs Cave are to the arbitrary grid directions rather than to magnetic directions.

The locations of excavated units are shown in figure 3.16. Vertical excavation was either full cut (without vertical subdivision) or by strata, depending on the purpose of the particular excavation and on time constraints. Excavation was accomplished by a combination of trowel excavation and shovel scraping. All excavated sediment was screened through one-quarter-inch mesh. Vertical column sediment samples, by strata, were taken from 36S/50E and 29S/51E. These samples have not yet been processed.

Surface Investigations

Surface Evidence

Surface artifact collections. - Only a small portion of Cougar Springs Cave (1- by 2-m unit 44S/48E) yielded any surface materials, and only a small amount of material was recovered from that location. This surface material was located in the south end of the shelter in an area where the site surface had been eroded by water running off the shelter roof. The surface collections are summarized in tables later in this chapter, and material collected by the survey crew in 1979 is included. The site form indicates that the survey collections were also made in the vicinity of unit 44S/48E.

A total of 72 surface artifacts was collected: 3 flaked lithic tools and 69 pieces of debitage. Included in the debitage was one piece of obsidian.

Surface evidence of structures. - The sandstone slab alinement noted by the survey crew was the only possible evidence of structures noted at the site (fig. 3.17). This alinement was evident in the southern end of the shelter and consisted of a number of sandstone slabs that protruded above the level of the shelter fill in a rough line resembling the base of a masonry wall. Excavation of the area where this alinement occurred revealed that it was the product of natural rather than cultural forces.

Figure 3.16 - Topographic map of Cougar Springs Cave showing the location of excavated units.

Figure 3.17 – View of natural sandstone slabs that suggested the presence of architecture in the shelter, Cougar Springs Cave, looking northeast (DAP 027416).

Predictability of Subsurface Cultural Material

Surface materials were not good indicators of the distribution of subsurface remains at Cougar Springs Cave. The one area where surface artifacts were found at the site proved to be an area where such remains were concentrated in the site matrix; however, the remainder of the site also contained subsurface cultural material, even though no surface indications were present. Examination of the site stratigraphy provides insight into the surface distributions of artifacts. The uppermost stratum in the site is composed of unconsolidated sand and is almost completely devoid of artifacts. This stratum seems to be the product of grain-by-grain deposition of materials that originated in the decomposing ceiling of the shelter. The only place in the shelter where surface artifacts were recovered was the area where this stratum had been removed by erosion.

Excavations

Excavation Unit 1

The first unit excavated was a trench (excavation unit 1) that ran from the mouth of the shelter to the rear wall. Horizontal control was maintained by excavating this trench as a series of six 1- by 1-m units; this insured that variations in artifact distribution from the front to the back of the shelter could be examined. Vertical control varied from square to square. Initial excavations were full cut. Two of the 1- by 1-m squares (37S/50E and 37S/51E) were excavated by strata.

Excavation Unit 2

Excavation unit 2 was a trench connecting excavation unit 1 with the southwest corner of 1 by 1-m square 41S/53E. The purpose of this trench was to explore the heavy concentrations of artifacts noted in the adjacent portion of excavation unit 1, and to provide a stratigraphic profile perpendicular to the one in excavation unit 1. As with excavation unit 1, this trench was excavated as a series of three connected 1- by 1-m squares. This trench was excavated according to natural strata.

Other Excavation Units

Three 1- by 1-m squares were excavated adjacent to excavation unit 1 to explore a series of features first noted in that trench. These squares were 38S/50E, 36S/50E, and 35S/50E. An additional 1- by 1-m square (36S/52E) was excavated north of excavation unit 1 and opposite excavation unit 2 to further define the northern limit of the concentration of artifacts noted in the first trench.

A 1- by 2-m unit (44S/48E) was excavated in the area where surface artifacts were encountered to explore the suspected lithic processing area. This unit was excavated full cut.

A 2- by 2-m square (42S/52E) was excavated to investigate a vertical slab alinement (fig. 3.17) in the southern portion of the shelter. Two additional 1- by 1-m squares were excavated to further define this alinement. One square, 41S/53E, was excavated adjacent to the north side of square 42S/52E, while the other square, 44S/52E, was excavated on the south side. All of these excavations were full cut.

Finally, two 1- by 1-m squares were excavated in the northern portion of the shelter at 29S/49E and 29S/51E to examine the deposits in that portion of the site.

Stratigraphy

The accumulated sediment within Cougar Springs Cave is quite shallow, averaging only 50 to 60 cm. Stratigraphic profiles indicate that the sediments lie conformably over the bedrock surface, following the slope of the surface, which dips to the south and west. Although sedimentological studies have not been carried out, the most obvious source of sediment is from within the shelter itself, and derives from grain-by-grain attrition of the roof and walls of the shelter due to chemical and mechanical erosion. Eolian deposition might have contributed to the shelter sediments, but this probably would have been a very minor factor.

In excavation, bedrock within the shelter was found to be composed of in-situ, spalled sandstone slabs (fig. 3.18), evidently overlying uneroded Junction Creek Sandstone. Spall formation is apparently accomplished by a combination of chemical and biological factors, since dense root mats were found underlying the in-situ spalls. The surface of a ledge to the north of the shelter, which lies within the same geologic unit as the floor of the shelter, was found to be covered with small eroded rills that formed a polygonal pattern. This pattern may represent infilled polygonal structures within the upper part of this sandstone unit, although the erosional pattern may have been imposed by other forces. However, it is easier to explain the presence of in-situ spalling within the shelter if jointing within the otherwise massive sandstone can be posited. Unlike the shelter floor, the walls and roof of the shelter are composed of cross-bedded Junction Creek Sandstone. The contact between these 2 units is slightly above the modern ground surface, and active seeps within the shelter are located at this contact. Vertical groundwater percolation is apparently stopped at this contact, and water flows along the surface of the underlying unit until the valley wall is reached, and seeps are formed. Cougar Springs Cave probably owes its existence to the presence of these seeps and accelerated erosion of the Junction Creek Sandstone along this limited section of the cliff face.

Three stratigraphic sections that transect the shelter from north to south were chosen for examination (figs. 3.19, 3.20 and 3.21). The sediments within these profiles can be divided into four major strata.

Stratum 1. – Stratum 1 is the surface duff zone. It is heavily infiltrated by rootlets and roots that measure up to 6 cm in diameter. Sediments consist of medium to fine sand with some silt admixture. No large inclusions are present, although scattered charcoal flecks and small

Figure 3.18 – View of the east end of excavation unit 1, Cougar Springs Cave, after excavation. Note the slabs of spalled sandstone that form the bottom of the excavation unit (DAP 037053).

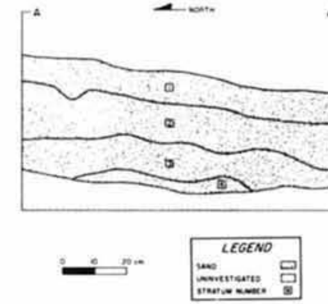

Figure 3.19 – Stratigraphic profile of the east wall of 1- by 1-m square 29S/51E, Cougar Springs Cave.

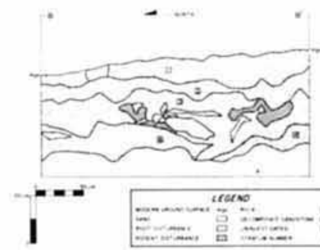

Figure 3.20 – Stratigraphic profile of the east wall of excavation unit 2, Cougar Springs Cave.

sandstone spalls are observable. Scattered krotovina were observed. Color is variable, ranging from 5YR 2.5/2 (moist) to 10YR 7/3 (dry). The lower boundary is regular abrupt to wavy.

Stratum 2. – This stratum is an orange, medium to fine sand, with dark mottling and some locally observable red to yellow oxide inclusions. Rootlets and roots up to 1 cm in diameter are present, along with the occasional pebble inclusions. Sand varies in color from 7.5 YR 3/2 (moist) to 10YR 6/6 (moist) and mottling is 10YR 3/1 (moist). The lower boundary is abrupt and wavy. This stratum is not present in 2- by 2-m unit 44S/48E.

Stratum 3. – Stratum 3 is a heavily organic stained medium to fine sand with charcoal flecks common. Rootlets

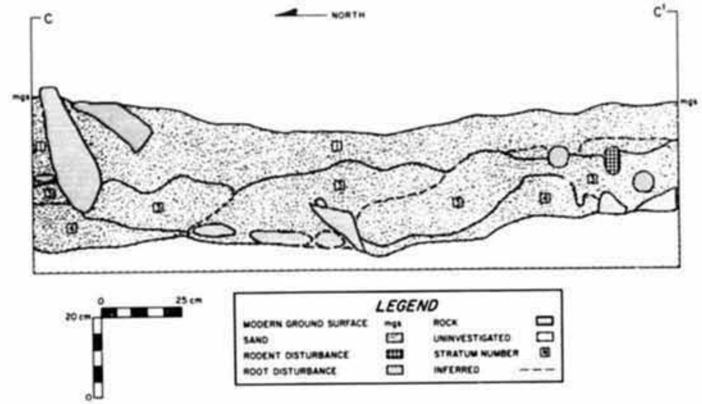

Figure 3.21 - Stratigraphic profile of the east wall of 2- by 2-m square 44S/48E, Cougar Springs Cave.

and roots up to 1 cm in diameter occur. Inclusions vary in size from pebble to boulder, and may represent both floor and roof spall. Rounded river cobbles are also observable as inclusions in this stratum. The color of the sediments is variable, ranging from 5YR 2.5/1 (moist) to 10YR 6/3 (moist). The lower boundary is very abrupt to abrupt and regular to wavy.

Stratum 4. - Sterile sand and sandstone spalls immediately overlying bedrock make up Stratum 4. Spalls up to cobble size are common. Some rootlets and roots up to 1 cm in diameter are observable. The sediments are a medium to fine sand, with color varying from 10YR 6/6 (moist) to 10YR 7/2 (moist). The lower boundary is at bedrock.

Stratigraphic excavation. - Excavation by stratigraphic unit was conducted in a total of six 1- by 1-m grid squares (two squares in excavation unit 1, all three squares of excavation unit 2, and one 1- by 1-m square 36S/50E). In all but one of these squares, Stratum 2 and Stratum 3 were collected as one unit. Stratum 1 in these five squares yielded 8 artifacts (2.4 percent of the material collected from the five squares) and Strata 2 and 3 combined yielded 331 artifacts (97.6 percent). In the one grid square where Strata 2 and 3 were collected separately, 2 artifacts (0.5 percent) were recovered from Stratum 1, 13 (3.3 percent) from Stratum 2, and 378 (96.2 percent) from Stratum 3. Stratum 3 is clearly the major artifact-bearing stratum in the shelter. Artifacts are present in very small amounts in the overlying strata, probably as a result of root growth and animal disturbance. Cultural material did not occur in Stratum 4, which appears to be highly decomposed sandstone from which all of the cement has been removed.

Distribution of strata. - All but one of the strata present within the shelter are found in all three profiles. A correlation of the three profiles (fig. 3.22) shows that Stratum 2 thins toward the south, and has disappeared before the profile in 2- by 2-m unit 44S/48E had been reached. Only a single possible cultural horizon was observed in any of the profiles (Stratum 3). This horizon varies from approximately 10 to 15 cm in width and increases slightly in thickness toward the central and southern portions of the shelter. Although minor color variations are observable within the horizon, no observable microstratigraphy indicating multiple occupations can be seen.

Features

Five features were encountered during excavation of Cougar Springs Cave (fig. 3.23 and table 3.15). Four of these features (Features 1, 2, 3, and 5) were small cylindrical pits that originated in the cultural level and extended down into bedrock; these four features were filled with sediments from Stratum 3. The fill of Feature 3 contained 10 pieces of debitage. No artifacts were recovered from Features 1, 2, or 5. As can be seen in figure 3.24, Features 1, 2, 3, and 5 form a rough line across the center of the

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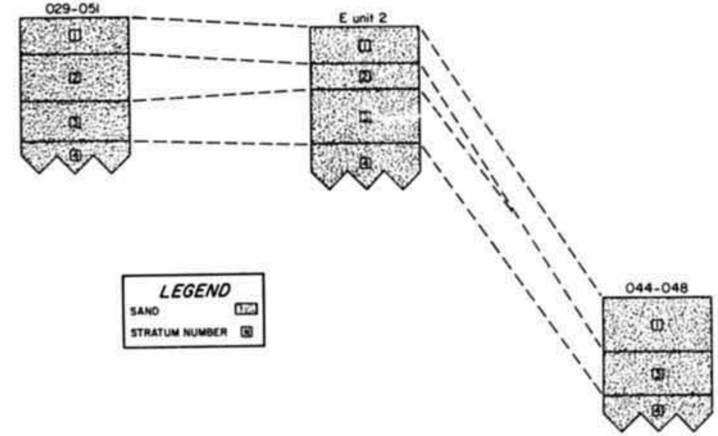

Figure 3.22 - Schematic correlation of stratigraphic units, Cougar Springs Cave.

Figure 3.23 - View of Features 1, 2, 3, and 5, Cougar Springs Cave, after fill had been removed (DAP 059312).

shelter that parallels the long axis of the shelter. This set of features may have served to hold posts that were supports for a windbreak across the front of the shelter or for a drying or storage rack.

Feature 4 was a burned pit located in Stratum 4, which overlies bedrock. The pit is oval in plan and basin in profile, and it is filled with very dark, charcoal-rich sediments. Two artifacts were recovered from this fill: a bone from a medium-sized mammal, and a flake of very fine grained material. One bulk soil sample (bulk soil sample 1) was collected from the fill of this feature and yielded charred *Pinus* sp. and *Populus* sp. wood, a "cheno-am" (family Chenopodiaceae or Amaranthaceae) seed, and three types of seeds that could not be identified. Although the sediments surrounding the feature did not show the reddening so often present in such features, Feature 4 appears to have been a fire pit. Based on the presence of bone and charred seeds, this fire pit might have served in food preparation activities.

Material Culture

The largest class of items found at Cougar Springs Cave was flaked lithic debitage (table 3.16). The debitage collection is dominated by very fine grained materials, most of which appear to be Burro Canyon quartzite. The mean flake weight is surprisingly low, as are the proportions of items with cortex and the proportion of whole flakes. Eight pieces of debitage, all obsidian, could be identified as nonlocal.

The collection of flaked lithic tools from the site is small (table 3.17). Utilized flakes are the most common tools, followed (in order of decreasing abundance) by projectile

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Table 3.15 – Feature summary, Cougar Springs Cave

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth (cm)
1	Bedrock feature	Oval	Other	19.1	17.0	18.8
2	Bedrock feature	Oval	Cylindrical	25.5	18.0	16.3
3	Bedrock feature	D-shaped	Rectangular	20.0	16.0	16.0
4	Burned pit	Oval	Basin	50.0	25.0	10.0
5	Bedrock feature	Round	Basin	16.5	15.0	11.5

NOTE: Refer to figure 3.24 for feature locations.

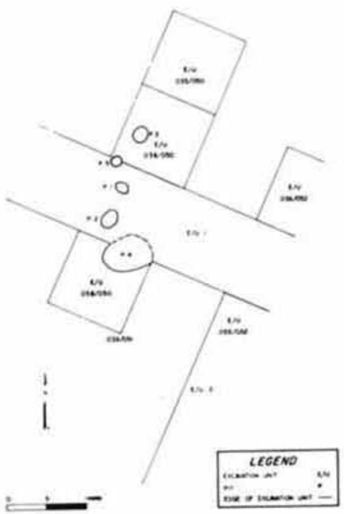

Figure 3.24 - Map of features recorded at Cougar Springs Cave. Refer to table 3.15 for feature descriptions.

points, thin bifaces, and cores. All other morpho-use classes present in the flaked lithic tool collection are represented by single items. A selection of flaked lithic tools is presented in figure 3.25.

Two projectile points and three projectile point fragments were collected from excavations at Cougar Springs Cave. Two of the fragments retain no evidence of their general form. Of the three remaining items, one point is side notched; the other point and one proximal fragment are corner notched. The items identified as indeterminate in table 3.17 are fragments that could not be identified further. The specialized form indicated in the table is a bifacially flaked drill.

There is a difference in material types between the tools and the debitage. Very fine grained materials account for 94.8 percent of the debitage, whereas only 71.4 percent of the tools are of materials of that grain size.

Only 9 nonflaked lithic tools were collected from Cougar Springs Cave (table 3.18). Four of the items fall into the miscellaneous category and are abrading/grinding stones. These are iter that appear to have been ground on at least 1 surface but that have had minimal production input. Three of the abrading/grinding stones had been ground on their flat surfaces, and the fourth had a curved surface that was ground.

Four whole or fragmentary manos were recovered. One of these was so fragmentary that no finer identification is possible, but three of the manos are classed as one-hand manos. Two of the one-hand manos are complete enough to determine that each had only a single grinding surface.

One fragment of a metate was also recovered. Although it is classified as a trough metate, it is not typical of Anasazi trough metates. Less effort appears to have been expended in its manufacture than for most trough metates encountered in the Dolores Project area.

Table 3.19 presents the nonhuman bone data for the shelter by taxa. Most of the bone is fragmentary and is identifiable only as small, medium, or large mammal. Of the bones that could be identified more specifically, cottontail is the most common.

Four of the bones recovered had been worked (fig. 3.26). Two of these items are what would traditionally be called "gaming pieces." Both are made from the bones of medium mammals, and both are incised with crosshatching on one face. One is round and has a small pit on the face that is not crosshatched. The other is oval and is plain on the face that is not crosshatched.

Table 3.16 – Flaked lithic debitage, Cougar Springs Cave

	Modern ground surface			Other excavated units			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags.									
Grain size									
Medium	0	0	0	4	0.2	2	4	0.2	2
Fine	1	1.5	1	63	3.6	6	64	3.6	6
Very fine	63	95.5	1	1 644	94.8	1	1 707	94.8	1
Microscopic	2	3.0	1	24	1.4	1	26	1.4	1
Total flakes/ flake frags	66	100.0	1	1 735	100.0	1	1 801	100.0	1
Items with cortex	1	1.5	. . .	89	5.1	. . .	90	5.0	. . .
Whole flakes	16	24.2	. . .	286	16.5	. . .	302	16.8	. . .
Nonlocal items	1	1.5	. . .	7	0.4	. . .	8	0.4	. . .
Angular debris	3	100.0	41	11	100.0	12	14	100.0	18

frags - Fragments.
. . . - Information not available.

Table 3.17 – Flaked lithic tools, Cougar Springs Cave

	Modern ground surface			Excavated units			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	3	100.0	138	25	100.0	13	28	100.0	26
Tool morpho-use									
Indeterminate				2	8.0	3	2	7.1	3
Utilized flake	1	33.3	2	12	48.0	4	13	46.4	3
Core				2	8.0	115	2	7.1	115
Used core, cobble tool	1	33.3	386				1	3.6	386
Thin uniface	1	33.3	27				1	3.6	27
Specialized form				1	4.0	4	1	3.6	4
Thin biface				3	12.0	6	3	10.7	6
Projectile point				5	20.0	5	5	17.9	5
Grain size									
Fine				1	4.0	179	1	3.6	179
Very fine	3	100.0	138	17	68.0	7	20	71.4	27
Microscopic				7	28.0	2	7	25.0	2
Item condition									
Broken									
Indeterminate				3	12.0	19	3	10.7	19
Distal present				2	8.0	4	2	7.1	4
Proximal present				1	4.0	3	1	3.6	3
Medial present				3	12.0	6	3	10.7	6
Complete/nearly complete	3	100.0	138	16	64.0	15	19	67.9	34
Dorsal face evaluation									
Indeterminate				2	8.0	3	2	7.1	3
Core	1	33.3	386	2	8.0	115	3	10.7	205
Unworked with cortex				2	8.0	6	2	7.1	6
Unworked without cortex	2	66.7	15	11	44.0	3	13	46.4	5
Edged with cortex				1	4.0	3	1	3.6	3
Secondarily thinned				5	20.0	6	5	17.9	6
Well shaped				2	8.0	3	2	7.1	3

Figure 3.25 - Flaked lithic tools from Cougar Springs Cave: (a) corner-notched projectile point, 2- by 2-m square 44S/48E, east half; (b) projectile point fragment, excavation unit 1; (c) corner-notched projectile point, excavation unit 1; (d) drill, excavation unit 2; (e) projectile point fragment, 2- by 2-m square 44S/48E, east half (DAP 109302)

A fragment of long bone (large mammal) that had been ground to a point at one end was recovered. The tool appears to be an awl, but is different from most awls recovered in the DAP area in that it is a splinter of bone that has had little modification other than the creation of the point. This pointed bone and the 2 gaming pieces all came from the southernmost 1- by 1-m section of excavation unit 2.

The fourth worked nonhuman bone is an irregular bone that has been ground on both faces and on its edges, as evidenced by striations on these surfaces; this bone is of a large mammal. The item was recovered from 1- by 1-m square 35S/50E.

No ceramic items were recovered from the site. A lump of untempered, unfired clay was found in the east end of excavation unit 1. This clay weighed 15.5 g and was found just above the bedrock floor of the shelter.

Site Synthesis

Chronology

Two radiocarbon dates were obtained from samples taken from Cougar Springs Cave. Radiocarbon sample 1 consisted of scattered charcoal collected from 1- by 1-m square 37S/49E in excavation unit 1. This square was

Table 3.18 - Nonflaked lithic tools, Cougar Springs Cave

	Site total		
	N	%	wt(g)
Total tools:	9	100.0	1 907
Tool morpho-use			
Miscellaneous	4	44.4	570
Mano fragment, not further specified	1	11.1	923
One-hand mano	3	33.3	587
Trough metate	1	11.1	12 200
Blank type			
Rounded cobble	2	22.2	290
Flattened cobble	4	44.4	671
Slab, not further specified, fragment	2	22.2	850
Thin slab	1	11.1	12 200
Item condition			
Indeterminate	2	22.2	850
Broken			
Identifiable	3	33.3	4 467
Complete/nearly complete	4	44.4	516
Production evaluation			
Indeterminate	2	22.2	850
Natural (unmodified)	2	22.2	290
Minimally modified	1	11.1	12 200
Well shaped	4	44.4	671

Table 3.19 - Taxonomic composition of the faunal assemblage from Cougar Springs Cave

Taxon	Total site	
	N	%
Mammalia:		
Mammalia, small	17	24.3
Mammalia, medium	15	21.4
Mammalia, large	25	35.7
Sylvilagus spp., cottontails	10	14.3
Rodentia	1	1.4
Sciuridae	1	1.4
Artiodactyla	1	1.4
Total	70	100.0

immediately northwest of feature 4. The sample was collected from approximately 12.5 cm below modern ground surface. Radiocarbon sample 3 was collected from approximately 22.5 cm below modern ground surface, in 2- by 2-m square 44S/48E. This sample consisted of small, scattered pieces of charcoal that were found in the same stratum (Stratum 3) as high concentrations of flaked lithic debitage. Both the excavator who collected the sample and the laboratory that processed it noted small rootlets mixed with the charcoal. The radiocarbon laboratory notes indicate that these rootlets were picked out during pretreatment and that the sample appeared to be free of contamination when it was processed. Analysis of sample 1 was provided by Beta Analytic, Inc. The reported date is 1400 ± 60 B.P. The tree-ring corrected date using the conversion method by Damon et al. (1974) is 1378 ± 136 B.P. (A.D. 436-708). Analysis of sample 3 was provided by Dicarb Radioisotope, Co. The reported date for this sample is 910 ± 70 B.P.; the tree-ring corrected date is 904 ± 142 (A.D. 904-1188).

The corrected tree-ring radiocarbon dates do not agree either with each other or with dates assigned to the site based on the artifact assemblage. The artifact assemblage suggests that the site is probably Archaic or Basketmaker II, and that both of the radiocarbon dates are too recent. The date for sample 3 seems particularly out of line with the artifact evidence.

Substantial evidence suggests that the site is either Archaic or Basketmaker II. The first major line of evidence is that the site does not appear to be Basketmaker III or later Anasazi. No ceramics were recovered from the site, and it seems unlikely that a camp that was the site of cooking and milling activities would lack ceramics if it were a ceramic-period site. The metate collected from the site is not typical of groundstone found at Pueblo sites in the DAP project area, even though it fits the basic definition of a trough metate as employed by the DAP. The size and morphology of the projectile points from the site are not consistent with the types usually recovered

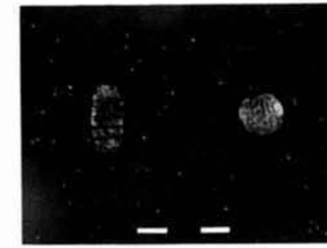

Figure 3.26 - Worked nonhuman bone from Cougar Springs Cave (DAP 150606)

from Anasazi contexts in the DAP area. Finally, the orientation of the shelter to the northwest is not consistent with general trends in Pueblo site orientation. Rockshelters with a definite Anasazi occupation in the Grass Mesa Locality tend to be oriented to the south (cf. Sites 5MT2211, 5MT2216, 5MT2381, 5MT4651, 5MT4789 [all discussed in this chapter], and 5MT2151 [chapter 4].

With the Basketmaker III/Pueblo period ruled out, 2 possible periods of occupation are left: Archaic/Basketmaker II and Ute. Very few Ute sites have been identified in the project area; therefore, little comparative data on what is to be expected in a Dolores area Ute assemblage are available. Buckles (1968:61-62), however, describes historic Ute material from the Montrose area and the artifacts from Cougar Springs Cave do not fit this description. Further, the position of the cultural material in the fill of the shelter does not appear to be consistent with a relatively recent Ute occupation. Although there is not adequate control on the rate of sediment accumulation in rockshelters in the Dolores area, the stratigraphic location of the majority of the cultural material near bedrock suggests that the material in the shelter is older than that of the Ute occupation of the Dolores River valley.

The flaked lithic assemblage from the site resembles material assigned by Irwin-Williams (1973:11-13:figs. 6, 7) to the En Medio Complex and material of the Los Pinos Phase (Eddy 1961) in the Navajo Reservoir area. Both of these phases are dated to the late Archaic or Basketmaker II periods. The Durango Basketmaker II sites reported by Morris and Burgh (1954) also contained flaked lithic items very similar to those recovered at Cougar Springs Cave. Included in the Durango collections, as well, are a number of bone gaming pieces which resemble those from Cougar Springs Cave. The lithic profile (Phagan 1981) for Cougar Springs Cave is more consistent with

Archaic sites than it is with Anasazi materials from the Dolores River valley, but this may be due, in part, to the nature of the site and the activities carried out there.

In summary, the lines of evidence for chronologic placement of the site are contradictory. Relatively good evidence shows that the site was not occupied during the Anasazi period. It seems, then, that the radiocarbon date for sample 3 of 910 ± 142 is not applicable to the use of the site. The Ute period can be tentatively, but not definitely, ruled out as well. The artifacts resemble material ascribed to the late Archaic or Basketmaker II periods; if the site does indeed date to these periods, the radiocarbon date for sample 1 or 1372 ± 136 also seems too recent.

Site Formation Processes

The process of site formation at Cougar Springs Cave is relatively simple. When prehistoric people first visited the shelter, a small amount of sediment had accumulated on the bedrock surface that forms the floor of the shelter. During what were probably relatively short stays at Cougar Springs Cave (based on the small amounts of food refuse and the limited cooking and food preparation materials noted), debris, primarily from the manufacture of lithic tools, accumulated on the surface of the shelter. Along with this primary refuse, some worn out tools seem to have been purposefully discarded. Some bone and charcoal became incorporated into the deposits as a result of cooking and food consumption at the site.

Following the use of the shelter as a campsite and manufacturing station, the cultural material became buried under sandy sediments. The most likely agent in this burial process is the steady grain-by-grain decomposition of the roof and walls of the shelter. There may also have been some small accumulation of wind-borne sediments that originated on the Dolores River flood plain and in the bed of Dry Creek. These processes account for the sandy sediment overlying the cultural material at the site.

The major natural transformation process at the site is floralturbation. Dense brush was removed from the site before excavation, and roots had penetrated the cultural stratum in many areas of the site. The roots of a Douglas-fir (*Pseudotsuga menziesii*) growing outside the shelter on the south end could be followed well into the shelter sediments. Indeed, the most likely explanation for the vertical slabs noted by the survey crew in the south end of the shelter is the activity of tree roots, which probably acted to pull spalled slabs that occur just above bedrock into a vertical position.

Applicability of Site Data to the Dolores Archaeological Program Research Design

Many of the conclusions presented here have already been discussed earlier in the report. The data obtained from the testing operations at Cougar Springs Cave have the greatest bearing on the problem domains Economy and Adaptation and Extraregional Relationships. In addition, some minimal conclusions may be drawn about Paleodemography. The data are not currently relevant to discussions of Social Organization or Cultural Process, but when taken in the context of the Dolores Archaeological Program data base as a whole, they will help to answer a number of questions in these areas as well.

Economy and adaptation. – The primary activity carried out at Cougar Springs Cave was the reduction of very fine grained lithic raw materials into generalized tool forms, as evidenced by the high proportions of flaked lithic debitage and the small average size of the debitage. The generally low proportion of cortex in the lithic assemblage indicates that the quarry was not located relatively near the site. Outcrops of Burro Canyon quartzite, the primary lithic raw material at the site, are known to occur up the Beaver Creek drainage from Cougar Springs Cave, and such outcrops may also occur in the unsurveyed upper reaches of Dry Creek drainage. Cobbles of this material could have been obtained from the bed of Dry Creek, but a higher diversity of materials would be expected if the source of the material was cobbles rather than an outcrop.[1]

Direct evidence of the plant foods used by the occupants of Cougar Springs Cave is lacking, but the use of such foods is indicated by the presence of milling equipment. Animal foods are represented by bone (table 3.19). The composition of the faunal assemblage suggests that specialized hunting was not practiced by the occupants of Cougar Springs Cave, but instead, a pattern of adventitious hunting was practiced where such animals as were encountered were procured.

Paleodemography. – The restricted size of the rockshelter and the sparse nature of the artifact assemblage in items other than flaked lithic debitage suggest that a small group was involved in the use of the site. The size of the shelter would certainly have limited the number of people who could have used it at any one time. Furthermore, the amount of food refuse is so small as to suggest that only a small population was on hand in the shelter at any one time. However, this second piece of evidence is not particularly strong, since much of the food refuse could have been tossed out of the shelter and would not have been recovered during testing.

A series of repeated occupations of the site, based on the distributional patterning of debitage, was suggested earlier. That these occupations were short term is also suggested by the fact that no effort had been made to remove flaked lithic debitage from the shelter. Debitage would have been uncomfortable to live on, and if there was any long-term use of the site, attempts to keep the space inside

[1]Carl J. Phagan, personal communication.

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the shelter usable for activities other than tool manufacture would be expected.

Given the evidence for a series of short occupations of the shelter by small groups of people, it is suggested that the site was probably a temporary camp employed by a task group from a larger Archaic or Basketmaker II band, the base camp of which was probably located some distance from the Dry Creek area. The major suggested loci of Archaic activity in the DAP area is the area surrounding the present-day marsh in the Sagehen Flats (Kane 1983c). This area is approximately 6 km from Cougar Springs Cave and may have been the site of the base camp for the inhabitants of the shelter. Additional work in this area, and reanalysis of the existing collections attributed to the Archaic in the Sagehen Flats Locality, could help confirm or deny this possibility. It is also quite possible that the base camp for the Cougar Springs Cave inhabitants is located outside the project area.

Extraregional relationships. – The only possible evidence for trade found at Cougar Springs Cave is the presence of a few flakes of obsidian. Obsidian is not a locally available raw material and would have to have been obtained from outside the project area. The presence of obsidian at the site may reflect trade with other peoples, resource procurement expeditions, or it may be a reflection of a mobile band subsistence pattern that took the band into territories where obsidian could be obtained. The nearest documented sources of obsidian are the Jemez Mountains in New Mexico and the San Francisco Peaks in northern Arizona.

QUASIMODO CAVE (SITE 5MT4789)

G. Timothy Gross and Melissa Gould

Quasimodo Cave is a small rockshelter formed in the Junction Creek Sandstone on the north side of Dry Creek Canyon (fig. 3.27). The site is located in the SW 1/4 of

Figure 3.27 - View of Quasimodo Cave, looking northwest (DAP 023011).

the SW 1/4 of sec. 6, T38N, R15W. The UTM grid coordinates for this location are 4,162,100 mN, 716,220 mE, zone 12. Site 5MT4789 was recorded by the DAP survey on 17 September 1979 and was classified as a "habitation/base camp."

The shelter is an eroded pocket in the sloping bedrock (fig. 3.28) and measures 10 m long by 2.5 m wide; the greatest height of the shelter roof is 1.5 m. The shelter has a southern exposure. To the south of the shelter, the topography slopes to the southeast (fig. 3.29) at about 20° for 20 to 28 m and terminates in a small sandstone cliff. Below the cliff, the terrain slopes again toward Dry Creek.

The Dolores River is the permanent water closest to Quasimodo Cave, but seeps exist along the exposure of the Junction Creek Sandstone. The seeps in the immediate vicinity of the shelter are slow flowing and, at their current rate of flow, probably do not provide an adequate water supply to support people. Other seeps with greater

Figure 3.28 - Close up view of Quasimodo Cave, looking west (DAP 062304).

Figure 3.29 - View of the area downslope from Quasimodo Cave, looking south (DAP 062305).

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flow occur down the canyon both on the north side, and at Cougar Springs Cave (Site 5MT4797) on the south side. There is, however, no evidence that the springs in Cougar Springs Cave were used during the time of occupation of Quasimodo Cave.

Research Objectives and Investigative Strategy

Quasimodo Cave was selected for Track 2 investigation because it could not be accurately placed in the DAP temporal-functional framework. The major goals at this site were to collect datable materials and to explore site function. The presence of rock alinements suggestive of masonry walls indicated the possible existence of structures. Because scheduled construction activities would have made access to the site questionable after 1980, it was necessary to include the site in the 1980 testing program.

The area around the shelter was mapped, and a baseline for the grid system was laid out by the WSU (Washington State University) field school under the supervision of T. Kohler and E. Blinman. The map was field checked and the grid system was completed prior to excavation. Surface artifacts were collected from the shelter and from the slope to the south; horizontal control was provided by a grid system (4- by 4-m grid squares were the basic unit of collection). Data obtained from the surface collection and from surface examination were used to determine the site boundaries.

The site was divided into three areas (fig. 3.30) and a random cluster sample consisting of four 2- by 2-m grid squares was selected from Area 1 for excavation. Area 1 consisted of all of the area between the back wall of the shelter and the dripline. Time did not allow for sampling of Areas 2 and 3. All of the probability squares were excavated using trowels and shovels and all of the sediments from these excavations were screened using one-quarter-inch mesh. Two additional 2- by 2-m units and one 1- by 1-m square were excavated to further explore portions of Area 1.

Surface Investigations

Surface Artifact Collections

Seventy-eight items were recovered from the surface of the site; artifact data are summarized in tables 3.20 through 3.22. Only 9 of the 23 surface-collected units yielded artifacts, and all of the squares from which artifacts were recovered, with the exception of those units within the shelter, were located in areas cut by minor drainages. The highest density of flaked lithic artifacts occurred in square 66S/62E, where a small rill emptied onto exposed sandstone. Artifacts at this spot were mixed with lag gravels. Forty cottontail bones were recovered from square 46S/50E; these bones were part of a hairy pellet suspected to be an owl cast and are evidence of the recent use of the shelter by predators.

Surficial Evidence of Structures

Two rock alinements were noted within the shelter by the survey crew. One of these was a short alinement that ran from the back wall to just beyond the dripline at the east end of the shelter. The second alinement was noted running parallel to the long axis of the shelter and was slightly outside the dripline. These were the only indications of structures at the site.

Predictability of Subsurface Cultural Material

Surface artifacts, occurring as they did in areas of erosion and drainage, were not good indicators of the locations of subsurface materials. Very little surface material occurred in the areas excavated, but this is to be expected based on the evidence from other shelters in the area. In shelters in the Junction Creek Sandstone, sediment resulting from slow disintegration of the shelter roof tends to result in a culturally sterile stratum overlying the occupational zone. However, the rock alinements present on the surface did reveal the presence of a structure that was later found during excavation.

Excavations

Area 1 includes all of the area between the back wall of the shelter and the dripline. All excavation units are located in Area 1 (fig. 3.31). Due to lack of culturally significant stratification within the sand filling the rockshelter, all probability units were excavated in arbitrary 20-cm levels. Excavation of these units proceded until bedrock was reached. Bedrock slopes gently down from the back wall to the mouth of the shelter.

Probability Sampling

Probability square 44S/50E. - This square is located in the extreme northwest corner of the shelter. Only one-third of this unit could be excavated; the remaining two-thirds consisted of the back wall of the shelter. The southeast corner of the unit contained a shallow, 37-cm deposit of pale brown (10YR 6/3) sand, which overlies bedrock. This sand is equivalent to Stratum 1 from the stratigraphic description that follows. Probability square 44S/50E is culturally sterile.

Probability square 44S/52E. - The back wall of the shelter forms the northwest corner of this unit. Sandstone spalls from the roof and walls litter the surface. This square was excavated in five levels. Levels 1 and 5 are culturally sterile. Levels 2 and 3 contained the vast majority of artifacts. One piece of flaked lithic debitage was recovered from Level 4.

The stratigraphic profile and a description of this probability unit are presented in the stratigraphic discussion for the site. All 3 strata were present within this unit.

Probability square 46S/52E. - The dripline of Quasimodo Cave cuts across the northwest corner of this unit.

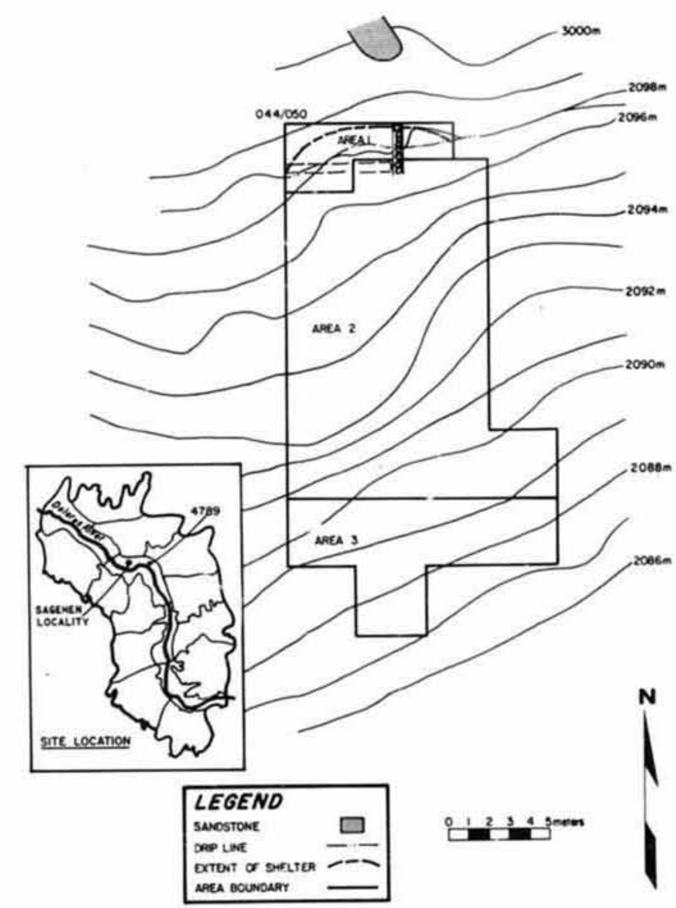

Figure 3.30 - Topographic map of Quasimodo Cave showing the site areas.

Table 3.20 - Flaked lithic tools, Quasimodo Cave

	Modern ground surface			Room 1 total			Other excavated units			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	mean wt(g)	N	%	Mean wt(g)
Total tools:	10	100.0	373	8	100.0	47	10	100.0	39	28	100.0	161
Tool morpho-use												
Indeterminate							1	10.0	1	1	3.6	1
Utilized flake	3	30.0	544	1	12.5	10	3	30.0	12	7	25.0	240
Core	3	30.0	239				1	10.0	145	4	14.3	216
Thick uniface							2	20.0	89	2	7.1	89
Thin uniface	4	40.0	347	2	25.0	58	1	10.0	32	7	25.0	219
Thick biface				2	25.0	120				2	7.1	120
Thin biface				1	12.5	1				1	3.6	1
Projectile point				2	25.0	3	2	20.0	1	4	14.3	2
Grain size												
Fine				1	12.5	1				1	3.6	1
Very fine	10	100.0	373	3	37.5	93	8	80.0	31	21	75.0	203
Microscopic				4	50.0	23	2	20.0	73	6	21.4	40
Item condition												
Indeterminate	2	20.0	412							2	7.1	412
Broken												
Indeterminate	1	10.0	144							1	3.6	144
Distal present							1	10.0	1	1	3.6	1
Medial present							2	20.0	1	2	7.1	1
Complete/nearly complete	7	70.0	395	8	100.0	47	7	70.0	56	22	78.6	161
Dorsal face evaluation												
Core	3	30.0	239				1	10.0	145	4	14.3	216
Unworked with cortex	2	20.0	282				2	20.0	28	4	14.3	155
Unworked without cortex	5	50.0	491	3	37.5	42	4	40.0	48	12	42.9	231
Edged with cortex				2	25.0	120				2	7.1	120
Edged without cortex							1	10.0	1	1	3.6	1
Primarily thinned							1	10.0	1	1	3.6	1
Secondarily thinned				2	25.0	1				2	7.1	1
Well shaped				1	12.5	5				1	3.6	15
Indeterminate							1	10.0	1	1	3.6	1

Five levels were excavated. Levels 1, 2, and 5, were culturally sterile. Level 3 contained 91.2 percent of the flaked lithic artifacts in this square, and the remaining artifacts were recovered from Level 4. No sherds were recovered from this unit.

Tabular sandstone slabs were present in the northwest corner of the probability square at the bottom of Level 2. These rocks may have been part of a front wall to Room 1, and are further described in the Room 1 discussion.

Probability square 44S/56E. - This is the easternmost square in the shelter. A dry-laid masonry wall, situated in the middle of this excavation unit and oriented north to south, was visible on modern ground surface. This alinement was the east wall of Room 1, and is further described in the discussion of that room.

Square 44S/56E was excavated in four levels. Levels 1 and 4 were devoid of artifacts, but Levels 2 and 3 contained a relatively large number of artifacts. These latter two levels yielded 21.4 percent of the flaked lithic tools, 25.0 percent of the nonflaked lithic tools, 58.3 percent of the ceramics, and 31.1 percent of the flaked lithic debitage from Quasimodo Cave.

Other Excavated Units

Square 44S/54E. - This 2- by 2-m square is located in the center of the shelter, between probability squares 44S/52E and 44S/56E. This square was excavated according

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Table 3.21 - Flaked lithic debitage, Quasimodo Cave

	Modern ground surface			Room 1 total			Other excavated units			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:												
Grain size												
Medium	0	0	0	3	2.9	79	10	5.9	26	13	4.3	38
Fine	10	38.5	14	24	23.3	20	50	29.4	8	84	28.1	12
Very fine	14	53.8	9	68	66.0	5	103	60.6	9	185	61.9	8
Microscopic	2	7.7	4	8	7.8	1	7	4.1	1	17	5.7	1
Total flakes/ flake frags	26	100.0	11	103	100.0	10	170	100.0	9	299	100.0	10
Items with cortex	4	15.4	. . .	8	7.8	. . .	22	12.9	. . .	34	11.4	. . .
Whole flakes	10	38.5	. . .	43	41.7	. . .	77	45.3	. . .	130	43.5	. . .
Angular debris	6	100.0	92	14	100.0	4	27	100.0	7	47	100.0	17

frags - Fragments.
. . . - Information not available.

Table 3.22 - Ceramic data summary, Quasimodo Cave

Culture category: Tract Ware Type	Modern ground surface		Room 1 total		Other excavated units		Site total	
	N	%wt	N	%wt	N	%wt	N	%wt
Mesa Verde:								
Dolores Tract								
Gray Ware								
Mancos Corrugated			1	13.4	2	32.6	3	20.8
Corrugated Body Sherds	1	100.0	6	86.6	2	67.4	9	79.2
Total ceramics	1	100.0	7	100.0	4	100.0	12	100.0
Total wt (g)	1.0		55.8		36.8		93.6	
Vessel form:								
Jar	1	100.0	7	100.0			8	60.7
Other					4	100.0	4	39.3

to natural strata rather than in arbitrary levels, in an effort to control for artifact variation within the observed strata. Unfortunately, it was not until the unit had been excavated down to bedrock, that the excavators were able to recognize the subtle color distinction that permitted separation of Stratum 2 and Stratum 3 (refer to the stratigraphic description for this site). Therefore, Strata 2 and 3 were excavated as one stratum.

No artifacts were collected from modern ground surface. Stratum 1 contained 12.7 percent of the flaked lithic debitage from the entire site, one flaked lithic tool, and one corrugated body sherd. This stratum was, at most, 20 cm deep. Stratum 2 contained the highest percentage of flaked lithic tools and debitage of any 2- by 2-m square at the site. Of the total site artifact assemblage, 21.4 percent of the flaked lithic tools, including two projectile points, and 15.9 percent of the flaked lithic debitage were recovered from Stratum 2 of this unit. In addition, 2 sherds were recovered from Stratum 2 and one large basin metate was found in contact with bedrock.

Square 46S/56E. - This unit, a 1- by 1-m square, was opened in order to determine the southern extent of the masonry wall located in probability square 44S/56E. Large, tabular sandstone rocks, in line with the slab wall

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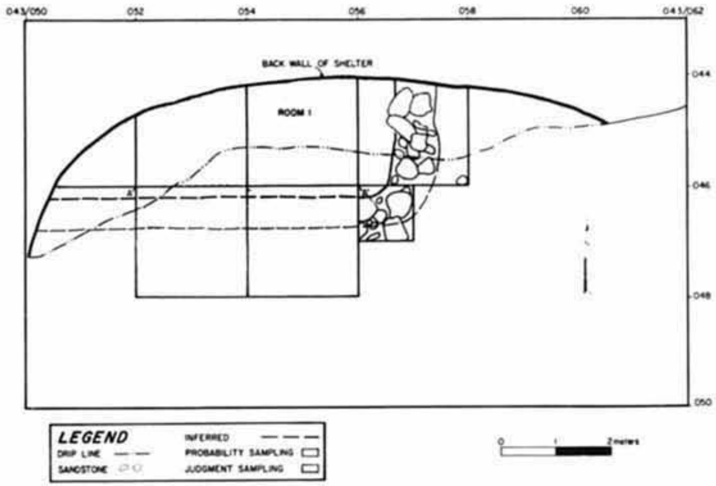

Figure 3.31 - Map of excavated units and Room 1 at Quasimodo Cave.

to the north, were found in this unit. The largest slab in this square, from the southeast corner of the unit, appears to have been the southernmost slab of the wall. This slab may have functioned as a cornerstone. Directly south of this slab the topography becomes much steeper.

Only two 20-cm levels from this unit were excavated. Modern ground surface and Level 1 were devoid of artifacts. Level 2 contained seven flakes and one unifacial tool.

Square 46S/56E. - This 2- by 2-m square is located between probability square 46S/52E to the west, and 1- by 1-m square 46S/56E to the east. One level was removed in hopes of locating the south wall of Room 1. The rocks exposed in this unit did not form a distinct wall line. One rim sherd from a Mancos Corrugated jar and 13 pieces of flaked lithic debitage were recovered from this unit.

Room 1

Dimensions:

South wall	
length (inferred):	5.50 m
East wall	
length:	3.00 m
width:	1.00 m
height:	0.36 m
Floor area (inferred):	16.50 m²

The east wall of Room 1 (fig. 3.31) was uncovered in probability square 44S/56E and in 1- by 1-m unit 46S/56E to the south. This dry-laid masonry wall (fig. 3.32) was constructed with unshaped, tabular sandstone rocks. These superimposed rocks were resting on sand fill, the same sand fill found throughout the shelter. The east wall of the room abutted the back wall of the overhang and extended 3 m to the south. A large sandstone slab that measured 56 cm by 50 cm was located at the southernmost extent of the wall rubble. This slab may have functioned as a cornerstone at the juncture of the east and south walls of Room 1.

The approximate location of the south wall of Room 1 was indicated by the presence of scattered rocks along the surface of 1- by 1-m square 46S/56E and by the subsurface rock concentration in the northwest corner of

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probability square 46S/52E. However, most of the wall fall probably had been transported downslope. Poor preservation of this wall may have been due to its location just outside the dripline of the shelter and along the periphery of a steep slope to the southeast.

Evidence for north and west walls was lacking. These walls might have been formed by the natural wall of the rock shelter.

Figure 3.32 - View of the east wall of Room 1, Quasimodo Cave (DAP 062315).

The area within the inferred boundaries of the room includes all of the excavation units west of the east wall of Room 1 and north of the 47S line. The total inferred floor area is 16.5 m².

A cultural surface was not distinguishable within the loose sand fill of the shelter. Most of the artifacts were concentrated within the organically stained sand, Stratum 2. A large basin metate was resting on the sloping bedrock floor of the shelter, in the approximate center of Room 1.

Stratigraphy

Quasimodo Cave is located within the Junction Creek Sandstone. Water percolating through this formation appears to have been the major agent in the formation of the shelter. Excavation in Area 1 exposed the bedrock floor of the shelter which slopes from the back wall down to the mouth of the overhang. A shallow, uniform accumulation of sand, at most 63 cm deep, directly overlies the bedrock floor of the shelter. This sand deposit resulted primarily from mechanical and chemical weathering of the roof and walls of the shelter, and perhaps from some eolian deposition as well.

A 4-m section along the mouth of the shelter was chosen for stratigraphic description (fig. 3.33). The profile described is composed of the south walls of probability square 44S/52E, and the adjacent 2- by 2-m unit, square

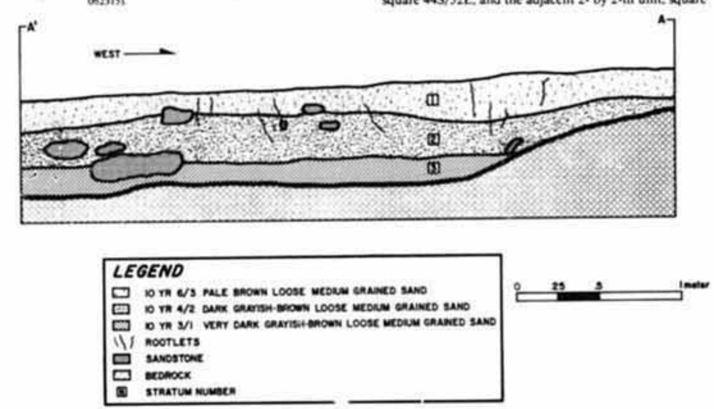

Figure 3.33 - Stratigraphic profile, Quasimodo Cave. Location of profile is shown in figure 3.31.

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44S/54E. The stratigraphic profile is representative of the stratigraphy found throughout the excavation units, except for those that were too shallow to include Stratum 3.

Three stratigraphic units were recognized at Quasimodo Cave.

Stratum 1. – This surface duff zone, is a loose, medium-grained, pale brown sand (10YR 6/3). Sandstone rocks and roots were observed in this stratum; the former varied in size from large sandstone roof spalls, which littered the modern ground surface, to small pebbles. This stratum contained little cultural material. Cottontail bones on the surface provided evidence of recent animal activity.

Stratum 2. – This is a loose, medium-grained, dark grayish sand (10YR 4/2); it is organically stained and contained small roots (less than 5 cm in diameter), sandstone rocks, and small pieces of charcoal. The majority of artifacts from excavation were derived from this stratum.

Stratum 3. – This is a very dark grayish brown (10YR 3/2), medium sand. Stratum 3 overlay bedrock, and was present only near the mouth of the shelter where deposits were very deep. This stratum contained sandstone rocks, a few small rootlets, and bits of charcoal. Strata 2 and 3 were very similar, distinguishable from one another only on the basis of color. The darker color of Stratum 3 was probably the result of organic leaching from the overlying strata. Few artifacts were recovered from this stratum.

Material Culture

Twelve sherds, all corrugated, were collected from this site. These include three Mancos Corrugated rim sherds and nine corrugated body sherds. Only 1 sherd was found on the surface; the other 11 were recovered from excavation. Since all the rim sherds from the site are identified as Mancos Corrugated, the body sherds are probably from Mancos Corrugated vessels. However, because Mancos Corrugated is differentiated from other corrugated types by the degree of rim eversion, the body sherds remain in the more general category Corrugated Body Sherds.

The nonflaked lithic assemblage contains 4 tools. One basin metate and one polishing stone were recovered from subsurface proveniences. One metate fragment and one abrading/grinding stone were collected from ground surface.

The flaked lithic assemblage includes a total of 28 tools and 346 pieces of debitage. The flaked lithic tools from surface and subsurface contexts are listed in table 3.20. A small, corner-notched projectile point made of ignimbrite is the only item of nonlocal material in the site assemblage.

The flaked lithic debitage consists of 130 whole flakes, 169 flake fragments, and 47 pieces of angular debris. A variety of grain sizes are represented in the debitage assemblage: 4.4 percent of the items are medium grained, 28.1 percent are fine grained, 61.9 percent are very fine grained, and 5.7 percent are microscopic grained.

No bone tools were found at Quasimodo Cave. Forty-one of the 50 nonhuman bones were collected from the surface and appear to have been recently deposited. The 9 nonhuman bo[illegible] from excavated units include 1 ground squirrel (*Sp[illegible]ophilus* sp.), 3 large mammal, 3 medium mammal, and 2 small mammal bones.

Vegetal remains were found in 3 of the excavation units. Level 1 of probability square 44S/56E contained 2 charred fragments of pinyon pine (*Pinus edulis*) and ponderosa pine (*Pinus ponderosa*) wood, 1 charred fragment of Gymnosperm wood, and 1 fragment of indeterminate plant material with bark. Also within this level was an unburned pinyon pine seed. The burned wood recovered from this probability unit was located at the bottom of Level 1 in a concentration of small pieces of charcoal. One charred yucca (*Yucca* sp.) seed was recovered from Stratum 1 of 2- by 2-m square 44S/54E. Another charred seed of the same type was recovered from Level 1 of 46S/54W.

Site Synthesis

Chronology

Dating of Quasimodo Cave is based primarily on ceramics. The only diagnostic ceramic type found at the site is Mancos Corrugated. This type was common in the Dolores area between A.D. 900 and 1050.

The dry-laid masonry wall in Quasimodo Cave represents a simple, low-energy-input manner of construction. Other dry-laid masonry walls within shallow rock overhangs have been located within the Dolores Project area. Some of these sites are also associated with corrugated wares.

The presence of a basin metate in contact with bedrock in one of the excavation units suggests the possibility of an Archaic use of the site. A projectile point similar to points recovered from Cougar Springs Cave was also present, but the attribution of pre-Basketmaker III use to the site is very tenuous.

Site Function

Quasimodo Cave may have been a limited activity locus, a wild plant collection and processing station, or perhaps a hunting camp. That plant processing may have been conducted is suggested by the presence of metates and

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the charred remains of two yucca seeds from subsurface proveniences. Hunting-related activities are suggested by the presence of 2 projectile points and the recovery of nonhuman bone from pre-historic strata. The location of the rockshelter in a major drainage leading from the uplands to the Dolores River valley would have provided good access to migrating game, as it does today.

Fires were built in or near Quasimodo Cave, but probably do not imply use as a long-term habitation or camp. There was no central hearth, nor was smoke blackening present on the shelter ceiling or on sandstone spalls found during excavation. Bits of charcoal were recovered from Strata 2 and 3 of the shelter fill. A few bits of oxidized sediment were dispersed throughout the stratigraphic profile, but no hearth was recognized during excavation.

The walls of Room 1 show no evidence of having been sealed with adobe, as would be expected had this shelter been used for long-term storage. If dry-laid masonry walls had been erected to the ceiling of the rock overhang, there was a conspicuous lack of rock rubble from the excavated portion of the shelter to document such construction. Had Room 1 been used extensively for the storage of plant materials, one would expect to find more evidence of plant macrofossils and ceramic storage vessels than was recovered from the excavations.

After approximately A.D. 900, the Grass Mesa Locality was probably not used for habitation. Kohler (chapter 2) indicates that sites used between A.D. 900 and the abandonment of the Escalante Sector around A.D. 1200 were probably camps associated with hunting, foraging, or storage. Quasimodo Cave appears to have functioned as such a limited activity locus, sometime between A.D. 900 and 1050, based on diagnostic ceramic types.

The most recent occupations of LeMoc Shelter (5MT2151; chapter 4) and Calmate Shelter (5MT4651; this chapter), located aproximately 2 km to the southwest on the Dolores River, might also represent use of the area for plant processing and hunting activities during the period between A.D. 900 and 1200 (Hogan 1983). The latest element at LeMoc Shelter has been assigned to the Marshview Subphase (A.D. 1050-1125) of the Sundial Phase. The Marshview Subphase "has been defined to reflect use of most of the sector for specialized purposes and a short-term attempt to resettle a portion of the area in the late 11th century. Most sites assigned to the period are categorized as seasonal or limited activity loci . . . and site locations were chosen with a specific purpose in mind" (Kane 1981:74). Quasimodo Cave may represent a Marshview Subphase occupation, although the presence of Mancos Corrugated sherds suggests that the occupation of the site occurred earlier than this subphase.

DOS CUARTOS HOUSE (SITE 5MT2174)

Dos Cuartos House (fig. 3.34) is 1 of only 3 sites in the southern portion of Grass Mesa Locality located on the west side of the Dolores River. The site is located on a small terrace above the flood plain and is northwest of a deep arroyo in the SE 1/4 of the NW 1/4 of sec. 18, T38N, R15W. The UTM grid coordinates for this location are 4,159,120 mN, 716,540 mE, zone 12.

The 2 other sites recorded on the west side of the river are the 2 sites that are nearest to Dos Cuartos House. Approximately 0.5 km to the northwest of Dos Cuartos House is Site 5MT2163, and Site 5MT2175 is approximately 0.5 km to the southeast. Both of these sites are recorded as lithic scatters of indeterminate temporal affiliation.

Dos Cuartos House was recorded by the DRP (Dolores River Project) survey on 28 September 1972 as a "sherd and lithic area." A total of 8 sherds and 12 flaked lithic items were collected; based on this collection and field observation[illegible] the site was assigned to the Basketmaker III-Pueblo [illegible] periods. A portion of the 1972 collections has been reanalyzed. The results of that reanalysis are reported later in this chapter.

Research Objectives and Investigative Strategy

In an attempt to clarify both the temporal associations and the function of Dos Cuartos House, the site was visited on 16 July 1980 by a WSU survey crew. The crew examined the site and conducted a selective surface collection; based on the results of this examination, it was decided that further, more intensive work was required at the site. A small crew under the direction of E. Huber conducted Track 2 investigations at Dos Cuartos House from 18 August to 22 August 1980.

Figure 3.34 – View of Dos Cuartos House, looking south (DAP 055322)

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The Track 2 investigations conducted at the site included surface collection, removal of vegetation, shovel scraping, and excavation. Two contiguous surface rooms were uncovered and excavated, as was an area immediately to the southeast of the two rooms. A 1- by 2-m excavation unit was also excavated to examine the site stratigraphy outside of the rooms and to explore for midden deposits or pitstructures. None of the material from the excavations was screened.

Surface Investigations

Surface Artifact Collections

Three different surface artifact collections exist from Dos Cuartos House: the 1972 DRP survey collection, the collection made by the WSU survey crew in 1980, and the collection made as part of the Track 2 investigations at the site. These collections, along with all the material collected at the site, are summarized in tables 3.23 through 3.27. A total of 85 artifacts, including 17 sherds (Early Pueblo Gray and Mancos Gray), 8 flaked lithic tools, 56 pieces of debitage, and 4 nonflaked lithic tools, have been collected from the site surface. Utilized flakes are the most common flaked lithic tool.

Surficial Evidence of Structures

After the initial clearing of brush from the site, several rock alinements were noted. Upon excavation, two contiguous surface rooms became clear. These will be described in detail in the following section. No other evidence of structures or features was present at the site.

Excavations

Rooms 1 and 2

Room 1 dimensions:

North wall

length:	2.00 m
height:	0.30 m

Table 3.23 - Flaked lithic debitage, Dos Cuartos House

	Modern ground surface			Room 1			Room 2		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:									
Grain size									
Fine	5	11.1	18	3	12.0	14	6	6.9	78
Very fine	40	88.9	9	22	88.0	16	81	93.1	9
Total flakes/ flake frags	45	100.0	10	25	100.0	16	87	100.0	14
Items with cortex	8	17.8	...	2	8.0	...	20	23.0	...
Whole flakes	20	44.4	...	16	64.0	...	49	56.3	...
Angular debris	11	100.0	33	23	100.0	9	91	100.0	22

	Nonstructural unit 1			Excavation unit 1			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:									
Grain size									
Fine	5	17.9	8	0	0	0	19	9.5	34
Very fine	23	82.1	27	14	100.0	19	180	90.5	13
Total flakes/ flake frags	28	100.0	22	14	100.0	19	199	100.0	15
Items with cortex	9	32.1	...	2	14.3	...	41	20.6	...
Whole flakes	11	39.3	...	8	57.1	...	104	52.3	...
Angular debris	69	100.0	6	24	100.0	38	218	100.0	18

frags - Fragments.
... - Information not available.

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Table 3.24 - Flaked lithic tools, Dos Cuartos House

	Modern ground surface			Room 1		
	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	9	100.0	34	12	100.0	285
Tool morpho-use						
Utilized flake	6	66.7	15	3	25.0	214
Core	2	22.2	62	5	41.7	480
Used core, cobble tool	1	11.1	95	1	8.3	127
Thick uniface						
Thick biface				2	16.7	122
Projectile point				1	4.3	8
Grain size						
Fine				1	8.3	577
Very fine	7	77.8	27	11	91.7	258
Microscopic	2	22.2	62			
Item condition						
Broken						
Indeterminate	1	11.1	28	2	16.7	90
Complete/nearly complete	8	88.9	32	10	83.3	324
Dorsal face evaluation						
Core	3	33.3	3	6	50.0	421
Unworked with cortex	1	11.1	• 4			
Unworked without cortex	5	55.6	18	3	25.0	214
Edged with cortex				2	16.7	122
Well shaped				1	8.3	8

Table 3.24 - Flaked lithic tools, Dos Cuartos House - Continued

	Nonstructural unit 1			Excavation unit 1			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	1	100.0	90	4	100.0	66	26	100.0	157
Tool morpho-use									
Utilized flake				3	75.0	86	12	46.2	83
Core							7	26.9	360
Used core, cobble tool	1	100.0	90				3	11.5	104
Thick uniface				1	25.0	8	1	3.8	8
Thick biface							2	7.7	122
Projectile point							1	3.8	8
Grain size									
Fine				1	25.0	172	2	7.7	375
Very fine	1	100.0	90	3	75.0	31	22	84.6	145
Microscopic							2	7.7	62
Item condition									
Broken									
Indeterminate	1	100.0	90				4	15.4	75
Complete/nearly complete				4	100.0	66	22	84.6	172
Dorsal face evaluation									
Core	1	100.0	90				10	38.5	283
Unworked with cortex				1	25.0	8	2	7.7	6
Unworked without cortex				3	75.0	86	11	42.3	90
Edged with cortex							2	7.7	122
Well shaped							1	3.8	8

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Table 3.25 – Nonflaked lithic tools, Dos Cuartos House

	Modern ground surface			Surface Structure 1 Floor 1			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	4	100.0	464	1	100.0	1 283	5	100.0	628
Tool morpho-use									
Miscellaneous	1	25.0	540				1	20.0	540
Mano fragment	1	25.0	45				1	20.0	45
One-hand mano	1	25.0	698				1	20.0	698
Two-hand mano	1	25.0	572	1	100.0	1 283	2	40.0	928
Blank type									
Flattened cobble	4	100.0	464	1	100.0	1 283	5	100.0	628
Item condition									
Broken									
Identifiable	1	25.0	572				1	20.0	572
Unidentifiable	1	25.0	45				1	20.0	45
Complete/nearly complete	2	50.0	619	1	100.0	1 283	3	60.0	840
Production evaluation									
Indeterminate	1	25.0	45				1	20.0	572
Natural (unmodified)	1	25.0	540	1	100.0	1 283	2	40.0	912
Well shaped	2	50.0	635				2	40.0	635

South wall
length: 1.80 m
height: 0.30 m

East wall
length: 1.90 m
height: 0.30 m

West wall
length: 1.90 m
height: 0.30 m

Floor area (estimates): 3.61 m^2

Room 2 dimensions:

North wall
length: 2.18 m
height: 0.30 m

South wall
length: 2.24 m
height: 0.30 m

East wall
length: 2.02 m
height: 0.30 m

West wall
length: 2.10 m
height: 0.30 m

Floor area (estimates): 4.55 m^2

Rooms 1 and 2 are adjoining surface rooms and appear to be the only 2 structures present at the site (fig. 3.35). Room 1 is the southwesternmost of the two. The long axis of both rooms is oriented northeast-southwest, and the apparent front of the rooms faces a large arroyo to the southeast of the site. The rooms, which share a wall, are marked by alinements of small vertical slabs (fig. 3.36). At present the slabs stand from 30 to 40 cm in height and measure 30 to 50 cm in length; they are not of uniform size. Because so little in the way of rubble was encountered within and around the surface structures, the superstructure of these rooms was inferred to be of jacal construction. No burned adobe was recovered, however, to support this inference. That no definable surfaces were discovered in either of the rooms is attributed to the high degree of sediment disturbance caused by vegetation growth at the site. Rooms 1 and 2 are illustrated in figure 3.35. No stratigraphy within the fill of these structures was discerned. Again, this is attributed to bioturbation of the sediments. No features were found in either room.

Table 3.26 – Ceramic data summary, Dos Cuartos House

Cultural category: Tract Ware Type	Modern ground surface		Room 1		Room 2		Nonstr 1		Excavation unit 1		Site total	
	N	%wt	N	%wt	N	%wt	N	%wt	N	%wt	N	%wt
Mesa Verde:												
Dolores Tract												
Gray Ware												
Moccasin Gray	2	8.9									2	2.8
Early Pueblo Gray	15	91.1	6	91.4	2	44.5	5	92.9	1	100.0	29	83.2
White Ware												
Early Pueblo White					2	12.9					2	2.7
San Juan Tract												
White Ware												
Early Pueblo White			1	8.6							1	1.7
Red Ware												
Early Pueblo Red					2	3.9	1	7.1			3	1.4
Cahone Tract												
Red Ware												
Early Pueblo Red					1	3.3					1	0.7
Cibola:												
Gray Ware												
Early Pueblo Gray					3	35.5					3	7.5
Total ceramics	17	100.0	7	100.0	10	100.0	6	100.0	1	100.0	41	100.0
Total weight (g)	74.2		45.4		49.0		18.4		2.2		232.2	
Vessel form:												
Gray Ware												
Jar	17	100.0	6	91.4	5	79.9	5	91.4			33	92.6
Other									1	100.0	1	0.9
White Ware												
Bowl			1	8.[illegible]	2	12.9					3	4.4
Red Ware												
Bowl					3	7.2	1	7.1			4	2.1

Nonstr - Nonstructural unit.

Table 3.27 – Taxonomic composition of the faunal assemblage from Dos Cuartos House

Taxon	Room 1		Room 2		Nonstructural unit 1		Site total	
	N	%	N	%	N	%	N	%
Mammals:								
Small	3	60.0	1	20.0	0	0	4	80.0
Medium	0	0	0	0	1	20.0	1	20.0
Total	3	60.0	1	20.0	1	20.0	5	100.0

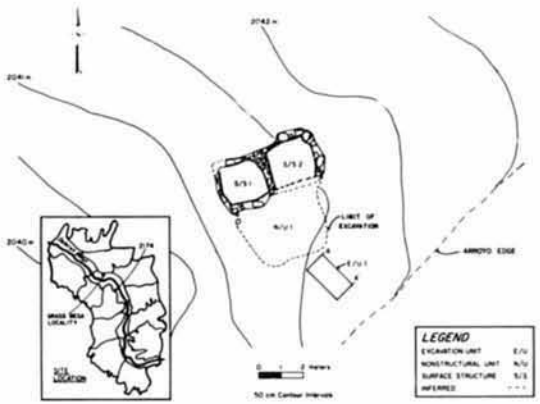

Figure 3.35 - Topographic map of Dos Cuartos House showing the locations of excavated units.

Figure 3.36 - View of Rooms 1 and 2, Dos Cuartos House, looking northwest (DAP 055334).

Artifacts. - The concentration of artifacts in the two rooms were different. Most of the artifacts recovered from excavation of the structures at this site were recovered from Room 2, which yielded 201 artifacts. Only 58 artifacts were recovered from Room 1. Artifact data are summarized in tables 3.23 through 3.27. Of particular interest in the artifact collections from these structures is the presence of the 3 sherds of Cibola Early Pueblo Gray, and the occurrence of gray wares, white wares, and red wares in the ceramic collection.

Interpretations. - The artifact assemblage at the site suggests that a relatively broad range of activities took place at the site. The presence of red ware, white ware, and gray ware ceramics suggests that both cooking/storage and serving/ceremonial activities may have been performed in the structures. Milling activities are represented by the mano recovered. Flaked lithic tool manufacture is suggested by the presence of cores and debitage.

Nonstructural Unit 1

Nonstructural Unit 1 is located immediately southeast of the surface structures (fig. 3.35). A 3.6- by 3.0-m portion of this area was excavated. No surfaces or features were encountered in this area. The strata in this area did not exhibit clear divisions; they appeared to have been mixed as a result of bioturbation. Artifacts recovered from excavations in Nonstructural Unit 1 are summarized in tables 3.23 through 3.27. Flaked lithic debitage was the most common artifact class in the assemblage. Only 6 sherds and 1 flaked lithic tool were recovered from Nonstructural Unit 1.

Excavation Unit 1

This excavation unit was a 1- by 2-m trench to the south of Rooms 1 and 2 (fig. 3.35). The purpose of excavating the trench was to determine whether a midden area or a pitstructure was located in this portion of the site. Neither was found. No surfaces or features were encountered in the excavation of this trench.

Stratigraphy. - The stratigraphy of excavation unit 1 was better defined than that in other areas of the site (fig. 3.37). Three strata were recognized in the field. The uppermost stratum was composed of a loose, organic-rich loam. Artifacts were noted in this stratum. Underlying this stratum was a more compact stratum that also contained some artifacts. The boundary between these upper 2 strata was relatively distinct. The deepest stratum was culturally sterile. The boundary between Stratum 2 and Stratum 3 was diffuse. Stratum 3 is distinguished from the others on the basis of color, and on the basis of the greater number of angular rocks encountered in the former.

Artifacts. - Artifacts recovered from excavation unit 1 are summarized in tables 3.23 through 3.27. A total of 43 artifacts, most of which are flaked lithic debitage, was recovered from this unit. Only 1 sherd was recovered.

Interpretations. - No midden deposits appeared to be present in the area of excavation unit 1. The artifact content of the upper 2 strata is most likely the result of sheet wash from the area of the surface structures. Because of the biotic disturbance at the site, and the nature of the excavations, however, this interpretation is open to question.

Site Synthesis

Chronology

Evidence for temporal placement of Dos Cuartos House comes from the ceramic collection, with some support from the architectural evidence. The ceramic assemblage includes red wares which suggests that the site was in use sometime after A.D. 730. The presence of neckbanded ceramics suggests that the occupation occurred after Moccasin Gray first appeared in the Dolores area (about A.D. 760) and probably after it became the most common gray ware type (A.D. 825). Together, this evidence indicates an occupation sometimes after A.D. 825 and prior to the introduction of corrugated gray wares (A.D. 910). The presence of vertical slab foundations for the surface structures supports temporal placement. As noted earlier, this style of architecture was popular during the Sagehill Subphase (A.D. 700-780) and the Dos Casas Subphase (A.D. 760 to 850) of the Sagehen Phase (A.D. 600 to 850) and during the Periman Subphase (A.D. 850 to 900) of the McPhee Phase.

The characteristics of the structures and the small numbers of ceramics suggest that a single occupation occurred at Dos Cuartos House.

Site Function

An examination of the artifact assemblage from Dos Cuartos House indicates that a number of activities were conducted at the site. Gray, white and red wares are present on the site, which suggests that cooking/storage and serving/ceremonial activities were carried out there. The other activities that might have taken place at the site are flaked lithic tool manufacture or repair, food processing (or other grinding activities employing manos), and activities requiring the use of bifacial tools. Hunting is another possible activity, although it is not always safe to assume a one-to-one correlation between the presence of projectile points and hunting. Further, only 1 projectile point was recovered at the site.

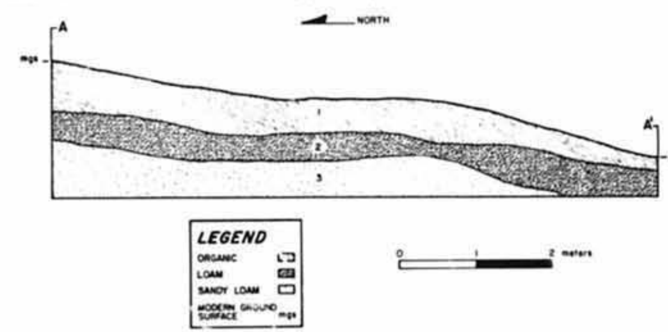

Figure 3.37 - Stratigraphic profile, excavation unit 1, Dos Cuartos House. Location of this profile is shown in figure 3.35.

The characteristics of the artifact assemblage and the presence of the two surface structures suggests that Dos Cuartos House was a field house. The structures at such a site would have served to shelter a group of people involved in the pursuit of agriculture.

CALMATE SHELTER (SITE 5MT4651)

Calmate Shelter, Site 5MT4651, is a small rockshelter formed in the Junction Creek Sandstone (fig. 3.38). The site occurs in the SE 1/4 of sec. 1, T38N, R16W. The UTM coordinates are 4,161,640 mN, 714,480 mE, zone 12. The shelter will be directly impacted by the construction of McPhee Dam.

The shelter is long and relatively narrow, measuring 22 m east-west, by 10 m north-south. The site is adjacent to a drainage that has eroded a portion of the western edge of the site. The roof of the shelter slopes steeply, and in the area of the drainage is approximately 8 m above the floor of the shelter.

The DAP survey recorded Calmate Shelter on 18 October 1978 as a rockshelter with evidence of habitation. Occupation during the Basketmaker III/Pueblo I, and Pueblo II/Pueblo III periods was suggested based on the surface ceramics. No definite evidence of architecture was present, but a possible retaining wall, a depression which may have represented a filled pitstructure, and a piece of wood thought to be a roof beam were noted. Evidence of vandalism in the rear of the shelter was also recorded by the survey.

Research Objectives and Investigative Strategy

Research objectives at Calmate Shelter were similar to other sites tested in the Grass Mesa Locality, and were directed at refining both the temporal and functional placement of the site. Surface ceramics suggested that the shelter had a long and perhaps complex history of use, and the collection of additional data was necessary to pinpoint when the occupations occurred, and how each occupation used the shelter.

Figure 3.38 - View of Calmate Shelter, looking west (DAP 010725)

Surface collections were made at Calmate Shelter as part of the recording procedure in 1978. A grab sample of approximately 50 percent of the surface artifacts was collected by the survey crew. No further surface collections were made.

Excavations at Calmate Shelter were conducted between 25 September and 4 October 1979. A grid was established and two 1- by 2-m trenches and a 2- by 2-m square were excavated (fig. 3.39). Excavation was conducted in arbitrary 30 cm levels and materials were not screened. Test excavations covered approximately 6 percent of the surface area of the shelter (Harper 1979).

Surface Investigations

Surface Artifact Collections

The surface collection from the site consists of 86 items (tables 3.28, 3.29, and 3.30). The largest class of artifacts was ceramic items (42), most of which were Early Pueblo Gray sherds. One Chapin Gray sherd, one Dolores Corrugated sherd, and two Corrugated Body Sherds were also recovered (table 3.28).

Flaked lithic debitage (35 items) was the second largest class of items recovered. The debitage was dominated by very fine grained material.

Eight flaked lithic tools were recovered (table 3.29), four of which were utilized flakes. One core, one used core or cobble tool, one thin biface, and one specialized form make up the remainder of the flaked lithic tools. Again, very fine grained materials dominate the collection, but sample size is quite small.

The only nonflaked lithic tool recovered at the site was a used core or hammerstone recovered from the site surface.

The ceramic materials from the site indicate the shelter was occupied over a wide time span. The presence of both Chapin Gray and Corrugated Body Sherds indicates at least 2 occupations between A.D. 600 and about A.D. 1200. The fact that the majority of the sherds are of Early Pueblo Gray suggests that occupation before A.D. 910 may have been the most intensive. Kohler (chapter 2), based on comparisons of the surface collection with excavated material, suggests that selective collection of later sherds from the surface by relic hunters may be a factor in the observed pattern.

Surface Evidence of Structures

The survey form notes no definite evidence of structures having been present in the shelter. A possible retaining wall and a piece of wood thought to have been a roof beam were mentioned, however, as was the possibility

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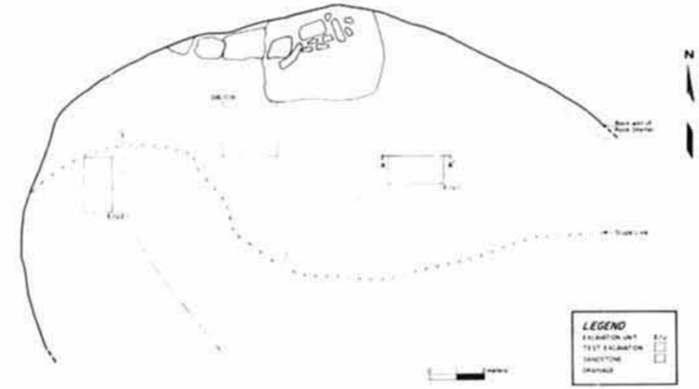

Figure 3.39 - Plan of Calmate Shelter showing location of excavated units.

that a subsurface structure of some sort was present. The excavation notes make no mention of the beam or the retaining wall, but a surface structure and a pitstructure were encountered in excavation (Harper 1979).

Excavations

Excavation Unit 1

Excavation unit 1 is a 1- by 2-m trench located in the eastern portion of the shelter. The location was selected for excavation because of the likelihood of encountering a pitstructure in that particular area of the shelter (Harper 1979). Seven strata were encountered in excavation of this trench. The strata are depicted in figure 3.40. A portion of a hearth (Feature 1) and a pitstructure were contained within excavation unit 1.

Hearth (Feature 1). - A portion of a hearth was encountered in the northwest corner of the trench, and the top of the hearth was 4 cm below modern ground surface. Since only a small portion of the hearth was within the boundaries of the trench, it was not fully excavated. For that reason the shape and the dimensions of the feature were not recorded. The hearth had been excavated into loose sand.

Pitstructure 1. - A 1 m portion of the wall and 1 m^2 of the floor of Pitstructure 1 were encountered in excavation unit 1 (fig. 3.39). The wall, which was of horizontally laid masonry, stood to a height of 70 cm above the floor of the structure. The blocks which made up the wall were approximately 40 by 30 by 10 cm. The wall was covered with a 3 cm-thick coat of adobe plaster. Harper (1979:14) suggests that a pit had been excavated into the sand floor of the shelter and the masonry walls were then constructed. Sand fill was apparently placed behind the walls. He further suggests that a bench may have been present, but the upper portion of the wall was too deteriorated to determine whether one had been part of the pitstructure or not.

The floor of the pitstructure was use compacted and thin. No features were encounterred on the 1 m^2 portion excavated. Some root disturbance was noted which exposed the light colored sand, but excavation was not carried beneath the floor of the structure.

Excavation Unit 18S/26E

This 2- by 2-m square was excavated in the rear portion of the shelter in an area where surface structures were expected to have occurred. Four shallow burned pits were encountered during the excavation of the square, as was Surface Structure 1.

Burned pits (Features 2, 3, 4, and 5). - These 4 pits were badly disturbed by rodent activity and were poorly defined. All of these features appear to result from the building of fires in shallow basins on the sandy surface of the

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Table 3.28 – Ceramic data summary, Calmate Shelter

Culture category: Tract / Ware / Type	Modern ground surface		Surface Structure 1 total		Pitstr 1 cultural fills and features	
	N	%wt	N	%wt	N	%wt
Mesa Verde:						
Dolores Tract						
Gray Ware						
Chapin Gray	1	2.6	1	14.1		
Dolores Corrugated	1	9.9				
Corrugated Body Sherds	2	24.9	2	32.9		
Early Pueblo Gray	27	40.4	5	31.1	[illegible]	16.1
White Ware						
Polished White			1	15.1		
Cahone Tract						
Gray Ware						
Early Pueblo Gray	11	22.2	1	6.9	2	83.9
Total ceramics	42	100.0	10	100.0	3	100.0
Total weight (g)	253.0		100.7		26.4	
Vessel form:						
Gray Ware						
Jar	42	100.0	9	84.9	3	100.0
White Ware						
Bowl			1	15.1		
Jar						

Table 3.28 – Ceramic data summary, Calmate Shelter – Continued

Culture category: Tract / Ware / Type	Pitstr 1 Noncultural fills and features		Pitstr 1 total		Other excavated units		Site total	
	N	%wt	N	%wt	N	%wt	N	%wt
Mesa Verde:								
Dolores Tract								
Gray Ware								
Chapin Gray							2	4.4
Dolores Corrugated							1	5.4
Corrugated Body Sherds							4	20.6
Early Pueblo Gray	1	6.1	2	11.7			34	30.1
White Ware								
Polished White					2	100.0	3	14.5
Cahone Tract								
Gray Ware								
Early Pueblo Gray	1	93.9	3	88.3			15	25.0
Total ceramics	2	100.0	5	100.0	2	100.0	59	100.0
Total weight (g)	26.4		60.6		52.3		466.6	
Vessel form:								
Gray Ware								
Jar	2	100.0	5	100.0			56	85.5
White Ware								
Bowl							1	3.3
Jar					2	100.0	2	11.2

Pitstr – Pitstructure

Table 3.29 – Flaked lithic tools, Calmate Shelter

	Modern ground surface			Surface Structure 1 total		
	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	8	100.0	81	4	100.0	125
Tool morpho-use						
Utilized flake	4	50.0	37	2	50.0	81
Core	1	12.5	173			
Used core, cobble tool	1	12.5	209			
Thick uniface				1	25.0	164
Thin uniface	1	12.5	19			
Specialized form	1	12.5	95			
Thick biface				1	25.0	173
Grain size						
Fine				1	25.0	164
Very fine	6	75.0	76	3	75.0	111
Microscopic	2	25.0	96			
Item condition						
Broken						
Indeterminate	2	25.0	134			
Distal present	1	12.5	29			
Complete/nearly complete	5	62.5	70	4	100.0	125
Dorsal face evaluation						
Core	1	12.5	173			
Unworked with cortex	6	75.0	63	4	100.0	125
Edged with cortex	1	12.5	95			

Table 3.29 – Flaked lithic tools, Calmate Shelter – Continued

	Other excavated units			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	2	100.0	267	14	100.0	120
Tool morpho-use						
Utilized flake	2	100.0	267	8	57.1	106
Core				1	7.1	173
Used core, cobble tool				1	7.1	209
Thick uniface				1	7.1	164
Thin uniface				1	7.1	19
Specialized form				1	7.1	95
Thick biface				1	7.1	173
Grain size						
Fine				1	7.1	164
Very fine	2	100.0	267	11	78.6	120
Microscopic				2	14.3	96
Item condition						
Broken						
Indeterminate				2	14.3	134
Distal present				1	7.1	29
Complete/nearly complete	2	100.0	267	11	78.6	125
Dorsal face evaluation						
Core				1	7.1	173
Unworked with cortex	2	100.0	267	12	85.7	117
Edged with cortex				1	7.1	95

Table 3.30 – Flaked lithic debitage, Calmate Shelter

	Modern ground surface			Surface Structure 1 total			Pitstructure 1 cultural fills and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:									
Grain size									
Medium	0	0	0	4	19.0	22	0	0	0
Fine	8	27.6	27	0	0	0	0	0	0
Very fine	16	55.2	40	15	71.4	39	1	100.0	4
Microscopic	5	17.2	26	2	9.5	6	0	0	0
Total flakes/ flake frags	29	100.0	34	21	100.0	32	1	100.0	4
Items with cortex	19	65.5	...	7	33.3	...	0	0	0
Whole flakes	21	72.4	...	10	47.6	...	1	100.0	4
Angular debris	6	100.0	32	0	0	0	0	0	0

Table 3.30 – Flaked lithic debitage, Calmate Shelter – Continued

	Pitstructure 1 noncultural fills and features			Pitstructure 1 total			Other excavated units			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:												
Grain size												
Medium	0	0	0	0	0	0	0	0	0	4	5.8	22
Fine	2	50.0	2	2	40.0	2	0	0	0	10	14.5	22
Very fine	2	50.0	12	3	60.0	9	11	78.6	11	45	65.2	30
Microscopic	0	0	0	0	0	0	3	21.4	1	10	14.5	15
Total flakes/ flake frags	4	100.0	7	5	100.0	6	14	100.0	9	69	100.0	26
Items with cortex	1	25.0	...	1	20.0	...	2	14.3	...	29	42.0	...
Whole flakes	1	25.0	...	2	40.0	...	8	57.1	...	41	59.4	...
Angular debris	0	0	0	0	0	0	0	0	0	6	100.0	32

frags – Fragments.
... – Information not available.

shelter. No occupation surface was detected in association with these features, however. The dimensions of the features are presented in table 3.31, but plan and profile shapes could not be determined with any accuracy.

Surface Structure 1. – The evidence for Surface Structure 1 consists of a section of vertical slabs encountered near the southeast corner of the grid square, and two discontinuous portions of the floor. The floor appears to have been prepared and consist[illegible] 2-cm-thick layer of adobe. No floor artifacts or fe[illegible]ere encountered in Surface Structure 1. Excavation of the square was stopped at the level of the floor of this structure, which ranged from 10 to 40 cm below the sloping modern surface. No profile map of this unit was made in the field.

Excavation Unit 2

This 1- by 2-m trench was excavated in the western portion of the shelter (fig. 3.39). The surface of the site in this area slopes sharply toward the front of the shelter. The slope in this area is probably due to erosion from the shelter dripline and from an intermittent drainage that runs through the shelter.

Excavation of the entire trench was carried out to a depth of 150 cm below modern ground surface. An additional 50 cm of sediments was excavated in a 20- by 20-cm square in the northern end of the trench.

The stratigraphy of this unit was relatively simple. The uppermost stratum consisted of loose sand. Below this stratum were 10 layers of sand of varying thickness, separated by clay layers. These strata were relatively horizontal, and appear to have been truncated by erosion on their southern edges. Underlying these strata are 3 similar sand strata, each of which contain large sandstone spalls. Beneath the sandstone spalls in the lowest sandy stratum the sediments have a high clay content. Detailed descriptions of the individual strata were not made in the field.

Material Culture

Relatively few artifacts were recovered from excavation and surface collection at Calmate Shelter. Collections from the site are summarized in tables 3.28 through 3.32. Over half of the ceramics and the flaked lithic tools were recovered from the site surface. The ceramics are discussed later when the site chronology is considered.

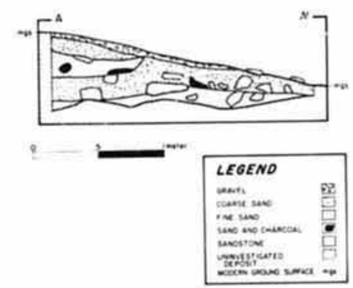

Figure 3.40 - Stratigraphic profile, excavation unit 1, Calmate Shelter

Of the 14 flaked lithic tools recovered at the site, 8 are utilized flakes. The majority of flaked lithic tools are of very fine grained materials, and are complete or nearly complete. Debitage is also primarily very fine grained.

Only seven bones were collected at the site. Three (two *Sylvilagus* sp. and one *Castor canadensis*) were identifiable to genus or species level. One Artiodactyla bone was collected, and the remainder of the bones were one medium mammal and two large mammals.

Botanical materials were recovered from one bulk soil sample (table 3.32). Noteworthy among the materials identified is the presence of *Zea mays*. One vegetal specimen was also collected. It contained both a charred *Zea mays* cob fragment and an uncharred *Pinus ponderosa* cone fragment.

Site Synthesis

Chronology

No tree-ring or archaeomagnetic samples were recovered from the site. The collection of sherds from the shelter is small, but does provide some evidence for the temporal placement of the structures and features.

As the previous discussion of the surface sherds indicates, the collection includes both late and early sherds. Excavation of the fill of Pitstructure 1 produced 5 Early Pueblo Gray sherds. The late ceramics are 5 corrugated sherds: 3 from the surface and 2 from the fill of Surface Structure 1. Surface Structure 1 fill also yielded early types such as Chapin Gray, Early Pueblo Gray, and Polished White. The corrugated sherds from this fill are probably associated with the burned pits, and the early sherds are probably associated with the structure.

Table 3.31 – Feature summary, Pitstructure 1, Calmate Shelter

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/ height (cm)
1	Hearth	...	...	...	...	...
2	Burned pit	...	...	50.0	25.0	4.0
3	Burned pit	...	...	55.0	30.0	4.0
4	Burned pit	...	...	...	...	4.0
5	Burned pit	...	...	22.0	21.0	4.0

Features are not mapped.
... – Information not available.

Table 3.32 – Bulk soil sample results, Calmate Shelter

Taxon Family Genus species Plant part	Provenience Pitstructure 1 Floor 1 BS 1
Amaranthaceae *Amaranthus* sp. seed	4/C
Cheno-ams fruit	3/C
Chenopodiaceae *Chenopodium* sp. fruit	1/N
Cruciferae seed	1/C
Cupressaceae *Juniperus* sp. scale *Juniperus osteosperma* scale	 15/N 70/C
Fagaceae *Quercus gambelii* wood	<1g/C
Gramineae *Zea mays* fruit cob cupule	 <1g/C 1fg/C 3/C
Loasaceae *Mentzelia* seed	1/N
Pinaceae *Pinus edulis* needle *Pinus ponderosa* needle *Pseudotsuga menziesii* needle wood twig	 7fg/C 2fg/C 73W/N 12fg/N 27W/C 223fg/C 3g/C 1g/C
Salicaceae *Populus* sp. wood	3g/C
Solanaceae *Nicotiana attenuata* seed	1/N
Dicotyledoneae wood	<1g/C
Gymnospermae bark	<1g/C

In the body of the table, numerals to the left of the bar indicate the number of items present, except in those cases where the items have been reported as a weight. In this latter case, the numeral is followed by the abbreviation "g" indicating the number of grams of material present.

C – Charred.
N – Noncharred.
fg – Fragment.
W – Worked

Based on the probable association of early ceramics with Surface Structure 1, the presence of only Early Pueblo Gray, and the absence of Moccasin Gray and Mancos Gray in the pitstructure fill, these structures can be assigned a date range of A.D. 600 to 860. If the absence of red wares and neckbanded ceramics (Moccasin Gray and Mancos Gray) is not simply a result of the small sample size, a terminal date of A.D. 725 may be appropriate.

The 4 burned pits in the fill of Surface Structure 1 may be assigned a post-A.D. 900 date, if the association of these features with corrugated sherds is accurate. The Dolores Corrugated sherd can be placed in the period A.D. 1050 to 1200, since this is the period when these sherds were most common in the DAP area.

The architectural characteristics of the exposed portions of the pitstructure and the surface structure provide little help in assigning these structures to DAP phases and subphases. The presence of a vertical slab room (Surface Structure 1) is consistent with placement in the Sagehill Subphase (A.D. 700-780) of the Sagehen Phase. Such an assignment agrees with the rather tenuous date range discussed above. The burned pits, and possibly the hearth (Feature 1) in the upper fill of Pitstructure 1 may be assigned to the Sundial Phase (A.D. 1050-1200), but a subphase assignment is not possible.

Site Function

Based on the presence of a pitstructure and a surface structure, the early occupation of the shelter was probably a habitation. The later occupation appears to be an ephemeral use, and probably represents either a limited activity locus or some sort of seasonal site.

DTA SITE (SITE 5MT5361)

DTA Site was not among the sites that were initially targeted for investigation during the 1980 field season. This site, located in borrow area B, was not discovered until midway through the 1980 field season. The unique setting of the site and the possibility that the artifacts might have dated to the Archaic period led the Bureau of Reclamation to request that the site be investigated before its destruction by planned construction activities. The site (fig. 3.41) is located on the east side of the Dolores River valley in the southeast portion of the Grass Mesa Locality. It is located in the NW 1/4 of the SE 1/4 of sec. 7, T38N, R15W. The UTM grid coordinates for this location are 4,160,060 mN, 716,600 mE, zone 12. Archaeological materials were noted in the profile of a test trench excavated by power equipment (fig. 3.42).

Research Objectives and Investigative Strategy

DTA Site was discovered in an area that had previously been cleared with regard to cultural resources. When the site was discovered, it was determined to be a unique resource because deeply buried sites had not been previously recorded in the project area. Preliminary analysis of the initial collections from the site indicated that the site possibly belonged to the Archaic Tradition. This increased the potential value of the site, for few archaic sites have been recorded in the project area. Because the site area was scheduled to be impacted by construction activities shortly after it was discovered, it was decided that it should be investigated.

The first goal in investigating DTA Site was to gather information that would allow the site to be dated. A second goal was to gather a representative artifact collection of sufficient size to allow for meaningful comparisons of this site with others in the project area and to allow the construction of a "lithic profile" (Phagan 1981) for the site. Finally, the depositional history of the site needed to be determined so that the context in which the artifacts were found (cultural deposition versus natural redeposition) could be assessed.

Figure 3.41 – View of DTA Site during the excavation of excavation unit 1, looking northwest. The trench in which artifacts were originally discovered is visible in the center of the left side of the photograph (DAP 059314).

Figure 3.42 – View of excavation unit 2, DTA Site (DAP 062312).

In designing the investigations at DTA Site, several factors were considered. One factor was the time constraints placed on the excavations by the contractor's schedule. Another was the nature of the site and the fact that the material was buried under approximately 2.5 m of sediment. A final factor was the limited availability of crew members to perform the excavations. Consideration of all of these factors led to the adoption of a strategy that required the use of power equipment to remove the overburden and the use of hand tools to investigate the deposits containing the cultural material of interest.

During the first period of excavation at DTA Site (8 to 12 September 1980) a backhoe was used to remove overburden from a trench that was cut perpendicular to the original contractor's trench and parallel to the slope (fig. 3.43). This trench (excavation unit 1) was excavated to a depth of approximately 2.9 m and to a length of 7.3 m from the southeast wall of excavation unit 2 (the original contractor's trench); the width of excavation unit 1 varied from slightly more than 1 m to just under 80 cm. The trench was divided into 1-m-long segments that were then shovel and trowel excavated in 10-cm levels (figure 3.44). All sediments from the hand excavations were screened through one-quarter-inch mesh. Additional work was performed in excavation unit 2 to increase the size of the artifact sample and to explore the stratigraphy. Included in this work was troweling of the walls to define stratigraphy, excavation of portions of the exposed artifact-bearing stratum (both with and without screening), and

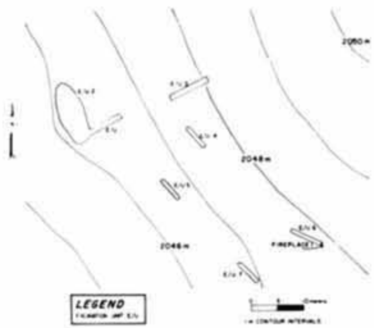

Figure 3.43 - Topographic map of DTA site showing the location of excavated units.

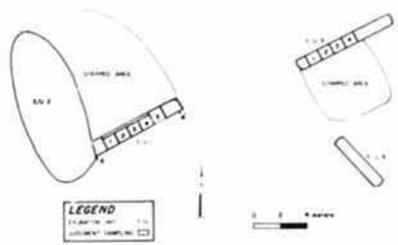

Figure 3.44 - Map of excavation units 1, 2, 3, and 4, DTA Site.

collection of carbon from the walls of the unit. During the initial excavation at DTA Site, the stratigraphy in the southeast wall of excavation unit 1 (fig. 3.45) was described by crew members from the Earth Resources Section and 2 sediment columns were collected.

After the completion of the initial excavations at DTA Site, the lithic artifacts were examined by the DAP Reductive Technology Group and comments were generated. Based on the small size of the assemblage, and the fact that no temporally diagnostic artifacts were recovered, it was decided that further investigation of the site was required. The second period of investigation began on 30 September 1980 and lasted until 3 October. The first task during this period of fieldwork was to determine the area of greatest artifact concentration. The backhoe was used to excavate five trenches (excavation units 3 through 7) at various points upslope and upvalley from excavation units 1 and 2 (fig. 3.43). The strata exposed in these trenches were examined to determine where follow-up excavations could be most profitably conducted. Based on the nature of the stratigraphy and the observed concentration of materials, the trench immediately upslope (east) of excavation units 1 and 2 was chosen. This trench, designated excavation unit 3, was expanded and an area to the southeast was scraped down approximately 1.5 m to allow for trench stability. As with excavation unit 1, the trench extension was brought to within 20 cm of the artifact-bearing level. Excavation unit 3 was divided into four segments that were 1 m long and approximately 80 cm wide. Two of these segments (numbered 1 and 3) were excavated in the fashion of the segments in excavation unit 1. Segment 2 was excavated without being divided into levels, but all of the sediments from the excavation of this segment were screened. Segment 4 was not excavated.

Additional investigations during the second period of fieldwork at DTA Site included examination of stratigraphy in the other test trenches (excavation units 4 through 6) and recording the only feature discovered at the site, a fireplace that was located in excavation unit 6, above the level of the artifact-bearing stratum under investigation at the site.

Surface Investigations

Only 3 artifacts were recovered from the surface of the site: one very fine-grained flake, a partially worked thin biface with no haft element, and a completely worked thin biface (tables 3.33 and 3.34). The sparse nature of the surface collection is not surprising given that the bulk of the cultural material at the site is buried under more

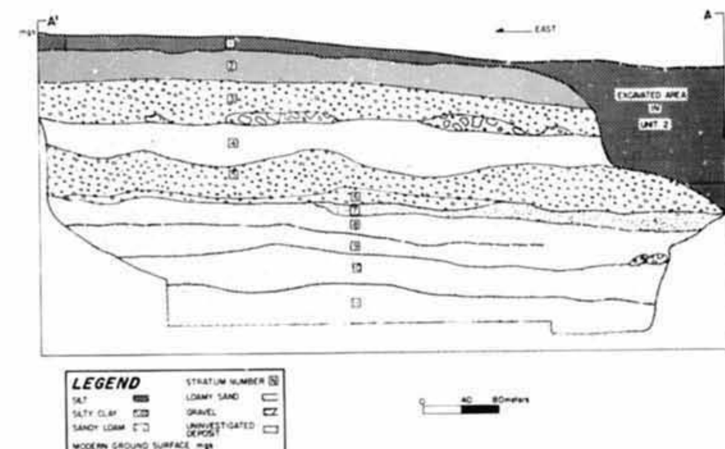

Figure 3.45 - Stratigraphic profile of the southeast wall of excavation unit 1, DTA Site. Location of profile is shown in figure 3.44.

Table 3.33 – Flaked lithic debitage, DTA Site

	Modern ground surface			Excavation unit 1			Excavation unit 2			Excavation unit 3			Other collections			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags																		
Grain size																		
Medium	0	0	0	0	0	0	0	0	0	1	1.2	2	1	3.1	3	2	0.7	3
Fine	0	0	0	13	11.9	6	27	42.9	6	56	65.1	4	18	56.3	4	114	39.2	3
Very fine	1	100.0	23	83	76.1	2	34	54.0	2	29	33.7	3	13	40.6	11	160	55.0	3
Microscopic	0	0	0	13	11.9	1	2	3.2	1	0	0	0	0	0	0	15	5.2	1
Total flakes/ flake frags	1	100.0	23	109	100.0	2	63	100.0	3	86	100.0	3	32	100.0	7	291	100.0	3
Items with cortex	0	0	0	6	5.5	–	3	4.8	–	1	1.2	–	1	3.1	–	11	3.8	–
Whole flakes	1	100.0	23	63	57.8	–	47	74.6	–	7	8.1	–	10	31.2	–	127	43.6	–
Nonlocal items	0	0	0	2	1.8	–	0	0	0	0	0	0	0	0	0	2	0.7	–
Angular debris	0	0	0	29	100.0	3	24	100.0	7	32	100.0	11	15	100.0	22	100	100.0	9

frags – Fragments
– – Information not available

than 2 m of sediment. The surface materials almost certainly are not directly related to the deeply buried materials at the site; the former are probably associated with a less deeply buried cultural stratum such as the one associated with Feature 1 (40 to 70 cm below modern ground surface). No surface evidence of features or structures was noted at this site.

Excavations

Fireplace (Feature 1)

The only feature encountered at DTA Site was a fireplace. This feature was not associated with the deeply buried material, which was of primary interest at DTA Site, but was encountered in the upper sediments of excavation unit 6. The top of the feature lies between 40 and 70 cm below the modern ground surface in the southeast end of the excavation unit (fig. 3.46). At least half of the feature was removed by the backhoe in excavating the trench. The fireplace appears to have been rectangular in plan and trapezoidal in cross section. The walls of the fireplace are formed by sandstone slabs. A thick (approximately 10 cm) layer of charcoal-rich sediments was recorded in the bottom of the pit fill and the inner surfaces of the slab lining all showed charring and oxidation from heating. A surface is apparent in the profile at the top of the fireplace, marked by a band of charcoal-rich sediments. No artifacts were recovered from the fill of the pit, but 2 sherds (one Early Pueblo Gray and one Chapin Gray) were recovered from the associated surface. These sherds suggest that the feature dates to somewhere between A.D. 600 and 900.

Material Culture

Few artifacts were recovered from investigations at DTA Site. The flaked lithic debitage is summarized in table 3.33 and the flaked lithic tools are summarized in table 3.34. The controlled excavations at the site (excavation units 1 and 3) yielded only 9 tools. The remainder of the tools were collected from the backdirt and sidewalls of excavation units. The contractor's original trench (excavation unit 2) has been summarized separately in the summary tables since it was the place where the site was discovered.

Four ceramic sherds were found at the site. One Early Pueblo Gray sherd was recovered from the backdirt of excavation unit 1. Another Early Pueblo Gray sherd is quite significant because it was found in Level 10 of excavation unit 3, at a depth of approximately 2.7 m below the modern ground surface, and in association with flaked lithic debitage. The sherd was not found in situ, but was recovered from the screen. Nonetheless, the association with the flaked lithic material at the site appears to be genuine. One sherd each of Early Pueblo Gray and Chapin Gray were recovered from excavation unit 6 in sediments associated with Feature 1.

Excavation unit 1 produced 3 small fragments of bone. Although these bone fragments have not been analyzed, a brief inspection indicates that they are all too small and fragmentary to be identified any more specifically than to mammal.

Table 3.34 – Flaked lithic tools, DTA Site

	Modern ground surface			Excavation unit 1			Excavation unit 2			Excavation unit 3			Other collections			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools	2	100.0	7	4	100.0	6	10	100.0	34	5	100.0	92	7	100.0	68	28	100.0	47
Tool morpho-use																		
Utilized flake				4	100.0	6	6	60.0	24	1	20.0	5	3	42.9	9	14	50.0	14
Core							2	20.0	89	3	60.0	146				5	17.9	123
Used core, cobble tool													1	14.3	356	1	3.6	356
Thick uniface										1	20.0	16				1	3.6	16
Thin uniface													2	28.6	20	2	7.1	20
Thick biface							1	10.0	20				1	14.3	51	2	7.1	36
Thin biface	2	100.0	7													2	7.1	7
Projectile point							1	10.0	1							1	3.6	1
Grain size																		
Fine							1	10.0	155	2	40.0	182	3	42.9	24	6	21.4	99
Very fine	2	100.0	7	3	75.0	8	8	80.0	23	2	40.0	11	3	42.9	134	18	64.3	36
Microscopic				1	25.0	1	1	10.0	1				1	14.3	1	3	10.7	1
Irregular										1	20.0	73				1	3.6	73
Item condition																		
Broken																		
Indeterminate	1	50.0	10							1	20.0	73				2	7.1	42
Distal present	1	50.0	4										1	14.3	1	2	7.1	3
Proximal present							1	10.0	1							1	3.6	6
Medial present													1	14.3	6	1	3.6	6
Complete/nearly complete				4	100.0	6	9	90.0	38	4	80.0	96	5	71.4	934	22	78.6	55
Dorsal face evaluation																		
Indeterminate							1	10.0	1							1	3.6	1
Core							2	20.0	89	3	60.0	146				5	17.9	123
Unworked with cortex							3	30.0	32				1	14.3	39	4	14.3	34
Unworked without cortex				4	100.0	6	3	30.0	9	2	40.0	11	4	57.1	7	13	46.4	9
Edged with cortex							1	10.0	20				1	14.3	356	2	7.1	188
Edged without cortex													1	14.3	51	1	3.6	51
Primarily thinned	2	100.0	7													2	7.1	7

Stratigraphy

The stratigraphy of the southeast wall of excavation unit 1 is illustrated in figure 3.45. The sediments at the site appear to be the result of colluvial deposition, with weakly developed soil structure noted in the upper 3 strata. Artifacts were recovered in the upper and lower portions of Stratum 10 and upper portions of Stratum 11. Sediment samples were taken from the profile and 2 column samples (sediment monoliths) were collected for laboratory study.

Results of the analysis of sediment samples (analysis performed by Vickie L. Clay of the DAP), indicate that the range of sediments found in the column are consistent with those to be expected in an alluvial fan or colluvial setting. The artifact-bearing strata are higher in gravel content than the rest of the profile, but do not show unusual pH values. These strata, like most of the rest of the profile, do not react to acid, indicating that they contain little or no carbonates. Strata 4 and 5, on the other hand, reacted violently to acid. This is attributed to concentration of carbonates through soil forming processes in this part of the profile.

The site is situated at the intersection of the canyon wall and the flood plain, in an area where colluvial deposition

Figure 3.46 - View of fireplace (Feature 1), DTA Site, looking southwest (DAP 062330).

is currently taking place. The stratigraphy of the site, the sediment analysis, and the lack of observable cultural surfaces combine to suggest that the artifacts were deposited during active colluviation. Colluvial transport, indeed, probably accounts for the presence of the artifacts in Strata 10 and 11.

Site Synthesis

Chronology

The evidence available for dating DTA Site is confusing. The stratigraphic position of the cultural material at a depth of 2.5 m below modern ground surface does not necessarily indicate great antiquity. The situation of the site adjacent to the flood plain, near an intermittent stream, and near the base of the valley wall is such that there could have been very rapid deposition of sediments on the site. Further, little evidence of soil formation exists in the profile of the site. This observation does not necessarily rule out the possibility that the site is old, but, if the site were pre-Anasazi, substantial soil development would likely have taken place.[1]

The presence of Feature 1 at a depth of 40 to 70 cm below modern ground surface in excavation unit 6 suggests that deposition of sediments at the site was rapid. The sherd associated with this feature was from a Chapin Gray bowl from the Dolores Manufacturing Tract. Chapin Gray was present in the Dolores area between A.D. 600 and 950 and was common between A.D. 600 and 825.

Two samples of charcoal were submitted to different laboratories for radiocarbon dating. Both radiocarbon samples 17 and 16 were taken from the same level (approximately 2.25 m below modern ground surface) of the same excavation segment of excavation unit 3 and were found in association with flaked lithic materials. Analysis of sample 16 was provided by Dicarb Radioisotope Co. The reported date is 1600 ± 90 B.P. The tree-ring corrected date using the conversion method by Damon et al. (1974) is 1584 ± 152 B.P. (A.D. 214-518). Analysis of sample 17 was provided by Beta Analytic, Inc. The reported date is 2185 ± 100 B.P. The tree-ring corrected date is 2234 ± 183 B.P. (467-101 B.C.). The tree-ring corrected dates are separated by 650 years, and the standard deviations do not overlap. This suggests that either the charcoal submitted for dating was quite heterogeneous in terms of age, or that there were significant differences in the analytic methods employed between the two labs. The first proposition seems more likely, especially since the site consists of redeposited artifacts. The association of the charcoal with the artifacts may well be only chance and not the result of cultural processes.

Two lines of evidence derived from the artifact assemblage bear on the dating of the site. First, a sherd of Mesa Verde Early Pueblo Gray was recovered during the excavation of segment 3, level 10 (2.7 m below modern ground surface) of excavation unit 3. The sherd was found in the screen, but the excavator was certain that it could not have fallen into the unit from a position higher in the stratigraphic profile. Further, no evidence of rodent disturbance was noted either in the profile or during excavation of the overlying strata. The second line of evidence is derived from the lithic profile (Phagan 1981) of the site. The characteristics of the lithic assemblage do not closely resemble those of Anasazi assemblages in the project area, but they are closer to the Anasazi lithic profiles than to profiles generated for sites with evidence of Archaic occupation.

Thus, the dating evidence for DTA site is conflicting and confusing. The presence of a sherd in association with the flaked lithic material from the site, and the nature of the lithic profile suggest that this site belongs to the Anasazi Tradition. The radiocarbon dates indicate a pre-Anasazi date for the site. The stratigraphic position and the site setting do not contradict either position. The author favors the placement of the site in the Anasazi tradition based on the artifact assemblage, but the actual date is still open to question.

Applicability of Site Data to the Dolores Archaeological Program Research Design

The data collected from DTA Site do not contribute much to answering specific questions in the research design because the material is redeposited and the collection of artifacts is relatively small. The location of the site suggests that sites were located in the flood plain and that there is potential for buried sites in the project area. Such

[1]Robert Sutton, U.S. Geological Survey, personal communication.

sites will have to be taken into account in any modeling of subsistence pattern or settlement location in pursuit of research design goals.

SITE 5MT2160

Site 5MT2160 is located on an alluvial fan at the point where an unnamed drainage enters the Dolores River from the south (fig. 3.1). This is 1 of only 4 sites located on the south side of the river. The site is located in the NE 1/4 of the NE 1/4 of sec. 11, T38N, R16W. The UTM coordinates of this location are 4,161,120 mN, 713,970 mE, zone 12.

The surface of the site is covered with dense vegetation, primarily Gambel oak, but one area is relatively clear of vegetation. The greatest concentration of surface artifacts occurred in this clear area.

The site was recorded on 17 September 1972 by the DRP survey, and was described as a "sherd, lithic, and mano" area. The 2 sherds recovered by the survey crew did not allow the period of occupation to be inferred.

Research Objectives and Investigative Strategy

The primary objective of the work at Site 5MT2160 was the collection of a large enough sample of artifacts to allow better temporal placement of the site, and an examination of the site surface for evidence of architecture. Evidence of the presence or absence of architecture, combined with the nature of the artifacts collected was intended to allow refinement of the functional assignment possible for the site.

The original plan was to remove brush from the site, establish a grid, and collect the surface artifacts by grid square. When the crew arrived on the site on 27 September 1979, it was determined that artifact densities were so low that the labor necessary to clear brush and survey in a grid was not warranted. Instead, a stake was placed in a clearing in the west-central portion of the site and a transit set up over that stake. The site surface was searched for artifacts and when they were encountered, the azimuth and distance from the transit station were recorded. Artifact locations were plotted on a site map on which a grid had been superimposed. All artifacts falling into the same grid square were assigned the same field speciman number. Only 12 of the possible 178 4- by 4-m grid squares contained any artifacts.

Surface Investigations

Surface Artifact Collections

Only 30 artifacts were recovered from the 1979 surface collections at Site 5MT2160 (table 3.35). The 1972 survey crew collected 2 sherds and 7 flakes, but these collections could not be located for reanalysis and these materials will not be included in this discussion.

Table 3.35 - Surface artifacts, Site 5MT2160

Artifact class	No. of items
Ceramics:	
MV Early Pueblo Gray jar sherds	7
MV Early Pueblo white bowl sherds	4
Flaked lithic tools:	
Used core	1
Flaked lithic debitage:	
Flakes and flake fragments	
Very fine grained	12
Microscopic grained	4
Nonflaked lithic tools:	
Metate fragment	2
Total	30

MV - Mesa Verde Culture Category.

The 1979 collection consisted of 11 sherds (7 Early Pueblo Gray and 4 Early Pueblo White, 16 pieces of flaked lithic debitage, 1 flaked lithic tool (an unused core), and 2 nonflaked lithic tools (both classified as metate fragments). The only patterning evident in the distribution of artifacts on the site surface was a concentration of material in the area that was relatively clear of vegetation.

Surface Evidence of Structures

No definite evidence of structures was present on the site surface. A concentration of rock was noted by the survey crew, but they thought it was a natural concentration. Kohler (chapter 2) suggests that the vegetative cover of the site, and the depositional situation (an alluvial fan), may have obscured evidence of architecture at the site.

Site Synthesis

The collection from Site 5MT2160 provides few clues to either the temporal placement of the site, or to its use. The presence of Early Pueblo Gray and Early Pueblo White sherds indicate a period of occupation somewhere between A.D. 600 and 950. The absence of neckbanded ceramics and red ware sherds is not helpful in refining temporal placement because so few sherds are present that sampling error cannot be ruled out, however, the absence of corrugated sherds in this assemblage suggests a pre-A.D. 910 date.

Inferring the function of the site is also difficult. The very low artifact density suggests that use of the site was not very intensive, and that perhaps it was some sort of limited activity locus. However, the vegetation and the depositional situation of the site may have combined to obscure evidence of a more intensive use. Kohler (chapter 2) suggests that the site be tentatively considered a field house, based on its location, the presence of milling equipment, and on the possibility that a structure may have been present. This suggestion seems reasonable, but receives little support from the limited artifact collection.

SITE 5MT2165

Site 5MT2165 is located on the east side of the Dolores River valley, approximately 1 km southeast of Grass Mesa in the NW 1/4 of the SE 1/4 of sec. 7, T38N, R15W. The UTM grid coordinates for this location are 4,160,200 mN, 716,740 mE, zone 12.

The DRP survey recorded Site 5MT2165 on 25 September 1972 as a Basketmaker III sherd and lithic scatter. On the survey form, the site is described as "an area of sheet trash on the talus." Rock rubble was noted on the site, but the survey crew noted that, because identical rock occurred in other areas of the hillside as well, it was impossible to conclude that the rock on the site was, indeed, building stone.

The nearest dependable source of water currently in the area of Site 5MT2165 is the Dolores River. Sandstone basins, which probably held water for periods of time after rains, occur upslope of the site.

The slope in the site area is between 20° and 30°. This contributes to the heavy slope wash, which has probably distorted, to a degree, the distribution of surface artifacts.

Investigative Strategy

Surface collections were made at Site 5MT2165 on 27 August 1980. All artifacts encountered on the surface were collected. Some shovel scraping of the site surface was performed in an attempt to locate remains of structures.

The 1972 surface collections were reanalyzed employing current DAP analytical systems. The results of the analysis of the 1972 and the 1980 collections will be discussed in the following section.

Surface Investigations

Surface Artifact Collections

The combined 1972 and 1980 surface collections from the site consist of 338 items. Ceramic sherds make up 29.9 percent of the collections; flaked lithic tools, 6.8 percent; flaked lithic debitage, 63.0 percent; and nonflaked lithic tools, 0.3 percent. Artifact data are summarized in table 3.36.

The bulk of the ceramics collected at the site are Early Pueblo Gray. Early Pueblo White is represented by 2 sherds and Early Pueblo Red by 9 sherds. Chapin Gray, Moccasin Gray, and Mancos Gray are present in the collections. One gray ware sherd is particularly interesting in that its temper is quartz sand. This type of temper is rare in sherds found in the Dolores area and raises the possibility that the sherd may be of nonlocal origin.

The flaked lithic tool collection consists of utilized flakes, used and unused cores, various kinds of bifaces and unifaces, a cobble tool, and a corner-notched projectile point. The flaked lithic debitage assemblage is dominated by very fine grained materials (53.8 percent). No nonlocal lithic materials were noted in the flaked lithic debitage assemblage. Burro Canyon and Morrison quartzites and Burro Canyon cherts were the predominant material types.

Five nonhuman bones were collected at Site 5MT2165. One mule deer and four cottontail bones made up the collection.

Surficial Evidence of Structures

Shovel scraping at Site 5MT2165 revealed the presence of one surface structure. Two vertical slabs that appeared to form the northeast corner of a room were discovered. The remaining portion of the north wall measures 1.23 m and the east section of the wall measures 1.28 m. No other evidence of walls was present.

Site Synthesis

Chronology

Ceramics provide the principle means for dating Site 5MT2165. The presence of red ware sherds indicates that the site dates to sometime after A.D. 720. The Early Pueblo Gray, Early Pueblo White, and Early Pueblo Red sherds suggests a date before A.D. 950. The presence of both Moccasin Gray and Mancos Gray places the site sometime between A.D. 860 and 910, and a single neckband style date falls within this range.

The surviving architecture at the site supports a late A.D. 800's assignment, in that vertical slab construction in the project area tends to occur during the Sagehill and Dos Casas Subphase of the Sagehen Phase and the Periman Subphase of the McPhee Phase. Rohn (1977:254) indicates a similar time span for vertical slab foundations of jacal structures on Chapin Mesa, and Hayes and Lan-

Table 3.36 – Surface artifacts, Site 5MT2165

Artifact class	No. of items 1972	1980	total
Ceramics:			
MV Early Pueblo Gray jar sherds	27	52	79
MV Early Pueblo White bowl sherds	1	1	2
MV Early Pueblo Red bowl sherds	7	2	9
MV Chapin Gray jar sherds	2	6	8
MV Moccasin Gray jar sherds	0	1	1
MV Mancos Gray jar sherds	0	1	1
Indeterminate Gray jar sherds	0	1	1
Flaked lithic tools:			
Utilized flake	0	3	3
Unused core	0	4	4
Used core	0	1	1
Cobble tool	0	1	1
thick side-worked uniface	0	1	1
Thick multiple-edge-worked uniface	1	1	2
Thin multiple-edge-worked uniface	0	2	2
Thick biface, too fragmentary to determine	2	0	2
Thick biface, partially worked	4	1	5
Thin biface, no haft	0	1	1
Projectile point, corner-notched	1	0	1
Flaked lithic debitage:			
Angular debris	5	52	57
Flakes and flake fragments			
Fine grained	8	43	51
Very fine grained	0	84	84
Microscopic grained	3	18	21
Nonflaked lithic tools:			
Abrading stone, one flat surface	0	1	1
Total	61	277	338

MV - Mesa Verde Culture Category.

caster (1975:182-184) found similar foundations in use in both the Piedra Phase (A.D. 750 to 900) and the Ackman Phase (A.D. 900 to ca. 1000) in the Badger House Community on Wetherill Mesa.

Site Function

The ceramic and lithic artifacts from Site 5MT2165 provide evidence as to site function. The ceramic assemblage at the site, while dominated by gray wares, includes white wares and red wares as well. If an association between the ware and function exists, as has been suggested (Lucius 1982; Freeman and Brown 1964; Longacre 1968:100-101), then it can be assumed that a greater variety of activities involving ceramics was performed at sites with all 3 major wares than at sites where only a single ware is represented.

The composition of the lithic artifact collection – utilized flakes, unifaces, bifaces, cores, and a projectile point – suggests that a variety of activities took place at Site 5MT2165. The number of cores and the amount of flaked lithic debitage suggests that the manufacture or repair of flaked lithic tools should be numbered among these activities. The artifact assemblage, combined with the evidence of a structure, suggests that the site was probably a habitation.

SITE 5MT2166

Site 5MT2166 is located south of and across a small ravine from Site 5MT2165, in the NW 1/4 of the SE 1/4 of sec. 7, T38N, R15W. The UTM grid coordinates for this location are 4,160,500 mN, 716,780 mE, zone 12. The site is located in an area that is relatively clear of vegetation, but like Site 5MT2165, is surrounded by thick stands of scrub oak.

The site was recorded on 23 September 1972, by the DRP survey as a Basketmaker III-Pueblo I sherd and lithic scatter. Knudson et al. (1984:table 1) described the site as a small habitation and tentatively assigned it to the Tres Bobos Subphase (A.D. 600-700).

Investigative Strategy

Grid-controlled surface collections were made on 28 August 1980, by a WSU crew. Twenty-five 4- by 4-m squares were surface collected. The site surface was shovel-scraped to test for the possible presence of surface structures. Results of the analysis of the 1980 collections and of the reanalysis of the original collections are presented in the discussion of surface investigations at this site.

Surface Investigations

Surface Artifact Collections

Composition of collections. - Artifact collections from the site include 960 items, 889 of which were collected by the 1980 crew. The artifact data are summarized in table 3.37. Flaked lithic debitage makes up 72.6 percent of the entire collection, followed by ceramic items (22.1 percent), flaked lithic tools (4.2 percent), nonflaked lithic tools (1.1 percent) and nonhuman bone.

The ceramic collection is dominated by gray wares and includes both Chapin Gray and Moccasin Gray. Early Pueblo Red and Early Pueblo White are both present in very small quantities. One sherd of Chapin Black-on-white was recovered during the 1972 survey.

The flaked lithic tool assemblage is composed primarily of unused cores and utilized flakes. Bifacial and unifacial tools are also present in the assemblage. The nonflaked tools include manos, metates, hammerstones, an abrading/grinding stone, and a notched axe.

One special building stone was also recovered. This object was pecked on one end and flaked on the other.

Three nonhuman bone fragments were recovered from the site surface. One of the bones was from a medium-sized mammal; the other 2 were from a large mammal. Coming, as these bones do, from the surface of the site, their association with the other materials from the site is questionable.

Distributional patterning. - The following discussion considers only the material from the 1980 fieldseason. The 1972 collections from the site were made without reference to a site grid and cannot be associated with the later collection units.

Two concentrations of surface artifacts were noted at the site (fig. 3.47). The heaviest concentration occurred in the southeast quadrant of the site. The largest amounts of flaked lithic debitage, nonflaked lithic tools, and ceramics occurred in this portion of the site. The 9 southeastern collection units contained 65.6 percent of the material collected at the site. The other concentration was located in the northwest corner of the site, where 4 grid squares contain 14.7 percent of the entire collection.

The concentration in the southeast corner of the site is notable in that all of the manos and metates recovered from the site were collected from this area. Unused cores were also common in this area.

The concentration noted in the northwest corner of the site is dominated by unused cores and flaked lithic debitage. A notched axe, an abrading/grinding stone, and a generalized nonflaked lithic tool were also collected in this area.

Surface Evidence of Structures

Shovel scraping the site surface yielded no evidence of masonry structures. In square 58S/62E, an area of ash and charcoal that suggested the possibility of a burned jacal structure was uncovered. This ash area was oblong and contained a relatively high concentration of artifacts. This was the only evidence of structures present on the site.

Site Synthesis

Chronology

The only basis for suggesting a date for the use of 5MT2166 is the ceramic collection. The dominance in the collection of Early Pueblo Gray suggests that the principle occupation of the site occurred sometime between A.D. 600 and 950. The presence of red ware in the collection suggests a date of A.D. 730 or later for the occupation. Moccasin Gray dates from A.D. 760 to 950, and Chapin Black-on-white dates to between A.D. 600 and 800. Breternitz et al. (1974:26) indicate a decrease in the popularity of Chapin Black-on-white after A.D. 750 for the Mesa Verde region in general. Moccasin Gray and Chapin Black-on-white are represented in the collection by a single sherd of each type. The Moccasin Gray sherd provided a neckband date in the middle A.D. 800's.

Based on all of the ceramic evidence, the date of occupation of Site 5MT2166 can be placed somewhere between A.D. 760 and 900. The decrease in popularity of Chapin Black-on-white after A.D. 750 suggests that the

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Table 3.37 - Surface artifacts, Site 5MT2166

Artifact class	No. of items 1972	1980	total
Ceramics:			
MV Early Pueblo Gray jar sherds	50	150	200
MV Early Pueblo White bowl sherds	0	2	2
MV Early Pueblo Red bowl sherds	0	1	1
MV Late Pueblo White bowl sherds	0	1	1
MV Chapin Gray jar sherds	3	2	5
MV Moccasin Gray jar sherds	0	1	1
MV Chapin Black-on-white bowl sherds	1	0	1
Flaked lithic tools:			
Tool fragment	0	1	1
Utilized flake	0	10	10
Unused core	0	17	17
Used core	0	1	1
Cobble tool	0	1	1
Thick, end-worked uniface	0	3	3
Thick, side-worked uniface	0	1	1
Thin, side-worked uniface	0	1	1
Graver, beak	0	1	1
Thick biface fragment	1	0	1
Thick biface, partially worked	1	1	2
Thin biface, completely worked	1	0	1
Flaked lithic debitage:			
Angular debris	2	349	351
Flakes and flake fragments			
Medium grained	0	9	9
Fine grained	7	125	132
Very fine grained	3	185	188
Microscopic grained	2	15	17
Nonflaked lithic tools:			
Questionable or minimally altered	0	1	1
General	0	1	1
Abrading stone, curved surface	0	1	1
Hammerstone, unmodified cobble	0	3	3
Mano fragment	0	1	1
Mano	0	1	1
Metate fragment	0	1	1
Trough metate, one closed end	0	1	1
Axe, notched	0	1	1
Special building stone	0	1	1
Total	71	889	960

MV - Mesa Verde Culture Category.

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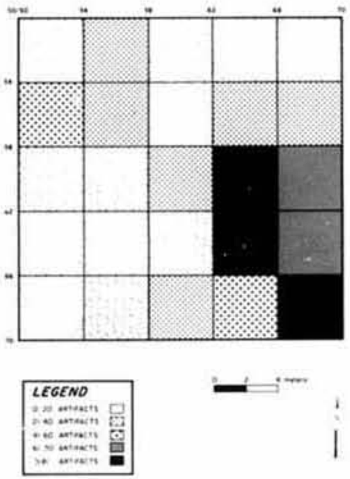

Figure 3.47 - Surface artifact distributions, Site 5MT2166.

occupation of the site occurred toward the beginning of the range. Single neckband style dates are subject to error and, therefore, the single such date from this site does not contradict this suggestion.

Site Function

Surface evidence suggests that 5MT2166 functioned as a small habitation. This conclusion is based on the possible jacal surface structure and on the variety of artifacts recovered from the site. In the ceramic collection, cooking/storage (gray ware) vessel sherds are dominant, but white ware and red ware serving/ceremonial vessel sherds are also present. A wide range of flaked and nonflaked lithic tools were recovered from the site. The cores, hammerstones, and the amount of flaked lithic debitage indicate that manufacture of lithic tools was one of the activities that was conducted at the site. Milling equipment provides evidence that processing was also performed there. The axe, bifacial and unifacial flaked lithic tools, and abrading/grinding stone suggest that a number of other activities were conducted at the site. The variety of tools and the presence of white wares and red wares indicates that the site was more than a limited activity locus. The possible structure and the presence of a special building stone suggests that the site was more than a seasonal camp.

Two artifact concentrations were observed on modern ground surface. If the disturbance processes that acted to bring artifacts to the surface were uniform, then it can be concluded that the patterns that are observable on the site reflect, to a degree, past behavior at the site. It is also assumed that vegetative cover on the site did not serve to distort the surface artifact collection in any appreciable way. If the observed artifact distributions are reflective of past behavior, then it can be concluded that there were two major loci of activity at the site. The concentration of artifacts in the northwest corner of the site seems to reflect primarily lithic tool manufacture or repair. The southeastern concentration, based both on the artifacts and on the possible structure, might have been the site of a habitation. Activities performed in this area probably included flaked lithic tool manufacture, food processing, and a variety of tasks requiring cutting/scraping tools.

In summary, then, it appears that 5MT2166 was a small habitation site occupied sometime between A.D. 760 and 900. Indications from the ceramic collection are that the occupation may have been in the earlier years of that time span. This places the site either in the Sagehill or Dos Casas Subphases.

SITE 5MT2169

Site 5MT2169 is located on a small terrace on the north bank of the Dolores River in the NW 1/4 of the SE 1/4 of sec. 1, T38N, R16W. The UTM coordinates for the site are 4,161,650 mN, 715,280 mE, zone 12. The nearest site to Site 5MT2169 is Prince Hamlet (Site 5MT2161) which was excavated during the 1979 and 1980 field seasons (chapter 5). Prince Hamlet is located approximately 80 m to the east and is situated on the same terrace of the Dolores River. The Dolores River Road (County Road 28) is only about 3 m from the site on the south, and construction of the road may have removed some of the site matrix.

The DRP survey recorded Site 5MT2169 on 26 September 1972 as a "sherd and lithic area." No heavy artifact concentrations or evidence of structures were noted by the survey crew. They did describe both an area of scattered artifacts and an area of dark soil (possibly midden) separated by approximately 5 m. The period of occupation was recorded as Basketmaker III to Pueblo I.

The site is situated on a gently sloping terrace between two unnamed drainages. The surface of the site was originally covered with a dense growth of Gambel oak that was removed to allow surface collections to be made.

Research Objectives and Investigative Strategy

A grid-controlled surface collection was made at Site 5MT2169. Brush was removed from the site surface and a grid was established. The collection unit was a 4- by 4-m grid square, 51 of which were examined at the site.

The major goal of investigations at Site 5MT2169 was the collection of enough material to allow for a refined placement of the site in the DAP temporal-functional system.

Surface Investigations

Surface Artifact Collections

The surface collections at Site 5MT2169 yielded 65 artifacts (table 3.38). Ceramic items are the most numerous, followed by flaked lithic debitage, flaked lithic tools, and nonflaked lithic tools. All of the sherds are early types and all but 3 are from jars.

Of the 51 grid squares examined, only 20 yielded artifacts. The low density of artifacts may, as Kohler (chapter 2) suggests, be due to the presence of a thick layer of duff that remained on the site surface after brush removal, or it may be a function of a short-term Anasazi use of the site. The only spatial pattern evident is that the majority of the artifacts were collected from the southern half of the site.

Table 3.38 - Surface artifacts, Site 5MT2169

Artifact class	No. of items
Ceramics:	
MV Early Pueblo Gray jar sherds	27
MV Early Pueblo white bowl sherds	2
MV Early Pueblo Red bowl sherd	1
Flaked lithic tools:	
Unused core	1
Thin, side-worked uniface	2
Flaked lithic debitage:	
Angular debris	2
Flakes and flake fragments	
Fine grained	4
Very fine grained	16
Microscopic grained	8
Nonflaked lithic tools:	
Abrading stone	1
Mano	1
Total	65

MV - Mesa Verde Culture Category.

Surface Evidence of Structures

Two alinements of vertical slabs were noted at the site after the vegetation had been cleared. These appear to represent 1 room, but evidence of other rooms may have been obscured by the thick duff and the abundance of noncultural sandstone slabs on the site. The slab alinements were parallel and about 3 m apart. The longer of the two alinements was approximately 4 m in length.

Site Synthesis

Chronology

Two lines of evidence are available for the temporal placement of Site 5MT2169: the ceramic assemblage, and the vertical slab architecture. The ceramic assemblage, consisting of Early Pueblo Gray, Early Pueblo White, and Early Pueblo Red sherds, allows a date range of A.D. 725 to 860 to be assigned for the site. This ceramic date range agrees with the distribution of vertical slab architecture in the DAP area, as discussed earlier. The site may be placed in the Sagehill (A.D. 700-780) or Dos Casas (A.D. 760-850) Subphase of the Sagehen Phase.

Site Function

The presence of architecture on Site 5MT2169 indicates that the site is a seasonal site or a habitation. The artifact assemblage is small, but gray, white, and red wares are present. The presence of only 5 flaked lithic or nonflaked lithic tools in 4 morpho-use classes indicates that only a limited range of activities was performed at the site. This would favor an interpretation of the site as a field house, or other type of seasonal site. If, on the other hand, the presence of a heavy duff layer has obscured evidence of additional architecture and the presence of additional surface structures, then a tentative interpretation as a small habitation should be considered.

SITE 5MT2170

Site 5MT2170 was recorded by the DRP survey on 13 October 1972 and is located on a point of land north of the confluence of Beaver Creek and the Dolores River in the SE 1/4 of the SE 1/4 of sec. 1, T38N, R16W. The UTM grid coordinates for this location are 4,161,460 mN, 715,560 mE, zone 12. The site was assigned to the Basketmaker III to early Pueblo I period by the survey crew based on surface artifacts, whereas Kohler (chapter 2; table 2.9) classifies the site as a McPhee Phase habitation site.

The site is situated on a relatively flat bench at the foot of a slope, and an estimated 50 percent of the site surface is covered by vegetation. Artifacts were present on the surface in an area measuring 56 by 40 m. The site has been disturbed by construction of County Road 28 and by a jeep trail that runs across the site.

Investigative Strategy

The site was mapped, a grid system was established, and surface artifacts were collected from twenty 8- by 8-m squares. No excavations were conducted at the site. Collections from the 1972 DRP survey were reanalyzed by the DAP labs and the results of those analyses, along with data from the current investigations, are presented here.

Surface Investigations

Surface Artifact Collections

Composition of collections. – A total of 648 items was collected from the surface of the site. Of these, only 27 are sherds, primarily Mesa Verde Early Pueblo Gray. Most (80 percent) of the material recovered was flaked lithic debitage; this included angular debris as well as whole and broken flakes. Flaked lithic tools recovered from the site include utilized flakes, cores, cobble tools, unifaces, bifaces, projectile points, and a drill. Few nonflaked lithic items were recovered, but of those recovered, grinding stones were the most numerous. One calcite crystal was also present on the surface of the site. Surface artifact data are summarized in table 3.39.

Distributional/associational patterning. – Two areas of high surface artifact density were noted at the site (fig. 3.48). Two collection units in the northwest corner of the site contained more than 30 artifacts per collection unit. The greatest artifact concentration was in the eastern portion of the site. The greatest quantities of flaked lithic tools and flaked lithic debitage were recovered from this area. All of the ceramics were found along the southern edge of the site.

Surfacial Evidence of Structures

No definite evidence of structures was noted on the site surface. Rock alinements that might have been the remains of surface structures were noted but not mapped by the survey crew; examination of a road cut suggested that there appeared to be sufficient sediment depth to have allowed for the construction of pitstructures.

Site Synthesis

Chronology

There is little evidence for dating the occupation at Site 5MT2170. The ceramic assemblage allows placement between A.D. 600 and 910, based on the presence of Chapin Gray and the absence of corrugated sherds. The assemblage lacks neckbanded types but it is too small to allow any significance to be assigned to this absence.

Site Function

A wide range in the types of flaked lithic tools is present at the site. Several kinds of unifaces and bifaces were recovered, as were projectile points, utilized flakes, and cores. Nonflaked lithic tools include manos and a metate. The ceramic assemblage contains primarily gray wares, but 1 white are bowl sherd was recovered. These various material collections suggest that a rather wide range of activities occurred at this site. The large amount of debitage recovered, along with the number of cores, suggests that activities included production and maintenance of flaked lithic tools. The manos and the metate also indicate that food was processed at the site. The ceramics suggest that cooking and storage activities were performed. Given the combination of activities suggested, and the diversity of tools present, this site was probably a habitation. While no definite evidence of structures was found at Site 5MT2170, as would normally be expected on a habitation, rock alinements were present. Vegetative cover at this site could have obscured other evidence as it did at Hanging Rock Hamlet prior to brush removal.

SITE 5MT2173

Site 5MT2173 is located on the slope on the east side of the Dolores River canyon, in the NW 1/4 of the NE 1/4 of sec. 15, T38N, R15W. The UTM grid coordinates for this location are 4,159,580 mN, 716,900 mE, zone 12. The site is situated on a slight break in slope on the talus and has a slope of about 9°; the surrounding terrain is much steeper. The site faces to the northeast.

The site was recorded originally by the DRP survey on 27 September 1972. It was designated a lithic scatter of indeterminate temporal affiliation.

Investigative Strategy

Because the site could not be placed in the DAP temporal framework, a surface collection of the site was made to gather additional materials with the hope that temporally diagnostic items would be recovered. This collection was made on 29 August 1980. The artifacts from the entire site were collected as one unit.

Surface Investigations

Surface Artifact Collections

A total of 579 artifacts was collected from the surface of the site: 13 in 1972 and 566 in 1980. No ceramics were recovered from the site by either survey team. Most of

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Table 3.39 – Surface artifacts, Site 5MT2170

Artifact class	No. of items 1972	1980	total
Ceramics:			
MV Early Pueblo Gray jar sherds	14	10	24
Indeterminate Gray jar sherds	1	0	1
MV Chapin Gray jar sherds	1	0	1
MV Early Pueblo White bowl sherds	1	0	1
Flaked lithic tools:			
Utilized flake	0	17	17
Unused core	0	12	12
Used core	0	6	6
Cobble tool	0	3	3
Thick, end-worked uniface	0	5	5
Thick, side-worked uniface	2	4	6
Thick, multiple-edge-worked uniface	0	6	6
Thin, end-worked uniface	0	2	2
Thin, side-worked uniface	1	3	4
Thin, multiple-edge-worked uniface	0	2	2
Drill	0	1	1
Biface fragment	1	0	1
Thick biface, partially worked	2	6	8
Thick biface, completely worked	0	2	2
Thin biface, no haft, partially worked	0	3	3
Thin biface, no haft, completely worked	3	7	10
Projectile point, corner-notched	1	2	3
Projectile point, side-notched	0	1	1
Projectile point, triangular without notches	0	2	2
Flaked lithic debitage:			
Angular debris	1	47	48
Flakes and flake fragments			
Medium grained	0	1	1
Fine grained	16	34	50
Very fine grained	4	409	413
Microscopic grained	6	2	8
Nonflaked lithic tools:			
Abrading stone, curved surface	0	2	2
Mano, generalized	0	1	1
One-hand mano	0	1	1
Two-hand mano	0	1	1
Trough metate, one open end	0	1	1
Nonflaked lithic undifferentiated items:			
Calcite crystal	0	1	1
Total	54	594	648

MV - Mesa Verde Culture category.

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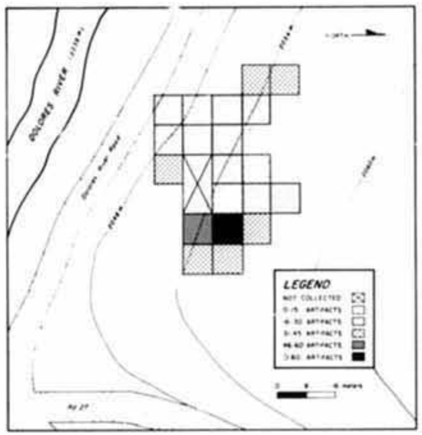

Figure 3.48 - Surface artifact distributions. Site 5MT2170.

the artifacts were flaked lithic debitage, followed by flaked lithic tools and nonflaked lithic tools. All of the debitage appears to be of locally available materials, although a full range of lithic grain size is represented in the collection. Angular debris constitutes 31.3 percent of the debitage collection at this site. Selected attributes of the flaked lithic debitage are summarized in table 3.40. Flaked lithic tools include used flakes, cores, bifaces, and unifaces. One projectile point fragment and one burin were recovered as well.

Nonflaked lithic tools made up less than 1 percent of the collection and include 1 hammerstone, 2 mano fragments, 1 one-hand mano, and 1 two-hand mano. No metates were recovered. No evidence of structures or features was noted at the site.

Site Synthesis

Chronology

Good evidence for chronological placement of Site 5MT2173 is lacking. The absence of ceramics suggests that the site may be Archaic or Basketmaker II; however, the lithic profile suggests that the site is not out of line with what would be expected for later sites in the Escalante Sector. Archaic sites would generally tend to have a greater representation of finer grained materials than is evident at Site 5MT2173 (Phagan 1981).

Site Function

The large size of much of the angular debris, and the quantities of lithic debitage, suggests that the site had a role in the procurement and processing of lithic resources. Outcrops of good raw materials occur on the slopes in the general vicinity of the site and could have been easily exploited. However, the variety of tools recovered suggests that activities other than lithic tool production were conducted at Site 5MT2173. The presence of milling equipment in the form of manos and the number of different types of bifaces and unifaces present in the collection suggests that the site might have been used primarily as a camp or a habitation. Most likely, the site served as a camp, the primary function of which was the procurement and processing of lithic raw materials; the length of each occupation, however, was probably short.

SITE 5MT2175

Like Dos Cuartos House, Site 5MT2175 is located on the west side of the Dolores River valley in the SW 1/4 of the NE 1/4 of sec. 18, T38N, R15W. The UTM gird

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Table 3.40 - Surface artifacts, Site 5MT2173

Artifact class	No. of items 1972	1980	total
Flaked lithic tools:			
Utilized flake	0	16	16
Unused core	1	8	9
Used core	0	5	5
Cobble tool	0	2	2
Thick, end-worked uniface	0	3	3
Thick, side-worked uniface	0	6	6
Thick, multiple-edge-worked uniface	1	3	4
Thin, end-worked uniface	0	4	4
Thin, side-worked uniface	0	2	2
Thin, multiple-edge-worked uniface	0	1	1
Burin	0	1	1
Biface fragment	1	1	2
Thick biface, partially worked	0	5	5
Thin biface, completely worked	0	3	3
Thin biface, no haft	0	6	6
Thin biface, completely worked	0	4	4
Thin biface, no haft, completely worked	0	1	1
Projectile point fragment	0	1	1
Flaked lithic debitage:			
Angular debris	1	155	156
Flakes and flake fragments			
Medium grained	0	53	53
Fine grained	7	114	121
Very fine grained	1	108	109
Microscopic grained	1	59	60
Nonflaked lithic tools:			
Hammerstone, unmodified cobble	0	1	1
Mano fragment	0	2	2
One-hand mano	0	1	1
Two-hand mano	0	1	1
Total	13	566	579

coordinates for this location are 4,158,850 mN, 716,940 mE, zone 12. The site is situated on a colluvial slope at the edge of the flood plain. This benchlike feature was formed by a large drainage system that empties into the river valley. The slope in the area of the site is approximately 15°. The site lies in a rocky open area surrounded on all sides by scrub oak; a fair amount of brush covered the site as well. A few large boulders occur on the site surface. The site itself is approximately 4 m above the flood plain and the northern boundary of the site is formed by a steep bank. The eastern and western edges of the site are marked by a large and a small gully, respectively. Farm buildings are present in the area and a fence line cuts across the site, suggesting that some historic disturbance of the deposits has taken place. Site 5MT2175 was recorded on 28 October 1972 by the DRP survey as a lithic area of indeterminate temporal affiliation. A total of 21 lithic artifacts are included in the collection from that survey.

Investigative Strategy

To obtain data to allow the site to be placed more precisely in the DAP temporal-functional system, a Track 3 investigation was undertaken at 5MT2175. The site was visited on 16 July 1980 by the WSU survey crew; because the artifact scatter was judged to be light, an intensive surface collection was made without having established a grid system. The DRP survey collections were also relocated and reanalyzed.

Surface Investigations

The surface artifact collection from the site consists of 137 artifacts, 21 collected in 1972 and 116 collected in

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1980. The total surface collections from the site are presented in table 3.41. The bulk of the material collected is flaked lithic debitage. Most of this material is fine- and very fine-grained flakes and flake fragments. Twenty flaked lithic tools and two nonflaked lithic tools were also recovered. No ceramics or bones were recovered from the site. No evidence of structures or features was observed on the surface; however, the 1980 survey crews did note the presence of a possible check dam 25 m southwest of the southwest corner of the site.

Site Synthesis

Chronology

Little evidence exists on which to base temporal estimates for this site. Two possible conclusions can be reached based on the absence of ceramics. The first is that the site was occupied during the pre-Anasazi period and that it is an Archaic or Basketmaker II site. The second possibility is that the site was an Anasazi limited activity site that was the locus of activities that involved little or no use of ceramics. It is assumed that if ceramic items are used with any regularity at a site, at least some of them will break and sherds will be found on the surface.

Site Function

Turning to the artifacts that were found at the site, several different activities apparently were conducted at Site 5MT2175. The presence of manos suggests milling took place. The variety of unifacial and bifacial tools suggests that a number of cutting/scraping tasks were conducted at the site. Given the range of activities represented in the artifact assemblage, Site 5MT2175 likely functioned primarily as a camp or residence. This favors placement of the site in the Archaic Tradition, since ceramics would almost certainly be expected if the site was an Anasazi camp.

SITE 5MT2211[1]

Site 5MT2211 is located on the north side of Beaver Creek canyon, approximately 1.7 km from the confluence of Beaver Creek and the Dolores River. It is located in the SE 1/4 of the SW 1/4 of sec. 6, T38N, R15W. The UTM grid coordinates for this location are 4,161,380 mN, 716,360 mE, zone 12. The site is situated in a large hollow in the canyon wall and is open to the south (fig. 3.49). The Junction Creek Sandstone in this area has been eroded so as to form a large, open rockshelter above the valley floor. The shelter measured 121.9 m across its mouth and, at the deepest point, 48.8 m from the back wall to the front of the shelter (fig. 3.50). A fresh water seep is present in the northwest portion of the shelter.

The shelter was recorded by the DRP survey crew on 24 October 1972, as being a "sherd and lithic area." The cultural affiliation of the site was thought to be Basketmaker III to Pueblo I. The survey noted the presence of bedrock features, including hand- and toe-holds, sharpening grooves, and post supports. Two depressions were noted in the sediments on the floor of the shelter.

Research Objectives and Investigative Strategy

The basic aim of the investigation at Site 5MT2211 was to provide data to allow the site to be placed within the DAP temporal-functional scheme. Toward this end, the site was visited on 6 August 1980 by the WSU survey crew; the site was divided in half and surface artifacts from the two halves of the site were collected separately. Additional photographs and notes were made at the site to supplement the survey record.

Surface Investigations

Surface Artifact Collections

Composition of collections. – A total of 162 items was recovered from the surface of the site (table 3.42). The majority of this material is flaked lithic debitage. Forty-seven sherds, 12 flaked lithic tools, and 8 nonflaked lithic tools comprise the rest of the collection.

Forty-two of the sherds from the site are Early Pueblo Gray Ware body sherds. Both red ware and white ware sherds are represented in the collection as well. Both bowl and jar sherds occurred at the site.

The flaked lithic debitage numbered 69 items from the 1980 collection and 25 items from the 1972 collection. The debitage is composed entirely of fine-grained and very fine-grained materials. No nonlocal materials were noted in the collection.

Nonflaked lithic tools include three abrading/grinding stones and 1 mano. A trough metate and a lapstone were also recorded. The 2 other items classed as nonflaked lithic tools are a minimally altered item and a generalized nonflaked lithic tool.

[1] As this chapter was being prepared for publication (August 1985), additional material from Site 5MT2211 was identified in a collection being cataloged at the Anasazi Heritage Center. The material was traced to the site by BLM archeologist Nancy Olsen based on collection notes and a sketch of the site in the original collector's (Clifford C. Chappell) notebook. Material was collected from the site, called Beaver Creek Cave in the notes, in the Spring of 1951. Included in the collection from Beaver Creek Cave are numerous plaited sandal fragments, cordage, feather cordage, knotted yucca leaves, knotted corn husks, pointed worked sticks, juniper bast, yucca quids, and the bases of fire drills. Corn cobs, gourd rinds and seeds, and minimally worked yucca, grasses, and pine needles were also noted in the collection. The vegetal material has not been cataloged at the time this is going to press, but will be housed as part of the Chappell Collection at the Anasazi Heritage Center, Dolores, Colorado.

Table 3.41 – Surface artifacts, Site 5MT2175

Artifact class	No. of items 1972	1980	total
Flaked lithic tools:			
Utilized flake	0	2	2
Cobble tool	0	1	1
Thick, side-worked uniface	0	2	2
Thick, multiple-edge-worked uniface	0	2	2
Biface fragment	1	3	4
Thick biface, partially worked	0	2	2
Thin biface, no haft	1	3	4
Thin biface, completely worked	0	2	2
Uniface fragment	0	1	1
Flaked lithic debitage:			
Angular debris	0	5	5
Flakes and flake fragments			
Medium grained	0	4	4
Fine grained	11	36	47
Very fine grained	8	45	53
Microscopic grained	0	6	6
Nonflaked lithic tools:			
Mano or grinding stone fragment	0	1	1
Two-hand mano, single use surface, with finger grip(s)	0	1	1
Total	21	116	137

Figure 3.49 - View of Site 5MT2211, looking northwest (DAP 050618)

Features. – Bedrock features occur at the site in 2 areas of exposed sandstone (fig. 3.51). The 1980 WSU crew was unable to relocate the sharpening groove (Feature 3) mentioned in the 1972 survey notes.

Feature 1. On the wall of the shelter, above the western depression, are 2 holes pecked into the rock. The holes are alined with one another horizontally and appear to be post or beam sockets.

Feature 2. On the exposed bedrock at the mouth of the shelter is a series of shallow depressions pecked into the sandstone (fig. 3.51). These depressions run in a rough line from the bottom of the rock to the floor of the shelter. The 1972 survey map of the site shows 19 of these depressions. This feature is a weathered hand- and toe-hold trail.

Distributional/associational patterning. – The bulk of the material collected at Site 5MT2211 was located in the west half of the site. All of the ceramics and nonflaked lithic tools were found in this area. Over 86 percent of the flaked lithic debitage and 6 of the 12 flaked lithic tools were also found in the west half of the site. The size difference (100 m^2, 25 percent) between the eastern and western collection units does not account for the difference in artifact density between the 2 areas. The west half of the site had an artifact density of 0.166 artifacts/m^2 compared with 0.028 for the east half of the site.

There are 2 possible explanations for this phenomenon. The first is that the intensity of occupation was greater in the west half of the shelter. The second is that natural processes or selective collection of surface artifacts by site visitors has skewed the surface distributions.

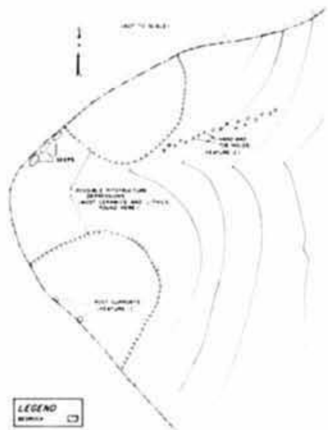

Figure 3.50 - Map of Site 5MT2211 showing the location of features. This map is based on the original survey sketch map and is not to scale.

Surface Evidence of Structures

Feature 1 provides the major surface evidence of structures at Site 5MT2211. This feature appears to be a set of support sockets for beams. The suggestion that there were structures in the shelter is further supported by the fact that both the 1972 survey and the 1980 WSU crews found a piece of jacal on the site surface.

The placement of Feature 1 (fig. 3.50) also suggests that at least one structure was within the shelter. If the depressions noted in the site sediments are the remains of pitstructures, they are too eroded at the present time to provide much evidence of their original size or characteristics. In summary, at least one structure appears to have been built in the shelter and that it was probably at least partially of jacal.

Site Synthesis

Chronology

The 47 sherds collected from the surface of Site 5MT2211 provide the basis for assigning an occupation date range of A.D. 825 to 910. The majority of the sherds collected are Early Pueblo Gray, a type that dates to between A.D. 600 and 950 in the DAP area. However, assemblages that contain Early Pueblo Gray in combination with Moccasin Gray, red ware, and Polished White generally occur between A.D. 825 and 910.

Site Function

The presence of bedrock beam sockets and a piece of jacal suggests that at least 1 jacal structure was constructed in the shelter. The artifact assemblage contains bowl and jar sherds and all 3 of the major wares (gray, white, and red). The flaked lithic tools include utilized flakes, a core, several kinds of unifaces, and a biface. A mano and a metate were recovered along with other kinds of nonflaked lithic tools. The nature of the tools collected suggests that a variety of activities was performed at the site. This evidence of a variety of activities combined with the presence of a jacal structure and the possibility that there were pitstructures indicates that the site was probably a habitation. The investment in providing access to the shelter in the form of a hand- and toe-hold trail supports this inference to a degree.

SITE 5MT2212

Site 5MT2212 is located on the north bank of Beaver Creek upstream from the point where this creek joins the Dolores River. This is located in the SW 1/4 of the SW 1/4 of sec. 6, T38N, R15W. The UTM grid coordinates for this location are 4,161,340 mN, 716,050 mE, zone 12. The site consists of surface artifacts that occur in 2 distinct concentrations. The first is a sherd concentration located immediately adjacent to the bank of the creek. This concentration measures 54.9 m by 11.0 m and its long axis is parallel to Beaver Creek. Upslope 12.2 m to the northwest is a lithic scatter that measures 24.4 m in diameter. The lowest part of the site is only about 4 m above the level of the channel of Beaver Creek.

The site was recorded by the DRP survey on 25 October 1972, and a small surface artifact collection was conducted. On the survey form, the site is classified as a Basketmaker III "sherd and lithic area." No evidence of structures or features was noted at this site.

Research Objectives and Investigative Strategy

Site 5MT2212 was visited on 8 July 1980 by the WSU crew with the intention of collecting additional artifacts to aid in the temporal and functional placement of the site. However, so little material was present that no artifacts were collected. The material collected during the DRP survey was reanalyzed by the DAP, and the results of that reanalysis are presented here.

Table 3.42 - Surface artifacts, Site 5MT2211

Artifact class	No. or items 1972	1980	total
Ceramics:			
MV Early Pueblo Gray jar sherds	35	7	42
MV Moccasin Gray jar sherds	1	0	1
MV Early Pueblo white bowl sherds	1	0	1
BL Early Pueblo Red bowl sherds	1	1	2
SJ Polished white bowl sherds	0	1	1
Flaked lithic tools:			
Utilized flake	2	0	2
Unused core	0	4	4
Thick, side-worked uniface	1	2	3
Thin, side-worked uniface	0	1	1
Thin, multiple-edge-worked uniface	0	1	1
Thick biface, partially worked	1	0	1
Flaked lithic debitage:			
Angular debris	1	7	8
Flakes and flake fragments			
Fine grained	12	35	47
Very fine grained	12	27	39
Nonflaked lithic tools:			
Minimally altered item	0	1	1
Generalized nonflaked lithic tool	0	1	1
Abrading/grinding stone, flat surface	0	1	1
Abrading/grinding stone, curved surface	0	2	2
Lapstone	0	1	1
Mano or grinding stone, fragment	0	1	1
Trough metate, one open end	0	1	1
Total	67	94	161

MV - Mesa Verde Culture Category.
BL - Blanding Manufacturing Tract.
SJ - San Juan Manufacturing Tract.

Surface Investigations

Surface Artifact Collections

A total of 41 artifacts was recovered from the surface of Site 5MT2212. Flaked lithic debitage is the most common item (24 pieces), followed by ceramic sherds (14), flaked lithic tools (2) and nonflaked lithic tools (1). The ceramic sherds are from jars and include a Chapin Gray rim sherd, and corrugated sherds. A drill and a biface are the only flaked lithic tools that were recovered. Flaked lithic debitage is dominated by fine-grained materials, but microscopic- and very fine-grained materials are also present. The 1 nonflaked lithic tool recovered was a fragmentary two-handed mano. Table 3.43 summarizes the surface artifact collection.

Site Synthesis

Surface materials were too sparse to provide much information on site function or chronology. Based on the relative paucity of surface materials, the characteristics of the artifact assemblage, and the lack of evidence of structures, habitation can probably be ruled out as a site function for Site 5MT2212. The relatively small amount of flaked lithic debitage, the small percentage of cortex present on the debitage, the small amount of angular debris, and the lack of hammerstones all suggest that the site did not function as a lithic procurement or processing site.

If the artifacts collected at the site are assumed to have been used there rather than simply being lost or discarded, it can be concluded that activities performed at

Figure 3.51 - View of hand- and toe-holds leading up to Site 5MT2211, looking northwest (DAP 050617).

Table 3.43 – Surface artifacts, Site 5MT2212

Artifact class	No. of items 1972
Ceramics:	
DL Early Pueblo Gray jar sherds	7
SJ Corrugated jar sherds	4
DL Corrugated jar sherd	2
DL Chapin Gray jar sherds	1
Flaked lithic tools:	
Drill	1
Thick biface, partially worked	1
Flaked lithic debitage:	
Angular debris	2
Flakes and flake fragments	
Fine grained	15
Very fine grained	3
Microscopic grained	4
Nonflaked lithic tools:	
Two-hand mano	1
Total	41

DL - Dolores Manufacturing Tract.
SJ - San Juan Manufacturing Tract.

the site included processing of materials requiring milling; limited lithic manufacture or rejuvenation; cutting or piercing tasks; and cooking, storage, or transportation of materials in ceramic containers. The conclusion is that Site 5MT2212 functioned as a short-term, nonhabitation locus. The location of the site on the Beaver Creak flood plain in an area of Quaternary alluvium raises the possibility that the site might have functioned as an activity locus associated with agricultural pursuits.

Chronological placement of the site is difficult. Only 14 sherds were collected from this site, and only 3 ceramic types are represented. The Chapin Gray sherd and the 7 sherds of Dolores Early Pueblo Gray indicate occupation sometime between A.D. 600 and A.D 950. The 6 corrugated sherds suggest site use after A.D. 910. It is likely that at least 2 periods of use are represented at the site, although given the overlap in dates between the Early Pueblo Gray and the corrugated sherds, a single use is possible.

The low surface yield of artifacts, combined with the evidence for 2 occupations of the site, suggests that the intensity of use was low. An alternative explanation is that the location of the site on the flood plain has subjected the site to rapid deposition and that surface artifact yield is not an adequate indicator of artifact density. This does not, however, seem likely, since both early and late sherds are represented in the site collections and in nearly equal proportions (table 3.43). A higher proportion of late materials might be expected if the site were indeed subject to rapid deposition since the earlier material would be more deeply buried and would be less likely to have been moved upward to the site surface.

One additional point must be kept in mind when discussing the collections from this site and when comparing the collections to those from other sites discussed in this chapter. The only artifacts from this site were collected during 1972 under a set of procedures that differed from those used during the 1980 field seasons. The 1972 survey collections were grab samples; the 1980 collections, on the other hand, were intensive collections designed to recover all surface materials from a site. Collections resulting from the two differing strategies are not, therefore, strictly comparable. An additional factor that affected the 1972 survey was the presence of snow cover.[a]

[a]David A. Breternitz, DAP, personal communication.

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In summary, then, Site 5MT2212 appears to have been an Anasazi special use site, perhaps associated with agriculture. There were probably 2 periods of use at the site, 1 in the Sagehen Phase, and 1 in the McPhee or Sundial Phases.

SITE 5MT2213

Site 5MT2213 is located on a bench on the north side of Beaver Creek, at a point approximately 1 km from the confluence of Beaver Creek and the Dolores River. This is in the NW 1/4 of the NE 1/4 of sec. 7, T38N, R15W. The UTM grid coordinates for this location are 4,161,170 mN, 716,680 mE, zone 12. The bench upon which the site is located is relatively flat and is roughly 24.4 m above low water level of Beaver Creek. The site itself is located about 50 m south of the steep sandstone cliff that forms the valley wall in this part of Beaver Creek Canyon.

The vegetation in this area is dominated by scrub oak, juniper, grasses, and rabbitbrush (*Chrysothamnus* sp.). Riparian plants can be found in and near the creek.

The DRP survey recorded Site 5MT2213 on 25 October 1972, describing it as a "sherd and lithic area" possibly associated with the Pueblo I period. Survey collections consisted of 36 sherds and 18 flaked lithic items. No evidence of structures was noted by the DRP survey or by the WSU crew that revisited the site.

Investigative Strategy

Fieldwork conducted at Site 5MT2213 consisted of surface collection of nine grid squares, each of which measured 8 by 8 m. Ground cover at this site was estimated to be approximately 20 percent.

Surface Investigations

Surface Artifact Collections

Composition of collections. – The 1980 surface collection at Site 5MT2213 yielded 138 artifacts. The data from this collection are summarized in table 3.44. The artifacts collected in 1980 were 20 ceramic sherds, 2 flaked lithic tools, and 116 pieces of flaked lithic debitage. No bone or nonflaked lithic tools were recovered from the site.

Table 3.44 – Surface artifacts, Site 5MT2213

Artifact class	No. of items 1972	1980	total
Ceramics:			
DL Early Pueblo Gray jar sherd	30	18	48
DL Chapin Gray jar sherds	1	1	2
BL Early Pueblo Red bowl sherds	1	0	1
BL Bluff Black-on-red bowl sherds	2	0	2
CA Early Pueblo Gray jar sherds	1	1	2
SJ Corrugated jar sherd	1	0	1
Flaked lithic tools:			
Utilized flakes	0	2	2
Projectile point	1	0	1
Flaked lithic debitage:			
Angular debris	3	41	44
Flakes and flake fragments			
Medium grained	0	3	3
Fine grained	9	14	23
Very fine grained	5	52	57
Microscopic grained	0	1	1
Total	54	133	187

DL - Dolores Manufacturing Tract.
BL - Blanding Manufacturing Tract.
SJ - San Juan Manufacturing Tract.
CA - Cahone Manufacturing Tract.

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In the total ceramic assemblage, Early Pueblo Gray (48 sherds) is the predominant type; 1 rim sherd from a Chapin Gray jar is the only other gray ware present. Three red ware bowl sherds (two Bluff Black-on-red sherds and one Early Pueblo red sherd) were also recovered, as well as one sherd from a corrugated jar.

One projectile point and two utilized flakes were the only flaked lithic tools recovered. One of these utilized flakes was Morrison green quartzite, the other was Morrison green chert. Flaked lithic debitage was the most common item at 5MT2213 comprising 84.0 percent of the collection. Nearly 35.3 percent of the flaked lithic debitage was angular debris, the remainder being flakes or flake fragments. Most of the flakes and flake fragments are of very fine-grained materials (49.1 percent), although some are of fine-grained (12.0 percent), medium-grained (2.6 percent), and microscopic-grained (0.8 percent) materials. No nonlocal lithic materials were present in the site collection.

Distributional/associational patterning. - Figure 3.52 presents the distribution of surface artifacts at Site 5MT2213. The heaviest concentration of artifacts occurred in square 8S/8E where 54 pieces of flaked lithic debitage and 4 sherds were recovered. Square 0S/8E contained the second largest concentration of artifacts: 11 sherds and 23 pieces of flaked lithic debitage. The only flaked lithic tools in the assemblage were recovered from this square. The heaviest artifact concentrations were located, then, in the north-central portion of the site.

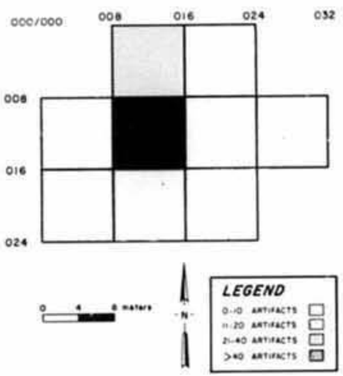

Figure 3.52 - Surface artifact distributions, Site 5MT2213.

Sherds were recovered in five of the nine collection squares. Squares 0S/16E and 8S/24E each contained a single sherd. Squares 8S/8E and 8S/16E contained four and three sherds, respectively. The largest number of sherds (11) occurred in square 0S/8E. Ceramics were restricted to the north and east portions of the site and were concentrated in the north-central area.

The 1972 survey form for Site 5MT2213 suggests that the presence of material at this location may be the result of artifacts having washed downslope, although it is noted that there are few benches on the slope above the site that would have been suitable for occupation. The artifact distribution seems to support the interpretation that downslope movement of artifacts was a factor in that the sherds at the site are concentrated in the upslope areas. To examine this suggestion, the mean weights of the artifacts collected were plotted on the site map (fig. 3.53). If slope wash had been a major factor in the distribution of artifacts at this site, some sorting of materials might be expected. The data presented in figure 3.53 suggest a general trend for heavier artifacts to occur at the upslope end of the site and for lighter material to occur at the downslope end. Slope wash may have had a part in the distribution of artifacts at Site 5MT2213. In addition, the scrub oak at the upslope end of the site might have obscured greater artifact concentrations than were observed in the areas of the site that were collected. However, the observed patterns may possibly reflect prehistoric patterns of site use.

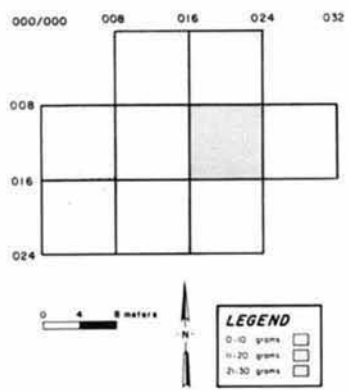

Figure 3.53 - Mean weights of artifacts per collection unit, Site 5MT2213.

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Site Synthesis

Chronology

The ceramic collection, which provides the only basis for a date assignment at the site, is dominated by Early Pueblo Gray sherds. The presence of Chapin Gray and both Bluff Black-on-red and Early Pueblo Red indicate that part of the assemblage belongs in the period between A.D. 725 and 860. The presence of one corrugated sherd suggests that the site was used or at least visited at a later date.

Site Function

The minimal number of flaked lithic tools, the absence of nonflaked lithic tools, and the lack of evidence of architecture indicate that Site 5MT2213 was neither a habitation nor a seasonal site. The types of materials recovered and the indication of a relatively long use history based on ceramic evidence would suggest that the site was some sort of limited activity locus. Brush may have obscured some of the material in the upslope portions of the site, and more precise information on site function may have been available had there been time to clear vegetation from the site.

SITE 5MT2216

Site 5MT2216 is a rockshelter located on the north side of Beaver Creek Canyon. The site is located 1 km from the confluence of Beaver Creek and the Dolores River in the SW 1/4 of the SE 1/4 of sec. 6, T38N, R15W. The UTM grid coordinates for this location are 4,161,320 mN; 716,600 mE, zone 12. This site is approximately 76 m east of Site 5MT2211.

The rockshelter is relatively large, measuring 15 m long by 8 m deep (fig. 3.54). At its highest point, the roof of the shelter is approximately 14 m above the floor.

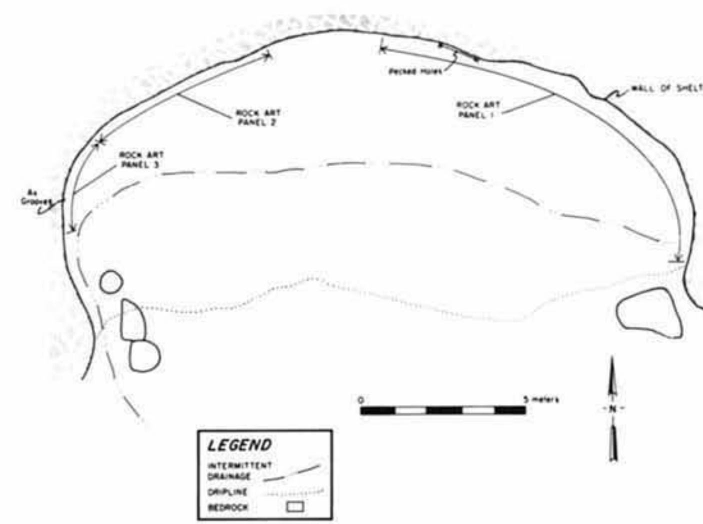

Figure 3.54 - Map of Site 5MT2216 showing the locations of features.

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The sediments in the shelter are primarily fine sand. Run-off from the cliff face has cut a small drainage channel through the shelter. The channel, which is 20 to 30 cm deep, enters the shelter on the east side, roughly bisects the shelter along its long axis, and exits on the west side.

The opening of the shelter faces south and commands a good view of Beaver Creek and the colluvial slope and plateau beyond. The site is about 80 m above the bottom of Beaver Creek Canyon.

The DRP survey recorded Site 5MT2216 on 24 October 1972. Numerous features, including petroglyphs, post supports, axe grinding grooves, and hand- and toe-holds, were noted. Only 9 artifacts (including 2 corrugated sherds) were collected from the site in 1972.

Research Objectives and Investigative Strategy

To gather sufficient data to determine the placement of the site in the DAP temporal-functional scheme, the site was visited by the WSU crew on 7 August 1980. A surface collection was made and photographs and notes were taken. In addition, the 1972 survey collection was reanalyzed using the current DAP analytical framework to make the survey data comparable to the data from other sites.

Surface Investigations

Surface Artifact Collections

Table 3.45 summarizes both the 1980 and the 1972 collections from site 5MT2216. The sample of artifacts from this site is quite small, consisting of only 24 items.

Surficial Evidence of Structures and Features

Several bedrock features are present in the shelter, including pecked holes in the walls of the shelter, axe sharpening grooves, and petroglyphs. The only evidence of structures in the shelter consists of a row of horizontal holes pecked in the bedrock.

Although one of the goals of the work at Site 5MT2216 was to further document the rock art, an intensive study of that topic has since been conducted for the project area. Descriptions and discussions of the rock art at Site 5MT2216 can be found in Ives (1983).

Site Synthesis

The depositional situation inside the shelter at Site 5MT2216 appears to be similar to Cougar Springs Cave in that the sediments derive from decomposition of the walls and roof of the shelter. It seems that sterile sediments have accumulated over the bulk of the cultural deposits and artifacts appear on the surface only in areas of erosion. The artifact collection is small from this site and does not provide much information about the time or nature of occupation in the shelter.

Chronology

The 6 sherds recovered from the site represent the entire range of Anasazi occupation in the DAP area. Early Pueblo Gray is characteristic of contexts dating prior to A.D. 930 contexts and Corrugated Body Sherds are recovered from contexts dating after A.D. 910. Multiple occupations are probable and can only be dated within the range associated with the Anasazi Tradition in the DAP area.

Table 3.45 – Surface artifacts, Site 5MT2216

Artifact class	No. or items 1972	1980	total
Ceramics:			
DL Early Pueblo Gray jar sherds	2	2	4
DL Corrugated jar sherds	2	0	2
Flaked lithic tools:			
Utilized flake	0	1	1
Thick, side-worked uniface	1	0	1
Thin biface, no haft	0	1	1
Flaked lithic debitage:			
Angular debris	0	3	3
Flakes and flake fragments			
Fine grained	3	8	11
Very fine grained	1	0	1
Total	9	15	24

DL - Dolores Manufacturing Tract.

Site Function

While the artifact collection provides little evidence as to the aboriginal uses of the shelter, the bedrock features do provide some clues. The presence of a horizontal row of holes pecked into the bedrock suggests the presence of a structure. These holes appear to have been beam sockets. The axe grooves also suggest that the use of the site was relatively intensive. Both of these features suggest that the site was probably at least a seasonal locus, if not a habitation. The presence of the large rock art pannels suggests that the site may have had some sort of ceremonial function, although it is not at all certain that the structure and the rock art are of the same time period.

SITE 5MT2381

Site 5MT2381 is a rockshelter located on the east side of the Dolores River valley in the NW 1/4 of the SE 1/4 of sec. 2, T38N, R16W. The UTM grid coordinates are 1,411,580 mN, 173,510 mE, zone 12. The site is situated 24 m above the flood plain. The Dolores River is the closest source of water and flows approximately 168 m west of the site. The rockshelter is formed by an overhang in the cliff face which measures approximately 13 m across. The interior of the shelter is formed by 2 alcoves in Junction Creek Sandstone. The western alcove measures 5 m wide by 3 m deep and has a height of 3.5 m. The larger alcove to the east measures 10 m across and is 6 m deep; its height was not recorded.

This site was recorded by the DRP survey on 11 June 1974, as an "overhang with habitation" and was occupied during the Pueblo I through Pueblo III periods. When the site was first recorded, no evidence of excavation at the site was noted. When the site was revisited by T. Kohler on 16 June 1980, a looter's pit was noted in the rear of the eastern alcove.

Investigative Strategy

Testing at 5MT2381 was accomplished by WSU on 6 August 1980. Because the floor of the shelter was covered by a thick layer of cow manure, no surface collections were possible. The looter's pit in the rear of the eastern alcove was profiled and a shovel test was excavated in the southwest corner of the shelter (fig. 3.55). Sediments from the shovel test were not screened, but artifacts were collected. Surface collections were made from an area of sloping terrain outside the shelter.

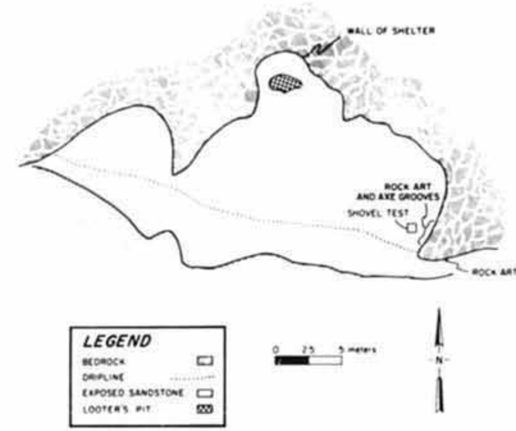

Figure 3.55 – Map of Site 5MT2381 showing the location of the test pit.

Surface Investigations

A total of 59 artifacts was recovered from the surface-collected portions of the site (table 3.46). Most of the recovered artifacts are flakes; angular debris and flaked lithic tools were the next most commonly encountered materials. Only 6 sherds were recovered from the site surface. No evidence of structures was observed, but the cow manure obscured the floor of the shelter, so that it is unlikely that evidence of structures would have been visible if structures had ever been present. Based solely on the size of the shelter, structures may have been present. The DRP survey crew noted that there was sufficient space for a row of surface rooms and two pitstructures within the shelter. In the area where the 1980 shovel test was made there was not enough sediment for construction of pitstructures, but the sediments might have been deeper in the center of the shelter.

Grooves, inferred to be axe sharpening grooves, were noted on the wall of the shelter in the east end (fig. 3.55). Since the fieldwork in 1980, rock art has been recorded in conjunction with these grooves and is described by Ives (1983).

Excavations

The shovel test excavations yielded ceramics and flaked lithic debitage (table 3.46). No structures or features were encountered in the excavations, which were carried to a depth of 64 cm below the modern ground surface.

Material Culture

The surface collections at Site 5MT2381 yielded a larger number of artifacts than did the 1 shovel test (table 3.46). All of the flaked lithic tools and nonflaked lithic tools recovered from the site were from the surface. These included used flakes, unused cores, biface fragments, a thick uniface, and a generalized nonflaked lithic tool. The surface collection also produced more flaked lithic debitage that did the excavation. The shovel test, on the other hand, produced a wider variety of ceramics, with Early Pueblo Gray, Early Pueblo Red, and Chapin Gray all being present. Only Early Pueblo Gray sherds and one corrugated sherd were recovered from the site surface.

Site Synthesis

Chronology

The only evidence for the temporal placement of the site is the ceramic collection. The site appears to have been occupied during the Pueblo I period (A.D. 725-910) as evidenced by the presence of Mesa Verde Early Pueblo Gray and Early Pueblo Red wares, and of Chapin Gray. A corrugated sherd was also found on the site surface outside of the shelter and indicates that the site was probably visited during the Pueblo II period as well, but the major occupation seems to date to before A.D. 910.

Site Function

The minimal artifact collections and the fact that the surface of the shelter was obscured by manure makes assigning site function difficult. The presence of awl grooves and rock art suggest some minimal investment in facilities, but these could have been facilities used as part of short-term tool manufacturing and ceremonial activities. The presence of materials in a shelter, however, does suggest that activities which needed some housing within the protection of the rock overhang may have been performed there. Simply because of the conjunction of shelter and artifacts, it is suggested that this site served as more than a limited activity locus and was probably either a seasonal site or a habitation.

SUMMARY AND CONCLUSIONS

This chapter has presented the results of the Grass Mesa Locality testing program. During the 1979 and 1980 field seasons 18 sites were tested with the main goal of gathering data sufficient to allow for refined placement of these sites in the DAP temporal and functional schemes. Since the DAP research design calls for a regional approach to the understanding of Anasazi adaptations, it is necessary to be able to place sites as accurately as possible in time and in their functional role in the settlement system. The data gathered at these tested sites has not only allowed for the revision of functional and temporal assignments of sites, but will also contribute to project-wide studies of various aspects of the DAP research design.

Of the 18 sites investigated, 6 were examined by Track 2 methods, including the excavation of units selected by probability and judgmental techniques. The remaining 12 sites were examined by Track 3 techniques, which were usually limited to intensive surface collection. In all, the labor expended on the testing program amounted to only about 10 percent of the labor expended in the Grass Mesa Locality between 1978 and 1980 (Lipe 1984:27).

Most of the sites investigated by the testing program did yield sufficient information to allow for refined temporal and functional placement. All of the sites investigated at the Track 2 level, with the exception of the DTA Site (Site 5MT5361), can be placed into time periods that are narrower than was possible from surface evidence alone. The DTA Site has yielded conflicting dating evidence and very small collections. Temporally it is still confusing, but evidence indicates that the material recovered there is redeposited and should not be considered as a primary

Table 3.46 – Artifact collections, Site 5MT2381

Artifact class	No. of items Surface	Excavation	total
Ceramics:			
DL Early Pueblo Gray jar sherds	5	2	7
BL Early Pueblo Red bowl sherd	0	1	1
SJ Chapin Gray jar sherd	0	1	1
DL Chapin Gray jar sherd	0	1	1
DL Corrugated jar sherd	1	0	1
Flaked lithic tools:			
Utilized flakes	2	0	2
Unused cores	2	0	2
Thick, end-worked uniface	1	0	1
Biface fragments	2	0	2
Flaked lithic debitage:			
Angular debris	10	1	11
Flakes and flake fragments			
Fine grained	15	1	16
Very fine grained	20	4	24
Nonflaked lithic tools:			
General	1	0	1
Total	59	11	70

DL - Dolores Manufacturing Tract.
BL - Blanding Manufacturing Tract.
SJ - San Juan Manufacturing Tract.

cultural context. Functional placement of sites tested by Track 2 methods has also improved over that possible from surface evidence alone.

The Track 3 sites have provided mixed results. At many of them, it was possible to improve the temporal placement of the site and to increase the confidence in the functional placement. In a few causes survey assessments were affirmed with little modification. In at least 2 cases additional evidence was recovered during Track 3 work that expanded, rather than contracted the period of use that was assigned to a site.

All of the Track 3 sites were recorded by surveys that occurred prior to the 1978 initiation of the DAP and the survey activities conducted under the direction of DAP personnel. The surveys of the project area prior to 1978 collected primarily "grab samples" of artifacts from sites and it was these grab samples, along with field observations, that were used to provide assessments of time of occupation and site function. The Track 3 testing of these sites has simply brought the data available up to the level that would have been available had the site been recorded by the current DAP survey.

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Chapter 4

EXCAVATIONS AT LEMOC SHELTER (SITE 5MT2151), A MULTIPLE-OCCUPATION ANASAZI SITE

ABSTRACT

LeMoc Shelter (Site 5MT2151) is a small, stratified site on the south-facing slope of the Dolores River canyon. During excavation of the shelter by the Dolores Archaeological Program, the remains of 5 successive Anasazi occupations that date to between A.D. 750 and 950 were discovered. During the earliest documented occupation, which dates to the late Sagehill Subphase (A.D. 750-780), the shelter appears to have been occupied year-round by a nuclear family or small extended family. The next clearly defined occupation occurred during the late Dos Casas and early Periman Subphases - between A.D. 840 and 860. Again, the shelter appears to have served as a permanent residence. In this case, however, the simultaneous use of a pithouse and a surface habitation suggest that an extended family was the basic residential unit.

Following an occupation hiatus, the site was reoccupied sometime between A.D. 875 and 890 - the Grass Mesa Subphase. During this period, the shelter apparently served as a seasonal farming station. Presumably, the main residence was located at Grass Mesa Village (Site 5MT23).

The last 2 occupational episodes suggest short-term use of the shelter as a camp from which wild resources were procured. Both of these episodes are assigned to the Cline Subphase and date to approximately A.D. 920/930 and A.D. 930/950, respectively. Between A.D. 950 and 1150, the shelter appears to have been used only rarely.

ACKNOWLEDGMENTS

Excavation at LeMoc Shelter during 1978 was conducted by University of Colorado and Youth Conservation Corps crews under the supervision of Washington State University personnel. The University of Colorado employees were Kyle Bauman, Gary Brown, Vickie Clay, Richard Glaser, Randy Harper, Jim Hampson, Patricia Herrick, Helen Hoy, Tim McEnany, and Keith Salling. The Youth Conservation Corps crew consisted of David Davis, Michael Digle, Deborah McDonald, Allison Moss, and Andrew Pleasant. K.C. Lorenz and Michael Swernoff alternated as counselors. Washington State University employees Alice Emerson and Sarah Schlanger aided the author in supervising the investigation.

During 1979, excavation at LeMoc Shelter was conducted by rotating Washington State University field school and Youth Conservation Corps crews. The former included Mike Bartholomew, Harley Cram, Sharon Geil, Dean Pedersen, Peter Sims, and LuAnn Wandsnider. The latter included Gail Bash, Barney Carter, Curtis Cowan, Lori Kohler, Anthony Quintana, David Ptolemy, and Sean Olsen. In addition, Washington State University employees Jean Hudson, Randy Harper, and Richard Beatty participated in excavations.

Figure 4C.2, the line drawing of the netting fragment recovered from Room 1, was drafted by Sam Tubiolo. Dolores Archaeological Program Senior Staff review comments were provided by Christine K. Robinson.

PREFACE

LeMoc Shelter (Site 5MT2151) was one of the sites excavated by the Dolores Archeological Program during the first year of field operations in 1978. Intensive fieldwork was resumed the following year. Because investigation of the site spanned 2 field seasons during a time when excavation techniques and data recording methods were being modified and refined, some inconsistencies in the excavation data exist. Similarly, analysis of the materials recovered from LeMoc Shelter spanned 1978 and 1979, with reanalysis of selected materials being undertaken as late as 1982. During this time, the various analytic systems changed considerably; these changes are reflected in the material culture data presentation in this chapter. In addition, some of the material culture analyses (in particular, the botanical, pollen, and faunal studies) were incomplete when the site report was written; topic-specific appendixes have been included to provide information not available to the author.

The unusual archaeological complexity of the site dictated a special reporting format for LeMoc Shelter; as a result, the chapter organization differs from that of most Dolores Archaeological Program site reports. For instance, the "Correlation and Dating" section appears before detailed discussions of the architectural units at the site because many of the dating arguments are based on evidence presented in the immediately preceding discussion of stratigraphy. Such a format facilitates the understanding of temporal interpretations that are formulated primarily on the basis of stratigraphic relationships.

Although the author of the LeMoc Shelter report was no longer affiliated with the Dolores Archaeological Program when the manuscript was edited, he contributed time towards resolving some discrepancies in the report.

From a program-wide perspective, LeMoc Shelter represents an important archaeological resource. Despite the remaining inconsistencies in the report, it contributes significantly to the understanding of the prehistory of the Dolores Archaeological Program area.

Chapter 4

EXCAVATION AT LEMOC SHELTER (SITE 5MT2151), A MULTIPLE-OCCUPATIONAL ANASAZI SITE

Patrick Hogan

INTRODUCTION

LeMoc Shelter (Site 5MT2151) is a small, multiple-occupation Anasazi site located on the north slope of the Dolores River canyon, 13 km downstream from the town of Dolores, Colorado (fig. 4.1). The site is located in the NE 1/4 of the SW 1/4 of sec. 1, T38N, R16W, on the U.S. Geological Survey 7.5' 1965 Trimble Point Quadrangle. The Universal Transverse Mercator grid coordinates for the site are 4,161,700 mN and 714,830 mE, zone 12.

Excavation of LeMoc Shelter was given priority by the DAP (Dolores Archaeological Program) because, as a cave site, the shelter was expected to have stratified deposits and relatively good preservation of archaeological materials. LeMoc Shelter was selected over other cave sites in the project area because it was one of the first to be impacted by the construction of the McPhee Dam. Furthermore, based on the survey collections from LeMoc Shelter, the occupation of the site was believed to span the Pueblo I and Pueblo II periods, which are of particular interest in addressing some of the concerns of the DAP research design (Kane et al. 1981).

Figure 4.1 - View of LeMoc Shelter and surrounding terrain, looking northwest. Arrow indicates location of cave (DAP 001116).

Work at LeMoc Shelter began the second week in July 1978. Excavation was undertaken by a YCC (Youth Conservation Corps) crew under the direction of WSU (Washington State University) personnel. Initially, emphasis was given to probing the midden and western half of the shelter for preceramic components. Unfortunately, as is often the case in multiple-occupation sites, it soon became apparent that any evidence of preceramic use of the shelter would have been obliterated by later occupations. However, during this first field season, evidence of earlier Pueblo I occupations proved to be more extensive and less disturbed than originally anticipated, and evidence of a Pueblo II component was encountered.

At the end of the YCC program in August 1978, the YCC crew was replaced by excavators employed by the University of Colorado, Boulder. By this time, it was evident that LeMoc Shelter contained a well-stratified series of deposits representing occupations that apparently spanned most of the Anasazi cultural sequence in Grass Mesa Locality. Excavation during this period was concentrated in front of the shelter, in the unconsolidated sediments filling Pithouses 1 and 2. The research strategy became one of stratigraphically isolating each occupation, determining the horizontal extent of the cultural units associated with these occupations, and recording the spatial relationships of the cultural units. With approximately 75 percent of the shelter excavated, winter storms forced closure of the site on 17 November 1978.

Sporadic vandalism during the winter months necessitated a short foray in early February to assess damage to the site, but full-scale work did not resume until 11 June 1979. The site was reopened by a joint crew of WSU and YCC personnel under the supervision of the author. During this second season, work focused on a complex of superimposed occupation levels in the western portion of the shelter. In addition, smaller excavation units were opened in several other areas to further clarify stratigraphic relationships noted during the 1978 field season. Isolating each occupation both temporally and spatially, to document the changing patterns of space utilization evident in the successive Anasazi occupations of the shelter, continued to be the primary excavation strategy.

NATURAL SETTING

LeMoc Shelter is situated roughly 30 m above the flood plain on a steep, south-facing slope of the Dolores River canyon (fig. 4.2). Here the river is entrenched into Mesozoic sedimentary rock and has cut a deep, V-shaped valley (fig. 4.3). On the canyon walls, the crossbedded Junction Creek Sandstone outcrops in sculptured cliffs, providing a dramatic counterpoint to the sandstones, mudstones, and conglomerates of the overlying Morrison, Burro Canyon, and Dakota Formations that contribute the bulk of the colluvial debris mantling the canyon side slopes.

The valley floor is several hundred meters wide, although the river itself is confined to a narrow, meandering channel. Flood plain soils are typically weakly developed Fluvents overlying stream gravels. However, in the deeper alluvial deposits of remnant terraces and the small alluvial fans of tributary drainages, soils are somewhat better developed. These are classified as Otero fine sandy loam - a deep, well-drained Entisol - and Cheyenne sandy loam - a deep, well-drained Mollisol (Leonhardy and Clay 1979). These soils are considered adequate for agriculture, although the length of the growing season within the Dolores River canyon may have been influenced by the effects of cold air drainage.

The natural flow of the Dolores River is determined largely by surface runoff within its catchment basin, which results in an annual flow pattern characterized by high spring, moderate summer, and low fall and winter discharge. Within this general pattern, daily flow can vary erratically with summer thunderstorms or with changes in the rate of snowmelt. The water table of the valley also fluctuates seasonally because the shallow ground water system is recharged by the surface flow.

The fauna present in the vicinity of LeMoc Shelter include a variety of mammals, birds, and reptiles. Mule deer *(Odocoileus hemionus)* and coyote *(Canis latrans)* are common, as are several smaller species such as porcupine *(Erethizon dorsatum)*, skunk *(Mephitis mephitis* and *Spilogale putorius)*, cottontail *(Sylvilagus* spp.), and squirrel and chipmunk (Sciuridae). Birds known to occur in the area include dove *(Zenaida macroura)*, blue grouse *(Dendragapus obscurus)*, a variety of songbirds (Passeriformes), and numerous raptors and scavengers (Falconiformes). Western rattlesnake *(Crotalus viridis)* and kingsnake *(Lampropeltis* spp.) are only 2 of many snake species known to inhabit the area. Refer to Emslie (1982) for a comprehensive discussion of the fauna of the project area.

The modern vegetation on the flood plain is typical of the regional riparian association at this elevation. Dense stands of cottonwood *(Populus deltoides)* and inland boxelder *(Acer negundo)* are interspersed with meadowlands composed of a variety of grasses and forbs. Thickets of willow *(Salix* spp.) line both sides of the river, marking the seasonally flooded areas of the active channel.

The relief of the canyon has induced a pronounced difference in the vegetation on the south-facing slopes and on the shaded slopes, resulting in a weak, altitude-dependent zonation in the former areas. The shallow, sandy, colluvial soils of the hill slope surrounding LeMoc Shelter

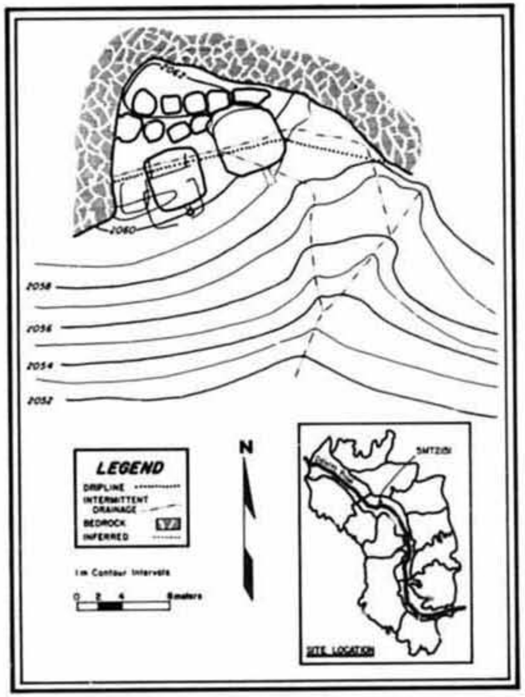

Figure 4.2 - Topographic map of LeMoc Shelter and surrounding area. Contours within the shelter indicate configuration of the shelter floor prior to excavation. Note intermittent drainage in front of shelter.

support a pinyon-juniper *(Pinus edulis-Juniperus scopulorum)* association with an understory of scrub oak *(Quercus gambelii)*, Utah serviceberry *(Amelanchier utahensis)*, and true mountain mahogany *(Cercocarpus montanus)*. Broadleaf yucca *(Yucca baccata)*, pricklypear cactus *(Opuntia* spp.), and several varieties of grass and annual forbs grow on open, rocky ground and on colluvial slopes.

On the lower slopes and river terraces, oak thickets predominate, giving way to more typical pinyon-juniper vegetation as the slope steepens. The pinyon and juniper give way in a similar manner near the canyon rim, and mountain shrubs gradually assume dominance. The uplands north of the shelter are a mosaic of open grassy meadows, thickets of mountain shrubs, and open stands of ponderosa pine *(Pinus ponderosa)*. Ponderosa occurs on the

lower slopes as well, especially as scattered isolates near the Junction Creek outcrops.

In the sheltered tributary canyons of Dry and Beaver Creeks, located approximately 1.3 km east of LeMoc Shelter, aspen *(Populus tremuloides)* groves are common, and Douglas-fir *(Psuedotsuga menziesii)* is found intermixed with ponderosa pine. Douglas-fir is also found near the valley floor on the north-facing canyon slopes, but is rapidly replaced by an oak-dominated shrub association that covers most of the shaded slopes of the main canyon.

In assessing the potential vegetation of the area, Bye (1982) has argued that scrub oak may be a disturbance-related invader. Subtracting oak from the vegetation near LeMoc Shelter would result in vegetation characterized by a pinyon-juniper association on the south-facing slopes. The more protected north-facing slopes would support a Douglas-fir association. The uplands, which were disturbed by logging during the 1930's, probably would be an open ponderosa forest with some oak understory.

Although the potential vegetation probably gives a clearer picture of the aboriginal environment, it is somewhat distorted because the effects of man, both prehistoric and historic, have been eliminated. For instance, the climax riparian association probably would not be much different from the present vegetation of the valley floor, although grazing and some farming since early in the century have undoubtedly affected species composition in various ways. Anasazi land clearing and farming must have had a similar impact, though different in the particulars of its effect. Similarly, gathering wild foodstuffs and wood cutting for fuel and building materials would have subtly but profoundly altered the vegetation in all areas of the canyon.

Changes in the climate since the Anasazi period must also be taken into consideration in visualizing the aboriginal environment. Based on his analysis of timberline fluctuations in the spruce-fir forests of the La Plata Mountains, Petersen (1981) argues that warming temperatures fostered an upward advance of timberline beginning in the 6th century A.D. and culminating in the 12th century A.D. Expansion of the pinyon woodlands, due to an increase in monsoon rainfall, began about A.D. 700-900. This warm, moist climatic regime lasted until about A.D. 1150, when a dramatic decrease in summer rainfall and a lowering of summer temperatures occurred. Cooler and drier conditions persisted into the early 20th century, profoundly affecting the regional vegetation pattern.

Figure 4.3 - View of the Dolores River valley, looking upstream from LeMoc Shelter (DAP 010121).

Since the A.D. 1850's, the climate has more closely approximated temperature and moisture conditions during the Anasazi period. However, although the response of plant species to this climatic change has been rapid, it is doubtful that the plant communities have yet stabilized. Discussion of human-environment interaction based on the modern distribution of vegetation, therefore, must be considered somewhat speculative and subject to future revision.

EXCAVATION METHODS AND OBJECTIVES

Prior to excavation, the most obvious cultural feature at LeMoc Shelter was a double row of rooms cut into the cave breccia deposits near the rear of the cave (figs. 4.4 and 4.5). The shelter had been vandalized – its walls were covered with the names of visitors and despoilers, and the cave floor and the rooms were obscured with the spoil dirt of some 30 years of indiscriminate digging. Several recent campfires, some lined with building stone and broken metates, had been made in the front of the cave; the garbage of years of picnicking was everywhere. Erosion within the shelter was limited to a shallow, east-west rill cut into the sediments in front of the roomblock and to some weathering of the cave breccia and shelter walls. However, slope wash and erosion had severely affected the midden deposits in front of the shelter: artifacts had been carried downslope almost to the valley floor.

For convenience, the site was divided into 5 areas (fig. 4.6). Area 1 corresponded to the roomblock and associated features located on the platform of exposed cave breccia. Area 2 was defined as the midden on the slope in front of the cave. Area 3 consisted of the sheltered area in front of the roomblock and included three subareas: Subarea 1 (the fill of Pithouse 2), Subarea 2 (the fill of Pithouse 1), and Subarea 3 (the eastern third of the shelter). Area 4 originally was defined as that portion of the slope between the dripline and the slope midden, but this designation was dropped when it became obvious that the boundary between Areas 3 and 4 crosscut several cultural features. This strip was then included as part of Area 3. Finally, Area 5 was defined to include the deposits located between the roomblock and the rear wall of the shelter.

Because of the extensive disturbance, no systematic surface collection was made. Work began with the clearing of the roomblock. As the spoil dirt was removed, artifacts from each area were bagged separately. The number assigned to each room was used for horizontal provenience control.

Figure 4.4 – View of LeMoc Shelter before excavation. View is looking west, across front of shelter. A portion of the roomblock is exposed at right (DAP 002411).

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During the first stage of excavation, priority was given to probing for preceramic horizons. Test trench 1 (fig. 4.7) was opened on the slope in front of the shelter (Area 2) to establish the natural stratigraphy. The trench was then extended into the western portion of Area 3, where sediments were least eroded and largely undisturbed. After an exploratory auger transect of the midden in Area 2 in front of the shelter, trench 2 was opened where the cultural sediments appeared to be thickest (fig. 4.7). It was hoped that by sectioning the midden any preceramic horizons would be quickly identified.

The trenches were divided into 1-m units to maintain horizontal provenience control. In trench 1, vertical provenience control was based on natural stratigraphic units. The massive, steeply sloping midden deposits in trench 2, however, necessitated excavation in arbitrary 20-cm levels in all but the 2 units closest to the lip of the shelter. All fill from the roomblock and the 2 trenches was put through one-quarter-inch (6.4 mm) mesh screen.

An arbitrary 1-m grid was established in Area 3. Initial excavation in this area consisted of opening a trench near the center of the shelter to explore stratified deposits that were later found to be the fill of Pithouse 1. Artifacts and environmental samples were collected by grid square and natural stratigraphic unit.

When extensive testing failed to reveal any evidence of occupation prior to the Pueblo I period, research goals and excavation strategies were modified. While early work had emphasized vertical exposures, the second stage of excavation concentrated on the exposure of individual cultural units in Area 3. Use surfaces identified in profile were exposed, and artifacts found in direct association with surfaces were assigned PL (point location) numbers. All features and PL's were mapped in an attempt to discern activity areas. The goal of the second stage of excavation was to reconstruct the occupational sequence of the shelter during the Anasazi period and to determine the nature of the settlement for each episode of use.

Dating and environmental sampling procedures were similarly refined. On use surfaces, bulk soil samples were taken in each grid square in order to recover macrobotanical remains. Pollen scrapings were also taken in areas where pollen preservation seemed likely. Archaeomagnetic samples were taken from all hearths and in situ burned areas.

Time and manpower limitations affected excavation strategy during the second stage of excavation. Screening was discontinued in postoccupational stratigraphic units to allow more time to investigate the major periods of habitation. Using this same rationale, screening of the fill

Figure 4.5 – View of LeMoc Shelter during 1979 excavation, looking west (DAP 010117).

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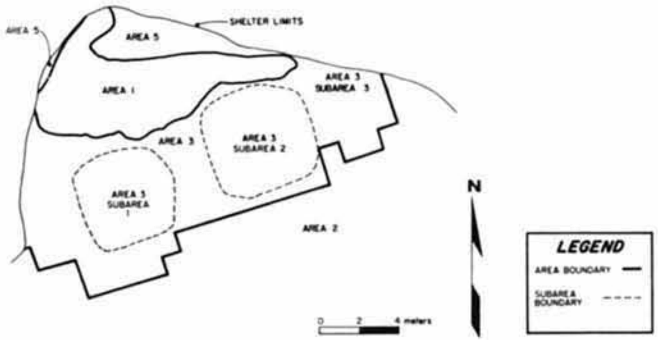

Figure 4.6 - Locations of areas and subareas, LeMoc Shelter. Area 1 corresponds to the roomblock; Area 2 corresponds to the midden in front of the shelter (exact limits unknown); Area 3 corresponds to the sheltered area in front of the roomblock and includes three subareas: Subarea 1 (Pithouse 2), Subarea 2 (Pithouse 1), and Subarea 3 (eastern third of shelter). Area 4 was combined with Area 3 early in the investigation and is not shown. Area 5 corresponds to the area between the roomblock and the rear wall of the shelter.

of Pithouse 1 was halted after careful excavation of a control section comprising about one-third of the total fill.

By mid-September, what appeared to be the outline of a second pitstructure was encountered in the west half of the cave, and it was clear that work at LeMoc Shelter could not be completed during the 1978 field season. Therefore, priority was given to completing excavation of Pithouse 1, while work in the western portion of the shelter was limited to discovering the depth of deposits there as an aid in planning research for 1979. The investigation of Pithouse 1 was nearly complete when rain and snowstorms forced closure of the site on 17 November 1978.

When the site was reopened in June 1979, the general work plan was to finish subfloor testing of Pithouse 1; to excavate Pithouse 2; and to open 2 test units in the rear of the shelter, one behind the roomblock and the second adjacent to a small seep located east of the roomblock. Based on the test units opened in 1978, the fill of Pithouse 2 was expected to be the same mixture of trash and sterile fill that had been encountered during the excavation of Pithouse 1. The plan was to strip away enough of the overlying deposits to outline the structure, section the fill north to south, and then remove the fill by natural stratigraphic units. Within a few days this straightforward approach was abandoned as excavations uncovered a complex sequence of structural debris, the result of repeated aboriginal occupation above Pithouse 2. Emphasis alternated between broad horizontal exposures and vertical probes in an attempt to explore the spatial extent of each occupation and the temporal relationships between components.

Also unexpected was the discovery of a midden behind the east wall of Pithouse 1. An east-west trench was excavated, bisecting these deposits, and the material was removed in natural stratigraphic units. The excavations were then expanded northward to explore the seep for cultural features.

The unexpected complexity of Pithouse 2 fill necessitated a number of less-than-ideal compromises in excavation methods if the site was to be completely investigated in the time allotted. Except for a 2-m-wide control section, screening of all postoccupational fill and structural debris was discontinued. Furthermore, these deposits were removed in 2- by 2-m or 4- by 4-m blocks rather than in 1- by 1-m excavation units. This time-saving strategy permitted the continuation of the intensive excavation of individual occupation surfaces and cultural deposits, thereby ensuring the comparability of the information from these cultural contexts obtained during the 2 field seasons.

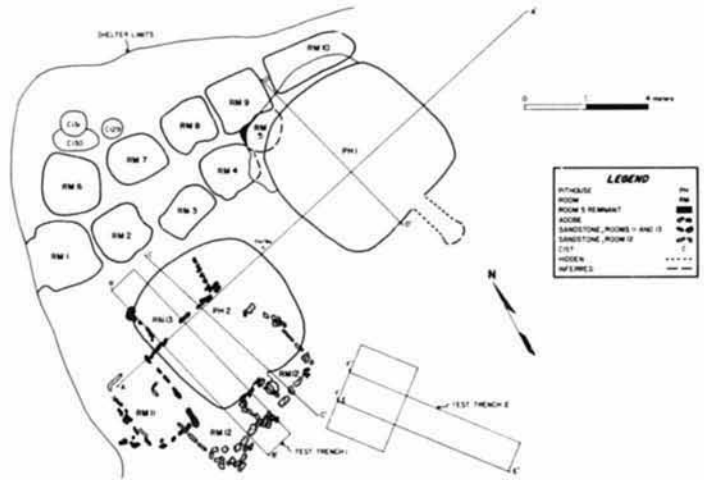

Figure 4.7 - Spatial relationships of major cultural units, LeMoc Shelter. Profiles A, B, C, D, E, and F are shown in figures 4.9, 4.10, 4.11, 4.13, 4.15, and 4.15, respectively.

DEPOSITIONAL ENVIRONMENT

Shelter Formation

LeMoc Shelter appears to have been formed by differential erosion along the contact between high-angle and horizontal bedding planes near the base of a large Junction Creek Sandstone outcrop. Comparison with smaller, "younger" rockshelters in the area suggests that the formation of LeMoc Shelter was initiated by massive spalling of boulder- and cobble-sized fragments. Frost wedging, the result of meltwater seepage along the high-angle bedding planes of the lower rock stratum, was probably the dominant erosive force. The bedding planes of the upper stratum are more nearly horizontal, making it less susceptible to this process.

Viewed in cross section (fig. 4.8), the shelter is almost parabolic, with the bedrock floor sloping away steeply from the rear wall. In longitudinal section, the floor is more bowl shaped. The bedrock forms a level shelf along the west wall just below modern ground surface, dips below the pitstructure floors in the center of the shelter, and then rises to within 50 to 75 cm of modern ground surface in the eastern third of the shelter.

As the overhang developed, erosion apparently slowed, and fine-grained sediments began to accumulate in the rubble, eventually building a relatively level surface within the shelter. During this phase of development, mechanical weathering seems to have been limited largely to the exfoliation of small, scalelike fragments from the ceiling and walls of the shelter. Chemical weathering eventually assumed dominance in sculpting the overhang. Water percolating through the sandstone gradually dissolved the cement causing individual sand grains to fall to the shelter floor. At the same time, additional material was washed into the shelter from the west by a small rill flowing across the shelter, following the strike of the bedrock.

Much of this detritus was consolidated by compaction and carbonate precipitation into a well-cemented cave breccia. In the rear of the shelter, the breccia adheres to

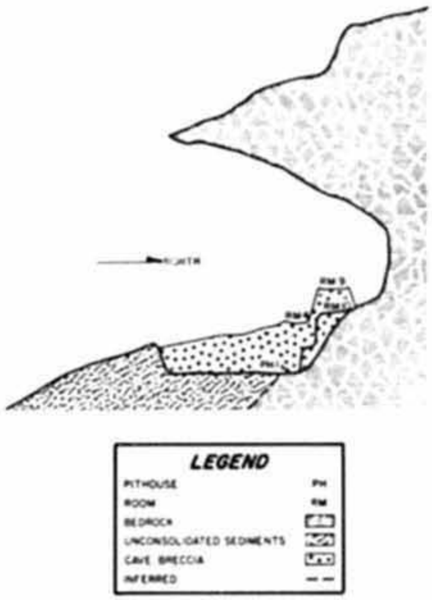

Figure 4.8 - Schematic composite profile of LeMoc Shelter, looking west. Note the configuration of the shelter roof and the slope of the cave breccia relative to the hill slope outside of the sheltered area.

the steeply sloping bedrock and forms the platform on which the roomblock was built. The breccia deposits are shallow and poorly developed along the western wall in front of this platform and in the eastern third of the shelter where the bedrock is close to the surface. However, near the center of the shelter, these deposits are several meters deep. In this area the two pitstructures were constructed using the cave breccia for all but the south walls and, in Pithouse 1, the east wall. The south walls of both pitstructures are backed by colluvial slope deposits that contact the truncated cave breccia at the dripline. This contact clearly demonstrates that the protected environment of the rockshelter was critical for the accumulation of the cave breccia.

Natural and Cultural Stratigraphy

The shelter's unconsolidated sediments are a combination of colluvium and cultural debris that has accumulated in the front of the shelter, primarily in the basins formed by the pitstructures. As such, the sediments filling each of the pitstructure depressions necessarily postdate the occupation of the respective structures. Since the structures were not occupied simultaneously, an inherent time lag occurs in these depositional sequences. This, plus the physical barriers of the pitstructure walls, prevents any direct correlation of stratigraphy across the site. Therefore, each stratigraphic sequence or unit will be described separately. Four such units were recognized – one in each pithouse, one to the east of Pithouse 1, and one in the midden deposit on the slope in front of the shelter. Within each unit, the strata are numbered sequentially beginning with the earliest deposit. A Roman numeral preceding the stratum number indicates the particular stratigraphic unit in which the stratum occurs; these units are numbered sequentially across the site from west to east, with the addition of "IV" to designate the unit on the slope in front of the shelter. The descriptions of Stratigraphic Units I and II are based not only on the information provided by the stratigraphic profiles but on evidence gained from the complete excavation of the respective structures as well; therefore, some of the specific stratum characteristics described in text do not appear in the accompanying stratigraphic profiles. Correlation between units is made by relying primarily upon a comparison of the ceramic assemblages from each stratum. Consequently, a brief discussion of the ceramic assemblages, focusing on the ceramic types and their chronological implications, is included in these sections.

Within each unit, major architectural features and occupation surfaces are considered stratigraphically equivalent to sediment layers, although not numbered as part of the sequence. As Harris (1979:43) argues, these interfaces in archaeological sites correspond to bedding planes and unconformities in geological settings. As such, they indicate either an interface between strata or the destruction of strata, both of which are of stratigraphic and cultural importance. Detailed descriptions of these cultural features, however, are provided in the "Architecture" section.

Except for strata created by the collapse of architectural features, deposition within the shelter appears to have been the consequence of a fairly uniform process. The sediments were primarily sand or sandy loam; most appeared to have been transported by water cascading from the overhang or from slope wash flowing across the shelter, although some appeared to have been wind deposited. Present conditions suggest that most of the water-laid material was deposited during spring snowmelt, with less material being deposited during late summer thunderstorms. Within these colluvial sediments, stratification is detectable primarily on the basis of varying cultural inclusions. This suggests that natural deposition was an ongoing process throughout the shelter's history, subtly but certainly altering the context of the cultural materials.

Stratigraphic Unit I

This sequence (figs. 4.9, 4.10, 4.11, and 4.12) is a complex of ruined structures, midden, and natural sediments that

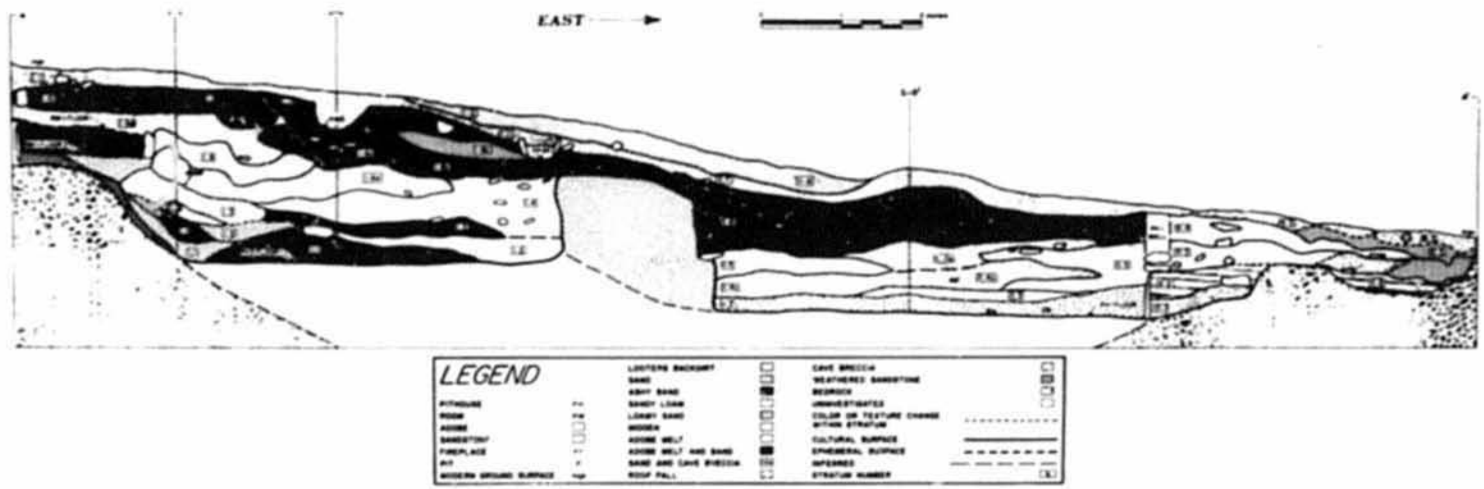

Figure 4.9 - East-west stratigraphic profile of unconsolidated sediments at LeMoc Shelter. Note Stratigraphic Units I, II, and III, limits of Pithouses 1 and 2, and points of intersection with profiles B, C, and D. Profile A is located in plan in figure 4.7. Stratum II-1, beneath Pithouse 1, had not yet been exposed when this profile was drawn (DAP 135302).

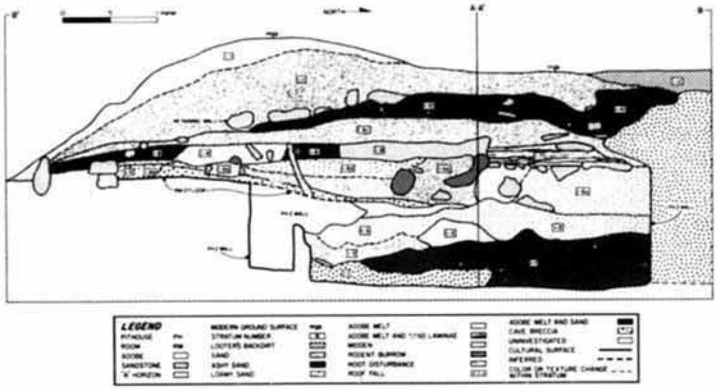

Figure 4.10 - North-south profile of Stratigraphic Unit 1, near west edge of Pithouse 2, LeMoc Shelter. Profile B is located in plan in figure 4.7. Note point of intersection with profile A.

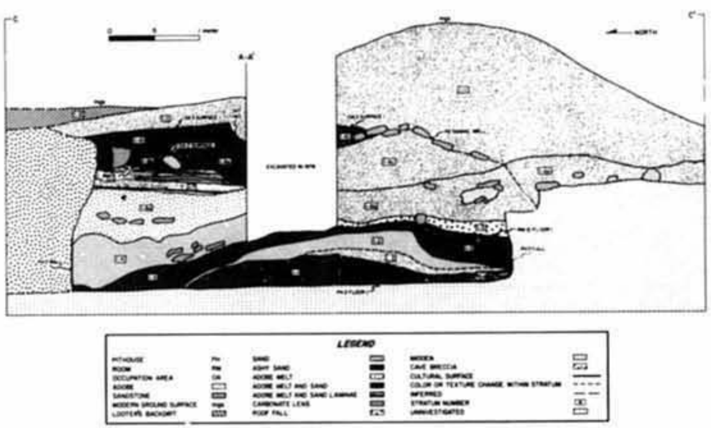

Figure 4.11 - North-south profile of Stratigraphic Unit I, bisecting Pithouse 2, LeMoc Shelter. Profile C is located in plan in figure 4.7. Note point of intersection with profile A. Profile drawn before Room 12 was completely exposed.

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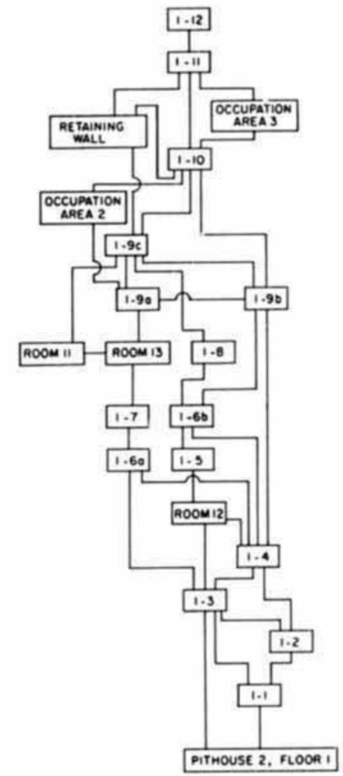

Figure 4.12 - Schematic summary of relationships between cultural and stratigraphic units in Stratigraphic Unit I, LeMoc Shelter.

accumulated within the depression of Pithouse 2, the earliest pitstructure at the site. Because it is the longest sequence, and because the western half of the shelter was the most intensively used area prehistorically, Stratigraphic Unit I provides the most complete and detailed record of the occupation at LeMoc Shelter.

Pithouse 2, Floor 1. - With the construction of Pithouse 2, which was cut into the cave breccia, any evidence of earlier use of the shelter in Subarea 1 of Area 3 would have been destroyed. At the same time, a sediment trap that facilitated the rapid accumulation of sediments after abandonment of the pithouse was created. The occupation of Pithouse 2, therefore, is the first stratigraphic event in this sequence, and because this pithouse is the earliest structure at the site, it also marks the first episode in the site's cultural sequence.

Stratum I-1. - Stratum I-1 is a structurally massive, yellowish-brown (10YR 5/6) layer of sand and adobe that probably was deposited shortly after the pithouse was abandoned. This facies, which has a maximum thickness of approximately 50 cm, overlies most of the western two-thirds of the floor and is interpreted as being plaster melt from the west wall of the pithouse. Immediately north of the wingwall, the melt surrounds a slump of cave breccia that had fallen from the west wall of the pithouse and coalesced with a sandy colluvium in the depression beyond the dripline.

Stratum I-2. - The floor in the approximate eastern third of the pithouse was overlain by Stratum I-2, a brown (10YR 4/3) sand, massive in structure and mottled with charcoal and ash. The sediments appear to be a mixture of colluvial sand and midden materials thrown into the depression. The deposit is approximately 30 cm thick where it rests against the east wall, but it thins rapidly to the west as it overrides Stratum I-1, fills the irregularities in the underlying surface, and gradually lenses out.

Stratum I-3. - Overlying both the lower strata, Stratum I-3 is the result of a second episode of slumping of the west face of the pithouse. Rotational slump blocks of cave breccia are clearly visible where they slid away from the bedrock. A wedge-shaped layer of yellowish-brown (10YR 5/6) loamy sand, presumably adobe plaster from the pithouse wall, reflects the gradual melting of the slump that flowed eastward and mixed with colluvial sediments. Near the north wall of the pithouse, this melt contacts the pithouse floor. The fact that Strata I-1, I-2, and I-3 all contact the floor is argument for these strata having been deposited in a fairly short time, probably within a few decades after the pithouse was abandoned.

The repeated mass wastage of the west wall evidenced by Strata I-1 and I-3 apparently was caused by the steep angle of the sandstone to which the breccia adhered and by the

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exposure of the contact to the seasonal flow of water into the shelter from the west. This inherent instability may have been one factor in the abandonment of the pithouse.

Stratum I-4. – A second midden deposit, Stratum I-4, overlies Stratum I-3. This is a dark gray (10YR 4/1) sand flecked with ash and charcoal and containing numerous artifacts, chunks of adobe, and some boulder-sized fragments of tabular sandstone. Like Stratum I-2, Stratum I-4 is thickest near the east wall of the pithouse where it nearly fills the depression. Near the south wall of the pithouse, Stratum I-4 fills a concavity in Stratum I-3 with roughly 40 to 50 cm of sediments. In the center of the pitstructure, however, Stratum I-4 thins rapidly.

Room 12, Floor 1. – The disappearance of Stratum I-4 in the center of the pitstructure appears to have resulted from the construction of Room 12 (figs. 4.10 and 4.11). Vertical slabs in this structure's east wall are supported by Stratum I-4 sediments, but no Stratum I-4 deposits are present within the room itself. Evidently, Room 12 was excavated through Stratum I-4, and the loamy sand adobe of Stratum I-3 was used to provide a firm foundation for at least its east wall and part of its floor.

The stratigraphic break marked by the construction of Room 12 is also reflected in the frequencies of pottery types collected from each stratum. The ceramic assemblages from Strata I-1 through I-4 are quite similar to one another but are distinct from those of the overlying strata (table 4.1). Chapin Gray constitutes 60 to 70 percent of the ceramics from Strata I-1 through I-4 that could be assigned to specific types. The painted wares are primarily Abajo Red-on-orange and Bluff Black-on-red. Although these wares constitute only a minor fraction of the sherds recovered from the pithouse floor, they make up 15 to 20 percent of the collection in the later strata. Early white wares are rare, constituting only 1 to 5 percent of the total assemblages from Strata I-1 through I-4. In contrast, the typeable ceramics in strata overlying Room 12 are predominantly Moccasin Gray. Mancos Gray also makes its first appearance, and the percentage of red wares declines as white wares become more frequent.

Stratum I-5. – Stratum I-5 is a thin, discontinuous stratum of burned adobe and charcoal in a very dark gray (10YR 3/1), sandy matrix that overlies the floor of Room 12. The stratum is most apparent from where it abuts the southern wall of the pithouse depression to an irregular line roughly 2 m to the north, although it can also be traced as a diffuse ashy lens southward, over the edge of the pithouse depression. Its western edge corresponds to the western face of the depression and is quite distinct compared to the feathery eastern margin 2 to 3 m away. The stratum is interpreted as the collapsed roof of Room 12.

Stratum I-6. – Stratum I-6 is comprised of 2 distinct facies. The first of these (I-6a) is a massive, mounded deposit of adobe melt and sandstone rubble, 15 to 50 cm thick, in the northern third of the depression. This facies consists of wall fall and melt, possibly associated with the decay of Room 12. The melt gradually diffuses into a pale brown (10YR 6/3), colluvial sand and loamy sand layer (Stratum I-6b), 5 to 50 cm thick, that overlies Stratum I-5. From the absence of trash lenses or midden material within this sand and the absence of cultural features, Subarea 1 seems to have been little used during the later part of the deposition of Stratum I-6b.

Stratum I-7.–This stratum is a lens of fine-grained, laminated sediments that accumulated in a shallow basin formed by the wall fall of Room 12 in Stratum I-6a, the north wall of the pithouse depression, and Stratum I-4. The laminae are varicolored bands consisting of an alternating sequence of brown (7.5YR 5/4), oxidized sands; light yellowish-brown (10YR 6/4), adobe-like sands, sometimes mottled with ash; and very pale brown (10YR 7/3), calcareous sands. Apparently these bands were deposited during a period when water washed into the shelter, collected in the basin, and then evaporated. These sediments are deepest near the north wall of the pithouse at about the midline of the depression where the stratum is almost 50 cm thick. Stratum I-7 disappears to the east in a near-vertical contact with Stratum I-4, but to the west it thins gradually — the laminae become less distinct as the deposits blend with the adobe melt of Stratum I-6a.

The basin created by the collapse of Room 12 (represented by Stratum I-6a) appears to have been protected initially by the adobe barrier forming the basin's southern perimeter. As the deposits of Stratum I-6b raised the level of the shelter floor, however, runoff filled the basin, depositing the sediments of Stratum I-7. Therefore, Stratum I-7 appears to postdate the deposition of I-6a, but be contemporaneous with the later deposits of I-6b.

Room 11, Floor 2 and Room 13, Floor 1.–Following the occupational hiatus evidenced by the deposition of Strata I-6 and I-7, Room 13 was built in the northwest corner of the Pithouse 2 depression, and Room 11 was cut into the breccia shelf adjacent to the west wall of the rockshelter. Although Room 13 was largely destroyed by erosion and later occupations, the earliest floor was clearly located where Strata I-6a and I-7 contact later strata. A corner shared by Room 13 and Room 11 suggests that both rooms were built simultaneously.

Stratum I-8.–Stratum I-8 is a dark grayish-brown (10YR 4/2) sand, flecked with ash and charcoal, that overlies Stratum I-6b. In plan, Stratum I-8 is confined to an area of roughly 2 m^2, apparently filling a 20- to 35-cm-deep swale in Stratum I-6b. On the north, I-8 abuts the ruined

Table 4.1 – Frequencies of ceramic types recovered from major stratigraphic and cultural units, LeMoc Shelter (Trade wares are not included in these counts)

	Chapin Gray		Moccasin Gray		Mancos Gray		Early Pueblo Gray		Mancos Corrugated	
	N	%	N	%	N	%	N	%	N	%
Stratum I-12	10	1.6	7	1.1	7	1.1	422	67.5	10	1.6
Stratum I-11	13	3.1	44	10.6	3	0.7	236	56.9	4	1.0
Stratum I-10	8	3.8	15	7.0	2	0.9	136	63.8	3	1.4
Stratum I-9	15	2.1	39	5.6	13	1.9	508	72.4	2	0.3
Stratum I-8	32	2.8	134	11.7	14	1.2	837	73.0		
Stratum I-7										
Stratum I-6	17	3.9	30	6.9	14	3.2	320	73.7		
Stratum I-5	16	6.7	9	3.8	1	0.4	180	75.6		
Stratum I-4	83	6.7	14	1.1			934	75.4		
Stratum I-3	14	5.2	3	1.1			202	75.1		
Stratum I-2	26	8.6	2	0.7			219	72.3		
Stratum I-1	36	8.1	3	0.7			297	66.6		
Pithouse 2*	25	4.8	4	0.8			468	89.5		
Stratum II-8					(see stratum I-12)					
Stratum II-7					(see stratum I-11)					
Stratum II-6	12	2.2	9	1.6	26	4.8	281	51.5	20	3.7
Stratum II-5	23	3.1	22	2.9	22	2.9	438	58.7	11	1.5
Stratum II-4	1	0.4	14	5.5	10	3.9	172	67.2	3	1.2
Stratum II-3										
Stratum II-2	14	3.5	28	7.0	8	2.0	311	77.8		
Pithouse 1*	6	3.1	19	9.9			147	77.0	1	0.5
Stratum II-1	2	6.5					26	83.9		
Stratigraphic					1	0.6	128	80.5		
Unit III	8	5.0	5	3.1						
Stratum IV-5	4	8.2					37	75.5		
Stratum IV-4	10	4.9	1	0.5	1	0.5	148	72.9		
Stratum IV-3							34	85.0		
Stratum IV-2	1	0.9					100	86.2		
Stratum IV-1										
Room 11*	1	11.1					7	77.8		
Room 12*	1	3.3	1	3.3	1	3.3	21	70.0		
Room 13*			9	18.0	2	4.0	38	76.0		
Occupation Area 1*			7	10.6	5	7.6	46	69.7		
Occupation Area 2*										
Occupation Area 3*	1	7.1					9	64.3		
Roomblock*	7	1.9	2	0.5	3	0.8	264	70.0	4	1.1
Area 5	11	7.1	5	3.2	1	0.6	110	70.5	2	1.3
Total	397		426		134		7 076		60	

Table 4.1 - Frequencies of ceramic types recovered from major stratigraphic and cultural units, LeMoc Shelter — Continued

	Dolores Corrugated		Mesa Verde Corrugated		Corr Body Sherds		Chapin B/W		Piedra B/W		Cortez B/W	
	N	%	N	%	N	%	N	%	N	%	N	%
Stratum I-12					102	16.3			1	0.2		
Stratum I-11			1	0.2	75	18.1			1	0.2	2	0.5
Stratum I-10					23	10.8			2	0.9	2	0.9
Stratum I-9					3	0.4					6	0.9
Stratum I-8					1	0.1					8	0.7
Stratum I-7												
Stratum I-6							1	0.2	2	0.5		
Stratum I-5												
Stratum I-4					1	0.1			1	0.1		
Stratum I-3									3	1.1		
Stratum I-2												
Stratum I-1												
Pithouse 2*												
Stratum II-8					(see stratum I-12)							
Stratum II-7					(see stratum I-11)							
Stratum II-6					135	24.7	1	0.2	3	0.5	7	1.3
Stratum II-5					130	17.4			1	0.1	10	1.3
Stratum II-4					24	9.4			1	0.4	2	0.8
Stratum II-3												
Stratum II-2					6	1.5			1	0.3	2	0.5
Pithouse 1*					1	0.5						
Stratum II-1												
Stratigraphic Unit III					5	3.1						
Stratum IV-5												
Stratum IV-4					10	4.9						
Stratum IV-3					3	7.5						
Stratum IV-2					2	1.7						
Stratum IV-1												
Room 11*												
Room 12*												
Room 13*												
Occupation Area 1*												
Occupation Area 2*					1	25.0					3	75.0
Occupation Area 3*					1	7.1						
Roomblock*					58	15.4			1	0.3		
Area 5	1	0.6			15	9.6	1	0.6				
Total	1		1		596		3		17		42	

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Table 4.1 - Frequencies of ceramic types recovered from major stratigraphic and cultural units, LeMoc Shelter — Continued

	Mancos B/W		Early Pueblo White		Late Pueblo White		Abajo R/O	
	N	%	N	%	N	%	N	%
Stratum I-12	2	0.3	40	6.4	4	0.6		
Stratum I-11	1	0.2	21	5.1			1	0.2
Stratum I-10			12	5.6	2	0.9		
Stratum I-9			66	9.4	1	0.1		
Stratum I-8			46	4.0				
Stratum I-7								
Stratum I-6			17	3.9			1	0.2
Stratum I-5			2	0.8				
Stratum I-4			35	2.8			6	0.5
Stratum I-3			8	3.0			1	0.4
Stratum I-2			4	1.3	1	0.3		
Stratum I-1			20	4.5			4	0.9
Pithouse 2*			7	1.3				
Stratum II-8			(see stratum I-12)					
Stratum II-7			(see stratum I-11)					
Stratum II-6	1	0.2	18	3.3	4	0.7	1	0.2
Stratum II-5			48	6.4	1	0.1	1	0.1
Stratum II-4			13	5.1			1	0.4
Stratum II-3								
Stratum II-2			14	3.5				
Pithouse 1*			9	4.7				
Stratum II-1			1	3.2				
Stratigraphic Unit III			3	1.9				
Stratum IV-5			5	10.2	1	2.0		
Stratum IV-4			13	6.4	1	0.5	1	0.5
Stratum IV-3					1	2.5		
Stratum IV-2			7	6.0			4	3.4
Stratum IV-1								
Room 11*			1	11.1				
Room 12*			1	3.3				
Room 13*								
Occupation Area 1*			4	6.1	2	3.0		
Occupation Area 2*								
Occupation Area 3*								
Roomblock*	3	0.8	27	7.2	2	0.6		
Area 5			6	3.8			1	0.6
Total	7		448		20		22	

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Table 4.1 – Frequencies of ceramic types recovered from major stratigraphic and cultural units, LeMoc Shelter — Continued

	Bluff B/R		Early Pueblo Red		Late Pueblo Red		Deadmans B/R		Other		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Stratum I-12			18	2.9					2	0.3	625	100.0
Stratum I-11	1	0.2	10	2.4					2	0.5	415	100.0
Stratum I-10			7	3.3					1	0.5	213	100.0
Stratum I-9	5	0.7	43	6.1					1	0.1	702	100.0
Stratum I-8	8	0.7	60	5.2	2	0.2	1	0.1	3	0.3	1 146	100.0
Stratum I-7											0	
Stratum I-6	9	2.1	19	4.4	2	0.5			2	0.5	434	100.0
Stratum I-5	1	0.4	29	12.2							238	100.0
Stratum I-4	28	2.3	136	11.0							1 238	100.0
Stratum I-3	6	2.2	30	11.2	2	0.7					269	100.0
Stratum I-2	5	1.7	46	15.2							303	100.0
Stratum I-1	4	0.9	82	18.4							446	100.0
Pithouse 2*	2	0.4	17	3.3							523	100.0
Stratum II-8					(see stratum I-12)							
Stratum II-7					(see stratum I-11)							
Stratum II-6	3	0.5	25	4.6							546	100.0
Stratum II-5	9	1.2	28	3.8					2	0.3	746	100.0
Stratum II-4	5	2.0	10	3.9							256	100.0
Stratum II-3											0	
Stratum II-2	3	0.8	11	2.8					2	0.5	400	100.0
Pithouse 1*			8	4.2							191	100.0
Stratum II-1			2	6.5							31	100.0
Stratigraphic Unit III			9	5.7							159	100.0
Stratum IV-5			1	2.0					1	2.0	49	100.0
Stratum IV-4			8	3.9					10	4.9	203	100.0
Stratum IV-3			2	5.0							40	100.0
Stratum IV-2			2	1.7							116	100.0
Stratum IV-1											0	
Room 11*											9	100.0
Room 12*	1	3.3	4	13.3							30	100.0
Room 13*			1	2.0							50	100.0
Occupation Area 1*			2	3.0							66	100.0
Occupation Area 2*											4	100.0
Occupation Area 3*	2	14.3	1	7.1							14	100.0
Roomblock*			5	1.3					1	0.3	377	100.0
Area 5			3	1.9							156	100.0
Total	92		619		6		1		27		9 995	

*Includes surfaces, features, and other contexts believed to be closely associated with the occupations of the respective structures and occupation areas.

Corr - Corrugated.
R/O - Red-on-orange.
B/R - Black-on-red.
B/W - Black-on-white.

south wall of Room 13. The contact is equally sharp to the west where Stratum I-8 abuts the vertical slabs of the east wall of Room 11. The lens can be traced south to the dripline, where it undergoes a sharp chroma change as the quantity of ash and charcoal in the sediments decreases. A decrease in the number of artifacts corresponds to this chroma change: within the shelter, Stratum I-8 is rich in cultural materials; beyond the shelter, the number of artifacts decreases. A similar change is observable along the east margin where a narrow, armlike extension of the stratum can be traced to a point roughly 1 m west of the west edge of the pithouse. This extension appears to be a secondary deposit of midden material and adobe melt along the course of a small rill that flows across the shelter beneath the edge of the overhang. Because of its abrupt contact with the walls of Rooms 11 and 13, Stratum I-8 is interpreted as postdating the construction of these rooms. Given this relationship, and the quantity of artifacts, ash, and charcoal in Stratum I-8, the most plausible interpretation is that this stratum is a midden associated with the occupation of Rooms 11 and13.

Stratum I-9.–Stratum I-9 is a complex, heterogenous deposit with three discernible facies. Stratum I-9a is an adobe melt facies that contacts Stratum I-8. Stratum I-9a begins at the north wall of the pithouse and extends 2.5 m south; it is thickest near the center of the pithouse depression. In cross section, Stratum I-9a appears trapezoidal and varies from 10 to 40 cm in thickness. The melt contains a pale brown (10YR 6/3) sand and incorporates a number of boulder-sized, tabular sandstone blocks. The rubble is interpreted to be a ruined wall of Room 13 and the adobe to be melted plaster and mortar from that wall.

To the east of Stratum I-9a, the melt is less consolidated and darkens to brown (10YR 5/3) due to an admixture of ash and charcoal from intercalated lenses of midden. This is the ashy sand facies (I-9b) of Stratum I-9. This deposit thins to the east, mantling the western half of the breccia balk separating the two pitstructures with a thin veneer of sediments. Additional collapsed materials from the east wall of Room 13 are embedded within Stratum I-9b, and above this rubble, the I-9b sediments are sandier, less consolidated, and decrease in color value.

The third facies (I-9c) of Stratum I-9 is a layer of pale brown (10YR 6/3), colluvial sand, 5 to 60 cm thick, that contacts the west edge of Stratum I-9a, covers Stratum I-8, and rides up over the west wall of the pithouse depression, burying the breccia platform and the ruins of Room 11. Like I-6b, this colluvium appears to have accumulated during a period when the western portion of the shelter was used sporadically. The sediments are mottled with some ash and charcoal that appears to have washed in from the rubble of Room 11.

The ceramics from Strata I-8 and I-9 are generally similar to those from Strata I-5 and I-6 (table 4.1). Moccasin Gray remains the most common gray ware type, with Chapin Gray and Mancos Gray each constituting between 15 and 20 percent of the typeable sherds. However, some changes are evident. White wares occur as frequently as red wares in Strata I-8 and I-9, and a few sherds of corrugated and late white wares were recovered from Stratum I-9. Despite these differences, the overall similarity between the collections suggests only a short hiatus between the two occupations.

Occupation Area 2, Surface 1 and retaining wall.–Occupation Area 2 is a use surface located in the northern portion of the Pithouse 2 depression at the interface between Stratum I-9 and the overlying Stratum I-10. Originating on the surface of Occupation Area 2 is the rubble of a retaining wall that extends from the west wall of the rockshelter to the southwest corner of Pithouse 1. Together, this complex marks the beginning of a third period of use of Subarea 1 by the Anasazi after the abandonment of Pithouse 2.

Stratum I-10.–Overlying Occupation Area 2 and Stratum I-9, Stratum I-10 is a 20- to 50-cm-thick layer of dark grayish-brown (10YR 4/2), ashy sand. The deposit spreads eastward from the west wall of the shelter; dips slightly in the almost-filled Pithouse 2 depression; and, at the breccia balk separating the pithouses, merges with Strata I-9b and II-6. To the south, Stratum I-10 begins abruptly at the dripline behind the retaining wall and extends northward across the depression and onto the breccia platform in front of the roomblock.

The dark color of the stratum is due to abundant inclusions of ash, charcoal, and decayed organic matter, probably largely derived from several pits and fireplaces found at various levels within the stratum. This suggests that several occupations occurred during the deposition of Stratum I-10. Coupled with the density of artifacts and debris contained within Stratum I-10, this in turn suggests intensive, but probably only seasonal, use of the shelter as a campsite.

Occupation Area 3, Surface 1.–A second definable use surface, Occupation Area 3, was noted at the interface between Stratum I-10 and Stratum I-11. Like Occupation Area 2, Occupation Area 3 is an area where sediments had been compacted by trampling. This occupation area was also the level of origin of several features. No architectural debris was evident.

Stratum I-11.–A second period of sporadic use of the shelter, similar to that during the deposition of Stratum I-10, is evident in Stratum I-11, a 10- to 140-cm-thick layer of light yellowish-brown (10YR 6/4), colluvial sand. The stratum is thickest near the dripline where the collapsed rubble of the retaining wall acted as a sediment trap for material carried by runoff flowing from the overhang. The rubble appears to have contributed to the characteristic buildup of a mound of colluvial debris at the lip of the rockshelter. Once built up, this mound channeled runoff water into the shelter itself, and Stratum I-11 began to accumulate over the entire shelter floor. Several hearths, originating at various levels, had been dug into these sediments. The relative scarcity of artifacts recovered from Stratum I-11 suggests that use of the shelter during this depositional episode was infrequent and of a low intensity.

Strata I-10 and I-11 have ceramic assemblages in which Mancos Corrugated sherds make up a significant percentage of the typeable collections and in which corrugated sherds are abundant relative to earlier strata (table 4.1). Moccasin Gray remains the predominant pottery type, however, and both Chapin Gray and Mancos Gray are present in quantity. This suggests that, although these 2 strata evidence a much different pattern of utilization of the shelter, there was not a long hiatus between the deposition of Strata I-10 and I-11 and earlier strata.

Stratum I-12.–Stratum I-12, the uppermost stratum in this sequence, appears to be a layer of looter's spoil dirt from the roomblock. A layer of coarsely mottled, brown (10YR 5/3) sand, approximately 10 to 20 cm thick, extends along the entire front of the roomblock in an apron 2 to 3 m wide. Its northern margin abuts the southern walls of the lower rooms. Between 30 and 40 percent of the deposit is undecayed organic matter; much of it is cultural. Apparently, the material in the roomblock area remained dry because the breccia platform is above the groundwater level.

Stratigraphic Unit II

Stratigraphic Unit II (figs. 4.9, 4.13, and 4.14) consists of the fill of Pithouse 1 and some of the deposits that straddle the breccia shelf between Pithouse 1 and Pithouse 2. Stratigraphic Unit II is composed primarily of superimposed middens interfingered with colluvial sand. Except for trash disposal, this portion of the shelter (Subarea 2) was little used after the pitstructure was abandoned. These sediments, therefore, were not greatly disturbed by human activities, and the stratigraphy is straightforward and uncomplicated. Unfortunately, this sequence does not include the earlier part of the shelter's occupation.

Stratum II-1.–Stratum II-1 (fig. 4.13) designates a group of heterogeneous sediments revealed by a shallow (25 cm deep), exploratory trench dug through the Pithouse 1 floor along its north-south midline. Underlying the northern third of the floor is a coarse, white (10YR 8/2) sand, a product of the decomposition of the sandstone bedrock. Within this horizon are 2 lenses of grayish-brown (10YR 5/2), ashy sand flecked with charcoal. Beneath the central part of the floor, the white sand grades laterally into a pale brown (10YR 6/3) sand that is identical to the many strata of colluvial sediments noted in the shelter deposits. This sand, in turn, grades into a finer-grained, sandy clay loam, at a point approximately 1.5 m north of the south wall of the pitstructure.

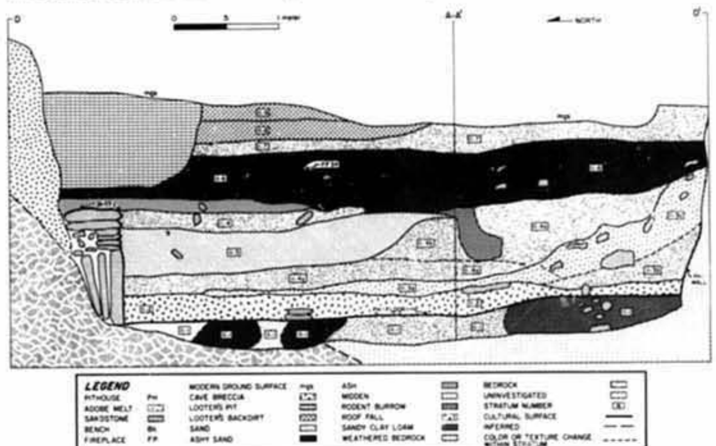

Figure 4.13 – North-south profile of Stratigraphic Unit II, LeMoc Shelter. Profile D is shown in plan in figure 4.7. Note point of intersection with profile A. Profile was mapped before Pithouse 1 ventilator system was exposed.

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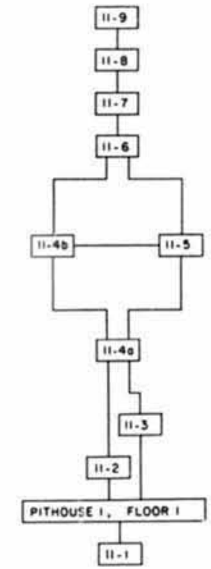

Figure 4.14 – Schematic summary of relationships between cultural and stratigraphic units in Stratigraphic Unit II, LeMoc Shelter.

Too little of Stratum II-1 was exposed by the trench to fully characterize the sedimentary processes reflected in these deposits. Tentatively, the pale brown sand is interpreted as colluvium that had washed into the shelter. The sandy clay loam also appears to be primarily colluvial: the more fine grained fraction was probably introduced by water washing across the front of the shelter. The white sand is clearly a product of in situ weathering of the bedrock. Although most of the deposit appears to be natural, the lenses of middenlike material within the white sand suggest that there may have been some preparation of a floor foundation. A full discussion of this possibility can be found in the "Architecture" section.

Pithouse 1, Floor 1.–The aboriginal excavation of Pithouse 1 is a stratigraphic unconformity; any evidence of earlier use of Subarea 2 would have been destroyed by its construction. Furthermore, the pithouse floor marks a clear temporal break between the deposition of the sediments in Stratum II-1 and the overlying sediments of Stratigraphic Unit II.

Stratum II-2.–Stratum II-2, the burned roof fall of Pithouse 1, is a layer of dark gray (10YR 4/1) sand mottled with charcoal and burned adobe; charred timbers are present as well, although not in great quantities. Roof fall, which overlies the pitstructure floor, varies in thickness from approximately 6 cm near the south wall to almost 40 cm in the east half of the depression. Little cultural material was found either on the pithouse floor or within roof fall, suggesting that the structure had been abandoned before the roof burned. Although sterile sand filled most of the pits in the pithouse floor, there was no accumulation of naturally deposited sediments between the roof fall and the floor itself. This suggests that little time elapsed between abandonment and the burning of the roof. The sand fill of the cists may have been added by the inhabitants prior to abandonment of the structure.

Based on variations in the oxidation of the plaster facing the pitstructure walls, the fire seems to have only partially destroyed the roof. Burning appears to have been most intense in the northern half of the structure. Possibly, the southern portion of the roof was dismantled before the conflagration, and only the northern half of the roof actually burned and collapsed. Alternatively, if the structure only partially burned, usable timbers may have been salvaged from the rubble at some later date. In any case, neither differential preservation nor destruction by the fire seem sufficient to account for the scarcity of roofing material within this unit.

The ceramic assemblages from Stratum II-2 and from the floor of the pitstructure are similar and form a group distinct from the collections obtained from the overlying strata. Moccasin Gray appears as the dominant utilitarian type, and although Mancos Gray is present, it is not as abundant as in the later assemblages. Very few corrugated sherds were recovered from either of these 2 strata, and those that were recovered probably were introduced by recent bioturbation.

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Stratum II-3.–Stratum II-3 is a fan-shaped unit of adobe melt (II-3a), colluvial sand (II-3b), and adobe melt and sandstone rubble (II-3c) that varies in thickness from approximately 100 cm in the southwestern corner of the pitstructure to 10 cm near the center of the depression. The 3 distinct facies within Stratum II-3 reflect the erosion of the pitstructure's south wall and the buildup of colluvium within the depression. A wedge-shaped deposit of adobe that overlies the roof fall at the base of the wall (Stratum II-3a) apparently was deposited as the plaster facing of the wall melted. This erosion is most evident at the juncture of the south wall and the cave breccia that forms the west wall. Here, a large block of adobe had slumped off. This slump accounts for the greater thickness of the stratum in this area.

Overlying the adobe, and grading laterally into it, is a pale brown(10YR 6/3), colluvial sand (Stratum II-3b) washed in by runoff water coming over the roof of the shelter. Overlying this is a layer of adobe melt and sandstone rubble (II-3c), which reflects the collapse of the upper portion of the pitstructure's south wall. Although the wall collapsed into the pitstructure from the south, the rubble most prominently slopes downward from west to east following the configuration of the underlying deposits. Near the southwest corner of the pitstructure, therefore, the rubble is almost level with the top of the wall, while in the southeast quadrant of the depression, some of the stone rests on the pitstructure floor.

Prior to the collapse of the south wall, relatively little colluvial material was transported into the depression because the wall channeled all but a small part of the runoff onto the slopes in front of the shelter. When the wall collapsed, not only did more runoff flow into the depression, but the sediment load increased as material from colluvial deposits at the lip of the shelter and from the slope above the shelter were carried into the depression. The rubble probably was buried quickly, building a ramp that sloped into the depression from the south. The increased depositional rate continued during the buildup of later strata.

Stratum II-4.–Stratum II-4 is a massive, lightly mottled, very pale brown (10YR 7/4) sand that overlies Strata II-2 and II-3. The stratum varies in thickness from about 75 cm in the southern part of the depression to approximately 25 cm in the northern part. From this configuration, and from the character of the sediments, Stratum II-4 appears to be an accumulation of colluvial material. Sediment buildup is greatest beyond and below the dripline and least where material would be washed in only by very heavy runoff. Although Stratum II-4 was deposited primarily by natural processes, there are a few lenses of midden material; furthermore, artifacts, small bits of charcoal, and burned sandstone are dispersed throughout the stratum.

On the basis of a subtle stratigraphic distinction that was not recognized until late in the excavation, and on the basis of analysis of the ceramics from Stratum II-4, two substrata were defined subsequent to field operations. The lower 25 cm was designated Stratum II-4a; the remainder was designated Stratum II-4b. The boundary between the 2 strata is inferred in figures 4.9 and 4.13; the characteristics of their respective ceramic assemblages are described in the "Correlation and Dating" section of this report.

Stratum II-5.–Stratum II-5 is a complex midden deposit composed primarily of mottled, brown (10YR 5/3) sand, varying in sedimentary structure from massive to weakly laminated. Within this matrix are lenses of pale brown (10YR 6/3), laminated sand and localized concentrations of sandstone fragments. The stratum is roughly 50 cm thick in the northern half of the pitstructure where it fills a swale in Stratum II-4a. In the southern half of the pitstructure depression, Stratum II-5 interfingers with II-4b, with which it was apparently contemporaneous. Stratum II-4a, however, clearly predates Stratum II-5 and marks a period during which the depression was used only intermittently for refuse disposal. Somewhat later, more material began to be dumped into the depression. Natural filling of the southern half of the depression with colluvium continued during this period, resulting in the interfingering of the Strata II-4b and II-5 deposits.

The ceramic assemblages from Stratum II-5 and Stratum II-4 (a and b) reflect a temporal distinction (table 4.1). Stratum II-5 has a greater percentage of corrugated sherds than does II-4. Given the overall similarity of the 2 collections, however, it is likely that the 2 strata mark a period of continuous deposition over a period of no more than 100 years, and probably less. The most obvious differences in the ceramic collections from these strata, compared with those from the Pithouse 1 floor and Stratum II-2 (no sherds were recovered from II-3), are a slight increase in Mancos Gray and the appearance of corrugated sherds in quantity in Strata II-4 and II-5. This suggests that the break between the two assemblages occurred sometime between A.D. 900-950.

Stratum II-6.–Stratum II-6 is a 70-cm-thick deposit of friable, pale brown (10YR 6/3), ashy sand overlying Strata II-4, II-5, and II-3. For the most part, the stratum is structurally massive, although some portions show weak laminae, and small lenses of ash and culturally sterile sand occur intermittently. Inclusions of sandstone, charcoal, adobe, and artifacts give it a finely mottled appearance. A fireplace, originates at the contact of this stratum with Stratum II-7.

Above the breccia balk separating the pitstructures, sediments from Stratum II-6 merge with materials from Strata I-9b and I-10. However, this interface does not

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provide a basis for stratigraphic correlation of these deposits. The gradual blurring of the boundary between I-9b and I-10 as they feather into II-6 suggests that some material from these strata was transported by runoff and redeposited within II-6. If this is indeed the case, both Strata I-9b and I-10 must have been laid down before the deposition of II-6 began. Redeposition of sediments from Strata I-9b and I-10 alone could not have led to the buildup of II-6, however. Some of Stratum II-6 probably consists of refuse that was thrown into the pithouse depression, as suggested by the localized concentrations of charcoal, ash, adobe, and sandstone, the relative abundance of artifacts, and the general character of the sediments in this stratum. Perhaps of even greater significance in the buildup of Stratum II-6, however, was the redeposition of Stratum I-11 sediments in the Pithouse 1 depression.

During the initial stage of the deposition of Stratum I-11, most of the sediments transported by runoff from the overhang were trapped in Subarea 1 by the rubble of the retaining wall that created a mound across the lip of the rockshelter. During this period, the sediments within the shelter in Subarea 1 were protected from erosion. In Subarea 2, however, after the collapse of the south wall of Pithouse 1, much of the runoff from the shelter roof was channeled into the pithouse depression. This resulted in a rapid buildup of sediments in Subarea 2. Later, as the mound at the shelter lip in Subarea 1 began to channel more runoff into the western portion of the shelter, some transport and redeposition of Subarea 1 sediments probably occurred.

The isolated lenses of midden contained within Stratum II-6 are consistent with the interpretation, initially postulated on the basis of Stratum I-11 characteristics, that the shelter was used as a campsite during this time. Furthermore, the ceramic collection from Stratum II-6 shows an increase in the percentage of Mancos Corrugated similar to that observed in Strata I-10 and I-11. Considered singly, none of these arguments is conclusive, but together they suggest that a correlation of Stratum II-6 with Stratum I-11 is the most plausible interpretation of the available evidence.

Stratum II-7.–Stratum II-7 is a layer of light yellowish-brown (10YR 6/4) sand overlying Stratum II-6. The designation "II-7" is used here for convenience in describing the stratigraphic sequence, since this deposit is a continuation of Stratum I-11. This stratum contains few inclusions of charcoal and ash and appears to mark a fairly recent episode of colluvial deposition that postdates the burial of the cultural strata in Subarea 1 as well as in Subarea 2.

Stratum II-8.–Stratum II-8 is a loose, brown (10YR 5/3) sand layer that contains a high percentage of organic debris, fecal pellets, and artifacts. This stratum is a continuation of Stratum I-12 and consists of looter's spoil dirt derived from the roomblock or from the rear of the shelter.

Stratigraphic Unit III

To the east of Pithouse 1, the shelter becomes progressively shallower and less protected. Beyond the shelter, the dripline runoff flowing over the roof and the water flowing in a rill across the front of the shelter have acted in concert to erode the unconsolidated deposits. The sediments within the shelter cover a triangular area that measures roughly 5 m north-south along the east wall of Pithouse 1 and 6 m east from that wall. Since most of the strata in this portion of the site have been truncated by the construction of the pithouse and, therefore, cannot be correlated with deposits in other portions of the shelter, these sediments have been designated Stratigraphic Unit III (fig. 4.9).

The bedrock in this part of the shelter has nearly vertical bedding planes dipping toward the rear of the shelter. These planes have weathered to a jagged, downsloping stairstep of ledges and pockets. The bedrock is covered by a maximum of 1.5 m of stratified sediments. The strata are a mixture of midden, colluvium, and cave sediments, altered to varying degrees by an active seep emanating from the rear of the shelter.

Water from the seep has accelerated chemical weathering; consequently, cultural materials are poorly preserved. Near the rear wall of the shelter, the decay of organic matter from the phreatophytic vegetation supported by the seep has introduced organic colloids into the sediments, forming characteristic clay loam lenses. Overall, the natural depositional pattern appears to be one of sandy colluvial sediments interfingering with the finer-grained, organic-rich sediments within the depositional environment of the seep. Cultural deposition is limited to a few lenses of refuse.

Stratum III-1. – Stratum III-1 is a dark grayish-brown (10YR 4/2) sand deposited in a depression in the bedrock and truncated by the east wall of Pithouse 1. The sediment appears to be derived primarily from the weathered bedrock, although its dark color indicates the presence of decayed organic material and ash. The few artifacts found within the stratum suggest that some midden material may also be present.

Stratum III-2. – Stratum III-2 is a dark grayish-brown (10YR 4/2) sand overlying Stratum III-1 (where the latter is present) and resting on bedrock at the eastern limit of the excavation. This deposit appears to be primarily colluvial in origin but contains some midden and organic material. Incorporated into Stratum III-2 are weathered blocks of cave breccia, the remnants of a narrow breccia shelf that once adhered to the steeply sloping rear wall of the shelter.

Stratum III-3. – Stratum III-3 is a heterogeneous mixture of midden, colluvium (sand and sandy loam), and seep deposits overlying Stratum III-2. The midden deposits are primarily concentrated near the dripline adjacent to the east wall of Pithouse 1. The character of Stratum III-3 changes to the east in the vicinity of the seep. Near the seep, there is little midden material. The sediments are lighter in color, varying from light yellowish-brown to yellowish-brown (10YR 6/4-5/4), and have the familiar character of colluvial sediments. Laminae of organic material from the seep are present near the rear wall of the shelter where the stratum rests on bedrock.

Stratum III-4. – Stratum III-4 is a midden deposit overlying Stratum III-3 and, nearer the rear of the shelter, Stratum III-1. As in Stratum III-3, the artifacts in Stratum III-4 are concentrated near the eastern wall of Pithouse 1. In the area of the seep, the deposit is nearly sterile but retains its dark grayish-brown (10YR 4/2) color due to organic material contributed by the seep and to ash apparently carried by runoff water from Stratum III-4 sediments to the west.

All of these strata are truncated by the east wall of Pithouse 1, indicating that their deposition predates the construction of that structure. Unfortunately, this stratigraphic evidence is only weakly supported by the small ceramic assemblage recovered from these strata (table 4.1). The ceramic assemblage most closely associated with the occupation of Pithouse 1 is dominated by Moccasin Gray, with some Chapin Gray, Mancos Gray, and a few corrugated sherds. The corrugated sherds from the lower pitstructure fill were probably introduced through bioturbation. This likelihood is even stronger for the 3 corrugated sherds found in the lower strata of Stratigraphic Unit III; the deposits are very close to the surface, and several rodent burrows were observed during excavation.

The ceramic assemblage from Strata III-1 through III-4 contains 4 sherds of Chapin Gray, 5 sherds of Moccasin Gray, and 1 sherd of Mancos Gray. The remainder of the collection consists of plain gray body sherds, and a few unidentifiable sherds of Early Pueblo White and Early Pueblo Red. This suggests, albeit weakly, that these deposits are generally contemporaneous with the occupation of Pithouse 1.

These 2 seemingly contradictory pieces of evidence suggest that the midden materials from Stratigraphic Unit III, notably from Strata III-3 and III-4, were deposited shortly before Pithouse 1 was built, possibly in a conscious effort to fill the irregularities in that part of the shelter. Trash may have been intentionally dumped in this area, or material from an existing midden may have been redeposited to assure a firm backing for a planned pitstructure. In either case, the cultural material in these strata would be broadly contemporaneous with the construction and occupation of Pithouse 1.

Stratum III-5. – Stratum III-5 is a 10- to 40-cm-thick stratum of dark yellowish-brown to yellowish-brown (10YR 4/4-5/4 sand), sandy loam, and loamy sand overlying Stratum III-4. This stratum is a continuation of the colluvial sediments of Strata II-7 and I-11, and, therefore, is associated with the last sporadic occupation of the shelter. Since the upper surface of Stratum III-5 is the modern ground surface in this area of the shelter, the artifacts in the stratum were probably introduced by recent visitors to the cave. A small packrat midden within the stratum near the northeast corner of the Pithouse 1 depression indicates that rodents also introduced artifacts into Stratum III-5.

Stratigraphic Unit IV

Stratigraphic Unit IV is a midden deposit located on the steeply sloping hillside immediately in front of the shelter. This slope appears to have formed as sediments were washed over the roof of the rockshelter by runoff water from a large slickrock basin above the site. As water dropped from the shelter roof, the suspended sediments were deposited, building a steep, fanshaped slope, with the front of the shelter as its apex.

The strata (fig. 4.15) of this fan were exposed by a trench (Test Trench 2) cut into the slope from southeast to northwest (fig. 4.7). The trench was oriented at this unusual angle because a preliminary probe of the midden indicated that a trench so positioned would cut through the deepest and best-stratified deposits. Trench 2 cuts the slope obliquely so that its headwall (profile F) is nearly parallel to the dominant slope angle, while the long axis of the trench (profile E) is oriented with the fan's flared side slope.

Because of the high slope angle (30°, as measured on the subsoil) and the exposure of the slope, these deposits have been greatly affected by postdepositional erosive agents, notably gravity and sheet runoff. Gravity seems to have been primarily responsible for the differential downslope movement of larger fragments of material, which accounts for the unusual scarcity of artifacts in the midden. Most of the artifacts once present now l[illegible]er the canyon slope well below the site proper. Sheet runoff appears to have been responsible for blurring the stratigraphy of the midden. Auger transects indicate that distinct stratification is preserved only on the side slope of the colluvial fan where Trench 2 was located.

Vertical mixing of the strata, largely as a result of bioturbation, is also evident. The principal agent here seems to have been the root system of a thicket of scrub oak that covered the slope before being cleared at the start of excavations. Rodent burrowing is also evident, although less widespread.

Stratum IV-1. – Stratum IV-1 consists of a structurally massive, compact, brown (7.5YR 5/4) sand layer lying

between 50 and 150 cm below the modern ground surface. The stratum contains few artifacts, has no organic material, and is believed to be the natural subsoil. This judgment was based on the observation of a seemingly identical stratum in the walls of several drainage channels within a 1-km radius of the site. The artifacts were found in the upper few centimeters of Stratum IV-1 and were probably introduced by pedotrubation.

Stratum IV-2. – Stratum IV-2 is a yellowish-brown (10YR 5/6) loamy sand with varying structure and inclusions. At the top of the hill slope, Stratum IV-2 is structurally massive and tightly compacted and, by all appearances, consists of adobe melt (Stratum IV-2a). Further downslope, the melt grades into a deposit of weakly laminated bands of ashy sand with adobe and charcoal inclusions (Stratum IV-2b). The adobe melt appears to be the result of the erosion of a structure located near the shelter lip or the result of the dumping of debris cleared from a razed structure. In either case, sediments derived from the adobe were washed downslope and became mixed with midden material. A third facies, Stratum IV-2c, overlies these laminated sediments. This facies is a very dark grayish-brown (10YR 3/2) sand layer with a maximum thickness of 35 cm; it appears to be a refuse deposit.

Stratum IV-3. – Stratum IV-3 is a layer of structureless, dark grayish-brown (10YR 4/2), ashy sand, with a maximum thickness of 40 cm. The stratum is distinguished from Stratum IV-2c by numerous inclusions of pebble- to cobble-sized sandstone fragments, boulder-sized tabular sandstone blocks, and, near the top of the slope, several large blocks of adobe. Despite its thickness, Stratum IV-3 appears to have been rapidly deposited, probably as the result of the collapse of the south wall of Pithouse 1.

Stratum IV-4. – Stratum IV-4 is a stratum of dark grayish-brown (10YR 4/2) sand, massive in sedimentary structure and varying from 25 to 55 cm in thickness. The abundant ash and charcoal inclusions in the sandy matrix clearly indicate that this deposit is a midden. Near the top of the hill slope, Stratum IV-4 surrounds 2 large blocks of adobe that appear to be part of the rubble that comprises Stratum IV-3. This suggests that the deposition of Stratum IV-4 began soon after the deposition of Stratum IV-3. That Stratum IV-4 is continuous with the upper portion of Stratum II-6 indicates that its deposition dates to the later periods of the shelter's occupation.

Stratum IV-5. – Statum IV-5 is a surficial deposit of pale brown (10YR 6/3) sand overlying Stratum IV-4. The deposit varies in thickness from 5 cm at the base of the slope to 50 cm near the top of the slope. Where scrub oak grew, a weak soil horizon has formed. Stratum IV-

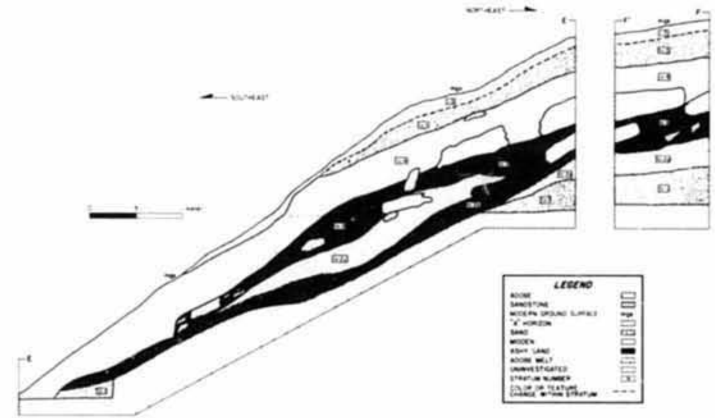

Figure 4.15 – Northwest-southeast and northeast-southwest profiles of Stratigraphic Unit IV, LeMoc Shelter. Profiles E and F are located in plan in figure 4.7.

5 is a continuation of Stratum II-7 (I-11 and III-5) and is largely a postoccupational deposit.

Surprisingly little information can be gleaned from the ceramics recovered from the hill slope midden. The total collection from the trench consists of only 408 sherds, and only 37 of these could be classified to type. Furthermore, approximately half of the total collection (203 sherds) was recovered from a single stratum, Stratum IV-4. Consequently, the correlation of these strata with those representing the occupation of the shelter is tenuous. The upper 2 strata in Stratigraphic Unit IV are continuous with strata within the shelter. These 2 strata, the relative position of all strata within this unit, and the character of the sediments themselves remain the only basis for correlation.

Correlation and Dating

Considerable care was taken during the excavation of LeMoc Shelter to obtain samples for a variety of absolute dating techniques. Despite these efforts, however, only a weak and very fragmentary absolute chronology could be obtained. Consequently, correlation of strata among the 4 stratigraphic units relies heavily on comparisons of the ceramic assemblages from the strata and on assessments of relative similarities among strata. Dating of each successive occupation is based primarily on the temporal periods attributed to the various ceramic types. For both tasks, stratigraphic position is used whenever possible as an additional line of evidence. The equivocal evidence provided by the few absolute dates is useful primarily in establishing baseline dates for Stratigraphic Units I and II.

Chronometric Dates

Four tree-ring and three archaeomagnetic samples yielded dates for LeMoc Shelter (tables 4.2 and 4.3). The reliability of the tree-ring dates is diminished since there is no way to determine how far the dated ring is from the true outside ring in any of the samples. The problem with the archaeomagnetic dates is conceptually similar. (Refer to Hathaway and Eighmy [1982] for a discussion of archaeomagnetic dating.) The sandy sediments of the cave contain only a small amount of the clay-sized particles necessary to maintain a good magnetization (cf. Eighmy 1980). Consequently, the plotted positions of the 12 specimens that comprise each sample were only loosely clustered, resulting in an unusually high error . The problem is further compounded because the defined by these clusters intercept the master curve more than 1 point. Therefore, several possible dates must be ascribed to a single sample. Given these problems, few of the dates obtained from LeMoc Shelter can be accepted at face value. At best, they can be considered as supportive evidence for the ceramic dating.

Pithouse 2. – Three of the seven samples that yielded dates were collected from Pithouse 2. The sample that yielded the earliest date, tree-ring sample DAR-144, was obtained from a small, charred timber found lying on the floor. The A.D. 482vv date for the outside ring is too early for the occupation of Pithouse 2, given the pitstructure's architectural style and the composition of its ceramic assemblage. However, the date does raise the intriguing possibility that the shelter was occupied during the Basketmaker II period and that the timber was later reused in the construction of Pithouse 2. If this were the case, all other evidence of occupation during that period

Table 4.2 – Tree-ring sample results, LeMoc Shelter

Sample No.	Provenience	Taxon	Inside date (A.D.)	Outside date (A.D.)
10 (DAR-52)	Pithouse 1	Juniper	609fp	803+vv
23 (DAR-144)	Pithouse 2, Floor 1	Pinyon	407fp	482vv
25 (DAR-146)	Pithouse 2, Floor 1	Pinyon	562fp	700++vv
26 (DAR-147)	Room 12	Juniper	557	702vv

DAR numbers, taxa, dates, and the following tree-ring symbols were provided by the Laboratory of Tree-Ring Research, University of Arizona, Tucson:

No symbol - No pith ring present (inside date).
fp - The curvature of the inside ring indicates that it is far from the pith.
vv - No way of estimating how far the last ring is from the true outside.
\+ - One or more rings may be missing near the end of the ring series whose presence or absence cannot be determined because the specimen does not extend far enough to provide an adequate check.
++ - A ring count is necessary due to the fact that beyond a certain point the specimen could not be dated.

Table 4.3 – Archaeomagnetic sample results, LeMoc Shelter

Sample No.	Provenience	Date (A.D.)
9	Room 1	1265 (± 55)
		1050 (± 55)
12	Room 11	875 (± 50)
		1060 (± 50)
		1320 (± 50)
		1440 (± 50)
13	Pithouse 2, Feature 58	690 (± 30)
		755 (± 30)
		880 (± 30)
		930 (± 30)

has been destroyed during the course of later occupations. Consequently, the hypothesis can be accorded little weight. It is equally possible that an already dead tree was procured for use in the construction of Pithouse 2 or that the dated specimen was the inner core of a much larger log from which numerous outer rings had been lost.

The second sample from Pithouse 2 (tree-ring sample DAR-146) was obtained from a charred timber lying on the floor near the east wingwall. The A.D. 70++vv date yielded by this sample appears more reliable than the date obtained for sample DAR-144.

The ceramics found on the floor of the pitstructure were primarily Chapin Gray with a few sherds of Moccasin Gray, Early Pueblo White and Early Pueblo Red were present, with Bluff Black-on-red being the only specifically identifiable type. The appearances of Bluff Black-on-red and Moccasin Gray in the Dolores area are dated to A.D. 740 and A.D. 760, respectively. Since neither of these types is present in quantity in the assemblage from Pithouse 2, the occupation of the pithouse probably roughly overlaps with the introduction of these ceramic types. The A.D. 700 date for sample DAR-146, therefore, appears to be only slightly early. Given that an unknown number of outside rings were missing from this timber, the true cutting date would be somewhat later – possibly within the range indicated by the ceramic evidence.

An archaeomagnetic date of A.D. 755 ± 30 was yielded by archaeomagnetic sample 13, collected from the hearth in Pithouse 2; this date is most compatible with the ceramic dating. Since the ceramic assemblage remains essentially unchanged in the 4 strata immediately overlying the pithouse floor, the abandonment date likely falls within the upper range of the archaeomagnetic date. Based on a preliminary evaluation of DAP pitstructures, Lipe and Breternitz (1980) estimate that pitstructures in the Dolores area had use spans of 1 generation or less, or about 20 to 30 years. If this estimate is correct, the dating of the hearth suggests that the pithouse was probably occupied between A.D. 750 and 780.

Room 12. – If the date estimated for the construction of Pithouse 2 is accepted, the A.D. 702vv tree-ring date obtained for a timber in the roof fall of Room 12 (tree-ring sample DAR-147) is much too early; stratigraphically, this structure clearly postdates the abandonment of Pithouse 2. The ceramic assemblages from the floor and roof fall (Stratum I-5) of Room 12 are characterized primarily by equal quantities of Chapin Gray and Moccasin Gray sherds. Although the collection is too small to yield a reliable ceramic date by itself, the ratio of these 2 types is consistent with the changes observed in the ceramic frequencies of Stratigraphic Unit 1 (fig 4.16). In the Dolores area, Moccasin Gray is assigned a date range of A.D. 760-925. Assuming the popularity of this type follows a characteristic battleship curve, Moccasin Gray should become the dominant type between approximately A.D. 820 and 860. In relation to the tree-ring date, this implies that either a number of outside rings are missing from the dated timber or that the timber had been salvaged from an earlier building and was reused in Room 12.

Pithouse 1. – A single tree-ring date of A.D. 803+vv was obtained for Pithouse 1 (sample DAR-52) from wood found lying horizontally within roof fall. The size of the fragment, and the fact that the tree from which it was obtained was probably considerably more than 200 years old when cut (based on the observation that the inside ring is far from the pith and that an unknown number of outside rings are missing), suggests that sample DAR-52 was originally part of a fairly large log. Both the size and provenience of the sample suggest that it was either a roof support post or a primary roof beam. If this reasoning is sound, the date should be associated with the initial construction of the pitstructure. Because the dated ring was not an outside ring, the construction of Pithouse 1 must postdate A.D. 803.

Moccasin Gray is the predominant utility ware in the ceramics recovered from the floor of the pitstructure, and except for 2 corrugated sherds, no later gray wares were present. Following the argument presented in the previous section, this suggests a beginning occupation date of roughly A.D. 840 for Pithouse 1. A somewhat later date is indicated by the ceramics recovered from roof fall (Stratum II-2). Included in this collection are a few Mancos Gray and Corrugated Body Sherds. The dates generally given for the appearance of these types are A.D. 860 and A.D. 900, respectively. Since neither of these types was present on the floor of the pitstructure, their presence in roof fall is likely a result of a mixing of Stratum II-2 with later strata or is a result of material having been dumped into the depression after the collapse of the roof. In either case, these sherds probably postdate the occupation of the pitstructure. Therefore, a date of A.D. 860 is postulated for the abandonment of Pithouse 1.

Room 11. – A second archaeomagnetic sample was collected from a burned wall of Room 11 (sample 12). Four possible dates are given for this sample: A.D. 875, 1060,

Figure 4.16 - Distributions of major ceramic types and groups in Stratigraphic Units I and II, LeMoc Shelter. Note the general similarity of the plots to idealized seriation curves. Numbers of corrugated sherds are a summation of both body sherds and sherds that could be identified to type. Early white wares include Chapin Black-on-white, Piedra Black-on-white, and untypeable white ware ceramics that do not have sherd temper. Late white wares include Cortez Black-on-white, Mancos Black-on-white, and untypeable white wares with sherd temper. Percentages were calculated across the listed types to avoid constraint that would have been caused by the large numbers of untypeable gray ware body sherds.

1320, or 1440, all with an error range of ± 50 years. The 2 latest dates are clearly too late since the Dolores area appears to have been abandoned around A.D. 1100, and the entire Mesa Verde Region probably was abandoned around A.D. 1300. The A.D. 1060 date also seems too late to be associated with the abandonment of Room 11. Although the ceramic collection from Room 11 is too small to be totally reliable, Moccasin Gray appears to be the predominant gray ware, with both Chapin Gray and Mancos Gray also present. The composition of this assemblage is consistent with the stratigraphic position of Room 11, and together, these lines of evidence suggest that the structure was used between A.D. 860 and 890. Therefore, the earliest of the possible archaeomagnetic dates, A.D. 875, seems most likely for the occupation of Room 11.

Room 1. - The third archaeomagnetic date for LeMoc Shelter was obtained from a sample (sample 9) collected from an oxidized area on the floor of Room 1. A lens of ash and charcoal overlay this oxidized area and was mounded against the south wall of the room. This deposit covered a posthole located in the south-central part of the floor, which suggests that the fire postdates the collapse of the room's superstructure. If this is the case, this date is associated with a later period of the shelter's use rather than with the occupation of the room.

Two possible dates were obtained for archaeomagnetic sample 9: A.D. 1050 ± 55 and A.D. 1265 ± 55. Based on the ceramics found in the disturbed fill of Room 1, the earlier of these dates seems the most likely. As will be discussed, this date is probably tied to late, sporadic Anasazi use of the shelter.

Ceramic Dating[1]

Although ceramic data were used in the previous section to evaluate the absolute dates obtained for LeMoc Shelter, problems with ceramic dating need to be discussed before appraising the remainder of the site. Perhaps the most vexing of these problems is that less than 10 percent of the sherds recovered from any stratum can be identified to type. Consequently, in dating a stratum or in associating it with another deposit, a judgment must often be made from, at most, a few dozen sherds. In most cases this means that only the gray wares can be used since very few of the red wares and white wares (which already constitute only a small fraction of the total collection) can be identified to type.

[1]Subsequent to the preparation of this report, research has resulted in modifications of the ceramic dating of LeMoc Shelter. These modifications are reported in appendix 4A. A summary of the temporal assignments for LeMoc Shelter is presented in appendix 4B.

A second complication, precipitated by the repeated reoccupation of the shelter, is that earlier materials are constantly being incorporated into later deposits as structures are built, rebuilt, and remodeled. As a result, the presence of early types is significant only when later types are absent. Furthermore, the relative abundance of a given type is often misleading with regard to dating. This is particularly true of the last occupations of the shelter, which were of short duration and during which probably fairly small quantities of material (relative to those from the earlier periods) were introduced.

Although not as dramatic as the upward movement of material, the downward mixing of artifacts is a third problem. Here, natural rather than cultural processes seem to have been primarily responsible. Chief among these processes appear to have been faunal disturbance (especially rodent burrowing) and trampling. While the effects of pedoturbation are limited, the introduction of even a few pieces of a later ceramic type into a collection with only a small number of typeable sherds can be misleading; in some cases, this has made it impossible to unambiguously associate a stratum with any particular period of the shelter's occupation.

Given these complications, the most reliable ceramic dates for the LeMoc Shelter deposits are those based on the first occurrence of a ceramic type. Since some downward mixing was assumed for all deposits, however, the presence of a few sherds of the type in question was generally discounted unless there was supporting evidence that the sherds could not have been introduced by mixing with later deposits. In all cases, dates were consistent with the relative chronologies evident in the stratigraphy and with the other ceramic types present in the collection.

The relative abundance of a type was used only to obtain approximate dates for strata that fell between dates for the appearances of types. In these cases, it was assumed that the popularity of a type rises and falls as a normal or battleship curve, reaching maximum popularity roughly midway through the dated range for each type. Some adjustments had to be made, however, for skewing caused by the intermixing of materials from both earlier and later occupations by various disturbance processes.

The initial occurrences of 5 ceramic types (Moccasin Gray, Bluff Black-on-red, Mancos Gray, Cortez Black-on-white, and Mancos Corrugated) proved useful for dating the occupations of the shelter. As discussed previously, the appearance of Moccasin Gray and Bluff Black-on-red seem to coincide with the abandonment of Pithouse 2, the earliest documented occupation of the shelter. In the Dolores area, the appearance of Moccasin Gray is dated to A.D. 760 and the appearance of Bluff Black-on-red to A.D. 740. These dates are in general agreement with the archaeomagnetic date obtained for the hearth in Pithouse 2; therefore, the abandonment of Pithouse 2 is estimated to have occurred about A.D. 780.

A single Mancos Gray sherd (an initial date of A.D. 860) was recovered from Stratum I-5, the roof fall of Room 12. Mancos Gray is not common until Stratum I-6. Based on this evidence and on the quantity of Moccasin Gray found in the ruined structure, the occupation of Room 12 is estimated to date to about A.D. 850.

The ceramic collections from deposits underlying Room 12 in Stratigraphic Unit I (Strata I-1 through I-4) show little change from the assemblage from the floor of Pithouse 2 other than the increased popularity of red wares (fig. 4.16). The percentages of Moccasin Gray consistently remain at a low level, and Chapin Gray remains the dominant utility ware. This apparently contradicts the assumption that the popularity of a ceramic type will uniformly increase following its introduction. The sudden rise in the popularity of red wares in Stratum I-1 is surprising and somewhat anomalous, as is the consistently low percentage of Moccasin Gray, which does not significantly increase in popularity until Stratum I-5. These observations suggest that the model of the changing popularity of ceramic types is at fault; or, for some reason, is not applicable to this case; or, if the low percentage of Moccasin Gray is heavily weighted, it is possible that Strata I-1 through I-4 were deposited in a fairly short period and that there is a depositional hiatus between their deposition and the construction of Room 12. The last alternative seems most likely.

In Stratigraphic Unit II, Mancos Gray first appears in Stratum II-2. As explained previously, these sherds, having been deposited as trash soon after the roof collapsed or having been mixed into Stratum II-2 from Stratum II-4 through soil perturbation, are assumed to postdate the abandonment of Pithouse 1. The ceramics from the pitstructure floor suggest an occupation date of about A.D. 850, based primarily on the predominance of Moccasin Gray in that assemblage. The abandonment of Pithouse 1, and, therefore, at least part of the occupation of that structure, appears to coincide with the occupation and abandonment of Room 12.

The third ceramic horizon is characterized by the appearance of Cortez Black-on-white, which is dated to A.D. 890. In Stratigraphic Unit I, Cortez Black-on-white first appears in Stratum I-8 (table 4.1). As explained in the stratigraphic description, Stratum I-8 appears to postdate the construction of Rooms 11 and 13, since the made from, at most, a few dozen sherds. In most cases this means that only the gray wares can be used since very few of the red wares and white wares (which already constitute only a small fraction of the total collection) can be identified to type.

A second complication, precipitated by the repeated reoccupation of the shelter, is that earlier materials are constantly being incorporated into later deposits as structures are built, rebuilt, and remodeled. As a result, the presence of early types is significant only when later types are absent. Furthermore, the relative abundance of a given type is often misleading with regard to dating. This is particularly true of the last occupations of the shelter, which were of short duration and during which probably fairly small quantities of material (relative to those from the earlier periods) were introduced.

Although not as dramatic as the upward movement of material, the downward mixing of artifacts is a third problem. Here, natural rather than cultural processes seem to have been primarily responsible. Chief among these processes appear to have been faunal disturbance (especially rodent burrowing) and trampling. While the effects of pedoturbation are limited, the introduction of even a few pieces of a later ceramic type into a collection with only a small number of typeable sherds can be misleading; in some cases, this has made it impossible to unambiguously associate a stratum with any particular period of the shelter's occupation.

Given these complications, the most reliable ceramic dates for the LeMoc Shelter deposits are those based on the first occurrence of a ceramic type. Since some downward mixing was assumed for all deposits, however, the presence of a few sherds of the type in question was generally discounted unless there was supporting evidence that the sherds could not have been introduced by mixing with later deposits. In all cases, dates were consistent with the relative chronologies evident in the stratigraphy and with the other ceramic types present in the collection.

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The ceramic collections from deposits underlying Room 12 in Stratigraphic Unit I (Strata I-1 through I-4) show little change from the assemblage from the floor of Pithouse 2 other than the increased popularity of red wares (fig. 4.16). The percentages of Moccasin Gray consistently remain at a low level, and Chapin Gray remains the dominant utility ware. This apparently contradicts the assumption that the popularity of a ceramic type will uniformly increase following its introduction. The sudden rise in the popularity of red wares in Stratum I-1 is surprising and somewhat anomalous, as is the consistently low percentage of Moccasin Gray, which does not significantly increase in popularity until Stratum I-5. These observations suggest that the model of the changing popularity of ceramic types is at fault; or, for some reason, is not applicable to this case; or, if the low percentage of Moccasin Gray is heavily weighted, it is possible that Strata I-1 through I-4 were deposited in a fairly short period and that there is a depositional hiatus between their deposition and the construction of Room 12. The last alternative seems most likely.

In Stratigraphic Unit II, Mancos Gray first appears in Stratum II-2. As explained previously, these sherds, having been deposited as trash soon after the roof collapsed or having been mixed into Stratum II-2 from Stratum II-4 through soil perturbation, are assumed to postdate the abandonment of Pithouse 1. The ceramics from the pitstructure floor suggest an occupation date of about A.D. 850, based primarily on the predominance of Moccasin Gray in that assemblage. The abandonment of Pithouse 1, and, therefore, at least part of the occupation of that structure, appears to coincide with the occupation and abandonment of Room 12.

The third ceramic horizon is characterized by the appearance of Cortez Black-on-white, which is dated to A.D. 890. In Stratigraphic Unit I, Cortez Black-on-white first appears in Stratum I-8 (table 4.1). As explained in the stratigraphic description, Stratum I-8 appears to postdate the construction of Rooms 11 and 13, since the

deposits of Stratum I-8 are piled against the walls of the 2 structures. Stratum I-8 may be a small midden associated with the occupation of the two structures. The presence of Cortez Black-on-white in Stratum I-8 suggests that occupation of Rooms 11 and 13 may date to as late as A.D. 890. The presence of Cortez Black-on-white in Stratum I-9, which includes the collapsed rubble of Room 13 and the midden deposits associated with the room's occupation, supports this argument.

An initial date for the occupation of these structures can be estimated on the basis of stratigraphic relationships within Stratigraphic Unit I. The abandonment of Room 12 is dated to about A.D. 860 based on the occurrence of Mancos Gray in Stratum I-6. If this date is correct, the occupation hiatus indicated by the deposition of Strata I-6 and I-7 would push the initial occupation of Rooms 11 and 13 to within the A.D. 875-880 range, which corresponds well with the archaemagnetic date obtained for sample 12 from Room 11.

The final ceramic horizon is marked by the appearance of Mancos Corrugated at about A.D. 900. In Stratigraphic Unit I, corrugated sherds first appear in quantity in Stratum I-10 following an occupational hiatus indicated by the deposition of the sandy facies (I-9c) of Stratum I-9. This hiatus, and the relatively high frequency of Mancos Corrugated in Stratum I-10, suggests that this occupation, which includes the Occupation Area 2 and 3 use surfaces, dates to somewhat later than A.D. 900.

Subsequent use of the shelter is represented by a few isolated late Pueblo ceramic types. Both Dolores Corrugated and Mesa Verde Corrugated sherds were present, indicating occasional use as late as A.D. 1150. The rarity of these later types, however, indicates that this latest prehistoric use of the shelter was brief and infrequent.

The most abundant of the later ceramic types is Mancos Black-on-white, which first appears in the project area at about A.D. 1000. This date correlates reasonably well with the A.D. 1050 ± 55 archaeomagnetic date obtained for Room 1. By A.D. 1000, however, a predominance of corrugated over neckbanded ceramic types should have occurred. Since this is not the case in Strata I-10 and I-11, these strata appear to date prior to A.D. 975. It is possible, however, that relatively few sherds were introduced during these late occupations when the use of the shelter appears to have been light and seasonal. If this were the case, the earlier types introduced during the later occupation as the result of disturbance might overwhelm the later material, making the total assemblage appear older than it actually is.

It seems unlikely, however, that the minimal disturbance associated with occupation of the shelter for no more than a few weeks at a time would be sufficient to introduce so large a number of earlier sherds as would be needed to account for the number and relative percentages evident in Strata I-10 and I-11. Therefore, based on the ceramic assemblages and the archaeomagnetic date from Room 1, sporadic occupation of LeMoc Shelter is estimated to have continued until about A.D. 1050/1150.

In Stratigraphic Unit II, Mancos Corrugated first appears in quantity in Stratum II-4. As previously noted, however, this stratum appears to span 2 temporal periods, although this was not recognized until late in the excavation of the stratum. Consequently, material from the 2 periods was mixed. Stratigraphically, the lower portion of Stratum II-4 (II-4a) is largely confined to the western third of Pithouse 1. In an effort to segregate the 2 components of Stratum II-4, the ceramics from this area were tallied separately from the rest of the stratum. The results (table 4.4) conformed closely to expectations. Moccasin Gray is the dominant type in Stratum II-4a, although Mancos Gray is also present and corrugated sherds make up only a small fraction of the collection. In contrast, Stratum II-4b has over 20 percent corrugated sherds, which is similar to the frequency of corrugated sherds in Stratum II-5. The A.D. 900 date associated with the appearance of corrugated ceramics, therefore, is believed to fall at the contact of Strata II-5 and II-4b with Stratum II-4a. Tentatively then, the occupation of Rooms 11 and 13 in Stratigraphic Unit I can be associated with the deposition of Stratum II-4a.

The Cultural Sequence

Figure 4.17 is a schematic summation of the stratigraphic, ceramic, and chronometric information discussed in preceding sections. These data suggest that there were 4 and possibly 5 distinct occupations (elements) at LeMoc Shelter during the Anasazi period. At A.D. 750, the earliest clearly recognizable occupation is that of Pithouse 2. Although no other deposits can be clearly associated with this occupation, Stratum IV-2 in the slope midden may also date to this period. The evidence, however, is weak. Discounting the 2 corrugated sherds as having been introduced by pedoturbation, the assemblage of ceramics appears to be quite early, consisting primarily of plain gray, early white, and early red wares. With the exception of one Chapin Gray sherd, however, none of the gray wares could be identified. The tentative association of Stratum IV-2 with Pithouse 2 rests on the absence of later wares, on stratigraphic position, and on the presence of Abajo Red-on-orange, a red ware that dates to between A.D. 720 and 925 in the Dolores area.

Pithouse 2 was abandoned about A.D. 780. Between that date and the next recognizable occupation period, 2 layers of trash, Strata I-2 and I-4, were dumped into the depression of Pithouse 2, interfingering with strata of colluvial sediments and adobe melt slumped from the walls of the pitstructure (Strata I-1 and I-3). The ceramic assemblages from these strata are quite uniform and appear to be similar to the assemblage found on the floor of Pithouse 2, except for a cumulative increase in the quantity of red ware sherds. Assuming that after its introduction at about A.D. 760, Moccasin Gray steadily increased in popularity, the apparent dominance of Chapin Gray in these strata suggests they were laid down before about A.D. 820.

The Strata I-2 and I-4 middens present an interesting problem. These middens were deposited after the abandonment of Pithouse 2 but before the occupation of Pithouse 1; however, none of the domiciles found at LeMoc

Table 4.4 – Comparison of ceramic frequencies for Stratum II-4a and Stratum II-4b deposits, LeMoc Shelter

Ceramic types	Stratum II-4a		Stratum II-4b*	
	N	%	N	%
Chapin Gray	0	0	1	1.1
Moccasin Gray	13	7.7	1	1.1
Mancos Gray	8	4.7	2	2.2
Early Pueblo Gray	127	75.1	4[illegible]	50.6
Mancos Corrugated	0	0	3	3.4
Corrugated Body Sherds	4	2.4	20	22.5
Early Pueblo White†	8	4.7	6	6.7
Cortez Black-on-white	1	0.6	1	1.1
Mancos Black-on-white	1	0.6	1	1.1
Red ware	7	4.1	9	10.1
Total	169	100.0	89	100.0

*Data presented for Stratum II-4b reflects some mixing of II-4b and II-4a materials.
†includes Piedra Black-on-white.

	STRATIGRAPHIC UNIT I	STRATIGRAPHIC UNIT II	STRATIGRAPHIC UNIT III	STRATIGRAPHIC UNIT IV
MODERN	STRATUM I-12	STRATUM II-8		
A.D. 950	STRATUM I-11	STRATUM II-7	STRATUM III-5	STRATUM IV-5
	OCCUPATION AREA 3	STRATUM II-6		STRATUM IV-4
A.D. 925	STRATUM I-10			
	OCCUPATION AREA 2/RETAINING WALL	STRATUM II-5, STRATUM II-4b		
	STRATUM I-9			
A.D. 900	STRATUM I-8 ROOM 11, ROOM 13	STRATUM II-4a		
A.D. 875	STRATUM I-7			
	STRATUM I-6	STRATUM II-3		STRATUM IV-3
	STRATUM I-5	STRATUM II-2		
A.D. 850	ROOM 12, OCCUPATION AREA 1	PITHOUSE 1	STRATUM III-4	
	STRATUM I-4	STRATUM II-1	STRATUM III-3	
	STRATUM I-3		STRATUM III-2	
	STRATUM I-2		STRATUM III-1	
	STRATUM I-1			
A.D. 800	PITHOUSE 2			STRATUM IV-2
A.D. 750–780				STRATUM IV-1

Figure 4.17 – Schematic summary of probable chronological, stratigraphic, and cultural correlations among the four stratigraphic units at LeMoc Shelter.

Shelter date to this period. The most plausible explanation is that some sort of domicile had been built in Subarea 2, all traces of which were destroyed during the construction of Pithouse 1. This interpretation is purely speculative. Nevertheless, the deposition of Strata I-2 and I-4 does indicate that use of the shelter continued after the abandonment of Pithouse 2 but before the occupation of Pithouse 1; however, if the estimated dates are correct, there may have been an occupational hiatus between A.D. 820 and 840.

The second recognizable element in the sequence at LeMoc Shelter appears to be marked by the occupation of Pithouse 1, and later, of Room 12, beginning about A.D. 840 and continuing until approximately A.D. 860. This latter date is fixed for both structures by the appearance of Mancos Gray in the strata immediately overlying the ruins of those structures, while the initial dates are estimates based on the predominance of Moccasin Gray within the ruined structures themselves. The cultural deposits from Stratum II-1 and from Strata III-1 through III-4 are tentatively associated with this occupation as well, based on the similarities of their ceramic assemblages and on stratigraphic evidence that they are associated with the construction of Pithouse 1. A second short occupational hiatus appears to have followed the abandonment of these structures, as inferred from the depositional character of the sandy facies of Strata I-6, I-7, and II-3. Stratum IV-3 in the slope midden also may have been deposited during this period, since the structural debris comprising the stratum is most readily explained as resulting from the collapse of the south wall of Pithouse 1.

The third element at LeMoc Shelter is dated to sometime between A.D. 875 and 890; the latter date is based on the appearance of Cortez Black-on-white. In Stratigraphic Unit I, this period is marked by the occupation of Rooms 11 and 13 and by the deposition of the Stratum I-8 midden. The deposition of Stratum I-8 appears to have continued after the abandonment of these structures, since the deposit partially covers adobe melt from both the east wall of Room 11 and the south wall of Room 13. Although there is no direct evidence for it, it seems plausible that this later deposition is associated with the brief occupation of Room 11 after it was remodeled or rebuilt.

In Stratigraphic Unit II, this period is represented by trash disposal in the lower portion of Stratum II-4 (II-4a). The intercalation of midden and colluvium in Stratum II-4a, the presence of small sterile sand lenses in Stratum I-8, and the size and character of the structure being occupied suggest a marked change in the use of the shelter from year-round habitation to seasonal occupation. This impression is further supported by the fact that all of the refuse apparently was dumped within the shelter, suggesting that less space was required for the activities conducted during this period.

This occupation apparently was followed by a period of infrequent use during which the colluvial sand and ashy sand facies of Stratum I-9 were deposited. Unfortunately, no deposit in Stratigraphic Unit II can be identified to unambiguously support this hypothesis. Rather, this period appears to be associated with the deposition of a portion of Stratum II-4 that reflects the accumulation of sand in only a part of the depression. When trash was dumped there again during Element 4, the interfingering of midden and colluvial deposits typical throughout Strata II-4 and II-5 masked this specific event.

Element 4 includes Occupation Area 2, the retaining wall, Stratum I-10, and Occupation Area 3. The occupations after A.D. 900 are difficult to date precisely since no clear ceramic marker is available for bracketing these later deposits. However, if A.D. 1050/1150 is accepted as a terminal date for Anasazi use of the shelter, as was argued earlier, estimating dates for the last two elements should be possible by assuming a steady increase in the popularity of corrugated ceramics after their appearance at A.D. 900.

In Stratigraphic Unit I, the abandonment of Rooms 11 and 13 is dated to about A.D. 890. By the time of the occupation marked by Stratum I-10, corrugated sherds accounted for about 12 percent of the total ceramic collection. In Stratigraphic Unit II, this occupation is associated with Strata II-4b and II-5. Corrugated sherds constitute about 20 percent of the combined ceramic collection from these deposits. If the percentage of corrugated sherds is assumed to have been between 1 and 5 percent at A.D. 900 and between 60 to 70 percent by A.D. 1000, a date range between A.D. 920 and 930 is suggested for the Element 4 occupation.

Element 4 marks a second decrease in the frequency and intensity of the shelter's occupation. The only architectural feature associated with this element is the retaining wall built across the front of the shelter. Initial occupation during this period is marked by a use surface (Occupation Area 2, Surface 1) at the base of Stratum I-10, which is at about the same level as the basal course of the retaining wall. Several pits and slab-lined fireplaces originated at several different levels within Stratum I-10. A second use surface (Occupation Area 3), preserved near the interface between Strata I-10 and I-11, probably marks the last occupation during this element. During this time, LeMoc Shelter probably was occupied for no more than a few weeks at a time and by fairly small groups. Since the locality had been abandoned by this time, the shelter was probably used as a resource procurement camp by people who were settled in the McPhee Village area located approximately 7 km south of LeMoc Shelter. The cave was probably used seasonally during this time.

The final element (Element 5) at LeMoc Shelter is marked by a few scattered hearths and artifacts within Stratum I-11 and by some light trash disposal in Strata II-6, II-7, and III-5. During this period, the shelter seems to have been used sporadically as a campsite, probably for no more than a few days at a time. Using the same rationale as that used to estimate a date for Stratum I-10, the occupation represented by the deposition of Stratum I-11 would date to between A.D. 930 and 950, based on the 18 to 29 percent of corrugated sherds in these strata. This conclusion corresponds well with the latest occupations of the McPhee area and the abandonment of the project area by the Anasazi. The archaeomagnetic date of A.D. 1050 for Room 1 and the presence of small amounts of later Anasazi ceramic types at the shelter suggest that usage may have continued at a very low level until A.D. 1050, with infrequent use of the shelter as late as A.D. 1150. However, after A.D. 950 use of the shelter was a rare occurrence.

The occupational history of LeMoc Shelter mirrors, in microcosm, the changing settlement system in Grass Mesa Locality. In terms of DAP temporal systematics (Kane 1981a), the Element 1 remains at LeMoc Shelter are most characteristic of the late Sagehill Subphase (A.D. 700-780), although some Element 1 strata deposited subsequent to the abandonment of Pithouse 2 may date to as late as A.D. 820, which corresponds to the Dos Casas Subphase (A.D. 760-850). Element 2 is assigned to the late Dos Casas and early Periman Subphases (the latter corresponds roughly to the A.D. 850-900 time period), and Element 3 is assigned to the Grass Mesa Subphase (A.D. 880-925). The Cline Subphase (A.D. 900-975) is represented at LeMoc Shelter by Elements 4 and 5, although, based on the late Puebloan ceramics recovered from Stratum I-11 and on the archaeomagnetic date of A.D. 1050 for Room 1, occasional use of the shelter during Element 5 appears to have extended into the early Marshview Subphase (A.D. 1050-1125) as well. In terms of the Pecos Classification, Elements 1, 2, and 3 fall within the Pueblo I period, and Elements 4 and 5 correspond to the Pueblo II period, with some overlap, in the case of the latter, into the early Pueblo III period.

ARCHITECTURE AND OTHER FACILITIES

This section describes the architecture and other cultural features associated with each element recognized at LeMoc Shelter. Although the primary purpose of the section is to describe the cultural units at the site, an effort is made to determine the aboriginal use of each unit and, through these interpretations, to determine the range of activities performed at LeMoc Shelter. Whenever possible, the evidence provided by portable artifacts found in association with the features is used as supplementary data. Finally, the relationships among the structures, features, and artifact distributions are used to reconstruct, as fully as possible, the spatial organization of activities within the confines of the shelter.

The Roomblock and Associated Facilities

Discussion of the temporal provenience of the roomblock has been deferred until now because the architectural detail, rather than stratigraphy or ceramics, provides the most reliable evidence for dating this group of structures. Stratigraphically, the material mantling the roomblock is continuous with Strata I-12, II-8, and II-9. The presence of perishable material in these strata strongly suggests they were originally part of the roomblock fill. Given the pattern of water flow and seepage within the shelter, the only sediments likely to remain dry enough to preserve organic materials would be those overlying the breccia foundation of the roomblock. Strata I-12 and II-8, and much of the material in Area 5, therefore, must have been recently redeposited in their current positions. This redeposition is believed to have been the result of periodic looting of the shelter; therefore, the stratigraphic position of the roomblock fill provides little information concerning the age of the roomblock.

Despite the fact that the fill of the roomblock has been badly disturbed, the total ceramic assemblage from this material seems consistent with the depositional sequence evident in Stratigraphic Unit I. Approximately 15 percent of the collection consists of corrugated sherds, which suggests that part of the roomblock fill accumulated during the final elements of the cave's occupation. Since almost all of the sediments in the roomblock are spoil dirt, however, this assignment applies only to the artifacts themselves; it does not date the roomblock. Therefore, the architectural details of the rooms provide the only means of dating the roomblock. Similarly, functional interpretations must be made exclusively from architectural evidence.

The roomblock is composed of 10 rooms arranged in 2 tiers (fig. 4.18). Five of the rooms were built atop a breccia platform near the back of the rockshelter. The remaining rooms are arrayed in an arc in front of the platform, using its face for their rear walls. Rooms are numbered from west to east beginning with the lower (front) tier.

The rooms are generally square to rectangular in outline, with an average area of about 2.8 m^2 (table 4.5). The floor of each room is the base of a depression dug into the cave breccia; the floors range in depth from a few centimeters to over half a meter below modern ground surface. In the lower tier of rooms, the face of the breccia platform was shaped to form the lower part of the rear walls and,

to some extent, the side walls of the rooms. The lip of cave breccia around the perimeter of each room probably served as a footing for the walls. From the fragments of building material noted during excavation, these walls appear to have been constructed of adobe with a binder of coarsely chopped grass and cornstalks. Some fragments of sandstone were incorporated into the adobe matrix, but no evidence of coursed masonry was observed. Although the walls of the rooms are believed to have been contiguous, most had been destroyed and were no longer visible; therefore, only the floors of Rooms 1 through 10 are shown in figure 4.19.

The limited load-bearing strength of the type of wall used in the roomblock would have necessitated an interior roof support system; however, no consistent pattern is indicated by the postholes. The roof of Room 1 (fig. 4.19) was supported by 4 posts, 1 in each corner of the room. A fifth posthole just south of the center of the room was probably added later to support a sagging portion of the roof. The roofs of Rooms 2, 3, 4, and possibly 5 may have been supported by a frame of upright posts and crossbeams in the front that supported leaners socketed into the top of the rear wall. Unfortunately, erosion of the cave breccia has made it impossible to tell whether or not socket holes had been dug into the face.

On the upper tier, Room 6 had no interior supports. The absence of postholes in Room 8 suggests that Rooms 7, 8, and 9 might have been roofed as a unit. Support for the roof could have been provided by posts in each corner of Rooms 7 and 9.

Surfaces were defined in all 10 rooms, although no artifacts were found in direct association with the surfaces. With the exception of the floors in Rooms 1 and 10, and a small portion of the floor in Room 2, all of the floors had been prepared, usually by means of spreading a layer of adobe over the breccia into which the rooms had been excavated.

The small size of the rooms and the techniques apparently employed in their construction suggest an early date for the roomblock. The roomblock at LeMoc Shelter closely resembles those of Sagehill Subphase sites in the DAP area, although surface rooms at most sites of this period tended to be less formally arranged and more widely spaced than the rooms at LeMoc Shelter. However, the limited space available within the shelter and the tendency of the builders to make maximum use of the structural properties of the cave breccia undoubtedly would have constrained the pattern in this instance. Tentatively, then, the construction of the roomblock is as-

Figure 4.18 - Overhead view of roomblock after excavation, LeMoc Shelter (DAP 015015).

sociated with the occupation of Pithouse 2. Support for this correlation is provided by the relationship of Rooms 4 and 5 to Pithouse 1. As will be discussed later, the southeast corner of Room 4 and most of Room 5 appear to have been destroyed by the construction of Pithouse 1. Consequently, at least these 2 rooms must predate the construction of Pithouse 1 during Element 2.

Table 4.5 - Dimensions of Rooms 1 through 10, LeMoc Shelter

Room No.	Length (east-west) (m)	Width (north-south) (m)	Area (m²)
1	2.30	2.15	4.94
2	1.72	1.60	2.75
3	1.90	1.15	2.18
4	1.85	1.30	2.40
5	1.35	Only 10 cm remaining	—
6	2.05	2.05	4.20
7	1.75	1.34	2.34
8	1.85	1.50	2.77
9	1.70	1.60	2.72
10	2.90	1.25	3.63

The general similarity of all the rooms suggests that they were built at about the same time. Most of the roomblock probably continued to be used during Element 2 (the occupation of Pithouse 1) and possibly during Element 3. By Element 4, however, the nature of the occupation was such that few storage facilities were required. During the later occupations at LeMoc Shelter, the floors of the rooms probably served as open work areas, and a mantle of loose fill and rubbish gradually accumulated. This deposit ultimately became the principal target of pothunters visiting the shelter. The small amount of structural debris in the roomblock suggests that the floor surfaces had been cleared of fallen wall and roofing material to open this area for use.

Room 1

The floor of Room 1 had been excavated roughly 20 cm into the cave breccia, leaving a shelf as a support for the south wall and a wide ridge as a support for the east wall. The north wall, which now stands 1.1 m high, was shaped from the breccia face. The bedrock of the shelter was used for the west wall. Bedrock also makes up the northwest quadrant of the floor, while the rest of the floor is a pale brown sand.

As shown in figure 4.19, the western half of the floor is dominated by a large, two-lobed floor cist (Feature 5).

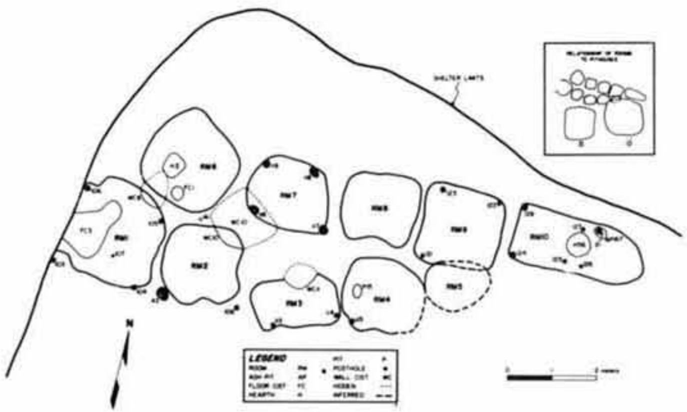

Figure 4.19 - Map of roomblock (Rooms 1 through 10), LeMoc Shelter

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The southern lobe is irregular in plan and measures roughly 95 cm in diameter and 30 cm in depth. The west wall and base of this lobe are bedrock; the north and south walls are cave breccia; and the east wall consists of the sandy stratum that underlies most of the floor. Several small sandstone slabs were embedded along the eastern lip of the cist, possible to reinforce the sandy sediments.

The north lobe, which appears in plan as an extension from the northeast edge of the south lobe, is approximately 45 cm in diameter and 47 cm deep. The difference is depth between the 2 lobes and the overall regularity of the north lobe profile suggest that the north lobe was an earlier, circular floor cist that was incorporated into the later feature.

A second cist (Feature 6) had been dug into the room's north wall. This wall cist measures 85 cm long, 55 cm wide, and 60 cm deep. Plaster remnants on either side of its opening suggest that it once had an adobe collar, which possibly facilitated the sealing of the aperture. Aside from the cists, the only other features in Room 1 are 5 postholes, 1 in each of the corners (Features 103, 104, 105, and 106), and 1 in the south-central part of the floor (Feature 107).

Room 2

Room 2, a bowl-shaped depression cut into the cave breccia to the east of Room 1 (fig 4.19), is roughly 60 cm deep. As in Room 1, the north wall is the face of the breccia platform. Shaped ridges of cave breccia appear to have been the supports for the other walls. A worn, plastered surface midway along the ridge between Rooms 1 and 2 suggests that there was an opening between these structures.

Room 2 is dominated by a large wall cist (Feature 10) in the northeast corner of the structure. The cist is oval to rectangular in plan and measures about 166 cm long, 121 cm wide, and 95 cm high. The cist opening is a triangular aperture approximately 91 cm wide at floor level, and 61 cm high. Remnants of daub around its perimeter suggest the opening may have been sealed. A small posthole (Feature 111) extending horizontally into the face of the breccia wall, may be associated either with the cist or with the roof support system. Postholes (Features 43 and 108) for roof supports were found near the southeast and southwest corners of the floor, just outside the limits of the room. This finding suggests that the roof was constructed with the horizontal members socketed into the top of the north wall and supported by a cross beam laid between posts in each of the southern corners.

Room 3

Room 3 (fig. 4.19) was also dug into the cave breccia, in this case to a depth of 5 to 35 cm. The north wall was shaped from the face of the breccia platform, and breccia ridges were left as supports for the other walls. Postholes in the southwest and southeast corners of the room (Features 113 and 114, respectively) suggest a roof similar to that of Room 2. Other than the postholes, the room's only feature is an oval wall cist (Feature 11) in the north wall. The cist is roughly 43 cm deep with an opening that measures 70 by 60 cm.

Room 4

Room 4 (fig. 4.19) conforms to the same general plan as the other rooms on the lower tier. However, only one posthole (Feature 115) remains; this posthole is located in the southwest corner of the room. In the southeast corner of the room, the floor is truncated by Pithouse 1, suggesting that this corner was cut away, either by the construction or collapse of the pithouse. It therefore seems reasonable to assume that a second posthole might have been destroyed.

The second feature in Room 4 (Feature 15) is a small, saucer-shaped pit in the floor near the west wall. The feature is 32 cm long, 26 cm wide, and 15 cm deep. It was filled with what appeared to be sterile, colluvial sand overlying a thin lens of fine-grained sediments that contained several fragments of unburned corn kernels. The feature seems too small to have been used for storage; it may have been a pot rest or, as suggested by the presence of the corn, a receptacle for meal as corn was ground.

Room 5

The existence of Room 5 (fig. 4.19) is inferred from a characteristic scalloping and smoothing of the breccia face to the east of Room 4 that is identical to the contouring of the north walls of the rooms in the lower tier. An irregular shelf below the contoured face appears to be a remnant of the floor. Room 5, like the southeast corner of Room 4, was likely destroyed when Pithouse 1 was built. The breccia face below the floor remnant is broken and irregular, and several vertical furrows may be the marks left by digging sticks as the breccia was dug away during the aboriginal excavation of the pitstructure.

If this interpretation is correct, Room 5 provides additional evidence that the roomblock was originally constructed during Element 1. Furthermore, if the encroachment of the pitstructure into Room 4 dates to the same period as the destruction of Room 5, then Room 4 also must have fallen into disuse, since the removal of one of the main roof supports would have ruined its structural integrity.

Room 6

Room 6 (fig. 4.19) is a saucer-shaped basin, 30 cm deep, cut into the top of the breccia platform near the west

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wall of the shelter. A hearth (Feature 2) is located slightly south and west of the center of the floor. This hearth is a shallow, oval depression, 62 cm long, 58 cm wide, and 15 cm deep. A second feature, a small, bell-shaped floor cist (Feature 1), is located near the southern margin of the room. The cist flares from approximately 30 cm in diameter at its opening to 40 cm at the bottom, approximately 65 cm below floor level. The presence of the hearth suggests that Room 6 might have been a food preparation area rather than a storeroom.

There is no evidence for an interior roof support system in Room 6, suggesting that the roof was directly supported by the walls. An alternative hypothesis is that the area was never enclosed. Room 6 is located in the most protected part of the rockshelter, and because the area was not used for storage, a roof might have been superfluous. Unfortunately, no compelling evidence favors either interpretation.

Room 7

Room 7, located east of Room 6, is roughly rectangular in plan (fig. 4.19). The floor had been cut 15 to 20 cm into the top of the breccia platform leaving the characteristic lip on the north, south, and west as footing for the walls. Postholes are present in each of the corners (Features 116, 117, 118, and 119), and a 3-cm-deep depression on the breccia ridge near the northwest corner of the room also may have served to socket a roof support post (the latter was not assigned a feature number). No other features are present.

Room 8

Room 8 is similar in form to Room 7, although it lacks any evidence of an interior roof support system (fig. 4.19). Interestingly, no ridge of cave breccia separates Rooms 7 and 8. Rather, there is an abrupt but rounded slope from the floor of Room 7 to the floor of Room 8. This suggests that although the 2 surfaces are readily distinguishable, they may not have been separated by a wall.

Originally, 2 features were defined in Room 8 – irregular depressions in the central area of the floor. Both were filled with an ashy sediment, and in both some oxidation of the cave breccia was noted. However, the irregularity of the outlines of these depressions and the roughness of their interior walls suggest these were not aboriginal features of the room. Further, all of the fill in Room 8 was spoil dirt, and any aboriginal sediments in these shallow depressions would not likely have remained in situ given that degree of disturbance. For these reasons, the depressions and the fires built in them are believed to be modern. Room 8, consequently, appears to be devoid of any aboriginal features.

Room 9

The floor in Room 9, like the floors in Rooms 7 and 8, had been excavated into the breccia platform, leaving a ridge as footing for the walls (fig. 4.19). The room's only features are 3 postholes, 1 each in the southwest, northeast, and northwest corners (Features 121, 122, and 123, respectively). The southeast corner of the room has spalled off, but presumably a posthole was there also. The average diameter of the postholes is approximately 7 cm, making it doubtful that these posts were the sole support for the roof. The problem is complicated by the absence of any interior roof supports in the adjacent Room 8. Assuming that the adobe walls did not support the full weight of the roof, the roof of Room 8, would had to have been partially supported by the interior frameworks of Rooms 7 and 9. This would be particularly critical if, as is typical of surface structures during this period, entry into the rooms was through the roof.

Room 10

Room 10 (fig. 4.19) occupies something of a "split-level" position in relation to the rooms in the upper tier. It is situated on a breccia shelf at the east edge of the roomblock, approximately 1 m below the level of the floor in Room 9. Postholes are present in the northwest and southwest corners of the room (Features 128 and 124). Four other postholes (Features 21, 125, 126, and 127) are arrayed in a rectangle enclosing a circular, basin-shaped hearth (Feature 56) located near the center of the room. The hearth is 57 cm in diameter and 5 cm deep. The position of the 4 grouped postholes in relation to the hearth makes it unlikely that they are part of any roof support system. Rather, they are interpreted as supports for some type of frame that would have been placed over the hearth, possibly for use in smoking meat or hides. The northeastern posthole in the group (Feature 21) shows some evidence of secondary use after the removal of the post. The hole was enlarged, forming a roughly oval pit, 33 cm long, 22 cm wide, and 20 cm deep. This enlarged pit was designated Feature 167. A lens of ash was found in the bottom of the pit and some fire-reddening of the walls was evident. This suggests that the feature may have been used as an ash pit or warming pit after the framework over the hearth was dismantled.

Although the activities just discussed seem incompatible with an indoor setting, remnants of plaster on the north wall indicate that the area was once enclosed. It seems likely, therefore, that the enclosure of the room predates the final use of the area for the hypothesized activities. One possibility is that Room 10 was originally larger but, like Room 4, was partially destroyed by the construction of Pithouse 1. Alternatively, the room may originally have been smaller than the observed use surface. The easternmost postholes (Features 21 and 126) may have been dug initially for roof support posts and may have been paired with the postholes in the western corners of the room (Features 124 and 128). The second hypothesis seems to more plausibly account for the location of the observed postholes. The presence of the posthole in the southwest corner would be particularly difficult to explain if Room 10 had originally been larger. If Room 10 had originally been smaller, however, the hearth must postdate the dismantling of the walls enclosing this surface. The breccia shelf on which Room 10 is built is little more than 1 m wide. Given the position of the hearth, slightly more than 1 m of floor space would have been available in the enclosed structure, too little space for any sustained activity. Since the only convenient access to the surface was from the south, it could have been usable as an open work area only during three periods: before the construction of Pithouse 1, while the roof of Pithouse 1 was intact, and after the pithouse depression had almost completely filled.

The construction and maintenance of the roomblock as a storage facility was probably limited to Elements 1 and 2, the occupation periods of Pithouses 2 and 1, respectively. The enclosure of Room 10 most likely dates to one of these elements. Reuse of the surface as an open work area, therefore, must date either to Element 2 or to the last aboriginal occupation of the shelter, Element 5; use during Elements 3 and 4 would have been difficult because the Pithouse 1 depression was not yet filled, impeding access to Room 10.

Features 129, 130, and 131

Features 129, 130, and 131 are 3 large cists that had been dug into the cave breccia immediately to the north of Room 6 (fig. 4.20). The largest of these (Feature 130), is oval, measuring 150 cm long, by 75 cm wide, and 50 cm deep. This cist was constructed around an earlier cist (Feature 131) dug slightly to the north. This second cist is circular, 80 cm in diameter, and 90 cm deep. The cave breccia in this area of the shelter is unusually friable, and the oval cist appears to have been constructed around the circular cist after the latter had collapsed. The third cist (Feature 129), slightly to the east, is also circular, measuring 70 cm in diameter and 80 cm deep.

Like roomblock fill, the fill of these cists was spoil dirt; consequently, no clear determination can be made as to their function or probable date of construction. Lacking any dating evidence, it is assumed that, since the cists are similar to features within the rooms, they are roughly contemporaneous with the roomblock. Moreover, their proximity to Room 6 suggests that they may be associated with the use of that structure, possibly for short-term storage of foodstuffs or other materials.

Occupation Area 1

Occupation Area 1 (fig. 4.21) is an adobe surface lying immediately to the south of Rooms 3 and 4. The surface (Surface 1) is roughly triangular in plan, with the base of the triangle abutting the breccia ridge marking the south wall of the roomblock. The length of this side is approximately 2.3 m. The surface extends 1.3 m to the south onto the breccia balk separating the two pitstructures; the apex of the triangle is located at the northeast corner of Pithouse 2. The edge of the surface nearest Pithouse 1 is badly eroded, but Occupation Area 1 probably originally spanned the entire balk.

The dominant feature of Occupation Area 1 is a large, circular cist (Feature 25) that measures 101 cm long, 87 cm wide, and 117 cm deep; the feature is associated with the Element 2 occupation. The lower 65 cm of fill in the cist is an undisturbed postoccupational accumulation of colluvial sand and adobe melt. On the upper surface of these sediments is a slab-lined fireplace (Feature 166) filled with a mixture of sand and charcoal and overlain by Stratum I-11 sand. This fireplace, which measures 60 cm long, 35 cm wide, and 25 cm deep, is associated with the Element 3 occupation of the site. Above Feature 166 is a 10-cm-thick stratum of colluvial sand, colored with ash, that sealed the underlying deposits. The remainder of the fill is spoil dirt, a part of Stratum I-12, which mantles the entire surface of Occupation Area 1.

Only 12 of the 66 sherds recovered from the nondisturbed sediments in the cist (Feature 25) were identifiable to type: 7 of these are Moccasin Gray, and the remaining 5 are Mancos Gray. Although any date based on such a small sample is suspect, it is nevertheless the only dating evidence available. Since Mancos Gray is present, and because all of these sherds were recovered from postoccupational fill below the fireplace (Feature 166), use of the cist as a storage facility must date prior to A.D. 860. Furthermore, since no corrugated sherds were found in the fill of the fireplace or in the ashy sand overlying it, the fireplace must have been in use sometime between A.D. 860 and A.D. 900-910. Initial construction of the cist is clearly associated with the use of Occupation Area 1; consequently, A.D. 860 is also accepted as a terminal date for the construction of the occupation area. An estimate of an early bracketing date can be made by examining the relationship of Occupation Area 1 to Room 4.

The southern boundary of Room 4 is defined by a remnant ridge of cave breccia adhering to the west wall of the room. By analogy with the other rooms, the ridge must have originally extended across the front of the room, completely enclosing the floor. Part of the ridge was undoubtedly destroyed when the southeast corner of

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the room was demolished. This event may be tied either to the construction or abandonment of Pithouse 1. Between this area of collapse and the remnant of the south wall footing, a gap slightly less than 1 m wide exists where the ridge has been obliterated.

In this gap, the surfaces of Occupation Area 1 and the floor of Room 4 are continuous, although the average level of Occupation Area 1 is a few centimeters lower than the floor of Room 4. This suggests that, after the destruction of Room 4, Occupation Area 1 and the floor of Room 4 served as an open activity area, postdating the construction of Pithouse 1 at about A.D. 840. Since the abandonment of Pithouse 1 correlates ceramically with the estimated terminal date for use of Feature 25 as a storage cist, Occupation Area 1 is tentatively associated with Element 2. The fireplace in the cist, however, is associated with Element 3, indicating continued use of the area during this period.

Two postholes were found in Occupation Area 1. One (Feature 133) is located approximately 20 cm northeast of the cist, adjacent to the breccia ridge at the perimeter of the surface; the other (Feature 132) is located approximately 80 cm south of the first. In the absence of any other evidence, some type of post-supported framework can be inferred, but its form and function remain unknown.

Summary

In the preceding discussion of the roomblock, it has been argued that the rooms were initially constructed during Element 1, the time during which Pithouse 2 was occupied. Apparently, most of the rooms continued to be used during the occupation of Pithouse 1 (Element 2), although part of Room 4 and almost all of Room 5 were probably destroyed during the construction of Pithouse 1. Some of the rooms may have been used during Element 3, but after A.D. 900 it is doubtful that any of the surface structures were maintained. The absence of structural debris from the roomblock, however, suggests that the breccia platform was cleared and used as an open work area.

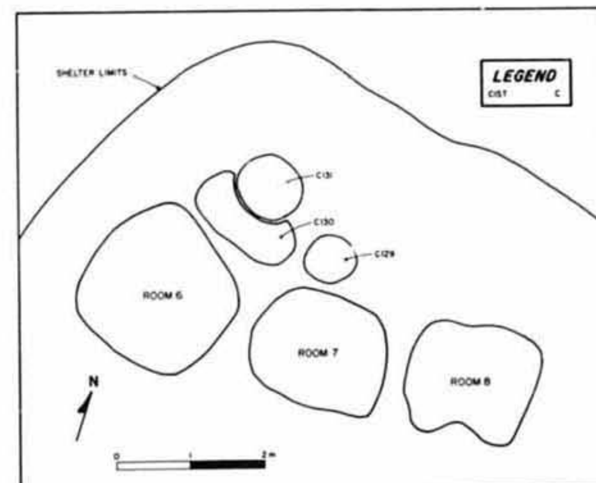

Figure 4.20 – Map of Features 129 (cist), 130 (cist), and 131 (cist), LeMoc Shelter.

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Functionally, the lack of floor features other than pits and cists in the roofed rooms suggests that the roomblock served primarily as a storehouse. However, Room 6 is believed to have been used principally for food preparation, and during Element 2, Occupation Area 1 and the floor of Room 4 seem to have been used as an open work area. After the partial destruction of Room 10, which also may be associated with the construction of Pithouse 1, the floor of this room may have been used as an open activity area for the drying of meat, the preparation of hides, or for some other activity requiring a pole framework associated with a hearth. The remains associated with these activities cannot be precisely dated but must have been deposited either during Element 2 or Element 5.

Element 1

Pithouse 2

Dimensions:

North wall	
length:	4.40 m
height:	1.70 m
South wall	
length:	3.80 m
height:	0.95 m
East Wall	
length:	4.25 m
height:	1.20 m
West wall	
length:	4.00 m
height:	not measured

Pithouse 2 (fig. 4.22) is a relatively large structure with a floor area of roughly 21 m². The floor is approximately 1.7 m below aboriginal ground surface. The structure is believed to have been occupied between A.D. 750 and 780, making it the earliest documented occupation of the shelter. Although time limitations during excavation permitted only limited subfloor testing, no evidence was found to suggest either multiple occupations or extensive remodeling.

Construction. – Pithouse 2 was dug into the cave breccia in the western half of the shelter. The north wall of the pithouse (fig. 4.22) is undercut so that the base of the

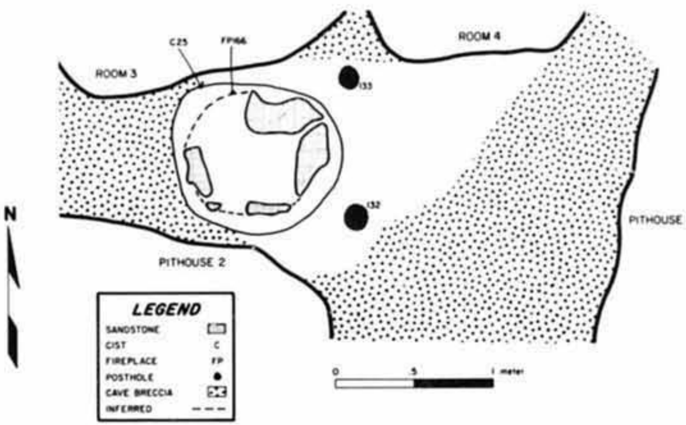

Figure 4.21 – Map of Features 25 (cist), 132 (posthole), 133 (posthole), and 166 (fireplace) in Occupation Area 1, LeMoc Shelter. Refer to text for a description of occupation area boundaries. Feature 166, a fireplace located within Feature 25, is associated with a later occupation (Element 3).

wall is roughly 45 cm out of plumb with the top of the wall (fig. 4.23). The east wall exhibits this same belling but to a lesser degree. On the average, its base is 10 cm out of plumb. Seventeen small postholes, averaging 10 cm in diameter, were dug into the floor at the base of both of these walls (Features 147 through 163); these postholes may have served as shoring or auxiliary support for this portion of the wall.

The west wall of the pithouse slopes outward from the floor. This slope seems to have been caused by the repeated slumping of the cave breccia from the sloping bedrock after the pithouse was abandoned. No postholes were spaced along the base of this wall.

Unlike the other 3 walls, the south wall is backed by compact, colluvial sediments. It is nearly vertical with no evidence of shoring or auxiliary support. Both the west and south walls might have been plastered with adobe when the structure was in use, however.

The roof support is a typical 4-post system (fig. 4.24). The northwest main support posthole (Feature 90) is located roughly 90 cm from the west wall and 65 cm from the north wall. It is 22 cm long, 18 cm wide, and was cut 42 cm into the bedrock underlying the floor in this quadrant. The northeast posthole (Feature 91) is 27 cm long, 23 cm wide, and was dug 82 cm through compact sand to bedrock. This posthole is located approximately 80 cm south of the north wall and 45 cm west of the east wall. Both northern postholes were filled to within a few centimeters of the floor surface with a clean, culturally sterile sand. The remainder of their fill, like the fill in the southern postholes, was a mixture of colluvial sand and adobe melt. The southeast and southwest postholes (Features 95 and 97) are somewhat smaller, averaging about 12 cm in diameter. Both of these posts were incorporated into the wingwall. No remains of the uprights were found in any of these postholes.

The floor of the pitstructure is a level, prepared surface of puddled adobe, 2 to 5 cm thick. In the northwest quadrant the floor is built directly on bedrock, but in other areas it rests on unconsolidated sediments. These sediments seem to grade from a sand in the northern half of the pithouse to a loamy sand or sandy loam in the southern half. The differences in these deposits seem to be caused by natural depositional processes, however, and do not indicate any subfloor preparation.

Floor features. – Table 4.6 presents a summary of the features found in Pithouse 2. The most obvious floor

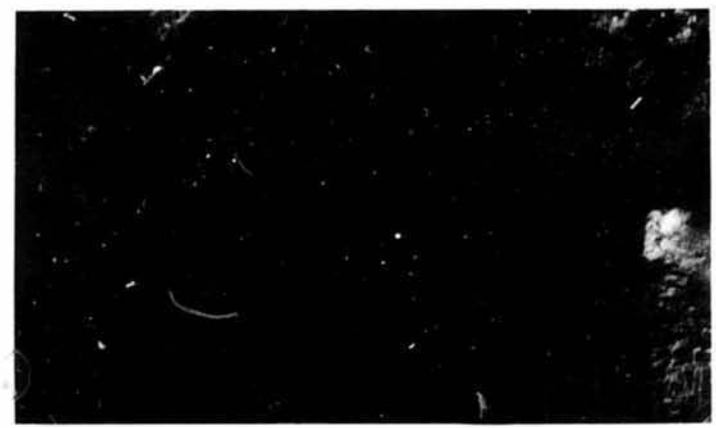

Figure 4.22 – Overhead view of Pithouse 2 after excavation, LeMoc Shelter (DAP 015003).

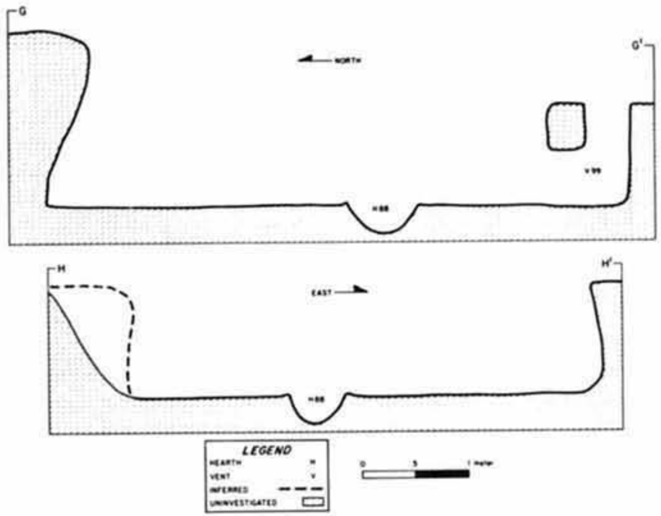

Figure 4.23 – Architectural cross section of Pithouse 2, LeMoc Shelter. Profiles G and H are located in plan in figure 4.24.

feature is the wingwall (Feature 86), which separates a small space in the south end of the structure from the main floor area (fig. 4.24). The west half of the wingwall extends 1.35 m straight out from the west wall at a point 90 cm north of the south wall of the pithouse. The east half of the wingwall originates in the southeast corner of the pithouse, encloses the roof support postholes, then arcs gradually to the northwest, coming into line with the west half of wingwall approximately 80 cm north of the south wall of the pithouse. Both halves of the wingwall average 15 cm in width and currently are 62 cm high. A row of vertical sandstone slabs set into the floor forms the footings for each wing. The slabs are plastered with adobe, and adobe was used to build up the remainder of the wall.

Between the 2 halves of the wingwall is a gap approximately 1 m wide. This opening would have allowed access to the southern portion of the pithouse and would have provided a conduit for air from the ventilator (Feature 99). The ventilator system has a 50-cm-square opening in the center of the south wall at floor level. The tunnel opening has an adobe coping that presumably facilitated the closing of the vent with a cover. The tunnel extends 35 cm beyond the south wall where it meets a vertical shaft approximately 54 cm in diameter. Both the tunnel and shaft were filled with a pale brown colluvial sand containing small lenses of gravel. The shaft was truncated by the construction of Room 12, and its opening was sealed with adobe.

Ventilator tunnels in most Sagehill Subphase pithouses are larger than those found in pithouses dating to the later Dos Casas Subphase, and usually open into an antechamber. Therefore, Pithouse 2, with its relatively small tunnel and vertical shaft rather than antechamber, is atypical. At Mesa Verde, Hayes and Lancaster (1975:182) document these changes in the ventilator system, along with the elimination of the bench and a tendency for the pithouses to be deeper, as significant in the transition from pitstructures as domiciles to pitstructures as specialized religious structures, or kivas. The architecture of Pithouse 2 is typical of what Hayes and Lancaster term "protokivas." The architecture appears unusual only in

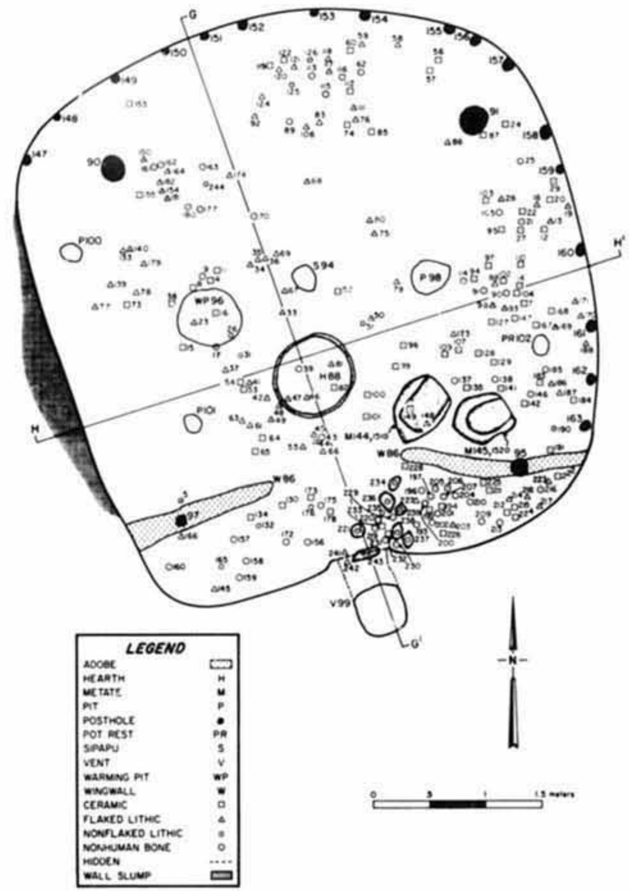

Figure 4.24 – Map of Pithouse 2, Floor 1, LeMoc Shelter. Profiles G and H are shown in figure 4.23.

Table 4.6 - Feature summary, Pithouse 2, LeMoc Shelter

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth (cm)
86	Wingwall	Complex	Rectangular	444	15	62
88	Hearth	Round	Basin	63	62	26
90	Posthole	Round	Cylindrical	22	18	42
91	Posthole	Round	Cylindrical	27	23	82
94	Sipapu	Round	Cylindrical	23	23	11
95	Posthole	Round	Cylindrical	14	14	17
96	Warming pit	Round	Cylindrical	55	50	19
97	Posthole	Round	Cylindrical	11	11	19
98	Pit: nfs	Irregular	Basin	34	29	10
99	Ventilator	Complex	Complex	78	54	94
100	Pit: nfs	Oval	Basin	20	14	8
101	Pit: nfs	Round	Cylindrical	20	20	17
102	Pot rest	Round	Basin	18	16	3
144	In situ metate (PL 151)	n.a.	n.a.	. . .	. . .	. . .
145	In situ metate (PL 152)	n.a.	n.a.	. . .	. . .	. . .
147	Posthole	. . .	. . .	. . .	. . .	. . .
148	Posthole	. . .	. . .	. . .	. . .	. . .
149	Posthole	. . .	. . .	. . .	. . .	. . .
150	Posthole	. . .	. . .	. . .	. . .	. . .
151	Posthole	. . .	. . .	. . .	. . .	. . .
152	Posthole	. . .	. . .	. . .	. . .	. . .
153	Posthole	. . .	. . .	. . .	. . .	. . .
154	Posthole	. . .	. . .	. . .	. . .	. . .
155	Posthole	. . .	. . .	. . .	. . .	. . .
156	Posthole	. . .	. . .	. . .	. . .	. . .
157	Posthole	. . .	. . .	. . .	. . .	. . .
158	Posthole	. . .	. . .	. . .	. . .	. . .
159	Posthole	. . .	. . .	. . .	. . .	. . .
160	Posthole	. . .	. . .	. . .	. . .	. . .
161	Posthole	. . .	. . .	. . .	. . .	. . .
162	Posthole	. . .	. . .	. . .	. . .	. . .
163	Posthole	. . .	. . .	. . .	. . .	. . .

. . . - Information not available.
nfs - Not further specified.
n.a. - Not applicable.

that there is no evidence of a deflector in the wingwall opening.

The hearth (Feature 88) is a circular, basin-shaped pit, approximately 62 cm in diameter and 26 cm deep. The pit has a low collar or molding of adobe 2 to 5 cm wide around its perimete The hearth is located near the center of the floor, slightly offset to the south. A thin veneer of charcoal and ash was found in the bottom of the basin and was covered by a pale brown, colluvial sand that apparently washed in after the pithouse was abandoned. Above this was a 5-cm-thick stratum of brown sand flecked with charcoal that was overlain by a second stratum of colluvial sand mixed with some ash, which sealed the feature.

Approximately 40 cm northwest of the hearth is a second circular pit (Feature 96). This pit measures 55 cm long, 50 cm wide, and 19 cm deep and was filled with a pale brown sand containing many fragments of charcoal. The charcoal and a slight oxidation of the north wall of the pit suggest it may have served as a warming pit.

Approximately 55 cm east of the warming pit and almost directly north of the hearth is a small, circular, steep-sided pit (Feature 94). This pit is 23 cm in diameter and 11 cm deep. The pit was filled with a clean, pale brown sand. Its location suggests 3 possible uses: a small holding cist that was used during food preparation, a socket for a notched log ladder used to enter the pithouse, or a sipapu. Since the feature was not plaster lined, the first

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alternative seems least likely, and although notched log ladders were used, they are rare. Therefore, the feature is tentatively interpreted as a sipapu.

Another small pit (Feature 98) is located approximately 70 cm east-northeast of the hearth. This pit is pear-shaped in plan and is 34 cm long, with a maximum width of 29 cm. In cross section, the pit is asymmetrical with a maximum depth of approximately 10 cm where the basin is widest. From this point, the floor of the feature slopes gradually so that at its narrowest part it is between 4 and 6 cm deep. This unusual configuration, coupled with the proximity of the pit to two in situ metates (PL 151, also designated Feature 144; and PL 152, also designated Feature 145) found near the wingwall, suggests that this pit was part of a mealing complex. It may have functioned to collect meal being produced on a metate. The feature was filled with clean, pale brown sand and was sealed by a 1-cm-thick layer of adobe plaster.

Three additional features in Pithouse 2 are small basins located in the area north of the wingwall. The first (Feature 100) is a pit feature located approximately 30 cm from the west wall, near the northwest corner of the structure. The feature is oval and measures 20 cm long by 14 cm wide by 8 cm deep. It was filled with clean sand and was sealed by the adobe floor. The second feature (Feature 101) is a circular pit measuring approximately 20 cm in diameter. In cross section, it is steep sided, and it had been dug into bedrock to a depth of approximately 17 cm. Like many of these small pits, it was filled with a clean, brown sand and was sealed by the floor plaster. Feature 101 is located approximately 70 cm west of the hearth. The third feature (Feature 102) is a shallow basin 3 cm deep, 18 cm long, and 16 cm wide. It is located roughly 40 cm from the east wall of the pithouse and 85 cm north of the wingwall. The depression was filled with sediments from Stratum I-2, which covered this portion of the pithouse floor. The basin is too small to have been either a posthole or a storage cist and most likely served as a pot rest.

The preceding discussion of pithouse construction describes the main roof support postholes (Features 90, 91, 95, and 97) and the series of small postholes located around the periphery of the pithouse floor (Features 147 through 163).

Floor artifacts. - During excavation of Pithouse 2, 715 individual artifacts, grouped into 241 PL's, were recovered in direct association with the floor (fig. 4.24 and table 4.7). Analysis of these artifacts provided little specific information concerning the patterning of activities for 2 reasons. First, because the floor artifacts were not sealed in context, it is impossible to determine which of these materials were introduced when postoccupational refuse was dumped onto the pithouse floor. Second, the disposal of trash by the inhabitants of Pithouse 2, both before and during the abandonment of the structure, probably obscured the artifact evidence for activity areas.

Recent ethnoarchaeological studies (refer to discussion of Pithouse 1 floor artifacts) have suggested that all but the smallest bits of debris created during any task - what Schiffer (1976:30) has termed "primary refuse" - will be removed from the activity area during periodic cleaning. This is particularly likely to be the case when space is limited and the area is used for a variety of purposes. Consequently, only small and usually undiagnostic fragments are likely to be recovered at their location of use.

When the abandonment of a structure is anticipated, however, some modification of this normal discard behavior can be expected. Although debris will continue to be removed from intensively used areas, the refuse may be dumped in lesser-used areas of the structure rather than removed entirely. As the structure is abandoned, Schiffer (1976:33) argues that the inhabitants will remove all usable implements except those that are too bulky to be transported easily or those light objects that can be readily replaced. Consequently, except in cases of catastrophic abandonment, the materials recovered from the structure floor will probably consist of small accumulations of domestic trash and a few commonplace implements. Only a small portion of this material is likely to be primary refuse.

The interpretation of floor artifacts is further complicated because these materials are generally indistinguishable from refuse dumped into the structure after its abandonment, unless they have somehow been sealed in context - for example, by the burning and collapse of the structure roof soon after abandonment. Unfortunately, this was not the case in Pithouse 2. Midden deposits of Strata I-2 and I-4 overlie the eastern third of the floor, and the remainder is overlain by a mixture of colluvial sand and adobe melt from the west wall. Because of this, any interpretation of the floor artifacts from Pithouse 2 as either primary refuse or as de facto refuse (trash accummulations and artifacts left behind that reflect abandonment processes) must be suspect; some of these artifacts may be postoccupational secondary refuse.

The floor artifacts in the eastern third of Pithouse 2 are primarily a mixture of sherds, lithic detritus, and bone scrap. The number and uniform distribution of these artifacts, in contrast to those on the western part of the floor, strongly suggest that at least some of this material is derived from the overlying postoccupational midden deposits. Nevertheless, the large quantity of material behind the east wingwall and the concentration of artifacts in the main pithouse area near the east wall are consistent with the expectation that refuse would be allowed to accumulate in lesser-used areas of the structure immediately before abandonment. The only 2 artifacts that were certainly in situ were the 2 trough metates (PL's 151 and

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Table 4.7 – Point-located artifacts, Floor 1, Pithouse 2, LeMoc Shelter

PL No.	Material class	Item description
1	Ceramic	Chapin Gray jar sherds (3)
		Early Pueblo Gray jar sherds (35) (not mapped)
2	Ceramic	Early Pueblo Gray jar sherds (11) (not mapped)
3	Flaked lithic	Debitage (not mapped)
4	Ceramic	Early Pueblo Gray jar sherd
5	Nonflaked lithic	Minimally altered
6	Nonflaked lithic	Axe, notched (not mapped)
7	Ceramic	Chapin Gray jar sherds (4): vessel 11
		Early Pueblo Gray jar sherds (4)
8	Ceramic	Early Pueblo Gray jar sherd
9	Nonhuman bone	Artiodactyla
10	Ceramic	Chapin Gray jar sherds (4): vessel 11 (not mapped)
		Early Pueblo Gray jar sherds (3) (not mapped)
11	Ceramic	Chapin Gray jar sherd
12	Ceramic	Early Pueblo Red bowl sherd
13	Flaked lithic	Debitage
14	Ceramic	Chapin Gray jar sherd: vessel 11
15	Ceramic	Chapin Gray jar sherds (2)
		Early Pueblo Gray jar sherds (5)
		Chapin Gray jar sherds (2)
16	Ceramic	Early Pueblo Red bowl sherd
17	Nonhuman bone	Artiodactyla
18	Flaked lithic	Debitage
19	Flaked lithic	Debitage
20	Ceramic	Early Pueblo Gray jar sherd
21	Nonhuman bone	*Marmota flaviventris*
22	Ceramic	Slipped Red bowl sherd
23	Flaked lithic	Debitage
24	Ceramic	Slipped Red bowl sherd
25	Nonhuman bone	*Odocoileus hemionus*
26	Nonflaked lithic	Indeterminate
27	Ceramic	Chapin Gray jar sherds (3): vessel 11
28	Flaked lithic	Debitage
29	Ceramic	Early Pueblo Gray jar sherd
30	Ceramic	Bluff Black-on-red bowl sherd (not mapped)
31	Nonflaked lithic	Indeterminate
32	Flaked lithic	Debitage (not mapped)
33	Flaked lithic	Utilized flake
34	Flaked lithic	Debitage
35	Flaked lithic	Debitage
36	Flaked lithic	Debitage
37	Flaked lithic	Debitage
38	Ceramic	Early Pueblo Gray jar sherds (2)
39	Nonhuman bone	Mammalia, large
41	Flaked lithic	Debitage (2)
42	Flaked lithic	Debitage (2)
43	Ceramic	Moccasin Gray jar sherds (2)
44	Flaked lithic	Debitage
45	Flaked lithic	Debitage
46	Flaked lithic	Debitage
47	Flaked lithic	Debitage
48	Flaked lithic	Debitage

Table 4.7 – Point-located artifacts, Floor 1, Pithous 2, LeMoc Shelter – Continued

PL No.	Material class	Item description
49	Flaked lithic	Debitage
50	Flaked lithic	Debitage
51	Nonflaked lithic	Indeterminate
52	Ceramic	Early Pueblo Gray jar sherd
53	Ceramic	Early Pueblo Gray jar sherd
54	Ceramic	Early Pueblo Gray jar sherd
55	Flaked lithic	Debitage
56	Ceramic	Bluff Black-on-red bowl sherd
57	Ceramic	Early Pueblo Gray jar sherd
58	Flaked lithic	Utilized flake
59	Flaked lithic	Debitage
60	Ceramic	Early Pueblo Red bowl sherd
61	Flaked lithic	Utilized flake
62	Nonhuman bone	*Sylvilagus* spp. (4)
		Tetraonidae (3)
		Mammalia or Aves
63	Flaked lithic	Debitage
64	Ceramic	Early Pueblo Gray jar sherd
65	Ceramic	Early Pueblo Gray jar sherds (4)
66	Flaked lithic	Used core
67	Flaked lithic	Debitage
68	Flaked lithic	Debitage
69	Flaked lithic	Debitage
70	Nonhuman bone	Mammalia, small
71	Flaked lithic	Debitage (not mapped)
72	Ceramic	Early Pueblo Gray jar sherds (6) (not mapped)
73	Ceramic	Chapin Gray jar sherd
		Early Pueblo Gray jar sherds (25)
74	Ceramic	Early Pueblo Gray jar sherds (2)
75	Flaked lithic	Debitage
76	Flaked lithic	Debitage
77	Flaked lithic	Debitage (2)
78	Flaked lithic	Debitage
79	Flaked lithic	Debitage
80	Flaked lithic	Debitage
81	Flaked lithic	Debitage
82	Ceramic	Early Pueblo Gray jar sherds (3)
83	Flaked lithic	Debitage
84	Nonhuman bone	*Odocoileus hemionus* – minimally altered (not mapped)
85	Ceramic	Early Pueblo Gray jar sherds (2)
86	Flaked lithic	Used core
87	Ceramic	Early Pueblo Red bowl sherd
88	Flaked lithic	Debitage
89	Nonhuman bone	Mammalia, medium
90	Nonhuman bone	Mammalia, small
91	Nonhuman bone	Mammalia, small – scapula
92	Flaked lithic	Debitage
93	Flaked lithic	Debitage
94	Ceramic	Chapin Gray jar sherds (74): vessel 11
95	Ceramic	Early Pueblo Red bowl sherd
96	Ceramic	Early Pueblo Gray jar sherd
97	Ceramic	Early Pueblo Red bowl sherd

Table 4.7 – Point-located artifacts, Floor 1, Pithouse 2, LeMoc Shelter – Continued

PL No.	Material class	Item description
98	Flaked lithic	Debitage
99	Ceramic	Early Pueblo Gray jar sherd
100	Ceramic	Early Pueblo Gray jar sherd
101	Ceramic	Early Pueblo Gray jar sherd
102	Ceramic	Chapin Gray jar sherds (6): vessel 11
103	Ceramic	Early Pueblo Gray jar sherd
104	Ceramic	Early Pueblo Gray jar sherd
105	Nonhuman bone	Mammalia, small
106	Flaked lithic	Debitage
107	Ceramic	Early Pueblo Gray jar sherds (7)
108	Ceramic	Moccasin Gray jar sherd (not mapped)
109	Ceramic	Early Pueblo Gray jar sherd
110	Ceramic	Early Pueblo Gray jar sherds (2)
111	Flaked lithic	Debitage (2)
112	Ceramic	Early Pueblo Gray jar sherds
113	Nonhuman bone	*Odocoileus hemionus*
114	Nonhuman bone	*Odocoileus hemionus*
115	Nonhuman bone	Aves (2)
		Sylvilagus spp. (5)
		Mammalia or Aves
116	Nonhuman bone	*Odocoileus hemionus* – simple awl
117	Flaked lithic	Debitage
118	Flaked lithic	Debitage
119	Ceramic	Early Pueblo Gray jar sherds (2)
120	Flaked lithic	Debitage
121	Flaked lithic	Debitage (33)
122	Ceramic	Early Pueblo Gray jar sherd
123	Flaked lithic	Debitage
124	Flaked lithic	Debitage
125	Nonflaked lithic	Indeterminate
126	Nonflaked lithic	Indeterminate
127	Ceramic	Chapin Gray jar sherds (3)
		Early Pueblo Gray jar sherds (15)
128	Ceramic	Early Pueblo Gray jar sherds (4)
129	Ceramic	Early Pueblo Gray jar sherds (8)
130	Ceramic	Early Pueblo Gray jar sherds (6)
131	Flaked lithic	Debitage (not mapped)
132	Nonflaked lithic	One-hand mano
133	Flaked lithic	Debitage
134	Ceramic	Early Pueblo Red jar sherd
135	Ceramic	Early Pueblo Gray jar sherds (13)
136	Ceramic	Early Pueblo Gray jar sherds (19) (not mapped)
137	Nonhuman bone	Artiodactyla
138	Nonhuman bone	Mammalia, large
139	Flaked lithic	Debitage
140	Flaked lithic	Debitage
141	Ceramic	Chapin Gray jar sherds (2)
		Early Pueblo Gray jar sherds (30)
142	Ceramic	Chapin Gray jar sherds (2)
		Early Pueblo Gray jar sherds (11)
143	Ceramic	Early Pueblo Gray jar sherds (5) (not mapped)
144	Flaked lithic	Debitage (not mapped)

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Table 4.7 – Point-located artifacts, Floor 1, Pithouse 2, LeMoc Shelter – Continued

PL No.	Material class	Item description
145	Flaked lithic	Debitage
146	Nonhuman bone	*Sylvilagus* spp.
		Odocoileus hemionus
147	Ceramic	Chapin Gray jar sherd
148	Flaked lithic	Debitage
149	Ceramic	Early Pueblo Gray jar sherd
150	Flaked lithic	Debitage
151	Nonflaked lithic	Trough metate
152	Nonflaked lithic	Trough metate
153	Ceramic	Moccasin Gray jar sherd
154	Flaked lithic	Debitage
155	Ceramic	Early Pueblo Gray jar sherd
156	Nonhuman bone	Mammalia, medium
		Canis familiaris (3)
157	Nonhuman bone	Mammalia, large (2)
		Lepus californicus
		Canis familiaris
158	Nonhuman bone	*Odocoileus hemionus*
		Mammalia, medium
		Lepus californicus
159	Nonhuman bone	Mammalia, large
		Sylvilagus spp. (2)
160	Nonhuman bone	*Odocoileus hemionus*
161	Nonhuman bone	Mammalia, large
162	Nonhuman bone	*Sylvilagus* spp.
163	Nonhuman bone	Artiodactyla
164	Flaked lithic	Debitage
165	Nonflaked lithic	Generalized tool
166	Flaked lithic	Unused core
167	Ceramic	Early Pueblo Gray jar sherds (3)
168	Ceramic	Early Pueblo Gray jar sherds (3)
169	Flaked lithic	Debitage
170	Flaked lithic	Thick, endworked uniface
171	Flaked lithic	Thick, sideworked uniface
172	Nonhuman bone	*Canis familiaris* (3)
173	Ceramic	Early Pueblo Gray jar sherd
174	Flaked lithic	Debitage
175	Nonhuman bone	*Odocoileus hemionus*
176	Nonflaked lithic	One-hand mano
177	Nonhuman bone	Mammalia, medium
178	Ceramic	Early Pueblo Gray jar sherd
179	Flaked lithic	Debitage
180	Nonhuman bone	Mammalia, small
181	Flaked lithic	Debitage (2)
182	Flaked lithic	Debitage
183	Ceramic	Chapin Gray jar sherds (3)
		Early Pueblo Gray jar sherds (59)
184	Ceramic	Early Pueblo Gray jar sherd
185	Nonhuman bone	*Sylvilagus* spp.
186	Flaked lithic	Debitage
187	Flaked lithic	Debitage
188	Flaked lithic	Debitage

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Table 4.7 - Point-located artifacts, Floor 1, Pithouse 2, LeMoc Shelter - Continued

PL No.	Material class	Item description
189	Nonhuman bone	Artiodactyla (not mapped)
		Mammalia, medium (not mapped)
190	Nonflaked lithic	Two-hand mano
191	Ceramic	Early Pueblo Red bowl sherd
192	Nonflaked lithic	Minimally altered (not mapped)
193	Nonhuman bone	*Odocoileus hemionus*
194	Ceramic	Early Pueblo Red jar sherd
196	Nonhuman bone	Mammalia, large
197	Nonhuman bone	Mammalia, large
		Ovis canadensis
198	Flaked lithic	Item misplaced (not mapped)
199	Ceramic	Chapin Gray seed jar sherd
200	Nonhuman bone	*Odocoileus hemionus*
201	Nonhuman bone	*Cervus elaphus*
202	Nonhuman bone	Mammalia, large
203	Flaked lithic	Thick biface
204	Nonhuman bone	Artiodactyla
205	Nonhuman bone	Mammalia, large
206	Nonhuman bone	Artiodactyla
207	Nonhuman bone	Artiodactyla
209	Nonhuman bone	Mammalia, large
210	Nonhuman bone	Mammalia, medium
211	Ceramic	Chapin Gray jar sherd
		Early Pueblo Gray jar sherds (6)
212	Ceramic	Early Pueblo Gray jar sherds (2)
213	Nonhuman bone	Mammalia, large
214	Flaked lithic	Debitage
215	Ceramic	Early Pueblo Gray jar sherds (2)
216	Nonhuman bone	Sciuridae
217	Flaked lithic	Debitage
218	Flaked lithic	Debitage (2)
219	Nonhuman bone	Mammalia, large (2)
		Odocoileus hemionus
220	Ceramic	Early Pueblo Gray jar sherds (5)
221	Nonflaked lithic	Indeterminate
222	Ceramic	Early Pueblo Gray jar sherd
223	Flaked lithic	Thick uniface
224	Ceramic	Early Pueblo Gray jar sherds (2)
		Early Pueblo Red bowl sherd
225	Ceramic	Chapin Gray jar sherd
		Early Pueblo Gray jar sherds (4)
226	Ceramic	Early Pueblo Gray jar sherd
227	Flaked lithic	Debitage
228	Ceramic	Chapin Gray seed jar sherd
		Polished White bowl sherds (6)
229	Nonhuman bone	Mammalia, large
230	Nonhuman bone	Artiodactyla
231	Nonhuman bone	Mammalia, large
232	Ceramic	Early Pueblo Red jar sherd
233	Ceramic	Early Pueblo Gray jar sherd
234	Nonflaked lithic	Abrading stone
235	Nonflaked lithic	Abrading stone

Table 4.7 - Point-located artifacts, Floor 1, Pithouse 2, LeMoc Shelter - Continued

PL No.	Material class	Item description
236	Nonflaked lithic	Indeterminate
237	Nonflaked lithic	Two-hand mano
238	Nonflaked lithic	Two-hand mano
239	Flaked lithic	Used core
240	Ceramic	Chapin Gray jar sherd
		Chapin Gray bowl sherd
		Early Pueblo Gray jar sherds (12) (not mapped)
241	Flaked lithic	Cobble tool
242	Flaked lithic	Used core
		Unused core
243	Nonflaked lithic	Two-hand mano
244	Nonflaked lithic	Hammerstone

PL numbers not listed represent items later determined not to be associated with the floor. Refer to figure 4.24 for artifact locations.

(N) - Number of items.

152) located immediately north of the east half of the wingwall. Both of these metates are complete but were probably left behind because their transportation cost would be high relative to the labor involved in replacing them. The location of the metates suggests that the area to the east of the hearth was habitually used for food preparation. Two of the floor features (Features 98 and 102) are also believed to be associated with this activity area. Feature 102 is believed to have been a pot rest; Feature 98 appears to have been a mealing receptacle with a shelf for supporting the base of the metate during grinding.

In the western and central areas of the pithouse, it is less likely that many of the floor artifacts are secondary refuse contaminants. As mentioned, the floor in these areas is overlain by a mixture of colluvial sand and adobe melt. While this indicates that the floor was not immediately sealed when the pithouse was abandoned, there are at least no obvious postoccupational refuse deposits.

The floor artifacts in the western and central parts of the pithouse are clustered in 3 areas: near the northwestern posthole, near the hearth and warming pit, and behind the west half of the wingwall. The cluster near the northwestern posthole consists primarily of lithic debitage and bone fragments; also in this cluster is a river cobble that might have been used as a hammerstone (PL 244). This scatter may be primary refuse, indicating a work area for the construction and repair of lithic and bone tools. The debris near the hearth and warming pit includes sherds, debitage, and a few scraps of bone. Given the proximity of the hearth and warming pit to the cluster, these artifacts might be debris associated with food preparation and consumption. In such an intensively used area, frequent clean-up of debris would be expected, but this might have been suspended shortly before the structure was abandoned.

The materials concentrated behind the west half of the wingwall include 2 one-hand manos (PL's 132 and 176), a "generalized" nonflaked lithic tool that might be a notched axe (PL 165), an unused core (PL 166), several sherds, and numerous pieces of nonhuman bone. The bone includes mule deer, cottontail, black-tailed jackrabbit, unidentifiable mammal, and the skull and part of the skeleton of a dog. The quantity and variety of bone suggests that this debris is a refuse deposit, possibly associated with the abandonment of the structure. Much of the debris behind the east half of the wingwall also could have accumulated in the same manner.

In summary, although some of the floor artifacts, especially in the eastern part of the pithouse, are probably postoccupational refuse, the overall distribution is consistent with the discard pattern expected when a structure has been abandoned. The most intensively used areas of the floor, as indicated by the feature locations, are relatively free of debris (with the exception of the artifact cluster around Feature 90). In contrast, refuse appears to have been allowed to accumulate in the lesser-used areas - behind the wingwalls, and along the east and northeast walls of the main chamber. The presence of the trough metates and a possible mealing cist north of the east wingwall is argument for this area having been habitually used for milling. Less certainly, the concentration of debris around Feature 90 in the northwest corner of the pithouse suggests that this area might have been a work area for tool production. Finally, the debris around the hearth and warming pi. is consistent with the interpretation that food preparation and consumption were major activities in this area.

Despite the tenuous nature of the evidence, the range of activities represented, especially the presence of implements associated with women's tasks (e.g. mealing), seems sufficient to argue that Pithouse 2 was primarily a domicile and not a religious structure. However, if Feature 94 functioned as a sipapu (which seems likely, given its form and location), it can be inferred that the pitstructure periodically might have been the locus of ritual activity, or at least that certain mythological concepts were symbolized.

The fact that 3 of the floor features – Features 98, 100, and 101 – were filled with sand and sealed by the floor plaster indicates that the need for facilities in the pitstructure was variable and that the use of space for particular activities changed through time. It also supports the interpretation that the pitstructure was occupied for several years, since it is unlikely that such remodeling would be evident in a structure that was only briefly used.

Element 2

Pithouse 1

Dimensions:

North wall	
length:	4.65 m
height:	1.65 m
South wall	
length:	4.80 m
height:	1.08 m
East wall	
length:	5.35 m
height:	1.21 m
West wall	
length:	5.00 m
height:	1.62 m

Pithouse 1 (fig. 4.25) is located in the eastern portion of the shelter, immediately to the south of Rooms 9 and 10. It measures approximately 5.7 m north-south by 5.5 m east-west, and the floor is roughly 1.65 m below aboriginal ground surface. The occupation of Pithouse 1 is believed to date to between A.D. 840 and 860. If these dates are correct, a hiatus of approximately 60 years occurred between the abandonment of Pithouse 2 and the construction of Pithouse 1. However, midden deposits in the depression of Pithouse 2 (Strata I-2 and I-4) indicate that the shelter was occupied sometime during that interval, although no domicile dating to this period was found. Since the western half of the shelter was apparently being used as a trash dump, it seems reasonable to assume that the living area at the time was in the eastern half of the shelter. If so, all traces of that occupation were destroyed when Pithouse 1 was built. Some evidence of remodeling of the pitstructure in the form of adobe-capped subfloor features was found, but the scale of this remodeling is too small to suggest major rebuilding.

Construction. – In its construction, Pithouse 1 exhibits the same opportunistic use of the cave breccia evident in the construction of Pithouse 2. Both the north and west walls were formed by shaping the breccia face. The south and east walls, however, are backed by unconsolidated sediments. Behind the south wall, these sediments are the colluvial subsoil of the slope in front of the shelter, but behind the east wall they are midden deposits that probably were intentionally placed shortly before the structure was built.

Architectural cross sections of Pithouse 1 are shown in figure 4.26. The south and east walls consist of crude coursed masonry – unshaped sandstone blocks and river cobbles set in a matrix of adobe – built on a footing of large, vertical sandstone slabs. Vertical slabs also face the lower 70 cm of the west wall, supporting a 1- to 2-cm-thick layer of adobe plaster adhering to the upper wall. In many places, the vertical slabs and masonry had fallen from the walls; as a result, the slabs did not appear consistently in cross section. Along the north wall, 3 rows of vertical slabs were noted. The 2 outer rows support several courses of masonry. The space between this masonry and the breccia face is filled with rubble, and the entire feature is capped by horizontally laid slabs and mortar to form a bench (Feature 69) (fig. 4.13). This bench is approximately 105 cm high and 65 cm wide.

At the western end of the bench is a 30-cm-high block of cave breccia faced with thin stone slabs that forms one sidewall of a large wall aperture (Feature 68) cut into the breccia in the northwest corner of the structure. The oval opening into this aperture is 165 cm long and 86 cm high, with its base at the level of the top of the bench. The interior of the feature is divided into 2 compartments by a masonry partition. Both chambers appear to have been lined with adobe plaster, and a lip was built across the opening using a single course of sandstone blocks. Although no reliable artifact evidence upon which to base a functional interpretation was recovered, the configuration of the feature suggests that it probably was used as a storage facility.

The roof of Pithouse 1 was supported by four posts (Features 55, 57, 64, and 65), with one posthole set about 1

m out from each corner. Presumably, the posts in these postholes were linked by crossbeams, which in turn would have supported smaller poles laid horizontally. Finally, leaner poles would have been laid with one end supported by the crossbeams and the other end buried in the ground just outside the pit walls to form the sloping sides of the roof.

Some modification of this last step would have been necessary on the north and west sides, however, because of the height of the cave breccia. On the north side, the leaners might have rested on the bench. To the west, 2 leaner shelves (Features 135 and 136) gouged into the breccia just below the lip of the baik between Pithouses 1 and 2 appear to have provided the needed support. Each of the shelves is about 80 cm long and 15 to 25 cm wide. A small remnant of masonry and mortar on the northernmost of the shelves suggests that originally a lip of stone and adobe was present along the front of the shelves to help anchor the base of the leaners.

The underlying bedrock seems to have caused problems with the roof support framework. Both of the northern postholes for the roof supports (Features 64 and 65) were dug to bedrock but apparently were too shallow to adequately stabilize the upright posts. To compensate, the postholes were lined with gravel, and conical adobe collars approximately 50 cm in diameter and 25 cm high were placed around each of the posts (figs. 4.27 and 4.28) to provide additional support.

The floor of the pitstructure is a thin layer of adobe covering the heterogenous sediments labeled Stratum II-1. The compact, colluvial sand and sandy clay loam underlying the southern two-thirds of the floor was simply leveled before puddling the plaster, but in the northern third some subfloor preparation was evident (refer to Stratum II-1 discussion). In this area, solid bedrock is approximately 25 to 35 cm below floor level and is overlain by a stratum of coarse white sand, the result of decomposition of the bedrock. This weathered sandstone was likely still partially consolidated when the pitstructure was being built and formed an irregular surface similar to that described for the base of Stratigraphic Unit III. The lenses of midden in the white sand appear to have been laid to fill these irregularities.

Floor features. – As in most Anasazi pitstructures, Pithouse 1 is oriented around a true north-south axis that runs through the middle of the floor, bisecting the ventilator tunnel, ash pit, hearth, and sipapu. The dimensions of these and other features are listed in table 4.8.

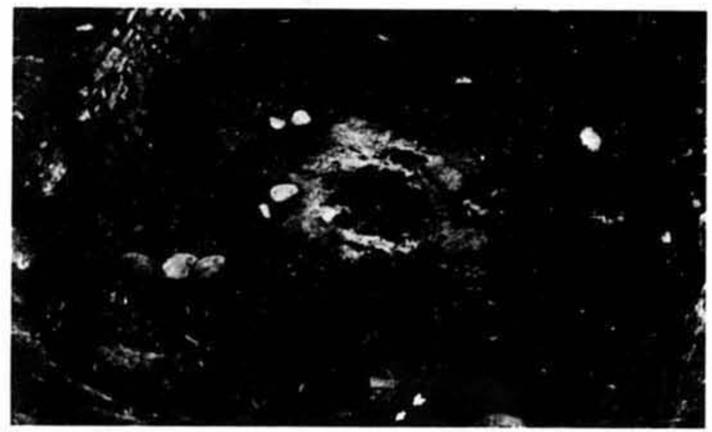

Figure 4.25 – View of Pithouse 1 after excavation, LeMoc Shelter. View is looking southeast from Room 9 (DAP 001913).

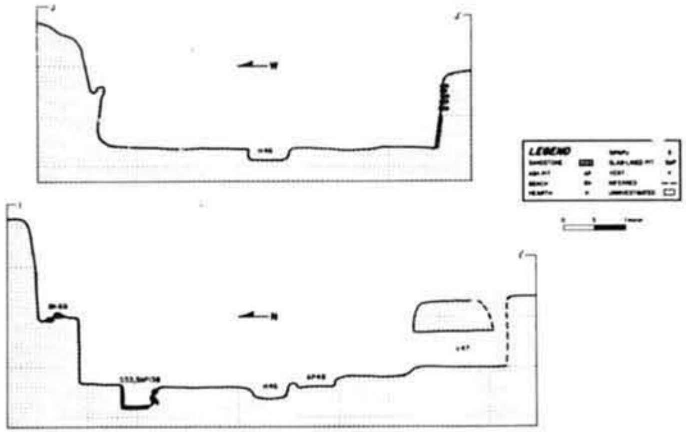

Figure 4.26 - Architectural cross sections of Pithouse 1, LeMoc Shelter. Profiles I and J are located in plan in figure 4.27. Profile drawn prior to discovery of Feature 50 (pit).

The ventilator system (Feature 47) opens into the pithouse as a square portal that measures 45 cm on each side and is approximately 15 cm above the pithouse floor in the center of the south wall. Vertically set sandstone slabs face the walls of the tunnel and support its roof, which is made of horizontal poles below a layer of sandstone slabs (not mapped). The air passage apparently was constructed by digging a trench, roofing it, and then backfilling over the roof. The tunnel is flared along its 1.5 m length to a width of 75 cm at the outside opening. Unfortunately, erosion of the hill slope in front of the shelter made it impossible to determine the precise configuration of the outside opening or to infer whether a short vertical shaft, such as that in Pithouse 2, had been present.

Feature 46 is the central hearth in Pithouse 1. It is round in plan and gently basined in cross section. The bottom and sides of the hearth are lined with clean sand; overlying this is a layer of sand mixed with ash and charcoal, which may be part of roof fall.

The ash pit (Feature 48) is a shallow, rectangular depression located immediately south of the hearth. The pit is filled with a mixture of ash, sand, and bits of charcoal; however, the absence of reddening of the pit walls suggests that the trough was not used regularly as a fireplace. Presumably, ash was temporarily placed in the feature when the hearth was cleaned. With ash in the pit, it could have served both as a convenient pot rest and as a refuse container. A shallow depression along the northern margin of the pit suggests that a deflector may have stood between the ash pit and the hearth, although no deflector slab was found and no feature number was assigned.

The term "sipapu" (Feature 53) is applied somewhat arbitrarily to an unusually complex pit lying along the north-south axis near the north wall of the pithouse. The north, east, and west walls of the pit are formed by thin sandstone slabs, and a fourth slab lines the bottom. Intersecting this on the south is a shallow basin (Feature 138) approximately 40 cm in diameter, that originates below floor level. Set edgewise at the intersection are two rounded sandstone blocks and a fifth slab that dips to the north at a 45° angle. Three other small sandstone blocks lie in the basin itself (fig. 4.29).

The configuration of this feature is clearly more suggestive of a milling station, with the rocks in the basin supporting the metate and the slab-lined pit serving as a receptacle for the meal. The fact that the basin was sealed by the hard-packed floor leaving only the slab cubicle exposed, however, renders this interpretation suspect.

During remodeling or reoccupation of the pithouse, the milling station appears to have been modified to serve as the sipapu. Interestingly, the slab cubicle resembles in form and general position, although not in size, the so-called "ceremonial boxes" found in large Periman Subphase pitstructures (Kane 1981a:103). Although no paho marks were noted in or around Feature 53, it is tempting to speculate that this may be a precursor of these later box features.

Excluding the 3 subfloor features (Features 70, 71, and 77), six small pits or cists (Features 49, 51, 54, 58, 59, and 66) are present in the north half of the floor (table 4.8). Feature 54 is a small, oval pit located about 10 cm west of the sipapu. Feature 58, a circular floor cist, lies about 20 cm to the northeast of the northwestern roof support. The fill consisted of ashy sand intermixed with bits of charcoal and adobe and might have been part of the roof fall. A small, crudely made pinch pot (vessel 14), eight plain gray ware sherds, one Abajo Red-on-orange sherd, a hammerstone, and a polishing stone were recovered from the fill of this feature. Since the sherds were scattered throughout the pit fill, it is unlikely that they were stored intentionally.

Feature 59 is a broad, oval pit that lies about 37 cm southeast of the sipapu. Except for a small, tabular piece of sandstone standing upright on the southeast side, the fill consisted of sterile sand. Feature 51 is a circular pit located about 55 cm southwest of the sipapu. A few sherds and some debitage were found within the ashy sand that filled the pit, but again, these are probably associated with the roof fall rubble. To the northwest of Feature 51 is a trough metate (designated Feature 139 and PL 28) pedestaled on two cobbles, with 1 two-hand mano (PL 23) lying beside it and another (PL 29) lying on top of it. A small, circular collecting basin (Feature 66) is located at the opening of the metate trough and probably received the meal as it was ground. Because of its proximity to Features 66 and 139, Feature 51 also may have been associated with the milling station. This pit possibly provided temporary storage for the corn before

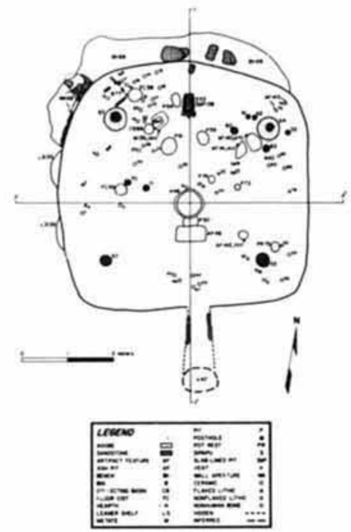

Figure 4.27 - Map of Pithouse 1, Floor 1, LeMoc Shelter. Profiles I and J are shown in figure 4.26. Features 70, 71, 72, 74, 75, and 77 are subfloor features believed to have been used prior to the remodeling of Pithouse 1.

Figure 4.28 - View of Feature 65 (posthole) in Pithouse 1, LeMoc Shelter (DAP 003223).

Table 4.8 – Feature summary, Pithouse 1, LeMoc Shelter

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth (cm)
46	Hearth	Round	Basin	62	60	15
47	Ventilator	Rectangular	Rectangular	150	45	50
48	Ash pit	Rectangular	Basin	59	34	9
49	Floor cist	Round	Cylindrical	33	33	23
50*	Pit	Oval	Basin	25	18	11
51	Pit	Round	Bell	34	34	30
52	Posthole	Round	Cylindrical	9	8	8
53	Sipapu	Rectangular	Rectangular	20	20	30
54	Pit	Oval	Basin	35	15	12
55	Posthole	Round	Cylindrical	35	35	32
57	Posthole	Round	Cylindrical	29	29	33
58	Floor cist	Round	Cylindrical	30	30	20
59	Pit	Oval	Cylindrical	34	27	34
60	Posthole	Round	Cylindrical	20	20	15
61	Posthole	Round	Cylindrical	10	9	16
62	Posthole	Round	Cylindrical	12	10	23
63	Posthole	Round	Basin	19	18	18
64	Posthole	Round	Cylindrical	20	20	34
65	Posthole	Round	Cylindrical	20	20	45
66	Collecting basin	Round	Basin	27	27	21
68	Wall aperture	Complex	Irregular	165	75	86
69	Bench	Irregular	Rectangular	480	65	105
70*	Posthole	Round	Cylindrical	13	13	29
71*	Posthole	Round	Cylindrical	13	13	29
72*	Pit	Round	Cylindrical	12	13	30
74*	Pit	Oval	Basin	16	14	15
75*	Pot rest	Round	Basin	18	17	4
77*	Storage bin	Square	Rectangular	40	40	28
135	Leaner shelf	...	...	80	25	...
136	Leaner shelf	...	...	80	15	...
138*	Slab-lined pit	...	...	40	40	...
139	Metate (PL 28)	n.a.	n.a.	...	...	...
140	Anvil stone (PL 67)	n.a.	n.a.	...	...	...
141	Anvil stone (PL 61)	n.a.	n.a.	...	...	...
142	Anvil stone (PL 53)	n.a.	n.a.	...	...	...
143	Anvil stone (PL's 74 & 75)	n.a.	n.a.	...	...	...

*Possibly associated with earlier occupation.

... - Information not available.
n.a. - Not applicable.

it was ground or for the meal after it was produced. A second floor cist, Feature 49, is a small, circular pit located approximately 1 m west of the hearth. Like Features 54 and 59, it was filled with clean sand.

None of the pits or floor cists just discussed are large enough to have been of any benefit for long-term food storage. Rather, like Feature 58, they probably provided convenient, temporary storage for a variety of small items or, as Features 51 and 66 suggest, were part of the food preparation facility, functioning as receptacles to receive meal as it was ground or to hold provisions for a day or two.

Five small postholes (Features 52, 60, 61, 62, and 63) are clustered around the main roof support posthole in the northeast corner of the floor. While these might have accommodated additional support posts for the r. of, it

Figure 4.29 – View of Feature 53 (sipapu) in Pithouse 1, LeMoc Shelter. Sipapu remodeled from earlier slab-lined pit (Feature 138) (DAP 003225).

seems more likely that they served some other function. Features 52 and 63 might have held loom anchors, or perhaps the 5 postholes together were the supports for a frame used in the preparation of hides.

In addition to the metate (Feature 139), four other artifact features, all consisting of in situ anvil stones, were defined in Pithouse 1. These were assigned feature numbers 140, 141, 142, and 143 and correspond to PL numbers 67, 61, 53, 74, and 75, respectively.

All of the floor features discussed so far were found during the initial excavation of Pithouse 1. With the exceptions noted earlier, all of these features were filled with a clean, pale brown sand, and all are believed to have been in use at the time the structure was abandoned. However, 6 additional features (Features 70, 71, 72, 74, 75, and 77), discovered during subfloor testing, had been sealed by the floor plaster. None of these are major floor features, and there was no evidence of an associated surface. It seems likely, therefore, that these features fell into disuse as Pithouse 1 was gradually remodeled. The features were probably sealed with adobe patches that gradually blended into the floor as they weathered.

Features 70 and 71 are identical postholes located roughly 100 cm and 60 cm west of the hearth, respectively. The sides of both these features are lined with adobe, and both were filled with a dark, ashy sand flecked with charcoal. These postholes possibly served as ladder rests. Feature 74 is a small, steep-walled pit located approximately 35 cm northeast of the hearth. Feature 72, another small pit, lies about 40 cm to the southeast of Feature 74. A small gray ware bowl sherd was wedged in this feature, about 8 cm above the bottom of the pit. Both Features 74 and 72 were filled with a dark, ashy sand; no evidence was found in either of these features that suggests how they were used, nor were any unique formal characteristics noted that warrant speculation. Most likely, these were facilities constructed for some specific, one-time use, and when that activity was completed, they were filled in. The fifth subfloor feature, Feature 75, is a shallow basin located 15 cm northeast of the southeastern roof support.

The last subfloor feature (Feature 77) is a square storage bin lined with thin sandstone slabs. This bin is located near the northwest corner of the floor, between the post support and the wall of the pithouse. The bin closely resembles Feature 138 except that there are no stones on which a metate could have been placed. The bin was filled with a clean, pale brown sand, and a single hammerstone was found in the three-dimensional center of the feature.

In addition to the subfloor features and the modifications to Feature 53, one other feature, Feature 50, suggests the gradual remodeling of the floor of Pithouse 1. This small, oval pit is located between the hearth and the ash pit, partially undercutting the latter. Feature 50 was filled with ash and charcoal and was overlain by the southern arc of the hearth's adobe collar. While it was impossible to precisely determine the function of this pit, it seems likely that Feature 50 was either the original hearth of Pithouse 1 or an earlier ash pit. Refer to the "Construction" section for a discussion of the main support postholes (Features 55, 57, 64, and 65) in Pithouse 1.

Floor artifacts. – Like the abandonment of Pithouse 2, that of Pithouse 1 appears to have been both purposeful and unhurried. The few artifacts left on the floor consist primarily of bone scrap, bits of pottery, and easily replaced stone artifacts (fig. 4.27 and table 4.9). In Pithouse 1, however, the floor artifacts are sealed in context by a distinct stratum of roof fall. These materials, therefore, are more likely to be primary refuse reflecting the variety of tasks performed while the structure was still in use. Even so, defining activity areas on the basis of this material is far from straightforward. In an effort to discern possible activity areas, the distribution of floor artifacts was studied for indications of spatial patterning. Four artifact clusters were noted on the floor of Pithouse 1: in the northwest quadrant of the floor, around the south-

Table 4.9 – Point-located artifacts, Floor 1, Pithouse 1, LeMoc Shelter

PL No.	Material class	Item description
1	Ceramic	Early Pueblo Gray jar sherd
2	Flaked lithic	Debitage
3	Nonhuman bone	*Odocoileus hemionus* — simple aw'
4	Flaked lithic	Debitage
5	Ceramic	Early Pueblo Gray jar sherd
		Mancos Corrugated jar sherd
6	Flaked lithic	Debitage
9	Flaked lithic	Debitage
10	Ceramic	Moccasin Gray jar sherd
11	Ceramic	Moccasin Gray jar sherds (4)
		Early Pueblo Gray jar sherds (14)
12	Nonhuman bone	Mammalia, large (2)
13	Flaked lithic	Graver
14	Ceramic	Early Pueblo Gray jar sherds (8)
		Polished White bowl sherd
15	Ceramic	Moccasin Gray jar sherds (2)
16	Nonflaked lithic	One-hand mano
17	Ceramic	Moccasin Gray jar sherd
18	Ceramic	Early Pueblo Gray jar sherd
19	Ceramic	Polished White jar sherd
20	Ceramic	Chapin Gray jar sherd
21	Ceramic	Early Pueblo Gray jar sherd
22	Ceramic	Early Pueblo Gray jar sherd
23	Nonflaked lithic	Two-hand mano
24	Ceramic	Early Pueblo Gray jar sherd
25	Ceramic	Early Pueblo Gray jar sherd
26	Nonhuman bone	Mammalia, large
27	Nonflaked lithic	Two-hand mano
28	Nonflaked lithic	Trough metate
29	Nonflaked lithic	Two-hand mano
30	Ceramic	Moccasin Gray jar sherd
31	Nonflaked lithic	Indeterminate
32	Flaked lithic	Thick uniface
33	Nonflaked lithic	Pestle
34	Nonflaked lithic	Anvil stone
43	Ceramic	Early Pueblo Gray jar sherd
44	Ceramic	Early Pueblo Gray jar sherd
45	Ceramic	Early Pueblo Gray jar sherd
46	Ceramic	Early Pueblo Gray jar sherd
47	Ceramic	Early Pueblo Gray jar sherd
51	Flaked lithic	Used core
52	Flaked lithic	Used core
53	Nonflaked lithic	Anvil stone
54	Nonhuman bone	Mammalia, medium – spatula
55	Flaked lithic	Used core
56	Nonflaked lithic	Indeterminate
57	Nonflaked lithic	Indeterminate (2)
		Hammerstone
58	Ceramic	Moccasin Gray jar sherd
59	Flaked lithic	Debitage
61	Nonflaked lithic	Anvil stone
63	Nonhuman bone	Mammalia, large

Table 4.9 – Point-located artifacts, Floor 1, Pithouse 1, LeMoc Shelter – Continued

PL No.	Material class	Item description
64	Ceramic	Early Pueblo Gray jar sherd
65	Nonhuman bone	Mammalia, medium (2)
66	Nonhuman bone	*Lynx rufus*
67	Nonflaked lithic	Anvil stone
68	Nonflaked lithic	Indeterminate (not mapped)
69	Ceramic	Early Pueblo Gray jar sherd (not mapped)
70	Ceramic	Early Pueblo Gray jar sherd (not mapped)
72	Nonhuman bone	*Odocoileus hemionus* (not mapped)
73	Nonhuman bone	Mammalia, large (not mapped)
74	Nonflaked lithic	Anvil stone
75	Nonflaked lithic	Anvil stone
76	Nonhuman bone	Artiodactyla (not mapped)
77	Ceramic	Early Pueblo Gray jar sherds (2) (not mapped)
78	Nonflaked lithic	Two-hand mano
79	Ceramic	Early Pueblo Gray jar sherds (13) (not mapped)

PL numbers not listed represent items later determined not to be associated with the floor. Refer to figure 4.27 for artifact locations.

(N) – Number of items.

eastern roof support posthole, around the northeastern roof support postholes, and between the ash pit and the ventilator tunnel.

Approximately half of the artifacts in the northwest quadrant are sherds. Most of these are classified as Early Pueblo Gray, but some Moccasin Gray and Early Pueblo White sherds are also present. The ground stone artifacts include three two-hand manos (PL's 23, 27, and 29), an in situ, pedestaled trough metate (PL 28), and 3 river cobbles. Also recovered was a flake that had been worked unifacially; this item is classified as a graver, beak, or perforator (PL 13). Several small splinters of artiodactyl bone were also recovered.

The artifact cluster around the southeastern roof support posthole consists of three used cores (PL's 51, 52, and 55); a fragmentary nonflaked lithic tool; a bone spatula (PL 54); and a large, flat river cobble that might have been used as an anvil (PL 53). North of the northeastern roof support there is a second anvil stone (PL 75) and a hammerstone (PL 74). Two more anvil stones (PL's 61 and 67) lie to the southwest of this posthole, and south of these is a scatter consisting of one piece of flaked lithic debitage and several bone fragments. The fourth artifact cluster, between the ventilator tunnel and the ash pit, consists of sherds from Early Pueblo Gray jars. In addition to these major artifact concentrations, there is a diffuse scatter around the hearth, which includes a stone pestle (PL 33), a unifacially worked flake (PL 32), and an anvil stone (PL 34).

Traditionally, activity areas have been defined on the basis of clusters of artifacts. Each cluster is assumed to mark an area where a task was performed. Once the clusters are identified, the artifacts in each are analyzed to determine the task that was being performed. Yellen (1977:96-97) states that 2 a priori assumptions that underlie this method are "that individual tasks are spatially segregated from one another" and "that objects found in association in an archaeological context are related to a single task or form part of a single tool kit." However, according to Yellen, recent ethnoarchaeological research refutes both of these assumptions. Many tasks tend to be performed in more than 1 place, and artifacts from several activities often can be found in the same area. Activities, and consequently the material evidence for those activities, tend to overlap spatially. Indeed, Yellen's observations of the spatial organization of Bushman camps has led him to reject the concept of activity areas.

Binford (1978:353), however, is less pessimistic: "Quite clearly there is a basis in 'reality' for seeking patterns in the archaeological remains which derive from spatial segregation of activities". Based on his studies of the Nunamiut Eskimo, Binford argues that at any one time, the different activities being conducted simultaneously are independently organized in space. That organization, the spatial separation of activities, will vary with the number of activities being performed and with the nature of those activities. Over time, there is a statistical tendency for the individual activities to become localized in one area, although that area generally would not be reserved exclusively for one task.

A number of factors condition this spatial organization. Activities vary in the amount of space and time required for their completion, the number of participants, and the amount of debris or pollution (noise or odor) produced. Consequently, some activities will interfere with others, and the debris or pollution from some activities will disrupt or inhibit others. Some activities, therefore, will be consistently performed away from the central living/use areas. For example, Yellen (1977:92) reports that skins are dried outside of the Bushman hut circles because "this takes up a great deal of room" and because "such skins attract both vermin and carnivores." Among the Australian Aborigines, O'Connell (1979) notes that "car-repair" stations are segregated since vehicles often must stand idle for several months until the proper parts are obtained.

In multiple-use areas, although the activities themselves may be performed more or less harmoniously, the debris from one task can interfere with other use of the space. Consequently, these areas are generally cleaned up periodically, or, as at the Mask Site (Binford 1978), some debris is immediately tossed away from the use area. As Binford observed, these disposal patterns result in a distribution that essentially is inversely related to use intensity. Therefore, when the intensively used space is limited, as on the floor of a pitstructure, cleaning up is likely to be a frequent activity.

In a study of discard locations using a sample from the Human Relations Area File, Murray (1980:492) found support for the hypothesis that "if a population is sedentary, relatively numerous, and uses permanent architectural structures as activity loci, then it will discard, outside their use locations, elements used in activities at those loci." Although the study was intended as an examination of the differences in discard locations between sedentary and mobile groups, her operationalization of the above hypothesis more closely relates to the removal of debris from the interior of architectural features. It seems likely, therefore, that the observed disposal patterns are less a consequence of sedentism than of intensive use of limited space for a variety of activities.

Although the findings discussed here seem to preclude the identification of artifact concentrations within structures as activity areas, this is not necessarily the case. At least 2 other processes appear to be at work to ensure that some record of an activity is preserved.

The first of these is size sorting of the refuse. Only the larger pieces of debris are generally perceived as interfering with other activities. Consequently, smaller items are frequently left in place when an area is cleaned or debris is discarded. For instance, South (1979:218) notes that in historical sites "smaller sized artifacts are thrown around the yard adjacent to the house, whereas larger ones are usually on the periphery." O'Connell (1979) observed this same pattern in Aborigine camps, and at the Mask Site, size sorting is a significant factor in Binford's "toss zones" and "drop zones" (1978). Although no systematic studies have yet been done, some of the smaller bits of refuse would have been ignored when a structure floor was cleaned, especially if the floor were earth or plaster rather than stone, wood, or some other unyielding substance. Nevertheless, the assumption made here that the smaller debris fragments on the pitstructure floor are likely to be primary refuse is untested. It is, however, consistent with what is currently known about discard behavior.

The second process contributing to the preservation of activity areas within structures is trampling. Debris dropped on a penetrable surface tends to be trampled into that surface by foot traffic. The floor becomes what Schiffer has termed an "artifact trap" (1976:32), although in this case, it is primary refuse that is trapped rather than lost artifacts. Under certain conditions the effects of trampling can be dramatic. For instance, Gifford (1978:81) recovered approximately 9 times as many items (1953) from the subsurface layer as from the surface (200) of an African campsite that had been occupied for only 4 days.

Trampling, like discard behavior, effects a size sorting. In the case of the African campsite, the median size of the artifacts in the subsurface layer was slightly less than 3 cm. This is very close to the 1-in (2.54 cm) maximum size for items likely to become primary refuse discovered by Schiffer's students in studying modern refuse disposal (Schiffer 1978:244). Trampling, therefore, appears to be a mechanism whereby primary refuse may be preserved "through an out-of-sight-out-of-mind process" (Gifford 1978:83).

The relative importance of trampling in any single instance is conditioned by several factors. Probably the most important of these is the penetrability of the substrate. Gifford's campsite had a fine sand substrate into which small items could be readily incorporated. Material is much less likely to be incorporated into the plastered surface of a pithouse floor. Or, more precisely, the average size of the materials incorporated into the floor will probably be smaller. Assuming that the "trampling force" is roughly constant, as the force-per-area needed to penetrate the subsurface increases, the size of the items incorporated into the substrate should decrease. The distance that trampled objects penetrate into the substrate can also be expected to decrease with increased co[illegible]ness of the substrate.

If these hypotheses are valid, items of primary refuse trampled into the floor of Pithouse 1 probably will average somewhat less than 3 cm in size and are likely to be embedded in the plaster surface rather than to be incorporated into the underlying substrate. Testing of these hypotheses, however, has not yet been undertaken, which is unfortunate because these are the data most likely to yield the redundancies in spatial organization that Binford sees as the key to identifying activity areas. The material remaining on the floor may indeed be primary refuse, but the activities represented by this debris are not necessarily illustrative of the habitual organization of space when the structure was occupied. In fact, they are more likely a consequence of behavior during the abandonment of the site.

The nature of this de factor refuse is related not only to the activities performed but also to the conditions of abandonment. That is, the fact that a structure is being abandoned may alter the way in which activities are performed and, consequently, may affect the distribution of the material items left behind. "For example, if abandonment is anticipated by a group, its members may begin to accumulate refuse in areas like house interiors, which usually would have been kept relatively free of debris. Such material might be considered primary refuse, but they really are formed by an abandonment, not normal, process" (Schiffer 1976:33-34).

How, then, are the artifacts from the floor of Pithouse 1 to be interpreted in light of the preceding discussion? First of all, it is clear from the relative paucity of complete implements that the pitstructure was not abandoned under catastrophic circumstances. Since abandonment was anticipated, the choice of materials left on the pithouse floor was undoubtedly strongly conditioned by the circumstances of that abandonment. Following Schiffer's arguments, it seems likely that most of the nonflaked stone artifacts – the lapstones, anvils, manos, and hammerstones – were left behind since they could be readily replaced with only a small labor investment. The same probably was true of the flaked stone tools and cores. The metate, on the other hand, was most likely left behind because of the high cost of transporting such an item.

These still-usable artifacts presumably were left either where they were last used or where they normally were cached. Consequently, their locations should reflect at least the spatial organization of activities immediately preceding the abandonment of the site. Furthermore, since the floor features represent a long-term allocation of activity space, it should be possible to make some judgments concerning the activity pattern in the pithouse by comparing the 2 lines of evidence. Finally, by examining the distribution of the sherds and bone scrap, which are believed to be primary refuse, some additional evidence of patterning may emerge.

The artifacts in the southeast corner of Pithouse 1 appear to constitute a flintknapper's tool kit, although the fact that no lithic detritus was found in the area suggests that no knapping was done immediately before the structure was abandoned. Rather, this seems to have been where the tools were stored. Nevertheless, the fact that the tools are scattered may indicate a lithic work area or an area where the flintknapper had sorted through his materials, tossing aside the items that were being left behind.

The placement of the two large anvils (PL's 61 and 67) near the northeastern roof support posthole seems to have been purposeful. Their presence, and that of the anvil stone north of the posthole (PL 75), suggests that this area may have been used for tool storage or possibly as a work area. This interpretation is seemingly contradicted, however, by the scatter of bone, stone, and ceramic debris in this area. If this material is accepted as being primary refuse, the predominance of bone fragments suggests that the anvils might have been used to break bone for the extraction of marrow or oil. While this interpretation is plausible, the presence of lithic detritus and sherds would be anomalous in this situation.

It seems more likely that these artifacts were refuse that was swept or tossed into this corner. Therefore, this material is technically secondary refuse, probably from several activities. Normally, the final step would have been to clean up and remove this debris from the structure, but because the pithouse was being abandoned, the usual discard behavior apparently was suspended. This same process likely also accounts for many of the artifacts in the clusters south of the ash pit and in the northwest quadrant of the floor. Consequently, when hypothesizing activity areas, these materials must be interpreted with caution, and relatively more weight should be given to the usable tools found in these concentrations.

Keeping these caveats in mind, the northwest corner of the floor is tentatively interpreted as having been a food preparation area. The tools present (2 two-hand manos and a pedestaled trough metate) clearly indicate that milling was habitually conducted in this part of the pithouse, and the clustered floor features suggest that other food preparation activities were centered here as well. Using ethnographic data from observations of historic Hopi and Zuni food processing activities, Southward (1981) notes that there is some justification for using mealing areas as primary indicators of food processing. However, she also argues that food processing activities tend to include large areas that generally incorporate more than 1 feature-based focal point. Such a sequence often involves repeated use of a fire area and a mealing area. Consequently, while much of the food processing may have been concentrated in the northwest corner, the activity area required for the whole preparation process would have intermittently encompassed the entire northwest quadrant of the floor of the pitstructure.

To some extent, the debris in the northwest corner supports the interpretation of this area as a center for food preparation as well. The bone scrap, for example, is confined to the edges of the scatter as though tossed out of the way as meat was prepared. Similarly, some of the sherds may be primary debris from vessels broken during food preparation. The almost uniform distribution of the sherds over the area, however, is more characteristic of a secondary debris scatter than of the distribution of primary refuse in an activity area. More typical of the latter is a concentration of refuse in arcs or lobes immediately outside of the actual work area. Consequently, at least a portion of this artifact concentration is likely to be secondary refuse.

The materials scattered around the hearth are generally too large to be primary refuse. With few exceptions, these artifacts are usable tools. In this instance, it is unlikely that they normally were stored in this area, since it is assumed that the areas around hearths or fires are intensively used for a variety of activities. The most plausible interpretation, therefore, is that these artifacts were set aside as some activity being performed shortly before abandonment was completed or interrupted. When the site was finally abandoned, the artifacts were left behind. These artifacts – a mano, a pestle, 2 anvil stones, a thin uniface, a utilized flake, and 2 stone cobbles – suggest that food preparation and possibly some last-minute repair or implement manufacture were the last activities performed in the central part of the pitstructure.

The open areas where few artifacts were found can be as informative as the artifact clusters. If the refuse found on the floor is accepted as evidence that normal discard behavior patterns were suspended in anticipation of abandoning the pitstructure, then these open areas may be explained as the product of one of two behaviors: intensive use or storage. Binford (1978:355) notes an inverse relationship between intensively used areas and areas of refuse disposal. This relationship implies that those areas relatively free of debris were the most intensively used loci on the pitstructure floor. Alternatively, some of these artifact-free areas might have been used primarily for storage (e.g., in bags or baskets). By definition, storage requires the use of allotted space for an extended period, precluding use of that space for other activities. Since storage produces little or no debris, once the stores are removed, little evidence for that use of space is likely to remain.

Both behaviors probably account for the observed open areas on the floor of Pithouse 1. To some extent, however, the effects of intensive use and storage can be separated by reference to the locations of floor features, which, for Pithouse 1, suggest that activities were structured around 2 loci. As indicated earlier, the floor artifacts and features concentrated in the northwest quadrant of the floor suggest that this area was used habitually, and possibly exclusively, for food preparation. The second focal point appears to have been the area around the hearth and ash pit. Binford's (1978), O'Connell's (1979), and Yellen's (1977) observations indicate that the hearth is generally the center for many activities beyond those tied to the feature itself. Besides maintenance of the fire for warmth and cooking, the hearth area was probably a focal point for eating, conversation, a variety of craft activities, and sleeping.

Allowing space for these activities and for a walk-space around the hearth and ash pit, the periphery of this central area appears to coincide roughly with a square drawn to connect the 4 roof support posts. Intensive use of this central area would tend to preclude any activity that required monopolizing any space for a long period of time or any activity that created large quantities of debris. Such activities were most likely relegated to outside work areas or, within the pitstructure, to the less-used spaces around the periphery. Concentrating the kitchen area in the northwest corner is apparently a consequence of this competition for space in the center of the floor. This competition may also help explain the location of manufacturing areas in the eastern half of the structure.

Following this rationale, storage areas would also be located on the periphery. However, when a structure is abandoned in a leisurely manner, no artifact evidence of storage is likely to remain. Therefore, negative evidence, in this case the distribution of floor artifacts, must be used. Except for the scatter of secondary refuse in front of the ventilator tunnel, no artifacts were found in the peripheral areas of the southwest quadrant of the floor. Features that would allow this open area to be interpreted as an intensively used activity area were not encountered; consequently, it is reasonable to postulate that this area was reserved for storage. Because this interpretation is based on negative evidence, however, it remains tenuous. The most that can be said is that the southwestern periphery of the pithouse conforms to the expectations of a storage area.

To summarize, 5 areas of activity are tentatively identified in Pithouse 1. The first is a large, horseshoe-shaped, multiple-use activity area in the center of the floor surrounding the hearth and ash pit. The second is a food preparation area in the northwest quadrant, partially overlapping the hearth area. The third and fourth areas are both manufacturing loci, one centered around each of the eastern roof support postholes. Together these manufacturing loci suggest that the peripheral area to the east was used primarily for the limited production and maintenance of tools. The fifth activity area, tenuously defined on the basis of negative evidence, is a storage area along the periphery of the southwest quadrant of the floor.

Discussion. – Typically, the floor plan in Anasazi subterranean structures is quite formal. The presence or absence of certain features are the traditional basis for distinguishing subsurface domicilies (pithouses) from specialized religious structures (kivas). In its layout, Pithouse 1 conforms neither to the concept of a pithouse nor to that of a kiva; rather, it possesses an admixture of traits variously suggesting both.

The bench is confined to the northern end of the structure. In their studies at Mesa Verde, Hayes and Lancaster (1975:182) consider the elimination of the bench to be associated with the movement of families to surface structures, reserving the subterranean structures for religious functions. Replacement of the antechamber by a ventilator complex such as the one in Pithouse 1 is also considered by them to be indicative of this transition. Similarly, the absence of a wingwall has been cited as indicating that a structure has become reserved primarily for ceremonial uses (Lancaster et al. 1954:55).

In the Dolores area, a similar pattern is evident. During the Dos Casas Subphase, habitation sites typically consisted of small pueblos with 3 to 6 household clusters (Kane 1981a:67). Households were apparently centered in three-room surface apartments, and pitstructures appear to have been shared by multiple households. These "protokivas" are generally similar to Pithouse 1, although wingwalls are usually present. Following these criteria, therefore, Pithouse 1 should be classified as a protokiva.

The situation at LeMoc Shelter, however, is somewhat atypical. Except for Room 12, no surface structures served as domiciles during Element 2, although the roomblock continued to be used as a work and storage area. Therefore, the shelter was used by, at most, 2 households, 1 of which resided in Pithouse 1.

Following Gillespie (1976:89), the absence of female activities in the pitstructure seems to be the best criterion for differentiating between a pithouse and a kiva. Specifically, a kiva should have no evidence of food preparation or plant food processing. As was illustrated, Pithouse 1 was clearly a locus for these activities and many others. Insofar as activity patterns have been reconstructed, they suggest occupation by a household group. Consequently, Pithouse 1 did not have a specialized religious or "kiva" function, although some ritual activities might have been performed there. The presence of a sipapu in the floor of the pitstructure does imply some ceremonial practices, or at least ritualistic symbolism.

Although Pithouse 1 was not a specialized ceremonial structure, it may have been the focal point for ritual activities. Since Room 12 lacks a sipapu, the 2 households, probably occupied by members of the same extended family, collectively performed ceremonies in the pitstructure, which presumably was the domicile of the senior household group.

Room 12

Dimensions:

North wall	
length:	3.60 m
height:	unknown
South wall	
length:	3.50 m
height:	unknown
East wall	
length:	2.50 m
height:	0.50 m
West wall	
length:	3.10 m
height:	0.45 m

Room 12 (fig. 4.30) is a poorly preserved, surface living room located in the western half of the shelter, south of the roomblock. Most of the structure was built on the fill of Pithouse 2, although the room extends beyond the southern limit of the pithouse depression, past the dripline. The room is rectangular in plan, and measures an estimated 3.2 m along its north-south axis and 3.9 m along its east-west axis. The occupation of Room 12 is dated to between A.D. 850 and 875 on the basis of its stratigraphic position and the ceramic assemblage of its roof fall (Stratum I-5). It, therefore, is believed to be roughly contemporaenous with the occupation of Pithouse 1.

Construction. – Little remains of Room 12 except for an outline of vertical sandstone slabs and masonry, the remnants of the structure's south, east, and west walls. The approximate location of the north wall was established based on 2 upright slabs (which apparently formed the northwest corner of the room), 3 sandstone blocks along that same line, and the northern limit of the roof fall. As discussed in the stratigraphic descriptions, Room 12 appears to have been built in a shallow depression excavated into the Stratum I-4 midden deposit in the depression of Pithouse 2. The vertical slabs appear to have rested against the sidewalls of the room depression to form the footings for the upper walls. From the little evidence available, the upper walls consisted of crude, coursed masonry similar to the east wall of Pithouse 1.

No evidence of any interior roof supports was found; however, too little of the floor remained to ascertain whether posts were absent or simply had not been pre-

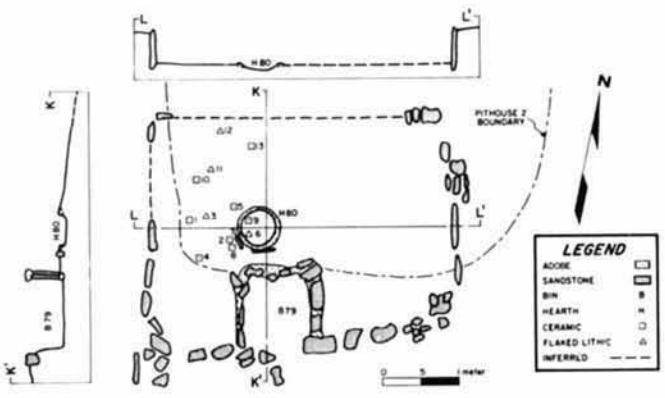

Figure 4.30 - Map and architectural cross sections of Room 12, Floor 1, LeMoc Shelter. PL 14 (debitage) not mapped.

served. Nor was any structural detail of the support system preserved in the roof fall except for a row of small (5 cm diameter) horizontal poles that apparently rested on the north wall. The thin and diffuse character of the roof fall suggests that usable timbers might have been robbed from the structure before it burned.

The plastered floor was preserved only in a 2 m² area in the northwest quadrant of the structure. In other areas of the room, the floor was recognizable only because of the sharp contact of the roof fall with the sediments in Stratum I-3.

Floor Features. - Two floor features are present in Room 12. The more prominent is a bin (Feature 79) built against the center of the south wall. The bin is rectangular, measuring approximately 110 cm long, 100 cm wide, and 49 cm high. It is constructed of upright slabs set into the floor and is mortared and plastered with adobe. The fill of the bin is largely adobe melt, overlain by roof fall and sealed with colluvial sand. While there is no direct evidence as to its function, the bin is believed to have been a storage facility.

The second feature is a basin-shaped hearth (Feature 80) located near the center of the room, just north of the bin. It is 50 cm in diameter and approximately 7 cm deep. A raised adobe rim, reinforced on the south by two small upright slabs, surrounds its perimeter. The hearth was filled with an ashy sand flecked with charcoal.

Floor artifacts. - Not surprisingly, the few in situ artifacts found in Room 12 were recovered from the remnant plaster surface (fig. 4.30 and table 4.10). Eight of the 14 floor artifacts are small sherds; the other 6 items are flaked lithic debitage. Given the character of these artifacts and the small size of the observable floor area, no analysis of activity areas will be attempted. However, the inferred size of the room and the presence of the hearth suggest that Room 12 was a dwelling; a variety of household tasks, therefore, were likely to have been performed in the room.

Interestingly, a second cluster of artifacts was found on the upper surface of the roof fall. This surface was not assigned a number and the artifacts were not designated PL's. Included in this concentration were 1 complete trough metate, 2 metate fragments, 2 two-hand manos, and a grinding/abrading stone. The significance of this concentration of ground stone artifacts is difficult to assess. On one hand, these materials may have been discarded when the site was temporarily abandoned. On the other hand, the large metate fragments still would have been serviceable grinding implements after being broken, so the scatter may be an in situ activity area. In the latter case, the location of the artifacts could indicate either use of the roof of Room 12 as a milling area or use of this area as an open work space after the structure was destroyed. However, the ratio of manos to metates is much lower than would be expected for a use area of this type. Consequently, the first alternative - that the scatter is de-

facto refuse associated with the abandonment of the shelter at the end of Element 2 - is favored.

Discussion. - The interpretation of Room 12 as an isolated surface dwelling makes it something of an anomaly in the Dolores area. Although surface dwellings are common during this period, the general form is what Hayes and Lancaster (1975:182) term an "apartment"; that is, a large surface living room fronting one or two small storage rooms. Commonly, several contiguous apartments are arrayed in a line or arc to the north of the pitstructures.

Since LeMoc Shelter was probably never occupied by more than 1 extended family at one time, the absence of living apartments contiguous with Room 12 is understandable. And since use of most of the storerooms of the roomblock is assumed to have continued through Element 2, the absence of additional storage facilities contiguous with Room 12 also seems reasonable. Nevertheless, some evidence uncovered during excavation suggests that Room 12 may in fact have been a unit apartment.

The rubble of a fallen masonry wall is embedded in the adobe facies of Stratum I-6 (I-6a), which is thought to be roughly contemporaneous with the deposition of Stratum I-5 (the roof fall of Room 12). The rubble pile begins in the northwest corner of the pithouse depression and extends for approximately 2 m along the north wall. The scatter is about 125 cm wide and varies in thickness from 15 to 50 cm. The rock at the bottom of the pile rests on a surface level with the floor of Room 12, which is about 90 cm below the top of the north wall of Pithouse 2.

Initially, this rubble was thought to be the collapsed north wall of the pitstructure. Had this been the case, however, the lower portion of the wall probably would have been preserved by the sediments already laid down in the depression (i.e., Stratum I-4). Since the rubble lay close against the north wall of the depression, the hypothesis that the rubble was wall fall from the roomblock to the north was also rejected. Given the pronounced undercutting of the pithouse wall, a wall falling into the depression from the north would land closer to the center of the depression and would not be mounded against its northern edge. Since the organization and orientation of the rubble clearly indicates wall fall and not merely a pile of rocks tossed into the depression, the most plausible explanation is that, during Element 2, there was a masonry wall built within the depression, near its northern margin. This wall, which would have been roughly 2 m north of the probable north edge of Room 12, could have been the back (north) wall of one or more storage structures.

The north wall line of Room 12 could be located only approximately. Unfortunately, the 1-m gap between this line and the southern edge of the wall fall was cut away by an early exploratory trench in Pithouse 2. No evidence of any north-south connecting walls was found during this probe, but given the poor preservation of Room 12 and the narrow perspective available when the trench was being dug, such evidence could have been overlooked.

In addition to the absence of crosswalls, no evidence of a surface was found beneath the Stratum I-6 wall fall rubble. Given that most of the floor of Room 12 to the

Table 4.10 - Point-located artifacts, Floor 1, Room 12, LeMoc Shelter

PL No.	Material class	Item description
1	Ceramic	Bluff Black-on-red bowl sherd
2	Ceramic	Early Pueblo Gray jar sherd
3	Flaked lithic	Debitage
4	Ceramic	Moccasin Gray jar sherd
5	Ceramic	San Juan Polished White bowl sherd
6	Flaked lithic	Debitage
7	Flaked lithic	Debitage
8	Ceramic	Early Pueblo Gray jar sherd
9	Ceramic	Mancos Gray jar sherd
10	Ceramic	Early Pueblo Gray jar sherd
11	Flaked lithic	Debitage
12	Flaked lithic	Debitage
13	Ceramic	Early Pueblo Gray jar sherd
14	Flaked lithic	Debitage (not mapped)

Refer to figure 4.30 for artifact locations.

north was recognizable only because of its sharp contact with the burned roof fall, this negative evidence is also equivocal. Consequently, although wall fall provides the only positive evidence, the interpretation of the rubble as being the rear wall of one or two storage rooms associated with Room 12 remains the most plausible explanation of this otherwise enigmatic feature.

Element 3

A short occupational hiatus following the abandonment of Pithouse 1 and Room 12 marks a significant change in the use of the shelter. The structures built when the shelter was reoccupied in Element 3 are small and appear to have been used seasonally. The site probably served as a farming station occupied during the growing season rather than as a year-round habitation.

This occupation is separated from that marked by Room 12 by approximately 50 cm of sediments constituting Strata I-6 and I-7. Because Room 11 was perched on a shelf of cave breccia extending from the west wall of the rockshelter, however, this difference in elevation does not necessarily negate the possibility that Rooms 11, 12, and 13 were contemporaneous, given the relative positions of the three rooms. However, once it became clear that the Stratum I-6a wall fall that underlay Room 13 was most likely associated with the Element 2 occupation and not with the collapse of Pithouse 2, the distinction between the 2 occupations was evident.

Room 11

Dimensions:

North wall	
length:	1.40 m
height:	0.32 m
South wall	
length:	1.50 m
height:	0.33 m
East wall	
length:	2.66 m
height:	0.46 m
West wall	
length:	2.30 m
height:	0.20 m

Room 11 is a small, rectangular surface room originally built along the west wall of the rockshelter just beyond the present dripline. With the adjacent Room 13, Room 11 forms an L-shaped unit (fig. 4.31). After a brief occupational hiatus following the abandonment of both structures, Room 11 was rebuilt, and the shelter was reoccupied for a short time. Based on ceramic cross dating and stratigraphic position, Room 11 can be tentatively dated to approximately A.D. 875; however, separate dates could not be obtained for the individual occupations.

Construction. - Little remains of Room 11 beyond an outline formed by the vertical-slab wall footings and remnants of the first course of masonry. When first built, Room 11 measured approximately 2.6 by 1.5 m. The earliest floor (Floor 2) appears to have been excavated approximately 25 cm below aboriginal ground surface, and the vertical slabs were set against the walls of the depression. The walls were then built up with courses of sandstone blocks mortared with adobe. The masonry of the north wall was extended beyond the east wall of the room to form the south wall of Room 13.

Since no evidence of any interior roof supports was found, the roof is presumed to have been wholly supported by the walls. The floor appears to have had no preparation. In the south half of the structure, where it is best preserved, the floor is a level, use-compacted surface, slightly stained with ash and organic residue.

Floor 2 features. - The major floor feature in Room 11 is a round hearth (Feature 78) in the south-central part of the floor, measuring 60 cm in length, 55 cm in width, and 21 cm in depth. The hearth is lined with adobe and has a narrow adobe collar around its perimeter. The lower portion was filled with clean sand; the upper portion consisted of ashy sand flecked with charcoal similar to the overlying fill. Although the feature is labeled a hearth, the adobe walls of the depression are only lightly oxidized. This suggests either that the hearth was used infrequently or that the basin served primarily as a container for embers or heated stones. The latter interpretation implies that the primary function of the feature may have been to heat the structure. In this case, activities generally associated with a hearth were probably not performed in Room 11.

Immediately to the south of Feature 78, near the southeast corner of the room, is a small, oval pit (Feature 81), measuring 24 cm long, 16 cm wide, and 5 cm deep. Although this pit was filled with ashy sand, the shallowness of the feature suggests that it may have served as a pot rest. In the absence of any floor artifacts, these features provide the only available clues as to the room's function. Generally, both of these feature types are taken as evidence of domestic activities associated with a habitation; in this case, however, Room 11 is clearly too small to have been a dwelling. Rather, Room 11 may have been primarily a sleeping area, used by 1 or 2 people. The hearth probably was used primarily for heat and perhaps for the occasional preparation of a meal. The majority of activities generally performed in a dwelling were probably relegated to outside work areas.

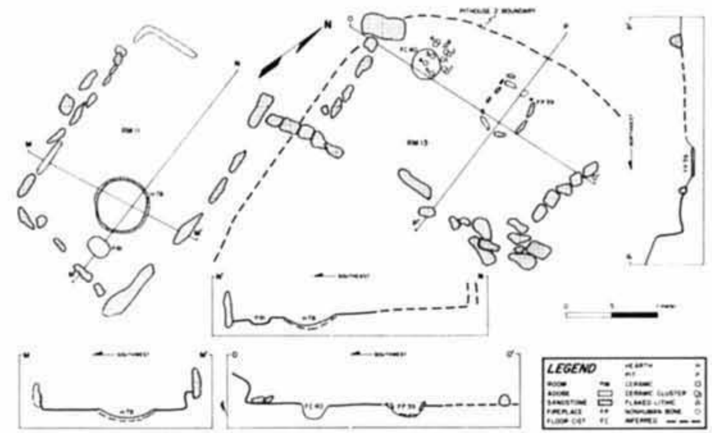

Figure 4.31 - Map and architectural cross sections of Room 11, Floor 2 and Room 13, Floor 1, LeMoc Shelter

Remodeling. - As indicated earlier, Room 11 appears to have been rebuilt following its destruction and a temporary abandonment of the rockshelter. Abandonment of the original structure, and its subsequent collapse, is indicated by adobe melt from the west wall in the southwest quadrant of the floor and by a stratum of ashy sand mottled with charcoal and adobe overlying it and the rest of the lower use surface. This ashy sediment appears to be a mixture of burned structural rubble and midden, an interpretation supported by the artifacts recovered from it, including small bits of broken pottery, broken flaked and nonflaked lithic tools, lithic detritus, and bone scrap. Included in the bone scrap were several unarticulated hawk bones concentrated near the northwest corner of the room.

The upper contact of the ashy fill is a second use-compacted surface (Floor 1), the floor of the rebuilt room. This surface is bound on the south and west by the original walls of the structure, but to the north and east new walls were built (these walls were not mapped). The new structure was slightly smaller than the old, measuring 2.1 by 1.4 m. As in the original structure, the floor of the rebuilt room was below aboriginal ground surface. As suggested earlier, the sediments removed when this room was being dug appear to have been dumped just beyond the east wall, resulting in the deposition of Stratum I-8.

Like the original structure, the walls of the rebuilt structure appear to have been coursed masonry. Again, no interior roof supports were evident, suggesting that the walls supported the entire weight of the roof. No artifacts were found in contact with the upper use surface, and there were no floor features. Consequently, it is possible that the rebuilt room may have been used as a storeroom rather than as a living area.

Room 13

Dimensions:

North wall:	absent
South wall	
length:	2.30 m
height:	unknown
East wall	
length (existing):	1.65 m
height:	unknown
West wall	
length (existing):	1.75 m
height:	unknown

Room 13, like Room 11, is inferred to be a small, rectangular surface room; it currently measures approximately 2.5 by 1.75 m (fig. 4.31). Room 13 is located in the north half of the Pithouse 2 depression and is oriented at a right angle to Room 11. The 2 structures share a common corner. Based on the presence of Mancos Gray and Moccasin Gray sherds in Room 13, the structure is believed to have been occupied sometime between A.D. 860 and 910; this span encompasses the A.D. 875 date estimated for the construction of Room 11.

Because of its location in the most intensively used area of the shelter, Room 13 was almost totally obliterated by subsequent occupations. Besides the remnant of the south wall, all that remains of the walls are portions of the basal course of sandstone blocks and wall fall from the south and west walls. Similarly, only the northwest quadrant of the floor and the floor features adjacent to it are preserved.

Construction. - From the available evidence, the walls of Room 13 were built of courses of tabular sandstone blocks cemented with adobe mortar. Unlike Floor 2 in Room 11, Floor 1 in Room 13 was not excavated below ground level; consequently no vertical slabs were used as wall footings. Since no interior postholes were found, the roof was presumably wholly supported by the walls. Floor 1, where preserved, is a level, use-compacted surface stained with ash.

Floor 1 features. - Two features are associated with Floor 1 in Room 13. The more prominent of these is a slab-lined fireplace (Feature 39). The feature is roughly square, measuring approximately 50 cm on a side, and is 10 cm deep. The fill was a dark sand mixed with ash and charcoal from fires built in the hearth. The second feature is a small, circular floor cist (Feature 40) located in the northwest corner of the room. The cist is 30 cm in diameter and 15 cm deep. It was filled with a mottled, ashy sand containing 1 gray ware sherd, 10 small flakes, 20 small splinters of mammal bone, and 1 small bone awl. The dark fill is sealed by a 2-cm-thick layer of compact sand or adobe, which suggests that use of the cist was discontinued sometime before Room 13 was abandoned.

Despite the ashy fill, it is unlikely that this feature was a hearth since the sidewalls showed no oxidation. Its small size also argues against this interpretation, and, for the same reason, it is unlikely to have been an ash pit. The most plausible interpretation seems to be that it was used for some sort of short-term storage. The fill was probably refuse dumped into the cist to fill it when the feature was sealed.

Floor 1 artifacts. - Only a small remnant of the most recent floor of Room 13 was preserved — an elongated rectangular patch covering an area of about 1 m^2 between the northwest corner of the room and the western edge of the hearth. Sixteen artifacts, grouped into eight PL's, were found on Floor 1; all were clustered on or around the sealed floor cist. These artifacts include 4 bone awls, 3 Moccasin Gray sherds, and 2 Mancos Gray sherds (fig. 4.31 and table 4.11). Because so little of the floor was preserved, it is impossible to determine whether these artifacts were an isolated cluster or part of a larger scatter, most of which has eroded away. Consequently, the cluster cannot be analyzed as an activity area. Even if this were not the case, it seems unlikely that all of these artifacts were associated with a single activity. The sherds and flake show no evidence of modification, and it is doubtful that they could be primary refuse of any activity that also involved the awls. The most conservative interpretation, therefore, is that they are the debris of normal domestic activities, a remnant of the refuse scatter commonly found on most living surfaces.

The awls are more difficult to interpret. Such tools generally are associated with basketmaking or with the working of hides. Their presence in Room 13 is strong evidence that one or both activities were performed at the site during this occupation. The puzzle is why they were left behind when the site was abandoned. All are complete and serviceable tools that could easily have been transported, and, although they are readily replacerable, they do represent a moderate labor investment. Given Schiffer's (1976) discussion of de facto refuse, it seems unlikely that they would have been discarded. The most plausible explanation is that they were deliberately left behind — cached by their owner in anticipation of a return to the site.

Remodeling. - Besides the sealed floor cist, the only evidence for remodeling is an earlier use-compacted surface (Floor 2) found approximately 1 to 2 cm below the level of the upper floor. Floor 1 and Floor 2 were separated by a thin stratum of sterile, colluvial sand, except along the north edge of the room where the 2 joined and became the same surface. This suggests that the lower surface may be a remnant of the original floor of Room 13, and that after temporarily abandoning the structure, the shelter's inhabitants returned, laid a new floor, and reoccupied the room. Floor 2 was very ephemeral and was not visible in profile. No artifacts were recovered from this surface.

Although no direct evidence correlates the remodeling of Room 13 with that of Room 11, it is reasonable to assume that both structures were abandoned at the same time. Some evidence indicates that Room 11 burned either during or sometime after its initial occupation. Since some midden material was incorporated into fill after the room burned, it appears that the shelter was occupied shortly after Room 11 collapsed. Room 13 likely continued to be used during this time. When Room 11 was finally

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Table 4.11 - Point-located artifacts, Floor 1, Room 13, LeMoc Shelter

Pl. No.	Material class	Item description
1	Nonhuman bone	*Odocoileus hemionus* - awl
2	Ceramic	Mancos Gray jar sherds (2)
3	Nonhuman bone	*Odocoileus hemionus* - awl
4	Nonhuman bone	*Odocoileus hemionus* - awl
5	Nonhuman bone	*Odocoileus hemionus* - awl
6	Ceramic	Moccasin Gray jar sherds (3)
		Early Pueblo Gray jar sherds (2)
7	Ceramic	Early Pueblo Gray jar sherds (4)
8	Flaked lithic	Debitage

Refer to figure 4.31 for artifact locations.

(N) - Number of items.

rebuilt, it does not appear to have been used as a living area. Again, this suggests that Room 13 was being used as the principal habitation area. Thus, Room 13 appears to have been occupied periodically throughout Element 3, while Room 11 was used during only part of this period.

Feature 38

Feature 38 is an isolated fireplace located within the lower unit of Stratum II-6 in the northeast corner of the Pithouse 1 depression (fig. 4.32). Tentatively, the midden deposit that encloses Feature 38 is correlated with the occupation of Rooms 11 and 13. Consequently, this feature is interpreted as an open activity area used sometime during Element 3.

The feature is an oval basin measuring 110 cm long, 70 cm wide, and 25 cm deep. It was filled with a dark, sandy sediment that was heavily stained with ash and charcoal. The fill is sealed by a pile of fire-reddened, cobble-sized pieces of sandstone. Other fire-reddened sandstone cobbles are spread to the north and south of the depression.

Feature 38 is believed to have been used as an oven based on its relatively large size, its unusually dark fill that suggests a smoldering rather than an open fire, and the quantity of fire-reddened rock adjacent to the depression. Furthermore, the placement of the feature away from the main occupation area is analogous to the placement of earth ovens among the Bushman (Yellen 1977) and the Australian aborigines (O'Connell 1979).

Element 4

Following the abandonment of the shelter at the end of Element 3, an occupational hiatus of roughly 25 to 30 years occurred, marked by the deposition of Stratum I-9. During this period, Rooms 11 and 13 collapsed and were largely buried by colluvial sand. The next major period of occupation, tentatively dated to about A.D. 920-930, indicates a second decrease in the intensity of the use of the shelter. During Element 4, no rooms were built in the shelter, which seems to have been used as a base camp occupied sporadically for, at most, a few weeks at a time.

Retaining wall

A low wall had been built across the front of the shelter at the beginning of the Element 4 occupation. The wall, located just inside the present dripline, extends from the west wall of the shelter to the southwest corner of Pithouse 1 (fig. 4.33). Originating at the upper surface of Stratum I-9, the wall was built to a height of approximately 1 m. The wall consisted of dry-laid masonry courses of tabular sandstone blocks between 25 and 100 cm in length. Material for the wall was undoubtedly procured from the surrounding slopes and from the ruined structures within the shelter. Judging by the amount of water that entered the shelter during late summer rain storms after the wall was removed during excavation, the primary purpose of the retaining wall was probably to divert runoff downslope, away from the living area.

Occupation Area 2

Occupation Area 2 consists of a use-compacted surface (Surface 1) at the contact between the sandy facies of Stratum I-9 and Stratum I-10, the level of origin of the retaining wall. It appears, therefore, to mark the first use of the shelter during Element 4. The surface, beginning just south of the roomblock, covers an area of approximately 9 m^2 in the western half of the shelter (fig. 4.34). A large, circular pit, Feature 20, is located near its south-

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ern edge. The pit is roughly 95 cm in diameter and 25 cm deep. Several blocky pieces of sandstone were stacked in the center of the depression. Below the rocks and filling the pit were sediments of Stratum I-10. The sides of the basin were unburned.

A second pit feature (Feature 168) was found in the northwest corner of the occupation area. This feature is a roughly circular ash stain measuring about 30 cm in diameter and 2 to 3 cm in depth. Three sandstone rocks were found adjacent to the stain, which suggests that originally a rock ring may have been located at the perimeter of the stain. The stain probably marks an area where a small surface fire was built. Unlike most of the features in the cave, it seems to represent a one-time usage rather than a permanent facility.

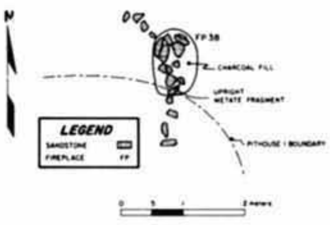

Figure 4.32 - Map of Feature 38 (fireplace), LeMoc Shelter

Several artifacts, grouped into 9 PL's, were found in direct contact with the Occupation Area 2 surface (fig. 4.34 and table 4.12). These were scattered in a broad arc bisecting the surface with no evident clustering. The most spectacular of these artifacts is a broken, but nearly complete, Cortez Black-on-white bowl (PL 3 and vessel 1; fig. 4.35) located near the center of the surface. Except for 1 thick biface (PL 2) and 1 corrugated jar sherd (PL 4), the remainder of the artifacts are bone fragments. Two of these fragments were identified as elk bone; the remainder were identified as belonging to large mammals.

Since no formal hearth was found associated with Occupation Area 2, this part of the shelter was probably a work area rather than a living area. Because few floor artifacts can be associated with the surface, and no functionally specific features are present, identification of the

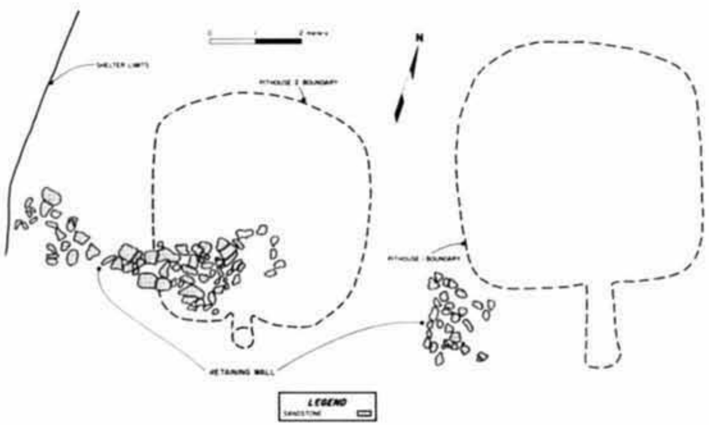

Figure 4.33 - Map of retaining wall, LeMoc Shelter

activities performed in Occupation Area 2 will not be attempted here. Rather, the overall paucity of information concerning this occupation necessitates deferring discussions of site structure until all of the evidence from the Element 4 occupation has been presented. Similarly, since the interpretation of site activities in this case rests exclusively on artifact evidence, discussions of this will be deferred until the "Material Culture" section.

Stratum I-10

Stratum I-10 is interpreted as an accumulation of debris from intensive but sporadic use of the shelter as an encampment. Morphologically, the sediments of Stratum I-10 are distinguishable from the colluvial sands of Strata I-9 and I-11 only because of an admixture of ash, charcoal, and other cultural inclusions in Stratum I-10. Because of its sandy texture, no individual occupation surfaces could be defined within the stratum. With each successive occupation, existing features were destroyed or altered. Hearths were apparently dismantled and their ashy fills scattered and incorporated into the sandy substrate. Similarly, artifacts were scuffed about and trampled into the sand, obscuring the spatial patterning of individual activities. Presumably, however, the Occupation Area 2 and 3 use surfaces are typical of this occupation.

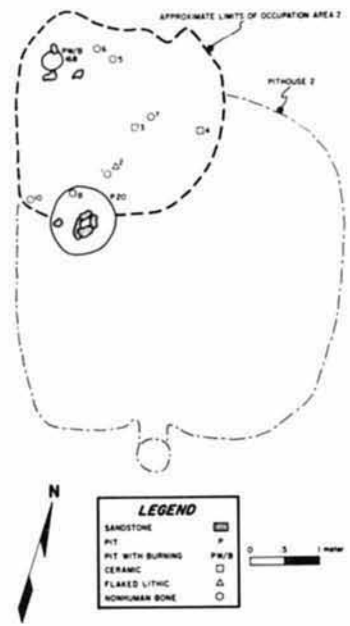

Figure 4.34 - Map of point-located artifacts and Features 20 (pit) and 168 (pit) in Occupation Area 2, LeMoc Shelter. Refer to text for a description of occupation area boundaries.

Occupation Area 3

In the central area of the western half of the shelter, the upper contact between Strata I-10 and I-11 is a second use surface, Occupation Area 3 (fig. 4.36). This surface (Surface 1) covers an area of about 10 m². The most prominent features on the surface are 2 fireplaces (Features 32 and 134) near the western edge. Feature 32 is roughly rectangular and measures 75 cm long, 50 cm wide, and 25 cm deep. Feature 134 is roughly circular, measuring 85 to 90 cm in diameter and 25 cm in depth. Both fireplaces are lined with vertical sandstone slabs and sandstone cobbles. The fill of both features is indistinguishable from the sediments of Stratum I-10. However, oxidation of the rocks lining the pits indicates that they had been exposed to fire. A circular area located immediately south of Feature 134 and measuring approximately 80 cm in diameter is also fire-reddened, although it was not designated a feature. From these indications and from the morphology of the 2 features, it appears that Feature 32 was used as a hearth, and Feature 134 was an earth oven. The latter interpretation is based on the reddened area of the use surface, which probably was oxidized when the roasted material was uncovered.

A second, larger, reddened area covers the northeast quadrant of Occupation Area 3. Although it is possible that this larger stain is also associated with the use of Feature 32, the absence of ash and charcoal in the stained sediments argues against this interpretation. More likely, the oxidation was the result of one or more surface fires, although no hearths were found in this area. Since this portion of Occupation Area 3 is within 20 cm of modern ground surface, however, the features may have been destroyed during later aboriginal occupations or by recent visitors to the shelter. This area was not assigned a feature number.

The final feature associated with Occupation Area 3 is a circular pit (Feature 165) near the southeastern edge of the surface. The pit is approximately 65 cm in diameter and 35 cm deep. The cist was filled with the clean, col-

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luvial sand of Stratum I-11, suggesting that it had been emptied and left open when the shelter was abandoned. Feature 165 is presumed to have been a storage pit.

Feature 35

During Element 4, the depression of Pithouse 1 appears to have been used primarily as a refuse disposal area, marked by the deposition of the upper unit of Stratum II-4 and Stratum II-5. However, an isolated fireplace (Feature 35) was found near the north wall of the depression at the contact of Stratum II-4 with Stratum II-6 (fig. 4.37). The fireplace is a square, slab-lined depression measuring approximately 25 cm on a side and 16 cm deep. Fill consisted of dark ashy sand flecked with charcoal; it was distinct from the overlying sediments. Although technically falling within Element 4, the stratigraphic position of the fireplace and its location in the midden area suggest that Feature 35 postdates the major occupation during this period. Most likely, the hearth marks the overnight campsite of 1 or 2 individuals, rather than being an isolated feature associated with the use of the western half of the shelter.

Discussion

If one accepts the hypothesis that Stratum I-10 is composed of remnants of several activity areas generally similar to Occupation Areas 2 and 3, then Element 4 appears to have been a period when the shelter was occupied sporadically for no more than a few weeks at a time. Judging from the evidence from Occupation Areas 2 and 3, the shelter was used primarily as a seasonal camp. Since there does not appear to have been any continuously occupied habitations in Grass Mesa Locality at this time, the shelter was probably a remote base camp from which locally available resources were procured. Because very few artifacts were found in situ on occupation surfaces, artifact evidence from Stratum I-10 and the Element 4 midden must be relied upon to determine what resources were being procured and what activities were being performed at the shelter. This analysis, however, will be deferred until the "Material Culture" section, since comparison with the material from other occupations is central to this discussion.

Element 5

Use of the shelter during Element 5 appears to have been both short-term and irregular. Aside from artifacts, the evidence for this occupation consists of 5 fireplaces (fig. 4.38). Four of these fireplaces are located near the center of the shelter, originating either in Stratum I-11 or in redeposited sediments of I-10 that had washed in from the western part of the shelter. The fifth fireplace was found in the Pithouse 1 depression.

The colluvial sands that constitute Stratum I-11 apparently began accumulating immediately after the Element 4 occupation; these sands continue to accumulate today. Thus, although the occupation during Element 5 has been ceramically dated to approximately A.D. 940, sporadic use of the shelter probably continued for some time. No firm evidence exists on which to base the relative dates for use of the fireplaces.

Table 4.12 - Point-located artifacts, Surface 1, Occupation Area 2, LeMoc Shelter

PL No.	Material Class	Item description
1	Nonhuman bone	*Cervus elephus*
		Mammalia, large
2	Flaked lithic	Thick biface
3	Ceramic	Cortez Black-on-white bowl sherds (3); vessel 1
4	Ceramic	Corrugated body jar sherd (not mapped)
5	Nonhuman bone	Indeterminate
		Mammalia, large
6	Nonhuman bone	Mammalia, large
7	Nonhuman bone	Mammalia, large
8	Nonhuman bone	*Cervus elaphus*
10	Nonhuman bone	*Cervus elaphus*

PL 9 was later determined not to be associated with the occupation area surface. Refer to figure 4.34 for artifact locations.

(N) - Number of items.

Feature 24

Feature 24 is a rectangular, slab-lined fireplace located about 1 m south of the roomblock, above the breccia balk separating the 2 pitstructures. The long axis of Feature 24 is oriented north-south, and measures 54 cm long by 32 cm wide by 15 cm deep. In contrast to the overlying sediments, the fill is a dark, ashy sand flecked with charcoal.

Feature 33

Feature 33 is a rectangular, slab-lined fireplace located immediately north of Feature 24. Feature 33 measures 50 by 27 cm, with its long axis angled slightly to the east, and is 23 cm deep. The feature was filled with sediments redeposited from the occupation areas to the west.

Feature 34

Feature 34 is a small fireplace located near the center of the Pithouse 1 depression, on the upper contact of Stratum II-6. Feature 34 consists of 3 large sandstone blocks and a fragment of adobe arranged to form 3 sides of a square measuring about 30 cm on a side and 25 cm high. The fire was built on the surface within this area; no basin was dug.

Feature 73

Feature 73 is a large, circular fireplace located just outside of the shelter, approximately 1 m south of Feature 76. Feature 73 averages about 107 cm in diameter and is 42 cm deep. The perimeter of the basin is ringed by vertical slabs, and slabs and cobbles had been used to line the sidewalls. The lower portion of the basin was filled with ash and charcoal, which was overlain by sediments from Stratum I-11.

Feature 76

Feature 76 is a badly deteriorated, slab-lined fireplace located under the present dripline to the south of Feature 24. Only the south half of this feature was excavated. On the basis of the information gained from only partial excavation, this feature in inferred to consist of a circular basin approximately 50 to 55 cm in diameter and 20 cm deep. Only a few fragments of the several slabs presumed

Figure 4.35 - Cortez Black-on-white bowl (vessel 1 and PL 3) recovered from Occupation Area 2, Surface 1, LeMoc Shelter (DAP 036934).

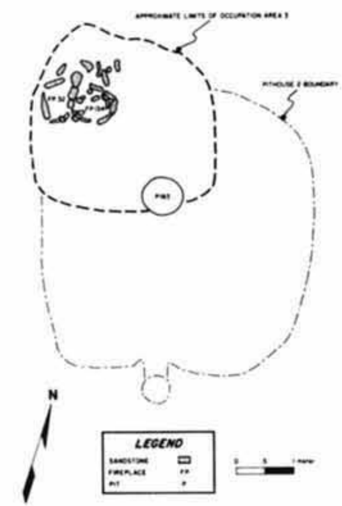

Figure 4.36 - Map of Features 32 (fireplace), 134 (fireplace), and 65 (pit) in Occupation Area 3, LeMoc Shelter. Refer to text for a description of occupation area boundaries.

to have lined the basin remain. The fill, in contrast to the clean sand of the surrounding matrix, was a mixture of ash, sand, and charcoal.

Discussion

Discussion of the activities conducted at the shelter during Element 5 must, by necessity, be based on the artifact assemblages of associated strata. The major point that can be made with reference to the features is that, since all are fireplaces, the shelter most likely was being used as a short-term camp. It is unlikely that these fireplaces were all in use at the same time, and since no ashy accumulation similar to that in Stratum I-10 was noted in Stratum I-11, the individual occupations were probably infrequent and of low intensity. During Element 5, the shelter was probably never used for more than a few days at any one time, and probably by no more than 3 or 4 individuals.

Other Features—Unassigned Contexts

Three features that cannot be associated with a specific element were encountered at LeMoc Shelter. Feature 83, a fireplace, and Features 84 and 85, both postholes, were found in the area between Pithouse 1 and the east wall of the rockshelter (fig. 4.39). The fireplace measures approximately 42 cm in length, 28 cm in width, and 19 cm in depth; the base of the pit had been excavated prehistorically to approximately 7 cm above bedrock. Three stone slabs and one stone block are all that remain of this feature; one slab lines the base of the fireplace, and the remaining pieces appear to have lined the sides.

Features 84 and 85, located approximately 10 cm west and 45 cm north of Feature 83, respectively, are postholes that had been excavated into sandstone bedrock. Feature 85 is 16 cm in diameter and 25 cm deep. Feature 86 is 23 cm long, 19 cm wide, and 27 cm deep. Whether these postholes served structural functions or were associated with the nearby fireplace is not known.

MATERIAL CULTURE

This section is limited to a discussion of intrasite variability as reflected in the artifact distributions at LeMoc Shelter. Specifically, an attempt is made to verify the successive changes in site function hypothesized from the analysis of architectural features and facilities. An analysis of intrasite variability in artifact distributions was begun in the last section. In defining activity areas based on the distribution of floor artifacts, it was argued that competition for workspace within the structures necessitated periodic cleaning of refuse from the floors. Consequently, the bulk of the material evidence for the activities being performed at the site would most likely be preserved in secondary refuse deposits instead of being preserved in situ on structure floors or in regularly used, open work areas. Therefore, the total artifact assemblage from a single occupation must be analyzed as a unit if the full range of aboriginal activities is to be recognized.

Since the purpose of this section is to assess artifact variability in terms of the changes in site function suggested

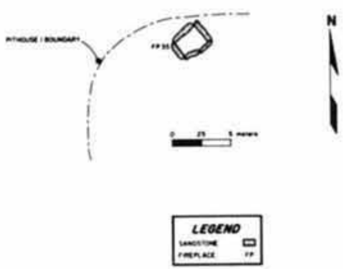

Figure 4.37 – Map of Feature 35 (fireplace), LeMoc Shelter.

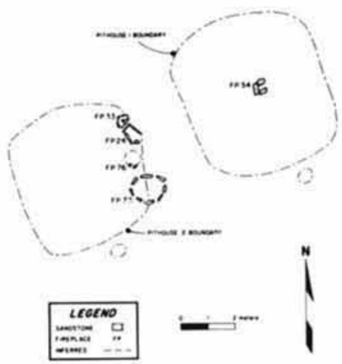

Figure 4.38 – Map showing locations of Element 5 features, LeMoc Shelter.

by the changes observed in architectural features and facilities, the element is chosen as the basic unit for artifact analysis. Assigning artifacts to elements entails a series of compromises than undoubtedly affects the interpretation of the data base. These problems and the variability evident in each major artifact category will be considered.

The structures and strata included in each element are shown in table 4.13. These groupings do not include all of the artifacts recovered from the shelter. Materials from the midden deposits in Stratigraphic Units III and IV were excluded because their association with a particular occupation period is, at best, tenuous. Similarly, artifacts from the dry sediments in the rear of the shelter, from the sediments mantling the roomblock, and from the upper deposits in front of the roomblock were grouped together and separated from the tabulations for the 5 elements. These sediments are believed to have been badly disturbed by recent pothunting. One immediate effect of excluding these materials is that, except for some small lenses in the roof fall of Pithouse 1 and in the postoccupational sediments immediately overlying Room 12, no midden deposits are included in Element 2.

Artifacts from postoccupational sediments are included in the tabulations for the occupation immediately preceeding their desposition. The rationale for this decision is that most of the postoccupational strata consist of structural debris and colluvium. The artifacts present were most likely incorporated as the colluvial sediments mixed with the debris from the previous occupation.

An exception is the inclusion of material recovered from Strata I-2 and I-4 in the tabulations for Element 1. These strata are refuse deposits that appear to have accumulated shortly after the abandonment of Pithouse 2. In the absence of any further evidence that the shelter was occupied during this period, these deposits were grouped with Element 1 on the basis of the similarity of their ceramic assemblages to the collection found on the floor of Pithouse 2.

A third problem with the groupings is the assignment of Strata II-4 and II-5 to Elements 3 and 4, respectively. These strata are intercalated, suggesting that parts of each were laid down at about the same time. The temporal break between Element 3 and Element 4, consequently, does not coincide with the stratigraphic boundaries. This was not recognized until late in the excavation, when a full east-west profile of the Pithouse 1 deposits was finally

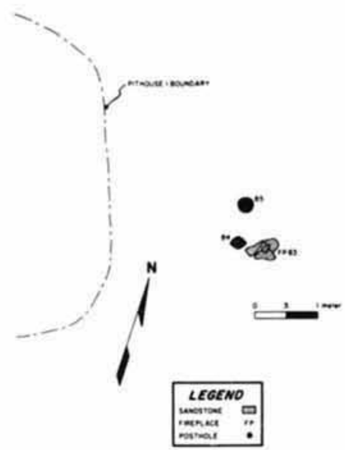

Figure 4.39 – Map of Features 83 (fireplace), 84 (posthole), and 85 (posthole), LeMoc Shelter.

Table 4.13 – Major element assignments for cultural and stratigraphic units used in intrasite artifact analyses, LeMoc Shelter.

Element No.	Associated cultural and stratigraphic units
1	Pithouse 2 (Floor 1 and features) Strata I-1, I-2, I-3, and I-4
2	Pithouse 1 (Floor 1 and features) Room 12 (Floor 1 and features) Occupation Area 1 (exclusive of Feature 166) Strata I-5, I-6, I-7, II-1, II-2, and II-3
3	Room 11 (Floor 2 and features) Room 13 (Features) Feature 166 Strata I-8, I-9, and II-4
4	Occupation Area 2 Occupation Area 3 Strata I-10 and II-5
5	Strata I-11 and II-6
Disturbed sediments	Strata I-12 and II-8 Roomblock fill Area 5 fill Fill of Features 129, 130, and 131

obtained. Thus, no separation of the artifacts from these units was made in the field.

Although this situation can be partly rectified by regrouping the minimal provenience units used during excavation, the correction could not be completed in time for the new groupings to be used in preliminary artifact analysis. Each stratum, therefore, was analyzed as a discrete unit. Since the Stratum II-4 sediments constitute the bulk of the earlier unit of this sequence, the material recovered from this stratum was tabulated as part of Element 3. Similarly, the artifacts from Stratum II-5, which is more prominent in the later unit, were included as part of Element 4.

Although none of these compromises seem likely to seriously distort the broader patterns revealed by the artifact distributions, some bias can be anticipated. Generally, adjacent units can be expected to appear relatively more similar than they actually are since none of the occupations are totally sealed by sterile deposits, and some mixing is inevitable. However, Elements 3 and 4 are especially likely to appear similar because of the problem of segregating Strata II-4 and II-5. To a lesser extent, the similarity between Element 1 and Element 2 may also be magnified by including Strata I-2 and I-4 as part of Element 1. Finally, since Element 2 contains little midden material, the frequencies of some artifact classes in this grouping are likely to be skewed.

In the following sections, ceramic, lithic, and unworked human and nonhuman bone materials from LeMoc Shelter are discussed in detail. Discussions of worked vegetal remains and worked nonhuman bone are presented in appendixes 4C and 4D, respectively.

Ceramics

For the preliminary description of the ceramic materials from LeMoc Shelter, the values for 3 variables are provided: traditional type, culture category, and vessel form. Since the observed variation in the frequencies of traditional types has already been discussed in the sections of this chapter dealing with site chronology and stratigraphic correlation, the emphasis here will be on the remaining 2 variables. The frequencies for both culture category and vessel form are shown in table 4.14.

Culture category is determined primarily by temper type and refers to the probable region in which the pottery was manufactured. The majority of the ceramics found at LeMoc Shelter appear to be of local manufacture, but some trade wares are present. The most prominent of these are the Mesa Verde Red Wares, which apparently were brought in from the Bluff-Blanding area of southeastern Utah. The frequencies of red wares in the shelter deposits suggest that ceramic exchange with the Bluff-Blanding area was strongest during the Element 1 occupation, although small quantities of red wares were recovered from all subsequent occupations.

The only other trade wares recovered at LeMoc Shelter were nine sherds, all apparently from vessels manufactured in the Chaco-Cibola area of northwestern New Mexico. These trades wares first appear in Element 3 proveniences and are present in all later deposits. This suggests that ceramic exchange between the Dolores and the Chaco-Cibola populations began about A.D. 870. A broader treatment of ceramic exchange is provided in appendix 4A.

Surprisingly little variation in vessel form is evident during the aboriginal occupations of LeMoc Shelter. In all of the elements, approximately 89 percent of the sherds are from jars, 10 percent are from bowls, and 1 percent are from other vessel forms. Although some of this similarity is undoubtedly due to the broad categories used to characterize vessel form and to the coarse provenience categories used in this analysis, more variation in the assemblages was expected given the differences in site function postulated for the various elements. Since this clearly is not the case, those activities commonly associated with the use of ceramic vessels – food preparation, consumption, and storage – appear constant during all phases of the shelter's use. As reflected by the ceramic assemblage, these activities seem to have varied only in their intensity.

The 1 exception to this generalization may be the use of miniature vessels, which were recovered primarily from deposits of the first 2 occupation periods. Five of these vessels are shown in figure 4.40. The implications of this distribution are unclear, however. The distribution may be temporally significant, or it may be related to the use of the pitstructures or to the use of the shelter by household units rather than by task groups. Currently, all of these alternative explanations are equally plausible. Further research is needed before any hypothesis can be favored over the others.

Flaked Lithic Tools

The flaked lithic technology of the Anasazi in the Dolores area is best described as expedient; that is, minimum energy was expended in the manufacture of most tools. At LeMoc Shelter, less than 20 percent of the implements evidence extensive thinning and shaping. In most cases, shaping is limited to preparation of the working edges, and flakes of appropriate size and shape frequently appear to have been used as tools without prior modification. Therefore, most flaked stone tools were likely manufactured as needed and discarded when the task for which they were needed was completed.

Table 4.14 – Ceramic frequencies for culture category and vessel form, by element, LeMoc Shelter

Culture category	Element 1		Element 2		Element 3		Element 4		Element 5	
	N	%	N	%	N	%	N	%	N	%
Mesa verde	2 732	100.0	1 310	100.0	2 160	99.8	972	99.7	1 002	99.8
Cibola*	0	0.0	0	0.0	5	0.2	3	0.3	2	0.2
Total ceramics	2 732	100.0	1 310	100.0	2 165	100.0	975	100.0	1 004	100.0
Vessel form										
Jar	383	14.0	119	9.1	206	9.5	102	10.5	87	8.7
Bowl	2 335	85.5	1 178	89.9	1 948	90.0	865	88.7	912	90.8
Other†	14	0.5	13	1.0	11	0.5	8	0.8	5	0.5

*Includes both Cibolan sherds and quartz-sand-tempered sherds that may belong to either the Cibola or Kayenta Culture Categories.
†Includes minature jars and bowls as well as other forms.

As stated in appendix 4D, the DAP system for the preliminary analysis of flaked lithic implements was designed to support broad inferences concerning technology. At this stage of research, the attribute is the basic unit of analysis. For preliminary description of the flaked lithic implements, values for several attributes were used. These attributes include dorsal thinning stage, ventral thinning stage, material grain size, and morpho-use form (table 4.15).

Thinning stage is primarily an indicator of the energy invested in the manufacturing process, in terms of both physical effort and technical skill. In this respect, the technology shows little change through time at LeMoc Shelter. There does appear to be an increase in the ratio of edged tools to unthinned flakes in Element 3. However, this difference is overshadowed by a continuing emphasis on shaping just the working edge rather than thinning and shaping the entire implement.

The emphasis on shaping just the edges should not be construed as an implication that the lithic technology was in any way primitive or crude. As shown in table 4.16, the proportion of specialized cores increases through time, suggesting that morphology increasingly was being controlled by regulating the shape of flakes as they were struck from the core. The most common core form in all elements is an unspecialized form from which flakes were removed in several directions, with no more than 2 or 3 flakes being struck from a single platform. In the more specialized forms, the typical core shows bidirectional flake removal, with 4 to 6 flakes struck from a single, prepared platform. Seen from this perspective, the rudimentary form of the finished implement is the end product of a rather sophisticated, pragmatic technology aimed at minimizing the input of time and physical energy into the manufacturing process.

This particular manufacturing strategy seems well suited to the lithic raw materials being used, which are of serviceable quality but are not ideal for knapping. As shown in table 4.15, very fine grained stone was the material class most commonly used for tool manufacture in all elements. Microscopic-grained material is the next most frequently used class, especially during Elements 1 and 2. Fine- and coarse-grained stone together constitute only about 10 percent of the total collection of implements.

Tentative hand specimen identifications suggest that 81 percent of the coarse-grained material is orthoquartzite, with some igneous rock and sandstone also grouped into this category. In the fine-grained material class, 60 percent of the material is siltstone and 40 percent is orthoquartzite. Ninety-nine percent of the very fine grained material is orthoquartzite, and the remaining 1 percent is hornfels. Except for 9 pieces of obsidian, all of the nongranular material is chert, chalcedony, or jasper.

Although only 9 percent of these materials were identified in analysis as coming from known sources, it is believed, based on the author's personal observation of the material recovered from LeMoc Shelter and materials recovered from nearby source areas, that most of the stone used at the shelter was procured locally. Most of the artifacts from LeMoc Shelter were processed during the first few months of laboratory operations, before the inventory of local source areas could be completed. Consequently, many source-specific identifications were not possible at that time.

Figure 4.40 – Miniature ceramic vessels recovered from LeMoc Shelter: (upper left) Chapin Gray pinch bowl from Room 12 fill (vessel 7); (upper right) Chapin Gray miniature jar from Room 12 fill (vessel 2); (center) Chapin Gray miniature jar from Pithouse 2 fill (vessel 10); (lower left) gray ware pinch pot from Pithouse 1, Floor 1 (vessel 14; no PL number assigned); (lower right) unpainted white ware miniature jar from midden deposits east of Pithouse 1 (vessel 6) (DAP 133201).

Of the 123 artifacts that did receive source-specific identification, 109 are Morrison green quartzite, 8 are coarse-grained orthoquartzite from the Burro Canyon and Dakota Formations, 1 is chert from the Burro Canyon Formation, and 5 are various materials from sources located outside the project area. The Morrison, Dakota, and Burro Canyon Formations outcrop on the hill slope immediately above the cave and would have been readily accessible to the inhabitants of LeMoc Shelter. The lithology of these formations is quite varied, and together they include almost the full range of materials suitable for lithic tool manufacture found at the site. Specifically, the local sources now identified include green and purple cherts and fine- to medium-grained quartzites and siltstones from the Morrison Formation, as well as chert and a coarse- to fine-grained orthoquartzite from the Burro Canyon and Dakota Formations.

The very fine grained materials appear to have been favored for lithic tool manufacture; microscopic-grained materials were the next most favored. This preference, however, is reversed with projectile points. For this artifact class, microscopic-grained materials were used for 66 percent of the artifacts, and very fine grained orthoquartzites were used for 34 percent. Presumably, the superior workability of the microscopic-grained stone was the principal factor in material selection in this instance. This preference, however, also implies that the selection of very fine grained materials for all of the other tool classes was intentional, since cherts are available locally and could have been used exclusively.

The final flaked lithic tool attribute to be discussed, morpho-use category, is based on traditional artifact classification. As such, these categories are both a descriptive short-hand and a preliminary best-guess as to how the artifacts were used. It should be emphasized, however, that this is a provisional classification because the functional implications of these groupings are, in most cases, unverified.

Overall, surprisingly little variation in the frequencies of the various tool types occur among the shelter's elements. Unifaces, particularly, seem to exhibit little variation, and except for Element 4, projectile point frequencies are uniform. The other morpho-use categories show more variability, but no systematic pattern is discernible. In fact, much of that variability seems to be due to purely mechanical factors. For instance, the variation in the frequencies of utilized flakes seems to be correlated with variations in the frequencies of other tool types. Their high value in Element 1 seems to be related to the near absence of bifaces and specialized tools, and the lower values in Elements 3 and 5 seem to be a result of increased frequencies of cores. The actual use of unmodified flakes as tools, consequently, appears to have remained relatively constant throughout the use of the shelter. Similarly, the low frequency of cores in Element 2 seems constrained by a minor variation in the numbers of choppers/scrapers and bifaces; this is amplified by the relatively small number of artifacts recovered from those deposits.

If the effects of constraint are factored out, the evident variation in the assemblage is reduced, but some differences remain. In Element 1, the relative paucity of bifaces and specialized tools is notable. In Element 3 there appears to be a higher frequency of cores, and in Element 4 there is a slight increase in the number of projectile points and a corresponding decrease in the frequency of choppers/scrapers. (Selected projectile points recovered from LeMoc Shelter are shown in figures 4.41 through 4.44.) Finally, Element 5 has a relatively high frequency of cores and of specialized tools. Despite these differences, however, the assemblages are remarkably similar, given

Table 4.15 – Frequencies of selected flaked lithic tool attributes, by element, LeMoc Shelter

	Element 1		Element 2		Element 3		Element 4	
	N	%	N	%	N	%	N	%
Total tools:	103	100.0	70	100.0	105	100.0	171	100.0
Tool morpho-use								
Indeterminate	0	0	0	0	0	0	0	0
Utilized flake	48	46.6	25	35.7	30	28.6	61	35.7
Core	20	19.4	8	11.4	25	23.8	28	16.4
Chopper/scraper	14	13.6	13	18.6	16	15.2	18	10.5
Thick uniface	11	10.7	8	11.4	14	13.3	19	11.1
Thin uniface	4	3.9	1	1.4	1	1.0	6	3.5
Specialized form	1	1.0	4	5.7	7	6.7	10	5.8
Biface	0	0	6	8.6	5	4.8	13	7.6
Projectile point	5	4.9	5	7.1	7	6.7	16	9.4
Grain size								
Coarse	0	0	4	5.7	1	1.0	7	4.1
Fine	7	6.8	5	7.1	3	2.9	3	1.8
Very fine	68	66.0	46	65.7	86	81.9	134	78.4
Microscopic	28	27.2	15	21.4	15	14.3	27	15.8
Dorsal face evaluation								
Indeterminate	0	0	0	0	2	1.9	0	0
Unmodified core	27	26.2	11	15.7	28	26.7	27	15.8
Unthinned flake, w/ cortex	55	53.4	17	24.3	25	23.8	51	29.8
Unthinned flake, w/o cortex	13	12.6	21	30.0	15	14.3	28	16.4
Edged flake, w/cortex	0	0	3	4.3	5	4.8	10	5.8
Edged flake, w/o cortex	1	1.0	3	4.3	14	13.3	13	7.6
Primarily thinned (blank)	0	0	0		2	1.9	3	1.8
Secondarily thinned (preform)	0	0	3	4.3	3	2.9	8	4.7
Shaped, not stylized	5	4.9	8	11.4	6	5.7	20	11.7
Shaped, stylized	2	1.9	4	5.7	5	4.8	11	6.4
Thinning index	2.32		3.66		3.29		3.74	
Ventral face evaluation								
Unmodified core	27	26.2	11	15.7	26	24.8	27	15.8
Unthinned flake, w/ cortex	5	4.9	3	4.3	3	2.9	3	1.8
Unthinned flake, w/o cortex	62	60.2	39	55.7	37	35.2	71	41.5
Edged flake, w/cortex	0	0	1	1.4	3	2.9	1	.6
Edged flake, w/o cortex	3	2.9	5	7.1	22	21.0	25	14.6
Primarily thinned (blank)	0	0	0	0	2	1.9	4	2.3
Secondarily thinned (preform)	0	0	3	4.3	2	1.9	8	4.7
Shaped, not stylized	4	3.9	4	5.7	5	4.8	21	12.3
Shaped, stylized	2	1.9	4	5.7	5	4.8	11	6.4
Thinning index	2.80		3.60		3.58		4.22	

Table 4.15 – Frequencies of selected flaked lithic tool attributes, by element, LeMoc Shelter – Continued

	Element 5		Disturbed sediments		Total	
	N	%	N	%	N	%
Total tools:	272	100.0	347	100.0	1068	100.0
Tool morpho-use						
Indeterminate	0	0	4	1.2	4	0.4
Utilized flake	71	26.1	123	35.4	358	33.5
Core	71	26.1	59	17.0	211	19.8
Chopper/scraper	37	13.6	50	14.4	148	13.9
Thick uniface	34	12.5	34	9.8	120	11.2
Thin uniface	7	2.6	6	1.7	25	2.3
Specialized form	25	9.2	29	8.4	76	7.1
Biface	11	4.0	22	6.3	57	5.3
Projectile point	16	5.9	20	5.8	69	6.5
Grain size						
Coarse	7	2.6	27	7.8	46	4.3
Fine	15	5.5	8	2.3	41	3.8
Very fine	217	79.8	263	75.8	814	76.2
Microscopic	33	12.1	49	14.1	167	15.6
Dorsal face evaluation						
Indeterminate	0	0	0	0	2	0.2
Unmodified core	76	27.9	60	17.3	229	21.4
Unthinned flake, w/ cortex	40	14.7	89	25.6	277	25.9
Unthinned flake, w/o cortex	58	21.3	65	18.7	200	18.7
Edged flake, w/cortex	13	4.8	20	5.8	51	4.8
Edged flake, w/o cortex	34	12.5	25	7.2	90	8.4
Primarily thinned (blank)	0	0	3	0.9	8	0.7
Secondarily thinned (preform)	6	2.2	3	0.9	23	2.2
Shaped, not stylized	33	12.1	62	17.9	134	12.5
Shaped, stylized	12	4.4	20	5.8	54	5.1
Thinning index	3.50		3.89			
Ventral face evaluation						
Unmodified core	75	27.6	60	17.3	226	21.2
Unthinned flake, w/ cortex	5	1.8	16	4.6	35	3.3
Unthinned flake, w/o cortex	108	39.7	159	45.8	476	44.6
Edged flake, w/ cortex	1	0.4	2	0.6	8	0.7
Edged flake, w/o cortex	41	15.1	38	11.0	134	12.5
Primarily thinned (blank)	1	0.4	3	0.9	10	0.9
Secondarily thinned (preform)	6	2.2	2	0.6	21	2.0
Shaped, not stylized	23	8.5	47	13.5	104	9.7
Shaped, stylized	12	4.4	20	5.8	54	5.1
Thinning index	3.52		4.11			

the varying character of the shelter's occupational episodes evident in the architectural features.

Some of this apparent similarity may have been introduced when the excavation units were grouped into elements. While these groupings were necessary to obtain collections large enough to permit meaningful comparisons, some differences between occupations may have been obscured. The fact that the ceramic assemblages exhibit sufficient variation to allow elements to be defined, however, does suggest that wholesale mixing across element boundaries has not occurred. The broadness of the morpho-use categories does not seem to have induced the apparent homogeneity of these materials, although some stylistic variation might have been masked. With the exception of the specialized tool category, each grouping consists of artifacts that share the same technological attributes. Therefore, the postulated variation in site function exhibited by the architecture cannot be verified by a qualitative analysis of the flaked lithic implements. The differences in site utilization involving these implements apparently were not in the range of activities performed but in the frequency and intensity of those activities.

Flaked Lithic Debitage

During preliminary analysis, no attempt was made at an exhaustive study of flaked lithic debitage. Instead, a number of attributes (material grain size, presence of a platform, presence of cortex, and mean flake weight) were selected to indicate broad technological features (table 4.17 and appendix 4D).

Material grain size refers to both a class of lithic raw materials and a relative index of the suitability of the material for flaked lithic tool manufacture. In increasing order of grain size, these classes are microscopic, very fine, fine, and coarse. The percentage of flakes in each class is presumed to provide a relative index of raw material preferences. However, some fragments that are not byproducts of knapping may have been included in these tabulations, thereby giving a somewhat distorted picture of material preference. For this reason, a second tabulation was made using only those flakes that exhibit a recognizable striking platform. Since approximately 78 percent of the debitage recovered from LeMoc Shelter exhibited striking platforms, the distortion is minimal in this case; nevertheless, the more conservative frequencies derived from the second tabulation will be used as the basis for this discussion.

These figures indicate a clear shift, beginning in Element 3, toward increased use of fine-grained stone and a corresponding decrease in the quantities of very fine and microscopic-grained debitage. Yet materials of this grain size were used for only 4 percent of the flaked lithic implements recovered from these units.

One possible explanation for this difference lies in the heterogeneity of the local siliceous raw materials. In nearby source areas, single nodules contain stone ranging from very fine grained to fine grained. Given the evident preference for very fine grained materials in tool manufacture, the predominance of fine-grained debitage may have resulted from the removal of extraneous fine-grained stone from the core to expose the very fine grained material.

The number of items with cortex is believed to be a measure of the amount of effort expended to remove the cortex from the finished implement. Also, since the cortex tends to be removed early in the reduction process, a low fre-

Table 4.16 – Frequencies of core classes, by element, LeMoc Shelter

	Element 1		Element 2		Element 3		Element 4		Element 5	
	N	%	N	%	N	%	N	%	N	%
Unspecialized	3	15.0	6	75.0	18	72.0	19	67.9	43	60.6
Specialized	0	0	1	12.5	5	20.0	8	28.6	25	35.2
Stylized	1	5.0	0	0	1	4.0	0	0	2	2.8
Indeterminate	16	80.0	1	12.5	1	4.0	1	3.6	1	1.4
Total	20	100.0	8	100.0	25	100.0	28	100.0	71	100.0
Total specialized & stylized	1	5.0*	1	12.5	6	24.0	8	28.6	27	38.0

* Value for Element 1 is probably too low. Most of the cores recovered from this unit were unclassifiable fragments.

quency of cortex on both implements and debitage would indicate that preliminary reduction was done at some offsite location.

For Elements 1 through 5, some percentages of implement faces (excluding cores) retaining some cortex are 39.5, 20.3, 23.4, 22.6, and 15.1, respectively. For Element 1, this figure is higher than the percentage of debitage with cortex; for Elements 2, 3, and 4, the percentages are about the same; and for Element 5, the percentage of implements with cortex is slightly lower than the percentage of debitage with cortex. This suggests that little effort was expended during tool production on the removal of cortex from the finished tools. Furthermore, the overall percentage of lithic material retaining some cortex suggests that preliminary reduction was conducted largely at the shelter, which lends support to the hypothesis that most of the lithic raw materials were procured locally.

Some variation in the frequencies of debitage with cortex does occur within the material grain size categories. In all of the elements, the percentage of fine-grained material with cortex is relatively small. This suggests that some reduction of these materials might have been performed at the resource procurement area before these were brought back to the shelter. The frequencies of items with cortex vary noticeably between elements for the other three grain size categories, but within each element, the frequencies for each of these classes are similar. This suggests that there may have been some technological variation in the reduction process, possibly related to site use. Again, a more detailed analysis is needed.

The final debitage attribute, mean flake weight, is the single best indicator of flake size currently available. Based on the material grain size and the nature of the technology, the mean flake weight of coarser materials can be expected to be relatively larger than the mean flake weight of the finer-grained materials, unless some cultural selection is at work. This expectation seems to hold in Elements 1, 3, 4, and 5, but in Element 2, the average size of the very fine and microscopic-grained flakes is significantly larger than expected. In part, this appears to be due to the greater quantity of very fine grained materials used in tool production during these periods. Since the lithic technology used at LeMoc Shelter seems to be based largely on the production and selection of suitably sized flakes that were only minimally modified, some larger flakes would undoubtedly have been produced intentionally. However, larger flakes would also be present from the initial preparation of the core; therefore, the higher mean weight may indicate more primary reduction of very fine grained materials during these periods. In this same context, the mean weight of microscopic-grained

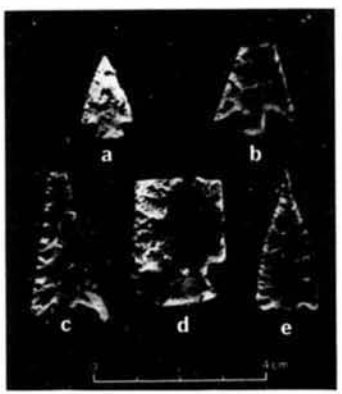

Figure 4.41 – Selected projectile points recovered from Element 2 proveniences, LeMoc Shelter: (a, c) Room 6, Feature 2 (hearth); (b, d, e) Pithouse 1 fill (DAP 130503).

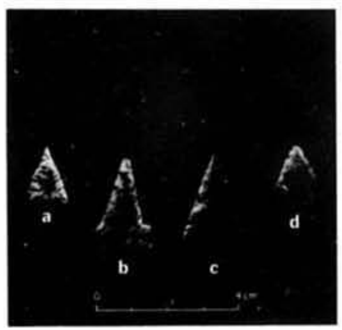

Figure 4.42 – Selected projectile points recovered from Element 3 and Element 4 proveniences, LeMoc Shelter. Element 3: (a) 1- by 1-m grid 8S/11E; (b) 1- by 1-m grid 10S/11E. Element 4: (c) Pithouse 1 fill; (d) 1- by 1-m grid 9S/11E (DAP 130504).

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flakes in Element 1 suggests either that more material in this size class was available during this occupation, thereby allowing its use for a wider-than-normal range of tool types, or that more primary reduction of this material was being performed at the shelter. Finally, the mean flake weights in Element 4 for very fine and microscopic-grained materials are relatively low, and the mean weight for fine-grained material is unusually high. This may reflect primary processing of the fine-grained materials, concomitant with minimal use of finer-grained materials. The debitage from these latter materials may be byproducts of tool maintenance rather than byproducts of the entire manufacturing process.

Nonflaked Lithic Tools

The attributes coded for the nonflaked lithic implements during preliminary analysis describe both technological and functional features of the collection (appendix 4D). Again, the attribute rather than the artifact is the basic analytical unit. The 4 attributes used in analysis are item completeness, production evaluation, morpho-use category, and material class (table 4.18).

Item completeness refers to whether a tool is broken or whole. At LeMoc Shelter, the majority of nonflaked lithic implements recovered from Elements 1 and 2 are complete tools. In Element 3, the percentage of partial implements increases, although the majority of artifacts are still complete. In Elements 4 and 5, however, most of the implements are fragments. Although this may indicate that most of the complete implements were removed when the shelter was abandoned after these later occupations, more likely the increase in fragments is due to secondary use of fragmentary tools from the earlier elements as building stone. The number of metate fragments found in the rubble of the retaining wall supports this hypothesis. The production evaluation variable, like the flaked lithic thinning variables, is a general measure of the cultural energy invested in the manufacturing process. Throughout all the occupations of LeMoc Shelter, that investment appears to have been minimal. The overwhelming majority of nonflaked lithic artifacts are simply nodules of rock that exhibit some evidence of use. Where shaping is evident, it is generally confined to improving the functional quality of the tools. Chipping of troughs in metates and of the edges and hafting grooves in axes are examples of this minimal shaping. The greater investment in cultural energy seems to have been expended in the selection of raw materials that naturally possessed the desired morphology. In this context, it should be noted that the high frequencies of indeterminate codings for this attribute in Elements 4 and 5 appear to be a

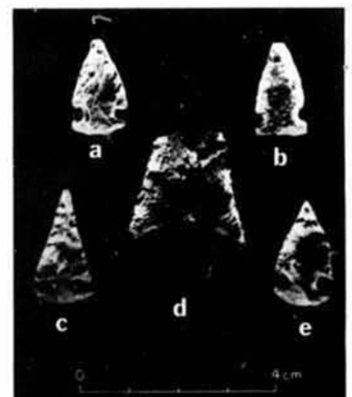

Figure 4.43 – Selected projectile points recovered from Element 5 proveniences, LeMoc Shelter: (a-d) Pithouse 1 fill; (e) 1- by 1-m grid 9S/16E (DAP 133101).

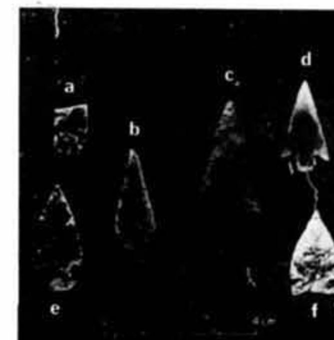

Figure 4.44 – Selected projectile points recovered from proveniences not assigned to element, LeMoc Shelter: (a) Room 1 fill; (b) 1- by 1-m grid 7S/11E; (c) midden east of Pithouse 1; (d) Room 4 fill; (e) Room 3 fill; (f) Room 1 fill. Note hafting material on (a) and (d) (DAP 133102).

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Table 4.17 - Frequencies of selected flaked lithic debitage attributes, by element, LeMoc Shelter

	Element 1		Element 2		Element 3		Element 4	
	N	%	N	%	N	%	N	%
Total debitage by grain size class								
Coarse	39	2.8	74	7.7	91	5.0	330	8.9
Fine	591	42.6	472	49.3	1 201	66.5	2 474	67.0
Very fine	542	39.0	306	32.0	392	21.7	684	18.5
Microscopic	216	15.6	105	11.0	122	6.8	204	5.5
Total	1 388	100.0	957	100.0	1 806	100.0	3 692	100.0
Debitage with striking platforms with grain size								
Coarse	11	1.4	37	6.7	66	5.2	261	8.0
Fine	358	44.8	270	49.0	878	69.6	2 310	70.8
Very fine	305	38.2	181	32.8	237	18.8	526	16.1
Microscopic	125	15.6	63	11.4	81	6.4	165	5.1
Total	799	100.0	551	100.0	1 262	100.0	3 262	100.0
Debitage with cortex by grain size class*								
Coarse	16	41.0	20	27.0	21	23.1	98	29.7
Fine	64	10.8	79	16.7	227	18.9	465	18.8
Very fine	198	36.5	67	21.9	81	20.7	242	35.4
Microscopic	89	41.2	24	22.9	24	19.7	75	36.8
Total	367	100.0	190	100.0	353	100.0	880	100.0
Mean weight per flake by grain size class								
Coarse	24.5		10.5		16.8		12.9	
Fine	9.7		7.2		9.6		12.7	
Very fine	12.2		12.5		7.1		6.7	
Microscopic	13.6		8.6		7.7		8.0	
Total	11.7		9.3		9.3		11.2	

Table 4.17 - Frequencies of selected flaked lithic debitage attributes, by element, LeMoc Shelter - Continued

	Element 5		Disturbed sediments		Total	
	N	%	N	%	N	%
Total debitage by grain size class						
Coarse	363	7.3	477	11.3	1 374	8.1
Fine	3 293	66.7	2 008	47.6	10 039	59.0
Very fine	1 072	21.7	1 307	31.0	4 303	25.3
Microscopic	212	4.3	428	10.1	1 287	7.6
Total	4 940	100.0	4 220	100.0	17 003	100.0
Debitage with striking platforms, by grain size						
Coarse	301	7.5	428	11.4	1 104	8.1
Fine	2 657	66.0	1 825	48.5	8 298	60.8
Very fine	894	22.2	1 174	31.2	3 317	24.3
Microscopic	171	4.3	334	8.9	939	6.9
Total	4 023	100.0	3 761	100.0	13 658	100.0
Debitage with cortex by grain size class*						
Coarse	133	36.6	246	51.6	534	38.9
Fine	580	17.6	608	30.3	2 023	20.2
Very fine	321	29.9	679	52.0	1 588	36.9
Microscopic	45	21.2	150	35.1	407	31.6
Total	1 079	100.0	1 683	100.0	4 552	100.0
Mean weight per flake by grain size class						
Coarse	12.9		18.6		15.3	
Fine	9.8		11.4		10.7	
Very fine	8.0		9.3		8.9	
Microscopic	7.4		5.3		7.6	
Total	9.6		10.9		10.4	

*Percentages given are percentages of total flakes in each material class that retain cortex.

Table 4.18 - Frequencies of selected nonflaked lithic tool attributes, by element, LeMoc Shelter

	Element 1		Element 2		Element 3		Element 4	
	N	%	N	%	N	%	N	%
Total tools	71	100.0	90	100.0	88	100.0	91	100.0
Tool morpho-use								
Indeterminate	5	7.0	8	8.9	22	25.0	44	48.4
Unhafted tool	33	46.5	33	36.7	23	26.1	20	22.0
Hammerstone	3	4.2	9	10.0	7	8.0	1	1.1
Mano	15	21.1	24	26.7	19	21.6	13	14.3
Slab metate	0	0	1	1.1	1	1.1	0	0
Trough metate	5	7.0	8	8.9	7	8.0	5	5.5
Metate fragment	2	2.8	2	2.2	6	6.8	6	6.6
Hafted implement	3	4.2	2	2.2	1	1.1	2	2.2
Specialized form	5	7.0	3	3.3	2	2.3	0	0
Grain size								
Indeterminate	6	8.5	4	4.4	3	3.4	0	0
Coarse	9	12.7	22	24.4	15	17.0	29	31.9
Medium	7	9.9	20	22.2	39	44.3	36	39.6
Fine	47	66.2	43	47.8	29	33.0	25	27.5
Microscopic	2	2.8	1	1.1	2	2.3	1	1.1
Item condition								
Broken								
Small fragment	0	0	0	0	0	0	2	2.2
Partial implement	10	14.1	23	25.6	38	43.2	75	82.4
Complete/nearly complete	61	85.9	67	74.4	50	56.8	14	15.4
Production evaluation								
Indeterminate	1	1.4	1	1.1	1	1.1	31	34.1
Natural (unmodified)	53	74.6	67	74.4	61	69.3	42	46.2
Minimally modified	13	18.3	20	22.2	21	23.9	16	17.6
Well shaped	4	5.6	2	2.2	5	5.7	2	2.2
Stylized	0	0	0	0	0	0	0	0

function of the large number of fragmentary tools in those units and do not reflect a breakdown in this manufacturing strategy.

The morpho-use categories are based on traditional Southwestern typologies and, as such, have both morphological and functional implications. Because the functions of many of these traditional categories have not been systematically verified, many of the more specific types were grouped into more general descriptive categories during preliminary analysis. Consequently, the unhafted, hafted, and specialized categories all subsume artifacts that presumably had a number of different functions.

Fortunately, not all of the artifact types that constitute these categories were recovered from the shelter's deposits; therefore, the functional implications, in some cases, can be narrowed. For instance, 92 percent of the unhafted implements are what are generally referred to as polishing or grinding/abrading stones; that is, they are unmodified, pebble- to cobble-sized stones that exhibit wear patterns such as polishing or smoothing of one or more faces and, in some cases, show evidence of battering. Within the hafted implement category, 75 percent of the artifacts are axes, and the other 25 percent are mauls. The majority of the specialized implements are ornaments, but mortars and pestles, pallets, and shaped sandstone slabs also are included in this category.

Referring back to table 4.18, it can be seen that the percentages for the various morpho-use categories in Elements 3, 4, and 5 are constrained by the large numbers

Table 4.18 - Frequencies of selected nonflaked lithic tool attributes, by element, LeMoc Shelter - Continued

	Element 5		Disturbed sediments		Total	
	N	%	N	%	N	%
Total tools:	126	100.0	138	100.0	604	100.0
Tool morpho-use						
Indeterminate	68	54.0	84	60.9	231	38.2
Unhafted tool	20	15.9	21	15.2	150	24.8
Hammerstone	5	4.0	3	2.2	28	4.6
Mano	18	14.3	11	8.0	100	16.6
Slab metate	0	0	1	0.7	3	0.5
Trough metate	4	3.2	5	3.6	34	5.6
Metate fragment	1	0.8	9	6.5	26	4.3
Hafted implement	6	4.8	3	2.2	17	2.8
Specialized form	4	3.2	1	0.7	15	2.5
Grain size						
Indeterminate	4	3.2	2	1.4	19	3.1
Coarse	34	27.0	41	29.7	150	24.8
Medium	34	27.0	61	44.2	197	32.6
Fine	51	40.5	32	23.2	227	37.6
Microscopic	3	2.4	2	1.4	11	1.8
Item condition						
Broken						
Small fragment	2	1.6	0	0	4	0.7
Partial fragment	106	84.1	125	90.6	377	62.4
Complete/nearly complete	18	14.3	13	9.4	223	36.9
Production evaluation						
Indeterminate	38	30.2	44	31.9	116	19.2
Natural (unmodified)	70	55.6	74	53.6	367	60.8
Minimally modified	10	7.9	18	13.0	98	16.2
Well shaped	7	5.6	2	1.4	22	3.6
Stylized	1	0.8	0	0	1	0.2

of indeterminate codings. If these are excluded and the percentages of the remaining categories are recalculated (table 4.19), the frequencies of each tool type remain surprisingly uniform throughout the shelter's occupational history. This implies that all of the activities that involved the use of these implements were performed during each of the occupations, a pattern also indicated by the distribution of the ceramics and flaked lithic implements. Minor variations in the percentages of the nonflaked implements do suggest that the intensity of individual activities did vary, however.

The interpretation of these variations is complicated by the diversity of tool types grouped into the morpho-use categories. Even if the narrow definition of unhafted implements is accepted, a variety of activities is still suggested. Such implements could have been used for resurfacing grinding stones or for manufacturing pottery or stone, bone, or wooden tools. The functional implications of the specialized tool category are even more ambiguous. Consequently, interpretation of activity patterns based on fluctuations in the frequencies of these categories is inadvisable at this preliminary stage of artifact analysis.

Fluctuations in the percentages of hammerstones cannot be directly interpreted because approximately half of the cores recovered at LeMoc Shelter showed evidence of secondary use as hammerstones. The frequencies of nonflaked hammerstones, therefore, do not reflect the total

Table 4.19 - Nonflaked lithic tool morpho-use frequencies, excluding items classified as "indeterminate," LeMoc Shelter

	Element				
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)
Tool morpho-use:					
Unhafted tool	50	40	35	43	34
Hammerstone	4	11	11	2	9
Mano	23	29	29	28	31
Metate	11	14	21	23	9
Hafted implement	4	2	1	4	10
Specialized form	8	4	3	0	7
Total	100	100	100	100	100

number of artifacts used for this purpose. Also, like the unhafted tools, the hammerstones were undoubtedly used in a variety of activities.

Because the use of grinding stones and hafted implements is more task-specific, fluctuations in these categories are more readily interpreted. The frequency of metates seems to increase gradually through Element 3, decreases somewhat during Element 4, and drops off sharply during Element 5. This suggests that during the shelter's last occupation, relatively little milling was done. This interpretation is strengthened by the fact that many of the metates recovered from Element 5 contexts were being used to line pits and hearths and not being used as milling stones.

This secondary use of metates as building stone was even more striking in Element 4 when most were incorporated into the retaining wall built during this period. It appears that very few metates were actually being used for their primary purpose. The gradual increase in the percentage of metates through time, therefore, seems to be a function of the gradual increase in the number of spent metates and metate fragments available for reuse as building stones.

The Element 5 assemblage is also unusual in that a relatively high percentage of hafted implements, all of which are axes, was recovered. Since fewer of these artifacts were recovered from earlier, more intensive occupations, woodcutting appears to have been a major activity during this occupation.

Codings for material type are essentially the same general grain size categories as those used for the flaked lithic implements. Tentative hand specimen identifications suggest that the majority of these materials were most likely procured locally. Of the artifacts coded as coarse grained, 89 percent are diorite river cobbles probably gathered from the Dolores River flood plain, 6 percent are orthoquartzite, and 4 percent are sandstone. Similarly, 82 percent of the medium-grained materials are sandstone and 17 percent are orthoquartzite. Fifty-four percent of the tools in the fine-grained category are orthoquartzite, 37 percent are sandstone, and 8 percent are siltstone. The microscopic-grained materials include a wide variety of cherts, and a few pieces of exotic materials, notably, obsidian and turquoise.

Unlike the flaked lithic implements, the grain size categories for nonflaked implements cannot be related to the workability of the stone. Rather, they reflect the texture and durability of the rock, presumably as they relate to function. For example, sandstone was the favored material for metates in all of the elements. Both medium- and fine-grained stone was used, but the ratios of these two textures vary. In Elements 1 and 3, fine-grained metates are predominant, but in Elements 4 and 5 there are more medium-grained metates. However, given the secondary use of metates as building stone in these later elements, the significance of this difference is uncertain.

A wider variety of materials was used for manos. Sandstone is the major rock type, but manos of orthoquartzite and diorite are also common. In all elements, coarse-, medium-, and fine-grained manos were in use, although the ratios vary. However, the coarse-grained materials do not necessarily imply a coarsely textured grinding surface. Most of the coarse-grained manos are diorite river cobbles that have a hard, smooth surface despite the grain size of their mineral constituents. It appears, therefore, that fine- to medium-textured materials were favored for the manufacture of both manos and metates.

Hardness, more than texture, probably accounts for the apparent preference for orthoquartzite in making hammerstones and hafted implements. This hypothesis is supported by the fact that diorite, another hard rock, was the second most frequently used material. Unhafted implements, on the other hand, were made from the full range of available materials. Most likely this is a reflection of the variety of functional tool types subsumed by this category.

Human Skeletal Remains[1]

Fewer than 30 human bones were recovered from LeMoc Shelter (table 4.20). All were isolated finds rather than actual burials; many were recovered from disturbed deposits associated with looter's pits. Due to the small size of the collection and the fragmentary nature of many of the bones, little can be stated concerning these remains. The 1 subadult and 2 adult tibia fragments recovered from Feature 68 in Pithouse 1 represent at least 2 individuals. The third molar of the adult mandible recovered from the fill of Pithouse 1 appears to be slightly impacted, and the incisor recovered from Room 4 shows signs of attrition and calculus formation. No other signs of disease or abnormality were noted in the collection.

Unworked Nonhuman Bone[1]

The preliminary description of the nonhuman bone from LeMoc Shelter is limited to the number of bones assignable to each taxa (table 4.21). Nevertheless, the percentages based on these tabulations should serve to reveal

[1]The discussion of human skeletal remains presented in this section is based on data provided by Louina Beyer Flander and Ann Lucy Weiner, both of the University of Colorado, Boulder.

[1]The data and conclusions presented in this section are based on analysis of only a portion of the nonhuman bone assemblage from LeMoc Shelter. Since this report was written, analysis of the remainder of the assemblage has been completed; results are reported in appendix 4E.

Table 4.20 – Human skeletal remains, LeMoc Shelter

Provenience	Element	Observations
Pithouse 1, fill	Mandible	Adult; right third molar apparently impacted; second premolar and first and second molars worn on occlusal surface
Pithouse 1, Stratum 3	Ulna (L)	Shaft fragment
Pithouse 1, Stratum 11	Tibia (R)	Shaft fragment
Pithouse 1, Floor 1	Fibula	Shaft fragments; rodent gnawed
Pithouse 1, Feature 55	Long bone	Fragment
Pithouse 1, Feature 68	Tibia	Fragments (3) (1 subadult, 2 adult)
Room 4, Stratum 1*	Tibia	Fragments (3)
Room 4, Stratum 2	Incisor, maxillary central (L)	Advanced attrition and calculus formation
Occupation Area 1, Feature 25	Metatarsal	Fragments (2); proximal ends missing
Test Trench 1	Rib	Fragment
Test Trench 2	Metacarpal	
1- by 1-m grid, 9S/16E Stratum 13*	Phalanx	Foot
1- by 1-m grid, 8S/16E Stratum 13*	Hamate (R) Metacarpal	Fragment
Disturbed deposit behind roomblock	Phalanx	Probably hand (2)

*Disturbed deposits.
(N) – Number of items.
(R) – Right.
(L) – Left.

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Table 4.21 – Frequencies of nonhuman bone, by element, LeMoc Shelter

Taxon	Element 1 N	Element 1 %	Element 2 N	Element 2 %	Element 3 N	Element 3 %	Element 4 N	Element 4 %	Element 5 N	Element 5 %	Disturbed sediments N	Disturbed sediments %	Total N	Total %
Unidentifiable	38	5.4	2	1.0	31	5.5	26	2.7	10	1.8	137	6.3	244	4.7
Mammalia														
Indeterminate	327	46.5	145	70.0	349	61.8	731	76.3	383	67.7	1 586	72.6	3 521	67.9
Lagomorpha														
Indeterminate	0	0	1	0.5	28	5.0	0	0	2	0.4	2	0.1	33	0.6
Sylvilagus spp. cottontail	47	6.7	9	4.3	17	3.0	51	5.3	36	6.4	158	7.2	318	6.1
Lepus spp. jackrabbit	29	4.1	5	2.4	35	6.2	2	0.2	1	0.2	16	0.7	88	1.7
Rodentia														
Indeterminate	7	1.0	6	2.9	5	0.9	11	1.1	4	0.7	27	1.2	60	1.2
Sciuridae	7	1.0	1	0.5	4	0.7	3	0.3	8	1.4	27	1.2	50	1.0
Cynomys gunnisoni Gunnison's prairie dog	6	0.9	0	0	1	0.2	0	0	2	0.4	0	0	9	0.2
Spermophilus spp. ground squirrel	7	1.0	0	0	3	0.5	6	0.6	1	0.2	4	0.2	21	0.4
Marmota flaviventris yellow bellied marmot	15	2.1	1	0.5	1	0.2	3	0.3	1	0.2	3	0.1	24	0.5
Cricetidae	0	0	0	0	0	0	0	0	1	0.2	8	0.4	9	0.2
Microtus spp. vole	0	0	1	0.5	1	0.2	1	0.1	0	0	1	<0.1	4	0.1
Neotoma spp. woodrat	4	0.6	0	0	1	0.2	1	0.1	7	1.2	5	0.2	18	0.3
Thomomys spp. pocket gopher	1	0.1	0	0	0	0	0	0	0	0	2	0.1	3	0.1
Erethizon dorsatum porcupine	1	0.1	1	0.5	3	0.5	6	0.6	1	0.2	4	0.2	16	0.3
Castor canadensis beaver	0	0	1	0.5	0	0	3	0.3	0	0	5	0.2	9	0.2
Carnivora														
Indeterminate	3	0.4	0	0	1	0.2	1	0.1	0	0	8	0.4	13	0.3
Canidae	0	0	0	0	1	0.2	3	0.3	4	0.7	8	0.4	16	0.3
Canis spp. dog, coyote, wolf	119	16.9	2	1.0	5	0.9	2	0.2	5	0.9	4	0.2	137	2.6
Vulpes spp. fox	1	0.1	0	0	1	0.2	5	0.5	1	0.2	10	0.5	18	0.3
Mustelidea	0	0	1	0.5	0	0	0	0	4	0.7	4	0.2	9	0.2
Felidae	0	0	1	0.5	0	0	2	0.2	0	0	3	0.1	6	0.1
Lynx rufus bobcat	0	0	2	1.0	3	0.5	4	0.4	3	0.5	6	0.3	18	0.3
Artiodactyla														
Indeterminate	20	2.8	23	11.1	15	2.7	33	3.4	68	12.0	48	2.2	207	4.0
Cervus elaphus American elk	0	0	1	0.5	9	1.6	28	2.9	5	0.9	5	0.2	48	0.9
Odocoileus hemionus mule deer	21	3.0	3	1.4	24	4.2	12	1.3	9	1.6	34	1.6	103	2.0
Ovis canadensis bighorn	1	0.1	0	0	3	0.5	4	0.4	4	0.7	16	0.7	28	0.5
Antilocapra americana pronghorn	0	0	0	0	0	0	1	0.1	0	0	2	0.1	3	0.1

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Table 4.21 – Frequencies of nonhuman bone, by element, LeMoc Shelter – Continued

Taxon	Element 1 N	%	Element 2 N	%	Element 3 N	%	Element 4 N	%	Element 5 N	%	Disturbed sediments N	%	Total N	%
Aves														
Indeterminate	34	4.8	0	0	5	0.9	11	1.1	2	0.4	35	1.6	87	1.7
Falconiformes														
Indeterminate	0	0	0	0	16	2.8	1	0.1	2	0.4	2	0.1	21	0.4
Galliformes														
Indeterminate	0	0	1	0.5	0	0	1	0.1	0	0	1	<0.1	3	0.1
Meleagris gallopavo turkey	1	0.1	0	0	0	0	1	0.1	1	0.2	3	0.1	6	0.1
Tetraonidae	14	2.0	0	0	3	0.5	2	0.2	1	0.2	3	0.1	23	0.4
Passeriformes														
Indeterminate	0	0	0	0	0	0	0	0	0	0	5	0.2	5	0.1
Amphibia														
Indeterminate	0	0	0	0	0	0	1	0.1	0	0	0	0	1	<0.1
Osteichthyes														
Indeterminate	0	0	0	0	0	0	2	0.2	0	0	4	0.2	6	0.1
Total assemblage	703	100.0	207	100.0	565	100.0	958	100.0	566	100.0	2 186	100.0	5 185	100.0

broad patterns of faunal resource exploitation during the successive occupations at LeMoc Shelter. To aid in pattern recognition, the diverse nonhuman bone assemblage was retabulated using order as the primary taxonomic unit for mammals and class as the primary unit for birds, fish, and amphibians (table 4.22). In this table, unidentifiable bone and unidentifiable mammal bone fragments are included in the "unidentified" category.

The frequency of unidentified bone in all of the elements is undoubtedly due in part to natural bone attrition, but cultural factors, such as butchering practices, bone-marrow extraction, and processing of bone for grease, may emerge as more significant once detailed analysis is completed. For purposes of assessing the relative importance of the various taxa in the overall subsistence system, however, the quantity of bone fragments serves only to obscure changes in the other categories. Consequently, a second set of percentages was calculated for the identified bone after excluding this material (table 4.22). An assumption is made that, since the bone preservation at LeMoc Shelter was generally good, no taxa will be seriously underrepresented by excluding these materials.

If these last percentages do represent the general pattern of aboriginal faunal procurement, some changes in hunting practices are apparent, although the frequencies for some of the categories are not always directly interpretable. For instance, in Element 1, the frequencies are skewed by the quantity of carnivore bone. With the exception of one bone, all of this material is identified as *Canis* and was recovered from a single scatter in the southern end of Pithouse 2. This bone probably is the remains of only 1 or 2 individuals whose carcasses were dumped into the pithouse depression at some point after its abandonment. Consequently, the frequencies for Element 1 were again recalculated after factoring out the *Canis* bone to better reveal the pattern of faunal exploitation (table 4.23).

The figures in table 4.23 suggest a similar emphasis on a number of taxa during this period, with a slight preference for lagomorphs. In this context, the percentage of bird bone seems surprisingly high, especially since very little of it seems to be turkey. The data in table 4.21 suggest that grouse was the primary avifauna being hunted. Of the artiodactyls, deer appears to have been the most important game species. Preference for lagomorphs, however, is split between cottontail (62 percent), and jackrabbit (38 percent).

The significance of the rodents is more difficult to assess since some bone may have been introduced into the deposits when animals died in their burrows. This is particularly likely to be the case with wood rat and, to a lesser extent, with ground squirrel. During Element 1 the inhabitants of LeMoc Shelter apparently exploited a variety of faunal species including deer, cottontail, and possibly ground squirrel, all of which are available in the immediate vicinity of the shelter today. Also used were species such as jackrabbit, grouse, prairie dog, and pocket gopher, which are more common in more open areas,

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Table 4.22 – Frequencies of taxonomic orders and classes of nonhuman bone, by element, LeMoc Shelter

Taxon	Element 1	Element 2	Element 3	Element 4	Element 5	Disturbed sediments	Total
Order							
Lagomorpha							
Count	76	15	80	53	39	176	439
% of total	10.8	7.2	14.2	5.5	6.9	8.1	
% of ID'd	22.5	25.0	43.2	26.4	22.5	38.0	
Rodentia							
Count	48	11	19	34	25	86	223
% of total	6.8	5.3	3.4	3.5	4.4	3.9	
% of ID'd	14.2	18.3	10.3	16.9	14.5	18.6	
Carnivora							
Count	123	6	11	17	17	43	217
% of total	17.5	2.9	1.9	1.8	3.0	2.0	
% of ID'd	36.4	10.0	5.9	8.5	9.8	9.3	
Artiodactyla							
Count	42	27	51	78	86	105	389
% of total	6.0	13.0	9.0	8.1	15.2	4.8	
% of ID'd	12.4	45.0	27.6	38.8	49.7	22.7	
Class							
Aves							
Count	49	1	24	16	6	49	145
% of total	7.0	0.5	4.2	1.7	1.1	2.2	
% of ID'd	14.5	1.7	13.0	8.0	3.5	10.6	
Amphibia and Osteichthyes							
Count	0	0	0	3	0	4	7
% of total				0.3		0.2	
% of ID'd				1.5		0.9	
Unidentified*							
Count	365	147	380	757	393	1723	3765
% of total	51.9	71.0	67.3	79.0	69.4	78.8	
Total	703	207	565	958	566	2186	5185
Total identified	338	60	185	201	173	463	1420

* Includes unidentified mammal bone and other unidentified fragments.

ID'd – Identified.

and marmot, which is generally found in upland settings. Barring major environmental change, the presence of these latter species suggests frequent forays to other portions of the project area for game. Conceivably, with intensive farming of the river valley, an open ground microenvironment was created in the canyon that could have supported many of the species not commonly seen in the area today.

In Element 2, the small quantity of identifiable bone recovered makes interpretation of the frequencies of individual taxa especially tentative. An increasing emphasis

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Table 4.23 – Frequencies of nonhuman bone (excluding *Canis* bone), Element 1, LeMoc Shelter

Taxon	%
Order	
Lagomorpha	35
Rodentia	22
Carnivora	<1
Artiodactyla	20
Class	
Aves	23
Amphibia and Osteichthyes	0

on the hunting of artiodactyls, with a corresponding deemphasis on the procurement of gamebirds and rabbits seems to have occurred during this period (table 4.22). The frequency of rodent bone remains about the same, but too few bones from this group were recovered to determine if these were likely to have been intentionally hunted.

During Element 3, rabbit again appears to have been the most frequently taken game, with jackrabbit the dominant species recovered. The apparent increase in bird bone is due to the discovery of a partial hawk skeleton in the fill of Room 11. No gamebirds were present. Taking into account the constraint caused by the inflated percentage of Aves, the frequency of artiodactyl bone is probably comparable to that in Element 1 or possibly is a bit higher. Deer is the most frequently identified species, but elk and mountain sheep were also being taken. The frequency of rodent bone seems low compared to the frequencies of rodent bone in the 2 earlier occupations, but except for fewer marmots, the species composition seems similar.

In Element 4, artiodactyls appear to have been the favored game (table 4.22). Elk was the most frequently recovered species, but a significant amount of deer bone was found also. The number of elk bones, however, may exaggerate the importance of this species since most of this bone was recovered from Stratum II-4 and probably represents only 2 to 3 individuals. Lagomorph bone frequencies are at about the same level as in Elements 1 and 2, but almost all of this bone is from cottontail. Rodent bones were also recovered at about the same frequency; marmot, beaver, porcupine, and ground squirrel all apparently were being used for food.

In Element 5, artiodactyls, including deer, elk, and mountain sheep, remained the principal game (tables 4.21 and 4.22). Lagomorphs remain the next most frequently recovered group, and, as in Element 4, nearly all are cottontail. The frequency of rodent bones remains constant, but the number of smaller species increases. The number of wood rat bones is particularly high, possibly because the shelter was being used by this species and only occasionally by humans during this period. Also, since these deposits are near ground surface, more bone of shallow-burrowing species is likely to have been naturally introduced.

Because the above interpretations are based solely on the raw frequency of bone, their tentative nature bears reemphasis, especially when the relative importance of various species is being discussed. At a more general level, however, greater confidence is probably warranted, and at this level some interesting patterns emerge. The broad spectrum of taxa apparently hunted during Element 1 is not unexpected given the year-round occupation of the shelter during this period. The high frequency of artiodactyl bone in Element 2 is somewhat surprising in this same context, but it should be remembered that very little midden is included in the Element 2 deposits, and very little identifiable bone was recovered. Consequently, little weight can be accorded to the figures from this unit.

The predominance of lagomorphs in Element 3 may support the interpretation of this occupation as a seasonally used field house, especially since most of this bone is jackrabbit (table 4.21). Jackrabbits are better adapted to open country where their strategy of flight to avoid predators is most effective. In general, the canyon terrain, with its relatively heavy ground cover, is better suited to cottontail, a species that relies on hiding to avoid predators. The prevalence of cottontail in all other elements may indicate that a setting similar to modern times was also characteristic of the aboriginal period. An artificially created microenvironment of open ground may have been created during aboriginal times, however, as more fields were cleared and planted. It therefore seems plausible that the quantity of jackrabbit in Element 3 is the result of field hunting, both to obtain meat and to protect crops. In a site occupied year-round, this seasonal emphasis would be masked by the inclusion of game procured during other seasons, but in a seasonally occupied site, the pattern would be preserved. Additional support for this hypothesis is provided by the paucity of jackrabbit in Elements 4 and 5 (table 4.21). Both of these occupations appear to postdate the general abandonment of Grass Mesa Locality. Consequently, the microenvironment created when the valley was being farmed probably would have disappeared. Therefore, cottontail would have reemerged as the most common lagomorph available in the vicinity of the shelter. The predominance of artiodactyl bone in Elements 4 and 5 (tables 4.21 and 4.22) suggests that big game hunting may have been a major activity during these occupations, with supplemental hunting of small game, possibly for camp meat.

Little has been said about the quantity of bone recovered from the disturbed sediments, since these materials cannot be correlated with any of the shelter's occupations. Nevertheless, because the bone from these sediments constitutes 46 percent of the total collection, some comment is warranted. The large quantity of bone recovered from the disturbed sediments suggests that most of this deposit was probably midden originally deposited in the abandoned roomblock and in the rear of the rockshelter. As such, these sediments may have accumulated throughout the span of the shelter's aboriginal occupation. However, the percentage of Lagomorpha in the disturbed sediments is higher and that for Artiodactyla is lower than would have been predicted by averaging the bone from the five elements. This suggests that the bulk of the disturbed sediments may have been deposited during the earlier 3 elements.

Miscellaneous Items

A variety of materials that have not been included in any of the DAP analyses was recovered from LeMoc Shelter. Included in these materials are dung, fur, hair, feathers, petrified wood, numerous worked and unworked shell items, and several pieces of jacal, both with and without impressions (table 4.24). Although some of these materials are certainly associated with the prehistoric occupation of the shelter, the cultural origin of other items is questionable; detailed analysis is required to determine the possible significance of the items that comprise this assemblage.

Discussion

As stated at the beginning of the "Material Culture" section, the aim of the intrasite analysis of artifact distributions was to test the interpretations of site function postulated on the basis of architectural features against an independent data base. Generally, the evidence from the artifacts seems to support those preliminary interpretations, but the distinctions among the artifact assemblages from the different elements are far from clear-cut. This seems largely due to the fact that the bulk of the collections from all of the elements consists of implements associated with housekeeping activities. The various occupation periods, therefore, differ not so much in the activities that were conducted as in the intensity of occupation – the frequency and duration of use. Tabulations of the frequencies of artifact types, unfortunately, are targeted at detecting qualitative rather than quantitative differences in the occupation periods. Without the information necessary to determine volumetric measures of the strata and without a knowledge of sedimentation rates and implement uselife, occupational intensity is difficult to measure from artifact data alone. Consequently, the energy invested in the construction of facilities (i.e., architectural features) is the only available measure of this factor.

The kinds of facilities in use during each occupation must also bear the greater burden of proof for the range of activities performed at the shelter during each element. Theoretically, it should be possible to factor out the artifacts associated with the various housekeeping tasks and to use the residuals to determine site function. In practice, however, this effort is confounded by the generalized, multifunctional character of the Anasazi tool technology, which precludes the identification of task-specific tool kits. The best that could be achieved was to find some broadly supportive evidence that suggested successive changes in site function through time.

The most broadly significant of these lines of evidence is the distribution of trough metates, the presence of which is taken as evidence that maize was being consumed. Since wear patterns were not examined during the preliminary analysis of nonflaked lithic tools, trough metates provide the only certain evidence of the specialized back and forth motion discussed by Woodbury (1954:66) as indicative of maize grinding. Trough metates are common in all elements; however, those in Elements 4 and 5 were being used secondarily as building stone. Use of metates as grinding stones, therefore, appears to have been heaviest in the first 3 elements and minimal in the last 2 occupation periods. This, coupled with the increased ratio of nonflaked lithic tool fragments to complete tools in the later elements, seems to support the idea that the shelter was less intensively occupied during the later periods and that, although the site was being used for agriculture-related activities during Element 3, it was not being used for such activities during Elements 4 and 5.

Since Grass Mesa Locality appears to have been largely abandoned by the Anasazi before these last 2 occupations of the shelter, it is assumed that the shelter was being used by work groups coming into the area to procure locally available resources. The relatively high frequency of projectile points and the quantity of artiodactyl bone from Element 4 deposits suggest that hunting was a major activity. The effort expended on building the retaining wall further suggests that the shelter was used repeatedly and fairly regularly as the base camp for these forays.

Use of the shelter during Element 5 seems to have been more sporadic, which may account for the wider range of activities suggested by the artifacts. The quantity of bone, especially artiodactyl bone, suggests that hunting again was a major activity. However, the relatively high frequency of cores suggests that lithic raw materials also may have been procured during this period. Also, the number of axes present in these deposits indicates that woodcutting may have been an important activity. Given

Table 4.24 - Miscellaneous items recovered from LeMoc Shelter

Provenience	Material description
Square 6S/9E, Stratum 13	Petrified wood
Square 6S/9E, Stratum 14	Fossil pelecypod
Square 7S/14E, Stratum 14	Jacal with gravel and grass inclusions (2) (3014.7 g)
Square 8S/16E, Stratum 13	Jacal (1.9 g)
Square 11S/15E, Stratum 11	Pebble/gravel
Square 12S/14E, Stratum 11	Sandstone
	Limonite
Test trench 2, Stratum 4	Gastropod shell (0.1 g)
Test trench 2, Stratum 6	Dung
Room 1, Stratum 1	Fur or hair
	Dung
	Jacal with impressions (4) (599.0 g)
	Mollusc shell; indeterminate (0.1 g)
Room 2, Stratum 1	*Olivella* shell bead (0.4 g)
Room 4, Stratum 1	Jacal with impressions and grass (20.0 g)
Room 6, Stratum 1	Dung
	Jacal (18.2 g)
Room 6, Surface 1, Feature 1	Jacal (31.5 g)
Room 6, Surface 1, Feature 2	Dung
	Caliche (2) (1.2 g)
	Feather
	Wall plaster with vegetal and rock inclusions (1346.0 g)
Room 8, Stratum 1	Sandstone (4.5 g)
Room 12, Stratum 1	Pebble/gravel
Room 12, Stratum 2	Hematite
Room 13, Surface 1, Feature 40	Fossil mollusc
Pithouse 1, fill	Caliche (5) (3.7 g)
	Gypsum (7.0 g)
	Jacal with impressions (2) (921.9 g)
Pithouse 1, Stratum 8	Hematite
Pithouse 1, Stratum 11	Drilled mollusc shell; indeterminate (0.1 g)
	Mollusc shell bracelet fragment; indeterminate (2.0 g)
Pithouse 2, fill	Jacal (9) (391.3 g)
	Dung
Pithouse 2, Stratum 6	Fossil pelecypod (5.2 g)
	Fossil mollusc shell
Midden east of Pithouse 1	Gypsum
	Weathered rock
	Mollusc shell; indeterminate
Disturbed deposits	*Olivella* shell bead (3) (0.6 g, 0.4 g, 2.7 g); 1 burned
	Feather (3)
	Jay feather
	Feather bundle (0.5 g)
	Dung (2)
	Jacal with impressions (8) (1166.9 g)
	Jacal (46.2 g)
	Gypsum (2)
	Gastropod shell (0.7 g)

(N) - Number of items.
(g) - Weight in grams.

the transport distances involved, cutting of firewood seems doubtful. More likely, ponderosa pine and Douglas-fir were being procured for roof supports to be used in sites in the McPhee area. Since the features associated with this occupation period are small, isolated fireplaces, it seems likely that, during Element 5, the shelter was being used irregularly as a short-term camp by small task groups engaged in one or another of these resource procurement activities.

In contrast to these later occupations, use of the shelter during Element 3 appears to have been directed more toward agricultural activities, although some lithic raw material may have been processed as well, as suggested by the relatively high frequency of cores. Apart from the presence of grinding stones, the most significant feature of this artifact assemblage is the relatively high frequency of jackrabbit bone. This may indicate that faunal procurement was largely focused on hunting within an open microenvironment, perhaps one created by agricultural fields.

APPLICABILITY OF SITE DATA TO DOLORES ARCHAEOLOGICAL PROGRAM RESEARCH DESIGN

The primary focus of this chapter has been descriptive, with interpretations limited to perceptions of the evident intrasite variability. The narrowness of this focus has been intentional, since the purpose of the individual site reports in the scheme of the DAP research effort is to provide a contextual basis for more synthetic reports. By adopting a regional focus, the myopia that too often characterizes interpretive site reports can perhaps be avoided. Nevertheless, some interim synthesis of the information obtained during the course of these excavations is a useful aid in the development of more broadly based research. The following discussion attempts to interpret the information obtained at LeMoc Shelter within the framework of the 5 problem domains of the DAP research design: Economy and Adaptation, Paleodemography, Social Organization, Extraregional Relationships, and Cultural Process.

Economy and Adaptation

The frequency with which corn, bean, and squash remains were recovered from the shelter's dry deposits (see appendixes 4F and 4G) leaves little doubt that agriculture was the basis of the subsistence system for the inhabitants of LeMoc Shelter. Based on Kohler's discussion (chapter 2), only about 7 percent of the canyon soils appear to be even marginally arable. Nevertheless, this would have been sufficient to support a reasonably large population. Stephen (1936:954-955) reports that in 1892 the Hopi were farming 3 to 4 acres/capita, with 55 percent of the land in corn; 30 percent in beans, squash, and other vegetables; and 15 percent in fruit trees. This estimate agrees with the figure of 3 acres/capita obtained by Hack (1942:10) 45 years later. Assuming that this figure approximates aboriginal requirements, the estimated 82.2 hectares (223 acres) of arable land within a 1-km radius of the shelter could have supported roughly 74 people – far more than could ever have lived there.

Direct precipitation would not have been as critical to agricultural success in the canyon as it would have been in other portions of the study area, since the river effectively concentrates precipitation from a large catchment area. Unless the river was deeply entrenched, the water table in the valley would have remained within reach of the roots of crops planted in the pockets of deep alluvium that dot the flood plain. Fields on the alluvial fans of the small tributary drainages also would have benefited from the concentration of rainfall from a wider catchment area. In addition, the loose colluvial soils near the base of the canyon side slopes are able to retain much of the moisture obtained from sheet slope runoff.

Temperature, rather than moisture, appears to have been the more critical factor in the success or failure of the harvest. Kane (1981b:14) states that there was an annual average of 124 consecutive frost-free days between 1964 and 1975 at Yellow Jacket, Colorado, which is at about the same elevation as the valley floor in Grass Mesa Locality. However, cold air drainage in the canyon can profoundly shorten the frost-free period. Bye and Shuster (1981:242) report that an early frost on 21 August 1980 killed maize, bean, and squash plants in an experimental garden planted in the river valley. The frost-free season at this lower garden was only 67 days in contrast to a 98 day frost-free season for a second experimental garden planted in the upper Sagehen area.

Bradfield (1971:6) indicates that Hopi maize requires 115 to 130 frost-free days to mature. If, as hypothesized by Petersen (1981:153), the climate during the Anasazi occupation was similar to that of the present, then maize agriculture would have been feasible, but cold air drainage in the canyon would have made crop failures and low yields frequent.

In an early survey of the Dolores River canyon, Toll (1977) suggests that the rich biotic diversity within the canyon would have favored the adoption of a more mixed subsistence strategy than is generally thought typical of the Anasazi. Although it is unlikely that a population as large as the population that occupied the canyon during the Anasazi period could have been supported without an agricultural subsistence base, the probability of frequent crop failures does suggest some reliance on wild food resources. (Refer to appendixes 4F and 4G for a discussion of the wild botanical resources that may have been used by the inhabitants of the shelter.) The quantity of bone scrap recovered from the shelter, however, does suggest a reliance on hunting by the Anasazi occupying this area.

The diversity of the canyon environment also appears to have permitted many of the extracting and processing tasks generally performed at satellite camps to be performed at the shelter. Evidence from the excavation indicates that both plant and animal resources were processed at the site. The site was also the locus for most manufacturing tasks. Several unfired sherds indicate that pottery was being made and fired near the shelter; the range of lithic detritus suggests that stone was being gathered locally and that all subsequent manufacturing stages were being performed at the site. The building materials appear to have been locally procured as well. In summary, between the late Sagehill and early Periman Subphases it appears that the hamlet at LeMoc Shelter was economically self-sufficient, with the inhabitants seldom ranging more than a few kilometers from the site to procure any raw materials or food.

By about A.D. 860, the shelter had been abandoned as a year-round habitation, but it continued to serve during the late Periman Subphase as a seasonal locus. Based on the architectural features and on the presence of a substantial number of grinding stones, the site appears to have been a farming station occupied by a group primarily engaged in tending the crops. From the variety and quantity of materials recovered from the Element 3 deposits, it seems likely that the group may have been a household unit, possibly from the village on Grass Mesa (Site 5MT23). After harvesting the crops, the group probably returned to the village for the winter. Thus, although the occupation of the shelter during Element 3 appears to indicate a change in Anasazi residence patterns, no change in the local subsistence pattern is evident.

DAP survey records for Grass Mesa Locality indicate that after A.D. 925 there were no permanent habitation sites in the immediate area. The canyon seems to have been abandoned, although Anasazi sites continued to be occupied in other portions of the study area. Elements 4 and 5, consequently, appear to mark a change in the focus of local resource exploitation. With the depopulation of the lower river valley, farming was probably no longer attempted in this part of the canyon. Procurement of wild food and mineral resources by groups residing elsewhere appears to have been the purpose of the temporary occupations of the shelter. During Element 4, hunting might have been the major activity. The energy invested in the construction of the retaining wall suggests that the site might have been used for this purpose repeatedly and at regular intervals.

By Element 5, use of the site appears to have been more infrequent and sporadic. Hunting still may have drawn some work parties into the area, but other work parties appear to have been gathering lithic raw materials and possibly cutting building timbers. Use of the shelter appears to have continued until about A.D. 1050/1150, but with decreasing intensity.

Paleodemography

At LeMoc Shelter, the most readily applied index of population size is one based on a ratio of individuals to living area. As discussed in Casselberry (1974:117), Clark's estimate of one person for every 3 m^2 of floor space, derived from Pueblo dwellings, seems most appropriate for the Dolores area Anasazi. Because Clark's ratio applies only to dwellings, the surface rooms that are believed to be storage structures are excluded from these calculations. The estimate for Element 1, therefore, is based on the floor area of Pithouse 2, which is 21.25 m^2. This yields an estimated population of seven individuals, which suggests that the pithouse was a single-family (i.e., nuclear or biological family) dwelling.

During Element 2, both Pithouse 1 and Room 12 were occupied. Pithouse 1, with a floor area of 31.1 m^2 (including the bench), would have been used by approximately 10 people, according to Clark's estimate. Room 12, with a floor area of approximately 11 m^2, yields an estimate of an additional 4 people, which brings the total for Element 2 to 14. The difference between the estimates for Element 1 and Element 2, plus the presence of at least 2 habitation structures in Element 2, suggests a change in the demographic structure of the shelter beyond a simple increase in the number of occupants. The difference in floor area between Pithouse 1 and Room 12 suggests the possibility that the shelter was used by an extended family. Pithouse 1 originally might have been occupied by a nuclear family, with Room 12 built later to house the family of a married child. Pithouse 1 may have continued to be used for some activities by the extended family as a group. One of the implications of this hypothesis, given the single family farmsteads typical of the preceding period, is that no vacant farm land would have been available in the canyon at which to establish a new "homestead."

For Element 3, population estimates are not as easily calculated. Rooms 11 and 13 have floor areas of 3.75 m^2 and 3.5 m^2, respectively, yielding an estimate of one person per structure if Clark's figures are used. However, the quantity and variety of artifacts recovered suggests that the site was being occupied by more than just one or two individuals during Element 3. It is possible that the number of occupants at the site varied through the growing season; perhaps only one or two people tended the crops much of the time while additional workers were required during harvest. Rooms 11 and 13 may have provided shelter for the one or two occupants during the "slow"

season; the cave itself would have provided sufficient protected area to house additional workers when necessary. Assuming that the basic productive unit of Anasazi society was the household, it seems likely that these periods of more intensive activity resulted in the varied artifact assemblage.

During Elements 4 and 5, the composition of the groups using the shelter seems to have changed. During these periods the shelter probably was used as a camp by groups based outside Grass Mesa Locality. Hunting, the procurement of lithic raw materials, and possibly timber cutting seem to have been the major purposes of these forays. By analogy with the San Juan Pueblo Indians (Ford 1968:179), it seems probable that because these tasks were probably being conducted at some distance from the main habitation, they probably were being performed by all-male groups. Using Clark's formula, the 20 m^2 area of the shelter occupied during these components suggest a group of 6 to 7 individuals. Since no structures are associated with either of these elements, it is difficult to assess the accuracy of this estimate. Subjectively, it would appear to be a reasonable maximum; although during any one episode of use, especially during Element 5, a smaller party may have been involved.

Social Organization

In the preceding section, it was argued that, during Element 1, LeMoc Shelter was being occupied by a single household group, probably a nuclear family. Although this group was largely independent in terms of resource procurement and subsistence, membership in a larger social network would have been necessary to provide marriage partners as the children came of age. This need, coupled with the adaptive advantages of membership in an interhousehold exchange system, argues strongly for the existence of some social unit beyond the household. Not surprisingly, no direct evidence either supporting or refuting this hypothesis was uncovered at LeMoc Shelter. The very nature of the problem demands an intersite perspective.

Currently, occupations roughly contemporaneous with Element 1 have been documented in Grass Mesa Locality at Prince Hamlet (5MT2161) and at Grass Mesa Village (5MT23). It seems likely that, as research progresses, other components dating to this period will be found. It is suspected that these households probably constituted a larger social network organized around kin ties. Whatever the nature of this system, however, it appears to have had little significance in the realm of daily economic pursuits, unless, as Sahlins (1972) has argued, an elaborate social superstructure forced household production beyond the minimum requirements of the domestic group.

Beginning in Element 2, a change is evident in both the residential unit at LeMoc Shelter and in the social structure of Grass Mesa Locality. As discussed, the residential group at the shelter during this period consisted of two household groups, which probably represented an extended family. This tendency towards multihousehold sites is even more apparent at Prince Hamlet (5MT2161) where as many as 5 nuclear families may have been in residence. Survey records suggest that several sites similar to 5MT2161 were present in Grass Mesa Locality during this period. By A.D. 875, residential aggregation had progressed to the point where most, if not all, of the locality's residents were living in Grass Mesa Village. Progressive removal of the residence from the vicinity of the agricultural fields established a need for seasonal sites from which the crops could be more conveniently tended. The occupation of the shelter during Element 3 may reflect this need.

The population aggregation during this period would have necessitated an elaboration of the social organization to deal with the inevitable problems arising from the increased social interaction brought on by such a process. To a large extent, this probably was accomplished by formalizing and extending existing social ties. New elements also appear to have been added. The presence of a "great kiva" at Grass Mesa Village and at some other villages in the study area may be significant in this regard. The influx of Chaco-Cibola trade wares that begins at this time suggests that the community was also participating in an interregional exchange network. Precisely how this participation affected the local social organization has yet to be established, but an increase in social interaction above the community level is definitely implied.

With the abandonment of the canyon during the late McPhee Phase, use of the area seems to have been limited to occasional forays to procure local resources. During Elements 4 and 5, the shelter was used as a base camp for these activities. Conceivably, the inferred all-male work groups could have been composed of individuals belonging to a clan or to some other kin-based cooperative, or they may have been working together merely because of mutual familiarity and common need. The limited evidence from the site, however, precludes any discussion of the larger social organization during this period.

Extraregional Relationships

The vast majority of resources needed by the Anasazi living in the vicinity of LeMoc Shelter were readily available locally. Despite this potential for self-sufficiency, however, the inhabitants of the shelter seem to have been participating in an interregional exchange network as early as the Element 1 occupation. The primary evidence of this exchange network is the presence of small quantities of nonlocal lithic materials and ceramic wares within the shelter deposits. However, source identification of lithic raw materials is still in the early stages of research. Consequently, the sparse detail available concerning these networks is based primarily on the ceramic data.

By the Sagehill Subphase, exchange relations were maintained between the Dolores Anasazi and the inhabitants of southeastern Utah, based on ceramic evidence. This hypothesis is based on the presence of quantities of red wares in Dolores area sites that appear to have been manufactured in the Bluff-Blanding area. The intensity of this exchange appears to be greatest during Element 1 with a slight decline in Element 2.

A small number of sherds from Element 3, 4, and 5 contexts apparently had been traded in from the Cibola area of eastern New Mexico, possibly through intermediaries in the Chaco area. The presence of these sherds in contexts associated with the later 3 occupations of the shelter seems to indicate a shift of the interregional exchange network from the west to the south.

Cultural Process

To study cultural process in the Dolores area, the temporal variability in the local prehistoric sequence must first be identified. Because LeMoc Shelter is a stratified site, the information obtained from its excavation is particularly useful for this purpose. For this reason, the evidence of culture change has been a major emphasis throughout this discourse. In general, the successive occupations of the shelter appear to reflect, in microcosm, the changes in the Anasazi settlement pattern of Grass Mesa Locality.

During Element 1, the shelter was occupied year-round by a single family that farmed the canyon and supplemented their diet by hunting and foraging. By A.D. 850 (Element 2), the site was being used by an extended family, which possibly is an indication that little vacant farmland was left in the canyon. The process of population aggregation seems to have accelerated until, during Element 3, the shelter was being used only as a seasonally occupied farming station, presumably by residents of Grass Mesa Village.

Permanent habitations in this part of the river valley appear to have been abandoned by about A.D. 925, but it appears that during Element 4 the canyon was still being exploited for wild resources by small task groups. The features associated with this occupation, notably the retaining wall, and the relative intensity of use suggest that the shelter was being used regularly as a base camp. It, therefore, seems likely that these task groups were based nearby, probably in Sagehen Flats area sites such as McPhee Village. In Element 5, however, the evidence suggests more sporadic use of the shelter, possibly because the Anasazi population center had again shifted farther south.

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APPENDIX 4A

DATING AND INTRAREGIONAL EXCHANGE INFERENCES BASED ON LEMOC SHELTER CERAMICS

Eric Blinman

Ceramic Dating

Distributions of ceramic types were the primary means of dating the various occupations at LeMoc Shelter. Both the occurrence of specific types and the relative frequencies of types were used to estimate absolute date ranges for each defined element. Estimates were based in part on the assumption that the popularity of specific types would increase linearly to a maximum and then decrease linearly as new types became popular. Research carried out subsequent to the writing of the body of this chapter indicates that this assumption may not have been appropriate for some ceramic types in the DAP sequence. This new information has prompted the following minor revisions of the absolute date estimates for some elements of the site.

Pithouse 2 and the postoccupational fill strata that accumulated shortly after abandonment of the structure have been assigned to Element 1. The high ratio of Chapin Gray to Moccasin Gray sherds (table 4.1) associated with the pitstructure was used by Hogan to argue that this structure was occupied between A.D. 750 and 780. This ratio decreased slightly in the fill strata, and the linear assumption was used to estimate a terminal date of A.D. 820 for the element. Concurrent with the changing gray ware ratio was an increase in red ware frequency from about 4 percent to over 15 percent of the total assemblage.

Ceramic data from 6 DAP tree-ring-dated assemblages are presented in table 4A.1. These assemblages span the time period from A.D. 760 through A.D. 860 and reveal considerable variability in assemblage composition. Chapin Gray remains more abundant than Moccasin Gray from the first appearance of the latter type through at least A.D. 810. By A.D. 850, however, the ratio is reversed, and Moccasin Gray is predominant. Red ware frequencies also fluctuate, with the highest frequency between A.D. 800 and 810. Compared with the ceramic type frequencies for Pithouse 2 and Element 1 as a whole (table 4A.2), these data suggest a more conservative and slightly later date range for the element than was presented in the chapter. The presence of Moccasin Gray on the pithouse floor and the relatively low frequency of red ware ceramics places the abandonment of Pithouse 2 between A.D. 770 and 800. The increasing abundance of red wares in the fill matches the general trend in the project area for the A.D. 780's through the early ninth century, and the persistence of Chapin Gray as the dominant gray ware type suggests that the termination of Element 1 predates A.D. 830. Thus, the material associated with the element probably dates to sometime between A.D. 770 and 830. Construction of the pithouse may predate A.D. 770, but if so, no ceramic assemblage can be correlated with its initial occupation.

The units assigned to Element 2 include Pithouse 1, Room 12, and associated strata. The element was dated in the report to A.D. 840-860 based on a predominance of Moccasin Gray and a lack of Mancos Gray in association with the pitstructure. This inference is plausible given the Pithouse 1 assemblage (table 4.1), but the amount of Mancos Gray associated with the element as a whole (table 4A.2) suggests that it includes post-A.D. 860 ceramics as well. Some contamination of the deposits as the result of later disturbance is evident, but the proportion of Mancos Gray in Element 2 is equivalent to that in Element 3, which purportedly dates to A.D. 875-890. To accommodate the presence of the Mancos Gray sherds, the estimated date range for Element 2 should be shifted to encompass the period A.D. 850-875.

In keeping with the previous suggestions for dating revisions, the date range for Element 3 may span A.D. 900. The stratigraphic break between Element 2 and Element 3 indicates that the initiation of Element 3 should postdate A.D. 875. Whether from contamination or not, corrugated ceramics are rare, indicating deposition prior to the A.D. 910's. The strongest argument for placement within this range is the abundance of Cortez Black-on-white (table 4A.2). Although present in the project area

in the A.D. 880's, Cortez Black-on-white does not become the dominant white ware until after A.D. 890. Thus, the Element 3 occupation probably occurred sometime between A.D. 890 and 910 rather than between A.D. 875 and 890.

Dating estimates for Elements 4 and 5 cannot be revised based on current knowledge of DAP ceramic chronology. Too few independently dated proveniences exist within the project area to calibrate ceramic change for the A.D. 900-1200 time period, but the absence of McElmo Black-on-white suggests that it is unlikely that occupation of LeMoc Shelter extended beyond A.D. 1150. However, it is more likely that one or both of the last elements postdates A.D. 1000 than that both fall in the 10th century.

Intraregional Exchange

Culture categories are used to label the broad geographical/cultural affiliations of DAP ceramics and in the body of this chapter were used as the basis for a discussion in the body of this report of interregional exchange. Ceramics that are classified as belonging to the Mesa Verde Culture Category can be used to discuss intraregional exchange as well, using paste characteristics as a basis for inference. In the Mesa Verde ceramic assemblage from LeMoc Shelter, 5 paste attributes are currently recognized by the DAP. These are assumed to correspond to broad manufacturing tracts within the Mesa Verde region, each of which can be distinguished by the use of distinctive raw materials in pottery manufacture. These tracts probably do not represent discrete or contiguous areas, and their exact geographic correlates have not been established. However, analyses of survey and excavation collections from outside of the project area have confirmed a geographic reality for the tracts (Lucius 1981, 1982).

The frequencies of ceramics assigned to the various tracts are ordered by element in table 4A.3. The Dolores Tract refers to all gray and white ware sherds that are tempered with a particular variety of crushed igneous rock. Presence of this temper in unfired clay samples from DAP sites is the justification for the label, but indistinguishable crushed igneous rock temper was also used over large areas of the Mesa Verde region. Thus, Dolores Tract ceramics are those that cannot be identified as nonlocal on the basis of temper alone. Presence of crushed conglomerate rock or multilithic sand defines the Cahone tract, and the presumed origin of these ceramics lies to the west of the DAP area. Varieties of sandstone temper were also used and are also assumed to have originated to the west or southwest of the project area. Blanding Tract ceramics encompass all of the Mesa Verde Red Wares and are identified by a distinctive red-firing clay rather than by a specific suite of tempers. Red-firing clays are rare in southwestern Colorado, and red wares are assumed to be imported from the Blanding-Bluff area of southeastern Utah (Lucius and Breternitz 1981:106). Finally, another variety of crushed igneous rock temper can be used to identify gray and white wares of the San Juan Tract. This tract is presumed to be somewhere to the south and southeast of the project area.

Table 4A.1 – Selected tree-ring-dated ceramic assemblages from the Dolores River Valley

Site Structure association Construction date (tree-ring) (A.D.) Decade represented by ceramics (A.D.)	5MT2193 Pitstr 1 ca. 760 760-770		5MT2193 Pitstr 2 770 780-790		5MT4644 Pitstr 2 776 780-790		5MT2848 Pitstr 1 784 790-800		5MT4644 Pitstr 1 ca. 800 800-810		5MT4725 Pitstr 1 845 850-860	
	N	%	N	%	N	%	N	%	N	%	N	%
Ceramic type												
Chapin Gray	40	3.6	24	3.2	7	1.9	14	4.4	62	3.9	4	0.7
Moccasin Gray	0	0	3	0.4	4	1.1	3	0.9	0	0	39	6.6
Early Pueblo Gray	1 024	92.2	684	91.8	274	74.3	294	92.2	1 155	73.0	537	91.2
Mesa Verde White Ware	44	4.0	24	3.2	5	1.4	0	0	46	2.9	5	0.8
Mesa Verde Red Ware	3	0.3	3	0.4	59	16.0	8	2.5	319	20.2	3	0.5
Other	0	0	7	0.9	20	5.4	0	0	0	0	1	0.2
Total	1 111	100.0	745	100.0	369	100.0	319	100.0	1 582	100.0	589	100.0

Pitstr - Pitstructure.

Table 4A.2 - Frequencies of ceramic types, by element, LeMoc Shelter

Culture category: Ware Type	Element 1 #	Element 1 %	Element 2 #	Element 2 %	Element 3 #	Element 3 %	Element 4 #	Element 4 %	Element 5 #	Element 5 %	Other #	Other %	Total #	Total %
Mesa Verde:														
Gray ware														
Chapin Gray	142	5.2	50	3.8	49	2.3	32	3.3	25	2.5	155	4.0	453	3.8
Moccasin Gray	26	1.0	88	6.7	196	9.1	37	3.8	59	5.9	70	1.8	476	3.9
Mancos Gray	0	0	24	1.8	39	1.8	24	2.5	34	3.4	163	4.2	284	2.4
Early Pueblo Gray	2 123	77.7	996	76.0	1 562	72.1	583	59.8	545	54.3	2 670	68.8	8 479	70.2
Dolores Brown	0	0	1	0.1	0	0	0	0	0	0	0	0	1	*
Mancos Corr	0	0	1	0.1	5	0.2	14	1.4	24	2.4	27	0.7	71	0.6
Dolores Corr	0	0	0	0	0	0	0	0	0	0	1	*	1	*
Mesa Verde Corr	0	0	0	0	0	0	0	0	1	0.1	1	*	2	*
Corr Body Sherds	1	*	7	0.5	28	1.3	155	15.9	210	20.9	286	7.4	687	5.7
White ware														
Chapin B/W	0	0	1	0.1	0	0	0	0	1	0.1	6	0.2	8	0.1
Piedra B/W	4	0.1	3	0.2	3	0.1	1	0.1	4	0.4	7	0.2	22	0.2
Cortez B/W	0	0	2	0.2	16	0.7	15	1.5	9	0.9	2	0.1	44	0.4
Mancos B/W	0	0	0	0	0	0	0	0	2	0.2	10	0.3	12	0.1
Painted White	1	*	4	0.3	2	0.1	2	0.2	1	0.1	2	0.1	12	0.1
Polished White	73	2.7	39	3.0	123	5.7	57	5.8	36	3.6	186	4.8	514	4.3
Slipped White	0	0	1	0.1	0	0	2	0.2	4	0.4	2	0.1	9	0.1
Sherd White	1	*	1	0.1	1	*	2	0.2	4	0.4	12	0.3	21	0.2
Red ware														
Abajo R/O	11	0.4	1	0.1	1	*	1	0.1	2	0.2	13	0.3	29	0.2
Bluff B/R	45	1.6	14	1.1	18	0.8	11	1.1	4	0.4	65	1.7	157	1.3
Dolores Red	0	0	0	0	0	0	0	0	1	0.1	0	0	1	*
McPhee B/R	0	0	0	0	1	*	0	0	0	0	0	0	1	*
Deadmans B/R	0	0	0	0	1	*	0	0	0	0	0	0	1	*
Early Pueblo Red	294	10.8	71	5.4	113	5.2	35	3.6	35	3.5	192	4.9	740	6.1
Slipped Red	9	0.3	1	0.1	1	*	1	0.1	1	0.1	8	0.2	21	0.2
Sherd Red	2	0.1	2	0.2	1	*	0	0		0	0	0	5	*
Unclassifiable red	0	0	2	0.2	0	0	0	0		0	2	0.1	4	*
Cibola:†														
Gray ware														
Early Pueblo Gray	0	0	0	0	1	*	0	0	0	0	4	0.1	5	*
Late Pueblo Gray	0	0	0	0	0	0	0	0	0	0	1	*	1	*
White ware														
Escavada B/W	0	0	0	0	1	*	1	0.1	1	0.1	0	0	3	*
Gallup B/W	0	0	0	0	1	*	2	0.2	0	0	0	0	3	*
Early Pueblo White	0	0	0	0	1	*	0	0	0	0	0	0	1	*
Late Pueblo White	0	0	0	0	1	*	0	0	1	0.1	0	0	2	*
Indeterminate:														
Gray ware	0	0	1	0.1	0	0	0	0	0	0	2	0.1	3	*
White ware	0	0	0	0	0	0	0	0	0	0	1	*	1	*
Total	2 732	100.0	1 310	100.0	2 165	100.0	975	100.0	1 004	100.0	3 888	100.0	12 074	100.0

*Less than 0.05 percent.
†Includes two quartz-sand-tempered sherds that may be affiliated with either the Cibola or Kayenta Culture Categories but are assumed to be Cibolan in this case.

B/W - Black-on-white.
R/O - Red-on-orange.
B/R - Black-on-red.
Corr - Corrugated.

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Table 4A.3 - Manufacturing tract frequencies of Mesa Verde ceramics, by element, LeMoc Shelter

Manufacturing tract	Element 1 #	Element 1 %	Element 2 #	Element 2 %	Element 3 #	Element 3 %	Element 4 #	Element 4 %	Element 5 #	Element 5 %	Other #	Other %	Total #	Total %
Dolores Tract	2 328	85.2	1 192	91.2	1 985	91.9	873	89.8	908	90.6	3 516	90.6	10 802	89.6
Cahone Tract	11	0.4	5	0.4	3	0.1	9	0.9	4	0.4	27	0.7	59	0.5
Sandstone Tract	16	0.6	6	0.5	1	*	7	0.7	3	0.3	11	0.3	44	0.4
Blanding Tract	361	13.2	89	6.8	136	6.3	48	4.9	43	4.3	279	7.2	956	7.9
San Juan Tract	16	0.6	15	1.1	35	1.6	35	3.6	44	4.4	49	1.3	194	1.6
Total	2 732	100.0	1 307	100.0	2 160	100.0	972	100.0	1 002	100.0	3 882	100.0	12 055	100.0

*Less than 0.05 percent.

The most obvious trend in these data is the presence of intense exchange with the Blanding Tract. Unfortunately, this impression is spurious for Elements 4 and 5 due to the contamination of these elements with sherds from earlier deposits. The red ware types present in these elements (Abajo Red-on-orange and Bluff Black-on-red) had ceased being manufactured by about A.D. 900 (Breternitz et al. 1974:50, 54), and their exchange or continued use in the later 10th and early 11th centuries is doubtful. Although the trend in Elements 1, 2, and 3 may also reflect some disturbance, it mirrors the pattern of temporal change seen in other DAP sites and therefore seems valid. Blanding Tract red wares first appear in the project area shortly after A.D. 725, and they commonly comprise over 10 percent of ceramic assemblages dating to sometime between A.D. 780 and 840 (as in Element 1). Red ware exchange then appears to decline (Elements 2 and 3) until their production ceases. Thus, the inhabitants of LeMoc Shelter participated in a region-wide exchange network that was strongly oriented to the west.

Given the intensity of red ware exchange, it is not unusual for frequencies of both Cahone and Sandstone Tract sherds to follow the same pattern for Elements 1, 2, and 3. However, unlike the production of Mesa Verde Red Wares, use of Cahone and Sandstone Tract temper types did not lapse, and their greatest frequency occurs in Element 4. This suggests that changing demand for, or availability of, red wares is not an adequate explanation for the changes in the westward-oriented exchange network. The decline seen in Element 3 and the resurgence seen in Element 4 may be related to the broader pattern of population movement that characterizes southwestern Colorado during early Pueblo II times.

The final trend in exchanged ceramics at LeMoc Shelter is a slow increase in the proportion of San Juan Tract sherds through time. San Juan temper occurs disproportionately in white wares, and this increase parallels an increase in white ware frequencies in Elements 1 through 4, perhaps compensating for the restricted access to red wares. This southern shift in the intraregional exchange network is directionally equivalent to the shift already noted for the interregional exchange network, and suggests that both Mesa Verde and non-Mesa Verde ceramics were being exchanged as part of the same distribution system.

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APPENDIX 4B

TEMPORAL SUMMARY, LEMOC SHELTER

compiled by Mary C. Etzkorn

Subsequent to the preparation of the LeMoc Shelter chapter, additional ceramic research (refer to appendix 4A) resulted in a reassessment of the temporal placement of the various occupations, or elements, at the site. Table 4B.1 is a summary of the temporal divisions currently recognized at LeMoc Shelter, including a comparison of the original and revised dates based on ceramic evidence. The table is organized by element and by the cultural units that serve as the primary focal points for each element. Also included in this table are the DAP phase and subphase designations for each major occupation; although these designations are intended to reflect suites of formal characteristics rather than absolute chronological divisions, they can be roughly correlated with broad time periods.

Table 4B.1 - Temporal summary, Elements 1 through 5, LeMoc Shelter

Element	Major spatial unit assigned to element	Original dates (A.D.) estimated on basis of ceramic evidence	Revised dates (A.D.) estimated on basis of ceramic evidence	DAP final phase/subphase designation
1	Pithouse 2	750-780 (with sporadic activity as late as A.D. 820)	770-830	Sagehen Phase/ Sagehill and Dos Casas Subphases
2	Pithouse 1, Room 12, Occupation Area 1	840-860	850-875	Sagehen Phase/ Dos Casas Subphase & McPhee Phase/Periman Subphase*
3	Room 11, Room 13	875-890	890-910	McPhee Phase/ Grass Mesa Subphase
4	Occupation Area 2, Occupation Area 3	920-930	No revision possible	McPhee Phase/ Cline Subphase
5	Stratum I-11, Stratum II-6	930-950 (with sporadic activity as late as A.D. 1050/ 1150)	No revision possible	McPhee Phase/ Cline Subphase & Sundial Phase/Marshview Subphase

* Although the material culture associated with the abandonment of Pithouse 1 dates to the A.D. 850-875 time period, the architectural style and a tree-ring date of A.D. 803+vv suggest that the pithouse may have been constructed during the first few decades of the ninth century. For this reason, Element 2 is assigned to both the Dos Casas and Periman Subphases, possibly reflecting a fairly lengthy period of occupation.

APPENDIX 4C

PERISHABLE ARTIFACTS FROM LEMOC SHELTER

Linda P. Hart and Eric Blinman

The uniformly dry condition of some of the deposits at LeMoc Shelter resulted in the preservation of a variety of usually perishable artifacts.[1] Unfortunately, most of these materials were recovered from the upper levels of the shelter, and historic looting had destroyed their stratigraphic associations with the various occupations. Only 1 artifact, a fragment of a twilled *Yucca* sp. leaf mat (RV 18[2]), can be attributed to one of the defined elements (Element 4). The remainder of the perishables can only be assumed to be contemporaneous with some portion of the Anasazi occupation of the shelter.

Plaited strips of yucca leaf (probably *Yucca baccata*) constituted the majority of the woven materials. (Refer to Adovasio [1977] for clarification of the technical terms used in this appendix.) Fragments from two simple plaited (1/1 interval) yucca leaf sandals were recovered. RV 1 is a heel fragment showing extreme wear. RV 32 (fig. 4C.1) includes both a heel and a probable toe fragment. Minor wear is evident on the toe selvage, and the selvages of both sandals are the 90° fold self-selvage type. The heel selvage on RV 32 is reinforced by wrapping, and a yucca strip is spliced into the toe fragment at a location that suggests use as a toe strap. Two other probable sandal fragments were recovered (RV's 20 and 31). Both are twilled (2/2 interval), both have 90° fold self-

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[1] All nonarchitectural worked vegetal items and all worked faunal materials, with the exception of worked bone, are reported in this appendix; refer to appendix 4D for a discussion of nonhuman bone tools and ornaments from LeMoc Shelter.

[2] RV numbers are inventory numbers that are assigned to worked vegetal and other selected perishable artifacts.

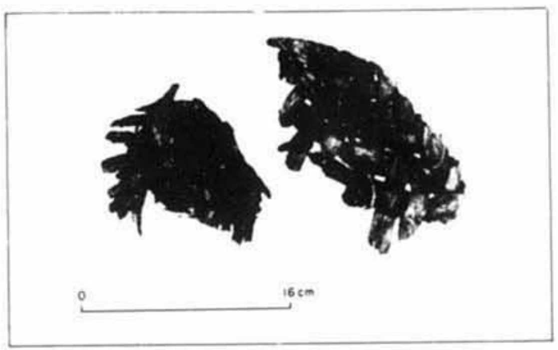

Figure 4C.1 - Plaited sandal fragments (RV 32) recovered from 1- by 1-m grid 7S/15E, LeMoc Shelter (DAP 129504).

selvages, and one has 2 yucca strips joined by a square knot near the selvage (not a splice). Another small, twilled fragment (RV 18, 2/2 interval) with a 90° fold self-selvage was recovered, but it may have been a mat or sandal. Several altered (cut, split, or unusually bent) yucca leaves have been recorded as basketry construction materials (RV's 30, 35, 36, 38, and 40) because they exhibit stages in the preparation of items such as those described above.

Other woven materials were made of either animal fibers or combinations of animal and vegetal materials. A small and extremely fine fragment of knotless netting (RV 11, fig. 4C.2) was made of an unidentified animal fiber. The piece is extremely flexible and was probably a portion of a bag or garment. One or more feather blankets or garments are represented by three small fragments (RV's 5, 12, and 23). In each case, the unidentified feathers were bound to a yucca fiber cord with thin strips of yucca leaf. RV 12 is shown in figure 4C.3.

Binding materials were relatively common and consist of both yucca fiber cordage and knotted yucca leaf strips. Two-ply cordage is represented by RV's 15 and 16; both have a Z-spin and S-twist, and they range in diameter from 2.0 to 3.5 mm. RV 14 is a thin (1.75 mm) piece of three-ply cordage with a Z-spin and S-twist (fig. 4C.4). Yucca leaves or leaf strips were identified as binding materials if they were knotted. Eight strips (RV's 4, 10, 24, 27, 28, 33, 34, and 51) were tied with square knots, and two of these (RV's 33 and 34, fig. 4C.5) were knotted to form loops. RV 9 (fig. 4C.4) is also looped; however, this item is tied in a figure-eight knot.

An assortment of worked wood, wooden implements, and wood chipping debris was collected. RV's 49 and 53 are possible bow fragments. RV 53 (fig. 4C.6) is a 13-cm-long, slightly curved piece of *Populus* sp. wood that is broken at one end and tapers to a blunt point at the other. It is oval throughout its length in cross section, and its size at the broken end is 2.9 by 1.3 cm. About 2 cm from the tapered end, the piece constricts abruptly for about 0.5 cm. Except for the broken end, the surface is smooth and well finished. The size and morphology of the piece are appropriate for the end of a bow, and the constriction is interpreted to be the point at which a bow string might have been attached. RV 49 is a short fragment (6.1 cm) of scrub oak wood (*Quercus gambelii*) that is oval in cross section and broken at both ends. Its surface is smooth and well finished, and its similarity in shape to RV 49 suggests that it is a medial fragment of a bow. Miscellaneous wooden items include a "peg" that is a short (3 cm), decorticated stick that is cut at both ends (RV 47), a very small charred stick that has been abraded

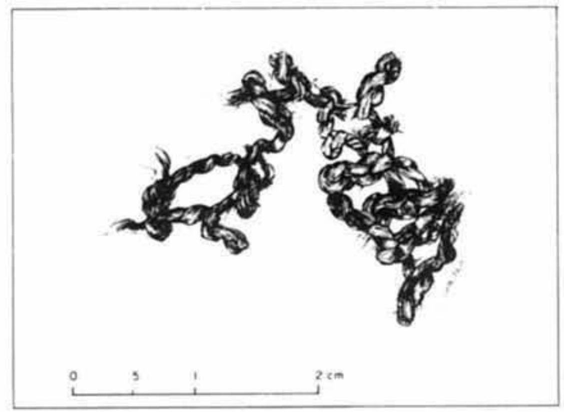

Figure 4C.2 - Knotless netting (RV 11) recovered from Room 1 fill, LeMoc Shelter.

to a fine point (RV 52), chipping debris (RV's 25, 39, and 46), and pieces that show some evidence of human modification by cutting, abrasion, or some other technique (RV's 7, 8, 13, 26, 29, 42, 43, 44, 47, 48, and 50). These latter items consist of a variety of wood, including *Quercus gambelii*, *Populus* sp., *Pinus* sp., *Juniperus* sp., Salicaceae, Gymnospermae, and Dicotyledonae.

Three other types of items were recovered from LeMoc Shelter. These include a *Yucca* sp. fiber quid (RV 41, fig. 4C.7), masses of shredded and sometimes twisted juniper bark (RV's 2, 6, 17, and 19), and a corn cob that is impaled on a cut piece of Gymnospermae wood (RV 45, fig. 4C.7). Apart from the quid, the functions of these items are unknown.

Figure 4C.4 – Binding materials recovered from LeMoc Shelter. Left: looped yucca strip with figure 8 knot (RV 36) from Room 1 fill. Right: Three-ply yucca fiber cordage (RV 14) from disturbed deposits behind roomblock (DAP 125316 and 125312).

Figure 4C.3 – Feather blanket or garment fragments (RV 12) recovered from disturbed deposits behind roomblock, LeMoc Shelter (DAP 125313).

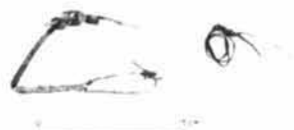

Figure 4C.5 – Binding materials recovered from LeMoc Shelter: looped yucca strips with square knots (RV 33 and RV 34) from 1.96/1.46 and 75/141 (DAP 129514 and 129506).

Figure 4C.6 – Possible bow fragment (RV 5) recovered from midden deposits in front of shelter, LeMoc Shelter (DAP 129531).

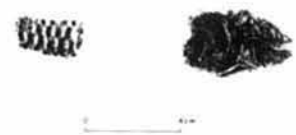

Figure 4C.7 – Miscellaneous perishable materials recovered from LeMoc Shelter. Left: corn cob impaled on cut Gymnospermae wood (RV 45) from disturbed deposits behind roomblock. Right: quid (RV 41) from disturbed deposits behind roomblock (DAP 129522 and 129518).

APPENDIX 4D

LITHIC ARTIFACTS AND WORKED NONHUMAN BONE FROM LEMOC SHELTER

Thomas H. Hruby

LeMoc Shelter is a rockshelter overlooking the Dolores River valley and affording easy access to the valley bottom and the uplands immediately north of the valley. Five distinct occupations, or elements, were recognized at LeMoc Shelter. Element 1 is defined in the site report as the habitation of a single household and has been assigned to the Sagehill and Dos Casas Subphases. The Element 2 occupation of the site is believed to have been the habitation of an extended family during the late Dos Casas and early Periman Subphases. Element 3 is interpreted to be a seasonal locus, probably a field house associated with the farming activities of a household group; this element represents the Grass Mesa Subphase. During Element 4, which has been assigned to the Cline Subphase, the site is interpreted in the body of the report to have functioned as the base camp of cooperative groups engaged in foraging and hunting. Similarly, during Element 5 the site is stated to have served as a base camp for the exploitation of local resources; timber cutting, hunting, and flaked lithic tool production are believed to have been carried out during the sporadic Element 5 occupations. The temporal affiliation of Element 5 is problematic because of the sporadic nature of the occupations, but use of the site appears to have ended sometime during the early Marshview Subphase.

The DAP Reductive Technology Group is responsible for the analysis and interpretation of flaked lithic tools and debitage, nonflaked lithic tools, and worked bone. The reductive technology preliminary analysis systems are primarily attribute-oriented systems that focus on the types and amounts of technological input invested in the manufacture of the various tools. The flaked lithic tool morpho-use classification is technological in orientation; a separate analysis is being conducted to establish the functions of these tools. Unfortunately, the results of this analysis were not available at the time this appendix was written. The nonflaked lithic and worked bone morpho-use typologies are more functional in orientation, as the functions of these tools are more easily established. Refer to Phagan (1982) for a discussion of the various DAP reductive technology analysis systems.

Lithic Artifacts

Analysis of lithic materials from LeMoc Shelter was completed immediately after the 1978 and 1979 field seasons. In 1980, several changes were instituted in the analysis systems; in particular, knowledge of local raw materials increased significantly, necessitating a reanalysis of materials excavated in previous years. Although most sites were entirely reanalyzed, the large amount of material from LeMoc Shelter precluded reanalysis of the entire assemblage. Instead, only contexts that could be confidently placed within the five elements were reanalyzed. Although the lithic tables included in this appendix differ from those presented in the chapter, the interpretations are consistent with the new data.

The Kolmogorov-Smirnov two-sample test (Siegal 1956:127-136), a nonparametric test, was used to see if the distributions of morpho-use types in selected DAP assemblages are statistically similar to each other. The Kolmogorov-Smirnov test requires ordinal-level data. To meet this requirement, flaked lithic and nonflaked lithic morpho-use classifications were ranked by the amount of technological input believed to have been invested in the manufacture of the various tool forms. The flaked lithic tool ranking is probably adequate for this test, but the nonflaked lithic tool system reflects a weak ordinal ranking. Although statistical analysis is appropriate for measuring some differences between assemblages, a qualitative assessment of assemblage variability was also used. The lithic assemblages from the various elements at LeMoc Shelter are compared to those from other temporally similar sites in the project area. Comparisons are made on an assemblage basis, and general conclusions pertaining to tool function are drawn when appropriate.

The flaked lithic tool totals from LeMoc Shelter are presented in Table 4D.1. A quick review of the profiles for the various elements suggests very few technological differences between the assemblages from the different elements. This is statistically demonstrated by the results of the Kolmogorov-Smirnov tests presented in table 4D.2.

Although some differences are apparent in the various LeMoc Shelter assemblages, these differences do not appear to be statistically sign ant.

The assemblages from LeMoc Shelter consist predominantly of utilized flakes, cores, cobble tools, and thick unifaces. This is characteristic of most Anasazi assemblages in the Dolores area. It is surprising that the limited site functions postulated for Elements 4 and 5 are not reflected in the flaked lithic tool profiles. Perhaps this can be accounted for by the multiple occupations at the site and by the mixing of assemblages. However, a general

Table 4D.1 – Flaked lithic tools, by element, LeMoc Shelter

	Element 1 N	Element 1 %	Element 2 N	Element 2 %	Element 3 N	Element 3 %	Element 4 N	Element 4 %	Element 5 N	Element 5 %
Total tools	99	100.0	66	100.0	97	100.0	171	100.0	273	100.0
Tool morpho-use										
Indeterminate	0	0	1	1.5	0	0	1	0.6	4	1.5
Utilized flake	42	42.4	24	36.4	24	24.7	59	34.5	78	28.6
Core	10	10.1	3	4.5	10	10.3	18	10.5	29	10.6
Used core/cobble tool	11	11.1	6	9.1	16	16.5	9	5.3	34	12.5
Thick uniface	18	18.2	13	19.7	16	16.5	30	17.5	55	20.1
Thin uniface	4	4.0	1	1.5	2	2.1	5	2.9	5	1.8
Specialized form	2	2.0	5	7.6	7	7.2	8	4.7	22	8.1
Thick biface	7	7.1	4	6.1	11	11.3	13	7.6	22	8.1
Thin biface	0	0	5	7.6	4	4.1	11	6.4	7	2.6
Projectile point	5	5.1	4	6.1	7	7.2	17	9.9	17	6.2
Grain size										
Medium and coarse	0	0	2	3.0	1	1.0	4	2.3	2	0.7
Fine	7	7.1	6	9.1	11	11.3	20	11.7	24	8.8
Very fine	73	73.7	49	74.2	71	73.2	125	73.1	216	79.1
Microscopic	19	19.2	9	13.6	14	14.4	22	12.9	31	11.4
Item condition										
Indeterminate	1	1.0	2	3.0	0	0	1	0.6	2	0.7
Broken										
Unidentifiable	0	0	1	1.5	1	1.0	4	2.3	6	2.2
Distal present	0	0	0	0	2	2.1	6	3.5	0	0
Proximal present	1	1.0	4	6.1	1	1.0	1	0.6	3	1.1
Medial & lateral present	0	0	0	0	2	2.1	2	1.2	6	2.2
Complete/nearly complete	97	98.0	59	89.4	91	93.8	157	91.8	256	93.8
Dorsal face evaluation										
Indeterminate	0	0	0	0	0	0	0	0	2	0.7
Core	18	18.2	7	10.6	26	26.8	27	15.8	57	20.9
Unworked with cortex	60	60.6	22	33.3	30	30.9	65	38.0	79	28.9
Unworked w/o cortex	12	12.1	19	28.8	12	12.4	22	12.9	58	21.2
Thinned with cortex	2	2.0	5	7.6	4	4.1	13	7.6	24	8.8
Thinned without cortex	0	0	3	4.5	12	12.4	10	5.8	23	8.4
Primarily thinned	0	0	0	0	2	2.1	3	1.8	1	0.4
Secondarily thinned	0	0	3	4.5	2	2.1	8	4.7	5	1.8
Well shaped	5	5.1	3	4.5	4	4.1	12	7.0	12	4.4
Highly stylized	2	2.0	4	6.1	5	5.2	11	6.4	12	4.4

w/o – without

increase in the number of high-technological-input tools through time, as evidenced by increasing percentages of thinned, shaped, and stylized items, is noted in the LeMoc assemblages. The dorsal face evaluation and the relatively large number of thin bifaces and projectile points suggest that hunting and related activities might have been important activities throughout the occupation of the site, except perhaps during the Sagehill Subphase (Element 1).

Flaked lithic tool intersite statistical comparisons were used when appropriate site types and assemblages were available for study. Element 1 at LeMoc Shelter was compared to 4 other Sagehill Subphase habitations excavated by the DAP (table 4D.3). Three of these assemblages are very similar to Element 1 at LeMoc Shelter, suggesting that Sagehill habitations are roughly comparable on a technological basis. The flaked lithic tool assemblage from Element 1 at Site 5MT2194, however, provides evidence for technological and perhaps functional differences between this site and Element 1 at LeMoc Shelter. The profile for Element 1 at Site 5MT2194 differs in that only 27.3 percent of the assemblage consists of utilized flakes. Cores and high-energy-input tools are well represented at Site 5MT2194; this pattern is similar to that observed for Element 2 at LeMoc but is different from that observed for Element 1 at LeMoc. These differences are probably well within the variability of small habitations in the Dolores area.

The flaked lithic tool morpho-use forms recognized in the Element 2 assemblage at LeMoc Shelter were compared to the morpho-use forms identified in the tool assemblages from 4 similar late Dos Casas or early Periman Subphase habitations (table 4D.3). The results of these tests suggest that Element 2 is technologically comparable

Table 4D.2 – Statistical intrasite comparisons of flaked lithic tool morpho-use forms, LeMoc Shelter

Site (element)	p*	Remarks
5MT2151(1) vs 5MT2151(2)	0.502	Similar
5MT2151(1) vs 5MT2151(3)	.092	Some evidence for differences
5MT2151(1) vs 5MT2151(4)	.142	Some evidence for differences
5MT2151(1) vs 5MT2151(5)	.215	Probably similar
5MT2151(2) vs 5MT2151(3)	.507	Similar
5MT2151(2) vs 5MT2151(4)	1.000	Similar
5MT2151(2) vs 5MT2151(5)	.899	Similar
5MT2151(3) vs 5MT2151(4)	.495	Similar
5MT2151(3) vs 5MT2151(5)	.968	Similar
5MT2151(4) vs 5MT2151(5)	.581	Similar

* The probability that the 2 samples were drawn from the same population, based on the Kolmogorov-Smirnov two-sample test.

Table 4D.3 – Statistical intersite comparisons of flaked lithic tool morpho-use forms, LeMoc Shelter and selected DAP sites

Site (element)	p*	Remarks
5MT2151(1) vs 5MT2194(1)	0.023	Good evidence for differences
5MT2151(1) vs 5MT2198(1)	.959	Similar
5MT2151(1) vs 5MT4613(1)	.252	Similar
5MT2151(1) vs 5MT4614(2)	.933	Similar
5MT2151(2) vs 5MT2854(2)	.225	Probably similar
5MT2151(2) vs 5MT2192(1)	.987	Similar
5MT2151(2) vs 5MT4671(2)	.516	Similar
5MT2151(2) vs 5MT4650(1)	.034	Good evidence for differences
5MT2151(3) vs 5MT2191(1)	.999	Similar

* The probability that the 2 samples were drawn from the same population, based on the Kolmogorov-Smirnov two-sample test.

to most other similar habitations located in the Dolores area. Again, the assemblage from 1 site was judged to be significantly different from the LeMoc Shelter assemblage. At Site 5MT4650, the Element 1 assemblage differs from the Element 2 assemblage at LeMoc in that the former has a much greater frequency of cores and cobble tools. Perhaps this indicates that stone working and other building activities are better represented at Site 5MT4650 and that the household at Site 5MT2151 used tools from the earlier occupation as building materials.

Only 1 excavated seasonal habitation from the DAP area has a sample size large enough to compare to the seasonal locus (Element 3) at LeMoc Shelter. At Site 5MT2191, Element 1 is dated to the Periman Subphase[1]; the morpho-use profile for the flaked lithic tool assemblage from this component is very similar to that from Element 3 at LeMoc Shelter (table 4D.3), suggesting that roughly the same maintenance and production activities took place at these 2 sites.

The results of the flaked lithic debitage analysis are presented in table 4D.4. The flaked lithic debitage assemblages for the 5 elements are remarkably similar. One trend apparent through time is the decreasing use of microscopic-grained lithic materials. This trend is found to a lesser extent in the flaked lithic tool assemblage. The shift from microscopic-grained materials to fine-grained materials (primarily Morrison Formation orthoquartzites) could represent an increased selection for material that is local and most easily procured. Alternatively, it is possible that the microscopic-grained raw materials (primarily from the Burro Canyon and Dakota Formations, which occur most abundantly in the House Creek area) had a more restricted use through time and were increasingly "expensive" to procure. It is tempting to speculate in this instance that the decline in frequency of these microscopic-grained materials is related to increasing competition, making the local fine-grained Morrison materials more cost effective; however, there is no direct evidence to support such an interpretation.

The nonflaked lithic tool totals for LeMoc Shelter are presented in table 4D.5. A number of technological and functional differences between the assemblages from the different elements at LeMoc Shelter are apparent; these differences are statistically significant as indicated by the Kolmogorov-Smirnov test results presented in table 4D.6. Although Elements 1, 2, and 3 are very similar to each other in that a major component of the nonflaked lithic items are food processing tools such as manos and metates, Elements 4 and 5 have low frequencies of food processing tools. Tools from these limited activity elements are predominantly fragmentary, low-technological-input tools whose morpho-use forms could not be determined.

The nonflaked lithic tool assemblage from the seasonal locus or field house (Element 3) is similar to those from the habitations (Elements 1 and 2) in both quantitative and qualitative terms. This is interpreted in the chapter

[1] The Periman Subphase (A.D. [illegible]) overlaps temporally with the Grass Mesa Subphase (A.D. [illegible]); the 2 are distinguished primarily on the basis of location, with the latter being used to designate only those sites that are located in the vicinity of Grass Mesa Village (5MT23). Therefore, the comparison of a Periman Subphase seasonal site with Element 3 at LeMoc Shelter is appropriate.

Table 4D.4 – Flaked lithic debitage, by element, LeMoc Shelter

	Element 1			Element 2			Element 3			Element 4			Element 5		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags															
Grain size															
Medium	34	2.5	27.0	78	8.1	8.8	90	5.1	14.8	315	8.7	13.2	363	7.3	12.9
Fine	585	42.8	9.7	498	51.6	7.5	1,189	67.9	9.6	2,439	67.1	8.7	3,321	66.4	9.8
Very fine	543	39.7	12.5	283	29.3	11.7	368	21.0	7.5	678	18.6	6.9	1,104	22.1	7.8
Microscopic	206	15.1	13.5	107	11.1	8.0	103	5.9	6.9	204	5.6	6.0	213	4.3	7.4
Total flakes/flake frags	1,368	100.0	11.8	966	100.0	8.9	1,750	100.0	9.3	3,636	100.0	8.5	5,001	100.0	9.5
Items with cortex	440	32.2		179	18.5		330	18.9		874	24.0		1,084	21.7	
Whole flakes	792	57.9		559	57.9		1,226	70.1		3,088	84.9		4,099	82.0	
Nonlocal items	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

frags – Fragments
-- – Information not available

Table 4D.5 - Nonflaked lithic tools, by element, LeMoc Shelter

	Element 1		Element 2		Element 3		Element 4		Element 5	
	N	%	N	%	N	%	N	%	N	%
Total tools	58	100.0	66	100.0	78	100.0	92	100.0	128	100.0
Tool morpho-use										
Indeterminate	18	31.0	12	18.2	27	34.6	56	60.9	84	65.6
Miscellaneous	9	15.5	12	18.2	8	10.3	6	6.5	5	3.9
Hammerstone	6	10.3	12	18.2	14	17.9	9	9.8	16	12.5
Mano fragment, nfs	0	0	2	3.0	2	2.6	0	0	2	1.6
One-hand mano	4	6.9	3	4.5	3	3.8	3	3.3	0	0
Two-hand mano	11	19.0	13	19.7	13	16.7	4	4.3	8	6.3
Metate fragment, nfs	1	1.7	1	1.5	4	5.1	4	4.3	1	0.8
Trough metate	4	6.9	9	13.6	6	7.7	5	5.4	3	2.3
Hafted item	3	5.2	1	1.5	1	1.3	3	3.3	6	4.7
Ornament	2	3.4	1	1.5	0	0	2	2.2	3	2.3
Grain size										
Indeterminate	20	34.5	40	60.6	31	39.7	44	47.8	76	59.4
Coarse	1	1.7	2	3.0	0	0	3	3.3	1	0.8
Medium	9	15.5	11	16.7	34	43.6	35	38.0	34	26.6
Fine, very fine, microscopic	28	48.3	13	19.7	13	16.7	10	10.9	17	13.3
Item condition										
Indeterminate	6	10.3	0	0	0	0	0	0	0	0
Broken										
Unidentifiable	0	0	2	3.0	0	0	5	5.4	6	4.7
Identifiable	10	17.2	18	27.3	36	46.2	70	76.1	103	80.5
Complete/nearly complete	42	72.4	46	69.7	42	53.8	17	18.5	19	14.8
Production evaluation										
Indeterminate	7	12.1	0	0	3	3.8	33	35.9	40	31.3
Natural (unmodified)	35	60.3	46	69.7	50	64.1	44	47.8	67	52.3
Minimally modified	12	20.7	18	27.3	20	25.6	12	13.0	13	10.2
Well shaped	4	6.9	2	3.0	5	6.4	2	2.2	7	5.5
Stylized	0	0	0	0	0	0	1	1.1	1	0.8

nfs - Not further specified.

as indicating that, just as habitations in the Escalante Sector were used by households, so too was the field house at LeMoc Shelter. Although architecturally similar to other field houses, the data presented here suggest that the full range of household activities are represented at this field house. It is also possible that a significant amount of artifact mixing has occurred at LeMoc Shelter and has masked any cultural or functional differences between these site types.

Intersite comparisons of nonflaked lithic tool morpho-use forms suggest that the Element 1 and 2 assemblages are statistically similar to those from contemporaneous habitations in the DAP area (table 4D.7). Element 3 at LeMoc Shelter was compared to a temporally similar field house (5MT2191), and the assemblages were found to be statistically similar (table 4D.7). (Of these sites excavated by the DAP, Site 5MT2191 is the only other field house that has a lithic assemblage large enough to compare using the selected statistical test.) The assemblages from the field house components at Site 5MT2191 and LeMoc Shelter have the full range of household tool classes. Thus, these assemblages differ from most other DAP field house assemblages where a more limited range of tool classes are present. It is possible that 2 types of field houses are present in the DAP area: field houses

Table 4D.6 - Statistical intrasite comparisons of nonflaked lithic tool morpho-use forms, LeMoc Shelter

Site (element)	p*	Remarks
5MT2151(1) vs 5MT2151(2)	0.688	Similar
5MT2151(1) vs 5MT2151(3)	.815	Similar
5MT2151(1) vs 5MT2151(4)	.007	Good evidence for differences
5MT2151(1) vs 5MT2151(5)	.000	Good evidence for differences
5MT2151(2) vs 5MT2151(3)	.215	Probably similar
5MT2151(2) vs 5MT2151(4)	.000	Good evidence for differences
5MT2151(2) vs 5MT2151(5)	.000	Good evidence for differences
5MT2151(3) vs 5MT2151(4)	.024	Good evidence for differences
5MT2151(3) vs 5MT2151(5)	.000	Good evidence for differences
5MT2151(4) vs 5MT2151(5)	.824	Similar

* The probability that the 2 samples were drawn from the same population, based on the Kolmogorov-Smirnov two-sample test.

Table 4D.7 - Statistical intersite comparisons of nonflaked lithic tool morpho-use forms, LeMoc Shelter and selected DAP sites

Site (element)	p*	Remarks
5MT2151(1) vs 5MT2191(1)	0.773	Similar
5MT2151(1) vs 5MT2198(1)	.696	Similar
5MT2151(1) vs 5MT4613(1)	.186	Probably similar
5MT2151(1) vs 5MT4614(2)	.152	Some evidence for differences
5MT2151(2) vs 5MT2854(2)	.943	Similar
5MT2151(2) vs 5MT2192(1)	.551	Similar
5MT2151(2) vs 5MT4671(2)	.143	Some evidence for differences
5MT2151(2) vs 5MT4650(1)	.233	Probably similar
5MT2151(3) vs 5MT2191(1)	.497	Similar

* The probability that the 2 samples were drawn from the same population, based on the Kolmogorov-Smirnov two-sample test.

occupied by households and field houses occupied by groups smaller than households. Alternatively, the differences between the 2 types of tool assemblages could reflect duration of occupation.

Worked Bone Artifacts

The results of worked bone analysis are presented in table 4D.8, and selected bone artifacts are shown in figures 4D.1 through 4D.4. The majority of the identifiable tool forms from LeMoc Shelter are awls. Although a number of differences are apparent in the worked bone profiles, they are probably accounted for by the small sample sizes for the various elements. The morpho-use forms for many of the worked bone items could not be determined, indicating that many of the bone artifacts are fragmentary, were never completed, or consist of debris from the manufacture of tools. In addition to awls, other piercing tools, such as needles and pins, are well represented in the assemblage. Ornaments are present only in the habitation elements (Elements 1 and 2). As is clearly indicated in table 4D.8, a large percentage of the worked bone cannot be confidently included in any element. Of the tools that can be identified in these proveniences, most are awls. Because of the relatively low frequencies of bone tools, it is difficult to draw any functional conclusions for the LeMoc Shelter assemblage.

Other variables shown in table 4D.8 include blank type, item condition, and production evaluation. As indicated by the values listed for the blank type variable, the use of split bone (bone that is engraved and split along the grain) decreases through time. As the frequency of split bone decreased, the frequency of broken bone increases. A comparison of the values recorded for the item condition variable demonstrates that Elements 1, 2, and 3 have high percentages of complete items, but Elements 4 and 5 have very low percentages of complete items. It is possible that deposits from the latter have been disturbed. The production evaluation variable indicates a general trend toward lower production input through time. The overall trend observed in the worked bone profiles indicates an increasingly expedient worked bone technology, where piercing tools such as awls, needles, and pins are the predominant tool types.

Conclusions

The summaries presented in this appendix indicate that similarities and differences exist between LeMoc Shelter and other Anasazi sites in the DAP area. Perhaps most noteworthy are the similar flaked lithic tool and flaked lithic debitage profiles for the different site types. It is suggested that similar activities, such as hunting, lithic procurement, and other manufacturing and maintenance activities took place throughout the occupational sequence at the rockshelter. Of particular interest is the relatively high percentage of high-technological-input tools (e.g., bifaces and projectile points), which suggests that hunting and related activities were important during all of the identified occupations.

The nonflaked lithic tool profile appears to be the best indicator of different site types. The low percentages of food processing tools from Element 4 and 5 contexts suggest that these elements are limited activity loci where food processing was not a significant activity. Of particular interest is Element 3, which was identified as a field house in the site report. The lithic assemblage, however, indicates that the activities conducted during this occupation were those of a self-sufficient household.

Figure 4D.1 – Selected bone awls recovered from LeMoc Shelter. Awls recovered from (top, left to right) midden east of Pithouse 1; Pithouse 2 fill; Pithouse 1 fill; Pithouse 2, Floor 1 (no PL number assigned); Pithouse 2 fill; Room 11 fill; and (bottom) Pithouse 2 fill (DAP 126814).

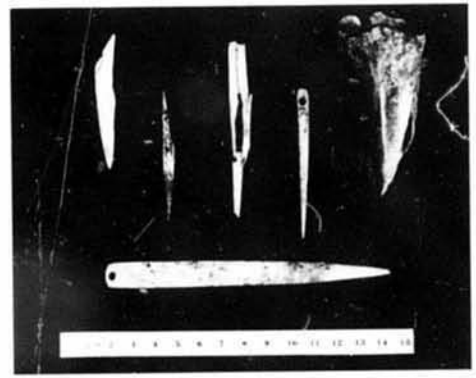

Figure 4D.2 – Selected bone awls recovered from LeMoc Shelter. Awls recovered from (top, left to right) Pithouse 1 fill; Pithouse 1 fill; 1- by 1-m grid 11S/10E; Pithouse 2 fill; Pithouse 2, Floor 1 (PL 116); and (bottom) Room 12 fill (DAP 126819).

Figure 4D.3 – Selected bone tools recovered from LeMoc Shelter. Top, left to right: spatula from Pithouse 1, Floor 1 (PL 54); gouge/scraper from Room 3 fill; pointed tool from Pithouse 1 fill. Bottom: gouge/scraper from Room 13 fill (DAP 126824).

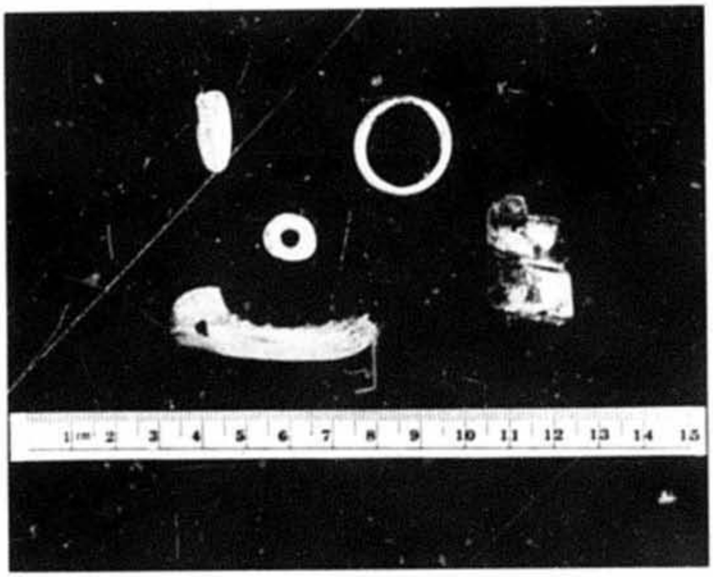

Figure 4D.4 - Selected bone ornaments recovered from LeMoc Shelter. Items recovered from (clockwise, from upper left) 1- by 1-m grid 10S/13E; Pithouse 1 fill; Pithouse 2 fill; 2- by 2-m grid 10S/14E; and (center) disturbed deposits behind roomblock. The functions of these items are not known; most, however, reflect a fairly high labor investment (DAP 126829).

Table 4D.8 – Worked nonhuman bone, by element, LeMoc Shelter

	Element 1 N	Element 1 %	Element 2 N	Element 2 %	Element 3 N	Element 3 %	Element 4 N	Element 4 %
Total tools	19	100.0	14	100.0	24	100.0	19	100.0
Taxon								
Aves	0	0	0	0	1	4.2	0	0
Aves/Mammalia	0	0	0	0	0	0	0	0
Mammalia, indt	0	0	0	0	0	0	0	0
Mammalia, small	1	5.3	1	7.1	0	0	0	0
Mammalia, medium	2	10.5	3	21.4	2	8.3	4	21.1
Mammalia, large	8	42.1	6	42.9	12	50.0	13	68.4
Artiodactyla	6	31.6	4	28.6	9	37.5	1	5.3
Lagomorpha	1	5.3	0	0	0	0	0	0
Rodentia	0	0	0	0	0	0	0	0
Carnivora	1	5.3	0	0	0	0	1	5.3
Tool morpho-use								
Indeterminate	8	42.1	6	42.9	7	29.2	10	52.6
Awl	6	31.6	3	21.4	14	58.3	4	21.1
Piercing tool	1	5.3	2	14.3	1	4.2	2	10.5
Spatulate	0	0	2	14.3	2	8.3	2	10.5
Flaker	1	5.3	0	0	0	0	1	5.3
Ornament	3	15.8	1	7.1	0	0	0	0
Blank type								
Indeterminate	12	63.2	10	71.4	16	66.7	11	57.9
Broken bone	3	15.8	0	0	4	16.7	6	31.6
Split bone	3	15.8	3	21.4	4	16.7	1	5.3
Cut bone	1	5.3	1	7.1	0	0	1	5.3
Item condition								
Indeterminate	2	10.5	0	0	0	0	2	10.5
Broken								
Orient unknown	6	31.6	5	35.7	5	20.8	7	36.8
No orientation	0	0	0	0	0	0	0	0
Distal present	0	0	0	0	0	0	1	5.3
Proximal present	1	5.3	0	0	1	4.2	1	5.3
Medial present	0	0	1	7.1	4	16.7	3	15.8
Proximal & medial present	0	0	1	7.1	3	12.5	1	5.3
Distal & medial present	2	10.5	2	14.3	2	8.3	1	5.3
Complete/nearly complete	8	42.1	5	35.7	9	37.5	3	15.8
Production evaluation								
Indeterminate	2	10.5	0	0	1	4.2	1	5.3
Some evidence	7	36.8	8	57.1	10	41.7	12	63.2
Not shaped	1	5.3	0	0	1	4.2	0	0
Minimally shaped	3	15.8	1	7.1	4	16.7	3	15.8
Moderately shaped	1	5.3	2	14.3	6	25.0	3	15.8
Well shaped	4	21.1	1	7.1	1	4.2	0	0
Completely shaped	1	5.3	2	14.3	1	4.2	0	0

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Table 4D.8 – Worked nonhuman bone, by element, LeMoc Shelter – Continued

	Element 5 N	Element 5 %	Other N	Other %	Total N	Total %
Total tools	11	100.0	73	100.0	160	100.0
Taxon						
Aves	0	0	1	1.4	2	1.3
Aves/Mammalia	0	0	3	4.1	3	1.9
Mammalia, indt	0	0	2	2.7	2	1.3
Mammalia, small	0	0	1	1.4	3	1.9
Mammalia, medium	0	0	7	9.6	18	11.3
Mammalia, large	8	72.7	43	58.9	90	56.3
Artiodactyla	2	18.2	10	13.7	32	20.0
Lagomorpha	0	0	4	5.5	5	3.1
Rodentia	0	0	1	1.4	1	0.6
Carnivora	1	9.1	1	1.4	4	2.5
Tool morpho-use						
Indeterminate	9	81.8	42	57.5	82	51.3
Awl	1	9.1	19	26.0	47	29.4
Piercing tool	1	9.1	3	4.1	10	6.3
Spatulate	0	0	2	2.7	8	5.0
Flaker	0	0	0	0	2	1.3
Ornament	0	0	7	9.6	11	6.9
Blank type						
Indeterminate	4	36.4	50	68.5	103	64.4
Broken bone	5	45.4	17	23.3	35	21.9
Split bone	1	9.1	4	5.5	16	10.0
Cut bone	1	9.1	2	2.7	6	3.8
Item condition						
Indeterminate	3	27.3	8	11.0	15	9.4
Broken						
Orient unknown	5	45.5	30	41.1	58	36.3
No orientation	0	0	3	4.1	3	1.9
Distal present	0	0	2	2.7	3	1.9
Proximal present	1	9.1	0	0	4	2.5
Medial present	0	0	7	9.6	15	9.4
Proximal & medial present	0	0	1	1.4	6	3.8
Distal & medial present	1	9.1	8	11.0	16	10.0
Complete/nearly complete	1	9.1	14	19.2	40	25.0
Production evaluation						
Indeterminate	4	36.4	11	15.1	19	11.9
Some evidence	5	45.5	43	58.9	85	53.1
Not shaped	2	18.2	4	5.5	8	5.0
Minimally shaped	0	0	4	5.5	15	9.4
Moderately shaped	0	0	4	5.5	16	10.0
Well shaped	0	0	4	5.5	10	6.3
Completely shaped	0	0	3	4.1	7	4.4

indt - Indeterminate
Orient - Orientation

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APPENDIX 4E

FAUNAL REMAINS FROM LEMOC SHELTER

Sarah W. Neusius

The faunal assemblage from LeMoc Shelter (Site 5MT2151) is one of the largest from a single DAP site. A total of 6964 pieces of NHB (nonhuman bone) have been identified to date. This assemblage is particularly important in assessing the role of hunting in Dolores Anasazi subsistence because, as discussed in the site report, LeMoc Shelter may have served as a year-round habitation, a summer field house, and a short-term extractive camp at different points during the 200 years spanned by the Anasazi occupations.

This appendix supplements the discussion of fauna contained in the chapter in 2 ways. First, it provides an up-to-date description of the faunal assemblage. Since the chapter was prepared, approximately 1800 additional bone fragments have been examined, and all preliminary identifications have been finalized. Second, this appendix presents information on habitat utilization and on small- versus large-game procurement. These topics are particularly important to the assessment of site function and to the synthetic analyses being undertaken by the DAP.

Recovery and Analytic Procedures

All of the NHB described in this appendix was recovered during the course of normal excavation; no special sampling procedures were employed. Although bone fragments were recovered in bulk soil samples, preliminary analysis of these materials has not yet been undertaken. Furthermore, fish remains and microtine rodent remains were forwarded to a specialist, and the results of these special identifications are not yet available for study. Therefore, in the LeMoc Shelter assemblage, an unknown degree of bias exists against the smallest faunal remains.

Nearly three-fourths of the NHB from LeMoc Shelter was collected by dry-screening sediments through one-quarter-inch (6.4 mm) mesh screen (table 4E.1). Although the percentage of remains collected by screening varies among Elements 1 through 5 and the unassigned proveniences, a large proportion has been screened in each case. Therefore, the faunal assemblage described here probably is fairly representative of the macrofaunal remains preserved at LeMoc Shelter.

Preliminary analysis has been completed for virtually all macrofaunal remains recovered from the shelter. Although the sample sizes vary, all 5 elements are represented in the assemblage described here. Unfortunately, some of the LeMoc Shelter deposits, including midden, sheet trash, and disturbed deposits, cannot be assigned to an element. Over half of the fauna in the assemblage was recovered from these unassigned deposits.

Initially, the identification of the LeMoc Shelter faunal assemblage was undertaken under the direction of Steven D. Emslie of the Center for Western Studies, Flagstaff, Arizona. All macrofaunal remains were washed or dry-cleaned and catalogued. A preliminary sort was made and results were provided to the excavation crew chief. Subsequently, final identifications were made using comparative skeletons belonging to either the Anasazi Heritage Center or the Center for Western Studies. In some instances, other collections were consulted as well. Fish and the microtine rodent remains were forwarded to a specialist along with similar materials from other DAP sites. The results of these special identifications are not yet available for study.

In 1982, new procedures were instituted under the direction of S. Neusius (Petersen et al. 1982). These procedures did not greatly affect analysis of the assemblage from LeMoc Shelter, as the identification of bone was nearly complete; however, editing and reorganization of the computer file did result in some minor changes in the data record.

Only the number of individual specimens (Payne 1975) from each taxon is given in this appendix. Data on minimum number of individuals and body part representation are not presented; it is hoped that such topics will be addressed in future intensive studies.

Description of the Faunal Assemblage

Because the occupations of LeMoc Shelter spanned approximately 200 years and apparently represent several uses of the site, it is not appropriate to describe this assemblage as a single unit. Instead, the assemblages from

the unassigned contexts and each of the 5 elements discussed in the site report are described separately. Further subdivision of the assemblage has not been attempted for this appendix. The sample size of each of the elements is already small. Subdivision of the assemblage from unassigned contexts probably would have proven informative but was too time-consuming to be undertaken during preliminary analysis.

Element 1

According to the information in chapter 4, the initial occupation of LeMoc Shelter corresponds primarily to the construction and occupation of Pithouse 2 and the roomblock. Tentative dates for the occupation of the pithouse are A.D. 750-780, which corresponds to the late Sagehill Subphase. During that time the shelter apparently was a year-round habitation at which a variety of extractive and maintenance activities were performed.

The faunal data from Element 1 are presented in tables 4E.2 and 4E.3. Although the majority of bone in most archaeological faunal assemblages is unidentifiable (Payne 1975), this is not the case for the assemblage from Element 1: an extremely large percentage (54.6) of this assemblage is identifiable to order, family, genus, or species. One factor in this high percentage of identifiable bone is the inclusion of 145 bones from a single immature dog (c.f. *Canis familiaris*) in Pithouse 2. A second factor is the relatively large amount of small mammal bone. In

Table 4E.1 - Collection modes for nonhuman bone, LeMoc Shelter

	Collection mode										Total	
	Dry screen 1/4" mesh		Trowel		Shovel & trowel		Shovel		Inapplicable/ unknown			
	N	%	N	%	N	%	N	%	N	%	N	%
Element 1	332	6.5	0	0.0	341	36.4	16	8.9	0	0.0	689	100.0
Element 2	201	3.9	83	28.8	2	0.2	0	0.0	1	0.2	287	100.0
Element 3	234	4.6	34	11.8	198	21.1	6	3.3	16	3.8	488	100.0
Element 4	1 027	20.0	19	6.6	116	12.4	10	5.6	48	11.5	1 220	100.0
Element 5	369	7.2	5	1.7	76	8.1			42	10.0	492	100.0
Unassigned	2 977	57.9	147	51.0	204	21.8	148	82.2	312	74.5	3 788	100.0
Total	5 140	100.0	288	100.0	937	100.0	180	100.0	419	100.0	6 964	100.0

Table 4E.2 - Composition of the total faunal assemblage, Element 1, LeMoc Shelter

	Indeterminate remains			Identifiable remains*			Total		
	N	%class	%total	N	%class	%total	N	%class	%total
Bird	9	100.0	2.9	21	100.0	5.6(9.1)	30	100.0	4.4(5.5)
Bird/mammal	19	100.0	6.1				19	100.0	2.8(3.5)
Indeterminate mammal	0	0	0	3	0.9(1.4)	0.8(1.3)	3	0.5(0.6)	0.4(0.6)
Small mammal	58	20.4	18.5	156	43.9(74.3)	41.5(67.5)	214	33.4(43.2)	31.1(39.3)
Medium mammal	123	43.2	39.3	†157(12)	44.2(5.7)	41.8(5.2)	†280(135)	43.8(27.3)	40.6(24.8)
Large mammal	104	36.5	33.2	39	11.0(18.6)	10.4(16.9)	143	22.3(28.9)	20.8(26.3)
Total assemblage	313		100.0	376(231)		100.0(100.0)	689(544)		100.0(100.0)

* Assignable to order, family, genus, or species.

† Includes 145 bones from immature dog found in Pithouse 2 fill.

Figures in parentheses represent counts and percentages when dog skeleton from Pithouse 2 is excluded.

Table 4E.3 - Composition of the identifiable faunal assemblage, Element 1, LeMoc Shelter

Taxon	N	%class	%total
Birds			
Tetraonidae			
grouse	19	90.5	5.1(8.2)
Meleagris gallopavo			
turkey	1	4.8	0.3(0.4)
Asio sp.			
long-eared or short-eared owl	1	4.8	0.3(0.4)
Total birds	21	100.0	5.6(9.1)
Mammals			
Lepus californicus			
black-tailed jackrabbit	42	11.9(20.0)	11.2(18.2)
Sylvilagus spp.			
cottontail rabbit	50	14.1(23.8)	13.3(21.7)
Rodentia			
rodent	3	0.9(1.4)	0.8(1.3)
Sciuridae			
squirrel	6	1.7(2.9)	1.6(2.6)
Marmota flaviventris			
yellow bellied marmot	21	5.9(10.0)	5.6(9.1)
Spermophilus variegatus			
rock squirrel	13	3.7(6.2)	3.5(5.6)
Spermophilus lateralis			
golden-mantled ground squirrel	6	1.7(2.9)	1.6(2.6)
Cynomys gunnisoni			
Gunnison's prairie dog	10	2.8(4.8)	2.7(4.3)
Thomomys spp.			
pocket gopher	1	0.3(0.5)	0.3(0.4)
Cricetidae			
New World rats and mice	1	0.3(0.5)	0.3(0.4)
Neotoma spp.			
wood rat	3	0.9(1.4)	0.8(1.3)
Neotoma cinerea			
bushy-tailed wood rat	1	0.3(0.5)	0.3(0.4)
Neotoma mexicana			
Mexican wood rat	1	0.3(0.5)	0.3(0.4)
Erethizon dorsatum			
porcupine	2	0.6(1.0)	0.5(0.9)
c.f. *Canis familiaris*			
domestic dog	152*(7)	42.8(3.3)	40.4(3.0)
Vulpes vulpes			
red fox	2	0.6(1.0)	0.5(0.9)
Martes americana			
marten	1	0.3(0.5)	0.3(0.4)
Lynx rufus			
bobcat	1	0.3(0.5)	0.3(0.4)
Artiodactyla			
even-toed ungulates	15	4.2(7.1)	4.0(6.5)
Cervus elaphus			
American elk	1	0.3(0.5)	0.3(0.4)
Odocoileus hemionus			
mule deer	22	6.2(10.5)	5.9(9.5)
Ovis canadensis			
bighorn	1	0.3(0.5)	0.3(0.4)
Total mammals	355(210)	100.0(99.8)	94.8(90.5)
Total assemblage	376(231)		100.0(99.6)

*145 bones from immature canine skeleton in Pithouse 2 fill.

Figures in parentheses represent counts and percentages when dog skeleton from Pithouse 2 is excluded.

c.f. - Compares favorably

DAP faunal assemblages, small mammal bones are usually more easily identified than large mammal bones. Bird bones also appear to be easy to identify. Whether this is due to Anasazi processing and disposal practices, to the types of contexts excavated, or to a preponderance of highly diagnostic rabbit and grouse remains is unclear. However, it is clear that both the indeterminate and the identifiable portions of DAP assemblages need to be examined.

Tables 4E.2 and 4E.3 demonstrate that mammals are particularly common in the faunal assemblage from Element 1. The proportion of medium mammal bones has been inflated by the partial immature dog skeleton. These remains were located near the east wall of Pithouse 2; the dog appeared to have been placed in the pithouse either during or after abandonment of the structure. In tables 4E.2 and 4E.3, the numbers in parentheses indicate the composition of the Element 1 assemblage, exclusive of these bones.

Twenty-five taxonomic categories have been recognized among the identified remains (table 4E.3). Most of the bird bones are from grouse (Tetraonidae). A wide variety of mammalian taxa are represented as well. Rabbit (Lagomorpha) is the most common mammal (43.8 percent), and cottontail (*Sylvilagus* spp.) is slightly more common than jackrabbit (*Lepus californicus*). Artiodactyl bones make up 18.6 percent of the identifiable mammal remains. The most common artiodactyl is mule deer (*Odocoileus hemionus*), although elk (*Cervus elaphus*) and bighorn (*Ovis canadensis*) are present as well. The next common group of mammals is the squirrel family (Sciuridae), including yellow-bellied marmot (*Marmota flaviventris*), rock squirrel (*Spermophilus variegatus*), golden-mantled ground squirrel (*Spermophilus lateralis*), and Gunnison's prairie dog (*Cynomys gunnisoni*).

Most of the species present in the Element 1 assemblage would have been found in the vicinity of the shelter, particularly in the brush and woodland zones on the slope and mesa tops above the shelter. The marten (*Martes americana*) is an exception (Armstrong 1972). This animal usually is found at higher elevations and must have been brought to the shelter from some distance.

As noted above, small mammals are more common than large mammals in the Element 1 assemblage. This is due to the fairly high percentages of rabbit and squirrel. The greater proportion of small mammal is evident among the indeterminate remains as well.

Element 2

Element 2 is associated with the construction and use of Pithouse [illegible] Room 12; the surface rooms built during the Element [illegible] occupation probably were used at this time as well. Element 2 dates to sometime between A.D. 840 and 860, which corresponds to the late Dos Casas and early Periman Subphases. This element apparently represents a year-round habitation similar to that represented by Element 1.

The faunal data from Element 2 are presented in tables 4E.4 and 4E.5. Only 287 fragments of nonhuman bone were recovered from contexts assigned to Element 2. Approximately one-third of these fragments were identifiable to order, family, genus, or species (table 4E.4). This lower percentage of identifiable remains is attributable to the smaller amount of small mammal relative to medium and large mammal in this assemblage.

Although Bye's (1982) treatment of potential vegetation serves as the basis for the vegetation discussion in the site report, the zones used in this appendix are based on more recent research by Petersen (1981).

Table 4E.4 - Composition of the total faunal assemblage, Element 2, LeMoc Shelter

	Indeterminate remains			Identifiable remains*			Total		
	N	%class	%total	N	%class	%total	N	%class	%total
Bird	3	100.0	1.6	2	100.0	2.1	5	100.0	1.7
Bird/mammal	1	100.0	0.5	0	0	0	1	100.0	0.4
Indeterminate mammal	0	0	0	2	2.2	2.1	2	0.7	0.7
Small mammal	10	5.3	5.2	36	39.1	38.3	46	16.4	16.0
Medium mammal	109	57.7	56.5	10	10.9	10.6	119	42.4	41.5
Large mammal	70	37.0	36.3	44	47.8	46.8	114	40.6	39.7
Total assemblage	193		100.0	94		100.0	287		100.0

*Assignable to order, family, genus, or species.

Table 4E.5 - Composition of the identifiable faunal assemblage, Element 2, LeMoc Shelter

Taxon	N	%class	%total
Birds:			
Buteo sp.	1	50.0	1.1
Tetraonidae			
grouse	1	50.0	1.1
Total birds	2	100.0	2.1
Mammals:			
Lagomorpha			
hares and rabbits	1	1.1	1.1
Lepus californicus			
black-tailed jackrabbit	6	6.5	6.4
Sylvilagus spp.			
cottontail rabbit	17	18.5	18.1
Rodentia			
rodent	2	2.2	2.1
Sciuridae			
squirrel	2	2.2	2.1
Marmota flaviventris			
yellow bellied marmot	3	3.3	3.2
Spermophilus variegatus			
rock squirrel	2	2.2	2.1
Peromyscus sp.			
white footed mice	1	1.1	1.1
Neotoma spp.			
wood rat	3	3.3	3.2
Erethizon dorsatum			
porcupine	5	5.4	5.3
Canis latrans			
coyote	2	2.2	2.1
Vulpes vulpes			
red fox	1	1.1	1.1
Mustela frenata			
Long-tailed weasel	1	1.1	1.1
Lynx rufus			
bobcat	2	2.2	2.1
Felis concolor			
mountain lion	1	1.1	1.1
Artiodactyla			
even-toed ungulates	14	15.2	14.9
Cervidae			
deer	1	1.1	1.1
Cervus elaphus			
American elk	2	2.2	2.1
Odocoileus hemionus			
mule deer	24	26.1	25.5
Ovis canadensis			
bighorn	2	2.2	2.1
Total mammals	92	100.0	97.9
Total assemblage	94		100.0

Most of the assemblage is mammalian, as was the case for Element 1. Even though no complete or nearly complete, intact skeletons are included in this assemblage, the proportion of medium mammal is high. Small mammal makes up only 16.0 percent of the assemblage. However, there is considerable contrast between proportions of small and medium mammal in the indeterminate and identifiable components of the assemblage (table 4E.4).

Twenty-two taxonomic categories have been recognized in the identifiable assemblage from Element 2. The diversity of the mammalian remains is almost as great as in Element 1. Artiodactyls rather than rabbits are most commmon (46.8 percent). Mule deer is the most common artiodactyl; elk and bighorn occur as well. Some fragments are identifiable only to family (Cervidae) or order (Artiodactyla). Only 25.6 percent of the assemblage is rabbit. However, compared to Element 1, black-tailed jackrabbit occurs much less frequently than cottontail. Bones from the squirrel family remain common, but porcupine (*Erethizon dorsatum*) occurs more frequently (5.4 percent) than in Element 1.

As was the case for the Element 1 assemblage, most of the taxa recovered from Element 2 contexts represent animals potentially found in vegetation zones near the site. In particular, fauna from the woodland and brush zones upslope from LeMoc Shelter are very common. No high altitude species were identified.

The principal difference between the faunal assemblages from Elements 1 and 2 is that large mammals, notably artiodactyls, are more common in Element 2 contexts than in Element 1 contexts. Since both elements apparently are year-round habitations, this difference is difficult to explain. The small sample size for Element 2 may make the relative proportions unreliable; alternatively, the differences observed may possibly stem from temporal or functional factors.

Element 3

In contrast to the first 2 elements, the third recognizable occupation of LeMoc Shelter is not associated with a pitstructure. Rooms 11 and 13 apparently belong to this element. Element 3 is dated to approximately A.D. 875-900 and has been assigned to the Grass Mesa Subphase. In the chapter, this occupation is interpreted as a field house occupied seasonally to facilitate summer agricultural activities.

The faunal data for Element 3 are presented in tables 4E.6 and 4E.7. A total of 488 bones have been examined. Of these, 30.1 percent have been identified to order, family, genus, or species. Mammals make up most of the assemblage. Large mammal remains occur most frequently among both the indeterminate and the identifiable components of the assemblage. However, medium mammal is next most common among the indeterminate remains, and small mammal is almost as common as large mammal among the identifiable remains.

Twenty-one taxa have been recognized in the identifiable assemblage from Element 3. Artiodactyla make up 42.5 percent of the mammalian remains. Mule deer is still the most common artiodactyl (19.2 percent), but elk occurs more frequently than in earlier occupations (10.3 percent). Bighorn is present as well. Rabbit constitutes 33.6 percent of the assemblage. Black-tailed jackrabbit is twice as common as cottontail, which is a reversal of the proportions found in the faunal assemblages from Elements 1 and 2. Porcupine and squirrel continue to be present but carnivores, including coyote (*Canis latrans*), bobcat (*Lynx rufus*), and red fox (*Vulpes vulpes*), are more common.

The habitat types represented probably occurred in the vicinity of LeMoc Shelter. Most of the species prefer

Table 4E.6 - Composition of the total faunal assemblage, Element 3, LeMoc Shelter

	Indeterminate remains			Identifiable remains*			Total		
	N	%class	%total	N	%class	%total	N	%class	%total
Bird	4	100.0	1.2	1	100.0	0.7	5	100.0	1.0
Bird/mammal	4	100.0	1.2	0	0	0	4	100.0	0.8
Indeterminate mammal	0	0	0	1	0.7	0.7	1	0.2	0.2
Small mammal	38	11.4	11.1	60	41.1	40.8	98	20.5	20.1
Medium mammal	101	30.3	29.6	22	15.1	15.0	123	25.7	25.2
Large mammal	194	58.3	56.9	63	43.2	42.9	257	53.7	52.7
Total assemblage	341		100.0	147		100.0	488		100.0

* Assignable to order, family, genus, or species.

Table 4E.7 – Composition of the identifiable faunal assemblage, Element 3, LeMoc Shelter

Taxon	N	%class	%total
Birds:			
Accipitridae	1	100.0	0.7
Total birds	1	100.0	0.7
Mammals:			
Lepus californicus black-tailed jackrabbit	33	22.6	22.5
Sylvilagus spp. cottontail rabbit	16	11.0	10.9
Sciuridae squirrel	3	2.1	2.0
Marmota flaviventris yellow bellied marmot	1	0.7	0.7
Spermophilus variegatus rock squirrel	4	2.7	2.7
Cynomys gunnisoni Gunnison's prairie dog	1	0.7	0.7
Castor canadensis beaver	1	0.7	0.7
Cricetidae New World rats and mice	1	0.7	0.7
Neotoma spp. wood rat	1	0.7	0.7
Erethizon dorsatum porcupine	6	4.1	4.1
Canis latrans coyote	6	4.1	4.1
Vulpes or *Urocyon* sp. fox	1	0.7	0.7
Vulpes vulpes red or gray fox	4	2.7	2.7
Ursus sp. bear	1	0.7	0.7
Lynx rufus bobcat	5	3.4	3.4
Artiodactyla even-toed ungulates	14	9.6	9.5
Cervidae deer family	1	0.7	0.7
Cervus elaphus American elk	15	10.3	10.2
Odocoileus hemionus mule deer	28	19.2	19.1
Ovis canadensis bighorn	4	2.7	2.7
Total mammals	146	100.0	99.3
Total assemblage	147		100.0

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woodland or brush habitat types. There are no taxa that necessarily represent long-distance procurement.

The Element 3 assemblage is diverse, as are the assemblages from Elements 1 and 2. As in the Element 2 assemblage, large mammals, most of them artiodactyls, are more common than small mammals such as rabbits. No change in procurement strategies is evident from this assemblage. Such a change might be expected in conjunction with the presumed change in site function from year-round habitation to field house.

Element 4

Architectural evidence for a fourth element at LeMoc Shelter is lacking, but occupation areas and various deposits indicate that the shelter was reoccupied after A.D. 900. Element 4 has been dated to sometime between A.D. 920 and 930 and has been assigned to the Cline Subphase. Apparently, this element represents short-term use of the shelter. Since the Grass Mesa Locality was abandoned by this time, residents of the McPhee Village area might have used the shelter as a camp while extracting both biotic and abiotic resources in the vicinity.

The faunal remains recovered from contexts assigned to Element 4 are presented in tables 4E.8 and 4E.9. Considerably more bones (1220) are included in this assemblage than in the other 3 assemblages described thus far. Because the ratio of small mammal to large mammal is low, only 20.6 percent (251) of these bones have been identified to order, family, genus, or species. The increase in sample size probably is responsible for the recovery of indeterminate vertebrate and fish bones. The fish bones may belong to members of the sucker family (Catostomidae), since most of the DAP fish identified to date have belonged to this family. The greater number of bird bones also may be due to sample size. Grouse occur most frequently, but waterfowl, raptors, and Passeriformes are present as well.

Mammals comprise over 90.0 percent of the Element 4 assemblage. Large mammal remains are most common among the indeterminate remains, but among the identifiable remains, small mammals occur most frequently. The proportion of medium mammal remains does not change greatly between the indeterminate and the identifiable components.

Among the identifiable mammal remains, Artiodactyla contribute 34.7 percent. Elk, rather than mule deer, is the principal artiodactyl. Bighorn is present as well. Of the identifiable mammal remains, 25.0 percent are rabbit. Cottontail is much more common than jackrabbit, as was the case for Elements 1 and 2 but not Element 3. Porcupine contributes 8.9 percent. Squirrels and carnivores also occur fairly frequently. A single fragment has been identified as domestic dog (c.f. *Canis familiaris*).

Most of the taxa recovered represent species found in the vicinity of the shelter. The presence of fish may be a sign that the aquatic zone was used more than previously, but a strong case cannot be made based on 3 fragments. None of the taxa necessarily represent long-distance procurement.

As has been the case in all but the Element 1 assemblage, large mammals, mostly artiodactyls, occur more frequently than small mammals, including rabbits. This is true even though slightly more of the identifiable remains

Table 4E.8 – Composition of the total faunal assemblage, Element 4, LeMoc Shelter

	Indeterminate remains			Identifiable remains*			Total		
	N	%class	%total	N	%class	%total	N	%class	%total
Unidentifiable vertebrate	6	100.0	0.6	0	0	0	6	100.0	0.5
Fish	3	100.0	0.3	0	0	0	3	100.0	0.3
Bird	6	100.0	0.6	15	100.0	6.0	21	100.0	1.7
Bird/mammal	2	100.0	0.2	0	0	0	[illegible]	100.0	0.2
Indeterminate mammal	0	0	0	5	2.1	2.0	5	0.4	0.4
Small mammal	62	6.5	6.4	91	38.6	36.3	153	12.9	12.5
Medium mammal	271	28.5	28.0	57	24.2	22.7	328	27.6	26.9
Large mammal	619	65.0	63.9	83	35.2	33.1	702	59.1	57.5
Total assemblage	969		100.0	251		100.0	1 220		100.0

* Assignable to order, family, genus, or species.

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Table 4E.9 - Composition of the identifiable faunal assemblage, Element 4, LeMoc Shelter

Taxon	N	%class	%total
Birds:			
Branta spp.			
goose	1	6.7	0.4
Accipiter striatus			
sharp-shinned hawk	2	13.3	0.8
Buteo jamaicensis			
red-tailed hawk	1	6.7	0.4
Tetraonidae			
grouse	7	46.7	2.8
Meleagris gallopavo			
turkey	2	13.3	0.8
Bubo virginianus			
great horned owl	1	6.7	0.4
Pica pica			
black-billed magpie	1	6.7	0.4
Total birds	15	100.0	6.0
Mammals:			
Lepus californicus			
black-tailed jackrabbit	4	1.7	1.6
Sylvilagus spp.			
cottontail rabbit	55	23.3	21.9
Rodentia			
rodent	4	1.7	1.6
Sciuridae			
squirrel	6	2.5	2.4
Marmota flaviventris			
yellow bellied marmot	4	1.7	1.6
Spermophilus variegatus			
rock squirrel	10	4.2	4.0
Cynomys gunnisoni			
Gunnison's prairie dog	2	0.9	0.8
Castor canadensis			
beaver	4	1.7	1.6
Neotoma spp.			
wood rat	7	3.0	2.8
Neotoma mexicana			
Mexican wood rat	1	0.4	0.4
Erethizon dorsatum			
porcupine	21	8.9	8.4
Canis latrans			
coyote	9	3.8	3.6
c.f. *Canis familiaris*			
domestic dog	1	0.4	0.4
Vulpes or *Urocyon* sp.			
red or gray fox	1	0.4	0.4
Vulpes vulpes			
fox	12	5.1	4.8
Mustela frenata			
long-tailed weasel	2	0.9	0.8
Taxidea taxus			
badger	3	1.3	1.2
Lynx rufus			
bobcat	7	3.0	2.8
Felis concolor			
mountain lion	1	0.4	0.4
Artiodactyla			
even-toed ungulates	9	3.8	3.6
Cervidae			
deer family	1	0.4	0.4
Cervus elaphus			
American elk	43	18.2	17.1
Odocoileus hemionus			
mule deer	15	6.4	6.0
Ovis canadensis			
bighorn	14	5.9	5.6
Total mammals	236	100.0	94.0
Total assemblage	251		100.0

c.f. - Compares favorably

are from small mammals than from large mammals. The relatively high frequency of elk as opposed to mule deer is the only anomaly in this assemblage.

Once again, the shift in site function proposed in the site report leads to the expectation that the faunal assemblage from Element 4 will differ from those previously described. However, this assemblage is similar to those from the other elements. The larger size of this assemblage may also raise questions about the interpretations given in the chapter. Unfortunately, until relative volumes can be calculated, the significance of the sample size will remain unclear.

Element 5

The fifth and final element recognized at LeMoc Shelter is represented by scattered hearths and artifacts. According to the chapter, Element 5 dates to sometime between A.D. 930 and 950 and has been assigned to the Cline Subphase. This coincides with the last occupations of the McPhee Village area and, like Element 4, may represent use of LeMoc Shelter as an extractive camp by people from McPhee Village. Sporadic use of the shelter after this period may be represented as well.

The faunal remains recovered from contexts assigned to Element 5 are listed in tables 4E.10 and 4E.11. The assemblage from Element 5 includes 492 fragments, 35.4 percent of which are identifiable. This figure is consistent with the identifiable percentages from the Element 2, 3, and 4 assemblages.

Fish and birds are present, but mammals still constitute over 98 percent of the assemblage. Overall, large mammal is most common (54.5 percent), followed by medium mammal (25.8 percent), small mammal (17.5 percent), and indeterminate mammal (0.6 percent). However, large and small mammal occur in approximately equal percentages (40.2 percent and 40.8 percent) among the identifiable remains.

Twenty-six taxonomic groups are represented in the Element 5 faunal assemblage. The mammalian assemblage consists of a variety of taxa. Artiodactyla make up [illegible]1.9 percent of the assemblage. Mule deer (29.9 percent) occur more frequently than elk (3.6 percent). Five bones were identified as bighorn. Slightly less than one-third (27.6 percent) of the mammalian assemblage is rabbit, with cottontail being 5 times as common as jackrabbit. Sciurids contribute 7.2 percent of the assemblage, and wood rat contributes 6.6 percent. Several carnivore species are present as well.

The taxa recovered probably represent species that would have been found in the vicinity of the shelter, particularly in the woodland and brush zones upslope from the site. The presence of a single fish bone does suggest some use

Table 4E.10 – Composition of the total faunal assemblage, Element 5, LeMoc Shelter

	Indeterminate remains			Identifiable remains*			Total		
	N	%class	%total	N	%class	%total	N	%class	%total
Fish	1	100.0	0.3	0	0	0	1	100.0	0.2
Bird	0	0	0	7	100.0	4.0	7	100.0	1.4
Indeterminate mammal	0	0	0	3	1.8	1.7	3	0.6	0.6
Small mammal	15	4.7	4.7	71	42.5	40.8	86	17.8	17.5
Medium mammal	104	32.8	32.7	23	13.8	13.2	127	26.2	25.8
Large mammal	198	62.4	62.3	70	41.9	40.2	268	55.4	54.5
Total assemblage	318		100.0	174		100.0	492		100.0

*Assignable to order, family, genus, or species.

of aquatic zones, but a general shift in habitat focus cannot be assumed. None of the species recovered are likely to represent long-distance procurement.

Large mammals, most of them artiodactyls, occur most frequently, but small mammals, particularly rabbits, are present as well. In diversity and composition, this assemblage is similar to those from the other 4 elements. This similarity and perhaps the presence of fish suggest that the activities performed during the Element 5 occupation were not different from those performed during the other 4 occupations.

Unassigned Contexts

A variety of midden deposits and disturbed deposits cannot be assigned to any of the elements recognized at LeMoc Shelter. Over half of the faunal remains were recovered from these deposits. Although subdivision of this assemblage into gross temporal units may be possible eventually, it cannot be accomplished at this time; therefore, all of these materials are considered as a single assemblage in this appendix.

Tables 4E.12 and 4E.13 present the faunal data from these unassigned contexts. In this assemblage of 3788 pieces of bone, 26.0 percent are identifiable to order, family, genus, or species. As has been the case for the element assemblages, this figure appears to be related to the proportion of mammal types recovered.

A single reptile bone and 2 fish bones are included in this assemblage. Birds continue to contribute a small percentage, and 95.9 percent of the bone is mammal. Large mammal contributes 67.2 percent of the mammal remains. Small (18.6 percent) and medium (13.7 percent) mammal contribute less, and indeterminate mammal represents an insignificant proportion. However, among the identified materials, small mammal is most common, followed closely by large mammal.

Sixty taxonomic groupings are recognized in this assemblage. This richness is attributed to sample size. Among the birds, grouse (28.9 percent) and turkey (22.9 percent) are the most common avian taxa. A concentration of hawk (Accipitridae) limb bones in the fill of Room 11 accounts for 18.1 percent of the avian remains. Whether these bones represent an intentional burial or merely a partial carcass discarded in the trash is not clear.

The mammalian assemblage is 37.0 percent Artiodactyla, with mule deer (16.7 percent) being the most common species. Elk, bighorn, and pronghorn (*Antilocapra americana*) are present. Rabbit is second in frequency at 32.7 percent. Most of the rabbits are cottontail (27.2 percent), but both snowshoe hare (*Lepus americanus*) and black-tailed jackrabbit (*Lepus californicus*) are present as well. Squirrels comprise 7.6 percent and carnivores 11.6 percent of the mammalian assemblage.

The habitat types represented by the faunal assemblage from unassigned contexts are similar to those represented by the element assemblages. Woodland and brush zones upslope from the shelter are represented most strongly; some aquatic utilization is indicated by the presence of fish. The snowshoe hare represents habitats usually found

In the site report, the author includes materials from postoccupational sediments in the element assignments for the preceding occupation; as a result, the hawk remains are included in the Element 3 tabulations. A more conservative approach was used in writing this appendix – only proveniences for which a confident element assignment could be made were included in the tabulations for specific elements. The hawk bones, therefore, have been placed in the "unassigned contexts" category in this discussion.

Table 4E.11 – Composition of the identifiable faunal assemblage, Element 5, LeMoc shelter

Taxon	N	%class	%total
Birds:			
Accipitridae	1	14.3	0.6
Buteo spp.	3	42.9	1.7
Tetraonidae grouse	2	28.6	1.2
Meleagris gallopavo turkey	1	14.3	0.6
Total birds	7	100.0	4.0
Mammals:			
Lepus californicus black-tailed jackrabbit	8	4.8	4.6
Sylvilagus spp. cottontail rabbit	38	22.8	21.8
Rodentia rodent	1	0.6	0.6
Sciuridae squirrel	3	1.8	1.7
Marmota flaviventris yellow bellied marmot	1	0.6	0.6
Spermophilus variegatus rock squirrel	6	3.6	3.5
Cynomys gunnisoni Gunnison's prairie dog	2	1.2	1.2
Cricetidae New World rats and mice	1	3.6	0.6
Neotoma spp. wood rat	3	1.8	1.7
Neotoma cinerea bushy-tailed wood rat	8	4.8	4.6
Castor canadensis beaver	2	1.2	1.2
Erethizon dorsatum porcupine	3	1.8	1.7
Canidae dog family	2	1.2	1.2
Canis latrans coyote	4	2.4	2.3
Vulpes vulpes red fox	8	4.8	4.6
Mustela frenata long-tailed weasel	1	0.6	0.6
Taxidea taxus badger	3	1.8	1.7
Lynx rufus bobcat	3	1.8	1.7
Artiodactyla even-toed ungulates	9	5.4	5.2
Cervus elaphus American elk	6	3.6	3.5
Odocoileus hemionus mule deer	50	29.9	28.7
Ovis canadensis bighorn	5	3.0	2.9
Total mammals	167	100.0	96.0
Total assemblage	174		100.0

Table 4E.12 – Composition of the total faunal assemblage, unassigned contexts, LeMoc Shelter

	Indeterminate remains			Identifiable remains*			Total		
	N	%class	%total	N	%class	%total	N	%class	%total
Fish	2	100.0	0.1	0	0	0	2	100.0	0.1
Reptile	0	0	0	1	100.0	0.1	1	100.0	0.1
Bird	20	100.0	0.7	83	100.0	8.4	103	100.0	2.7
Bird/mammal	53	100.0	1.9	0	0	0	53	100.0	1.4
Indeterminate mammal	0	0	0	21	2.3	2.1	21	0.6	0.6
Small mammal	263	9.6	9.4	410	45.6	41.7	673	18.6	17.8
Medium mammal	368	13.5	13.1	128	14.2	13.0	496	13.7	13.1
Large mammal	2 098	76.8	74.8	341	37.9	34.7	2 439	67.2	64.4
Total assemblage	2 804		100.0	984		100.0	3 788		100.0

* Assignable to order, family, genus, or species.

at higher elevations, while the pronghorn represents open grassland probably found only to the southwest of the project area (Armstrong 1972).

This assemblage is characterized by diversity and slightly more artiodactyl and other large mammals than rabbit and other small mammals. This has been true for all the element assemblages. Thus, although some taxa not represented in the element assemblages are found in the unassigned assemblage, the latter corresponds to what would be expected for midden and disturbed deposits associated with the 5 recognizable occupations of LeMoc Shelter.

Discussion

The preceding section provides a basic description of the taxonomic composition of the macrofaunal assemblage from LeMoc Shelter. Although further work with the LeMoc Shelter faunal assemblage must be undertaken in conjunction with intensive studies of DAP fauna, several topics of analytic interest can be addressed preliminarily in this appendix. First, what activities are represented by this faunal assemblage? Second, is there evidence for utilization of a special microenvironment created by agricultural fields? Finally, are the interpretations of site function made in the text supported by the faunal data?

The interpretation of activities performed at LeMoc Shelter is dependent on a more thorough study of the faunal assemblage than has been completed as yet. Nevertheless, some understanding of procurement strategies can be gained from the description of taxa recovered.

First, the possibility of intrusive fauna must be considered. This is a difficult problem in any archaeological site, but is particularly difficult at cave and shelter sites such as LeMoc. Many of the species recovered might have made their home in the shelter itself. The soft, organic, archaeological deposits at the site might have attracted burrowing species. Furthermore, many species prefer rocky talus slopes, which must have existed in the vicinity of the shelter.

Species whose presence might be suspect include rodents such as ground squirrel (*Spermophilus* spp.), pocket gopher (*Thomomys* spp.), wood rat (*Neotoma* spp.), and marmot (*Marmota flaviventris*). Carnivorous species, especially the felids (*Lynx rufus* and *Felis concolor*) and bear (*Ursus* spp.), are known to inhabit caves. Caution is necessary when examining the assemblage from unassigned contexts.

Nevertheless, the ethnographic record indicates that most of the species listed here were procured by Pueblo Indians for food and raw materials (Gnabasik 1981). Furthermore, other indications of intrusion, such as skeletal completeness (Thomas 1971), are lacking. Only 2 partial skeletons were recovered from LeMoc Shelter. These consist of an immature dog and a hawk. Neither is necessarily a burial. Thus, although conclusive evidence is lacking, most of the fauna recovered probably represent sources of food or raw material. Future studies of body-part representation and of bone condition may shed more light on this topic.

The wide variety of taxa found at LeMoc Shelter suggests that faunal procurement was largely opportunistic. Preference for individual taxa is not evident, although artiodactyls and rabbits consistently occur in the largest proportions. Furthermore, the most heavily used habitat

Table 4E.13 – Composition of the identifiable faunal assemblage, unassigned contexts, LeMoc Shelter

Taxon	N	%class	%total
Reptiles:			
Sceloporus undulatus elongatus			
northern plateau lizard	1	100.0	0.1
Total reptiles	1	100.0	0.1
Birds:			
Accipitridae	15	18.1	1.5
Accipiter gentilis			
goshawk	1	1.2	0.1
Accipiter striatus			
sharp-shinned hawk	5	6.0	0.5
Buteo spp.	2	2.4	0.2
Buteo jamaicensis			
red-tailed hawk	1	1.2	0.1
Galliformes	1	1.2	0.1
Tetraonidae			
grouse	24	28.9	2.4
Meleagris gallopavo			
turkey	19	22.9	1.9
Bubo virginianus			
great horned owl	1	1.2	0.1
Glaucidium gnoma			
pygmy owl	1	1.2	0.1
Asio otus			
long-eared owl	1	1.2	0.1
Colaptes auratus			
common flicker	1	1.2	0.1
Corvidae			
jay, magpie, and crow	1	1.2	0.1
Cyanocitta stelleri			
Steller's jay	6	7.2	0.6
Aphelocoma coerulescens			
scrub jay	2	2.4	0.2
Pica pica			
black-billed magpie	1	1.2	0.1
Lanius excubitor			
northern shrike	1	1.2	0.1
Total birds	83	100.0	8.4
Mammals:			
Lagomorpha			
rabbit and hare	1	0.1	0.1
Lepus spp.			
hare and jackrabbit	2	0.2	0.2
Lepus americanus			
snowshoe hare	1	0.1	0.1
Lepus californicus			
black-tailed jackrabbit	46	5.1	4.7

Table 4E.13 – Composition of the identifiable faunal assemblage, unassigned contexts, LeMoc Shelter – Continued

Taxon	N	%class	%total
Mammals (cont.):			
Sylvilagus spp.			
cottontail rabbit	245	27.2	24.9
Rodentia			
rodent	14	1.6	1.4
Sciuridae			
squirrel	9	1.0	0.9
Marmota flaviventris			
yellow bellied marmot	16	1.8	1.6
Spermophilus sp.			
ground squirrel	1	0.1	0.1
Spermophilus variegatus			
rock squirrel	32	3.6	3.3
Spermophilus lateralis			
golden-mantled ground squirrel	4	0.4	0.4
Cynomys gunnisoni			
Gunnison's prairie dog	6	0.7	0.6
Thomomys spp.			
pocket gopher	4	0.4	0.4
Castor canadensis			
beaver	18	2.0	1.8
Cricetidae			
New World rats and mice	4	0.4	0.4
Peromyscus spp.			
white-footed mice	1	0.1	0.1
Neotoma spp.			
wood rat	23	2.6	2.3
Neotoma cinerea			
bushy-tailed wood rat	7	0.8	0.7
Neotoma mexicana			
Mexican wood rat	1	0.1	0.1
Erethizon dorsatum			
porcupine	25	2.8	2.5
Carnivora			
carnivores	3	0.3	0.3
Canidae			
canids	3	0.3	0.3
Canis familiaris			
domestic dog	4	0.4	0.4
Canis latrans			
coyote	15	1.7	1.5
Canis lupus			
gray wolf	1	0.1	0.1
Vulpes vulpes			
red fox	37	4.1	3.8
Urocyon cinereoargenteus			
gray fox	3	0.3	0.3
Ursus spp.			
bear	5	0.6	0.5
Ursus americanus			
black bear	1	0.1	0.1

Table 4E.13 – Composition of the identifiable faunal assemblage, unassigned contexts, LeMoc Shelter – Continued

Taxon	N	%class	%total
Mammals (cont.):			
Bassariscus astutus			
ringtail	1	0.1	0.1
Mustelidae			
mustelids	1	0.1	0.1
Mustela frenata			
long-tailed weasel	2	0.2	0.2
Taxidea taxus			
badger	4	0.4	0.4
Spilogale putorius			
spotted skunk	4	0.4	0.4
Lynx rufus			
bobcat	22	2.4	2.2
Felis concolor			
mountain lion	1	0.1	0.1
Artiodactyla			
even-toed ungulates	100	11.1	10.2
Cervidae			
deer family	8	0.9	0.8
Cervus elaphus			
American elk	35	3.9	3.6
Odocoileus hemionus			
mule deer	150	16.7	15.2
Antilocapra americana			
pronghorn	1	0.1	0.1
Ovis canadensis			
bighorn	39	4.3	4.0
Total mammals	900	100.0	91.5
Total assemblage	984		99.8

types are those that would have occurred in the immediate vicinity of LeMoc Shelter; only a few fragments in the assemblage might indicate hunting over longer distances. This suggests that the protein requirements of the inhabitants of LeMoc Shelter were easily met in the vicinity of the site through generalized collecting and hunting.

The ethnographic record indicates that a variety of techniques might have been used to procure the species recovered (Gnabasik 1981; Henderson and Harrington 1914). These include snaring, bow and arrow hunting, and driving. The lack of large concentrations of particular taxa may argue against communally organized hunting such as rabbit driving. However, procurement techniques cannot be ascertained using the faunal assemblage alone.

The second question of concern is whether or not a particular microenvironment associated with agricultural fields was important to the occupants of LeMoc Shelter. In the chapter, the importance of this environment has been suggested; however, the habitat preferences of the taxa recovered at LeMoc do not necessarily support this interpretation. The initial impression given b, the assemblage is that woodland and brush zones, rather than disturbed habitats and croplands, are the preferred habitats.

In an effort to quantify this impression, recent Latilong studies by the Colorado Division of Wildlife (Bissell 1978; Hammerson and Langlois 1981; Kingery and Graul 1978) were used to determine those habitat types in which the taxa recovered might have been found. Nine main habitat types that occur in southwest Colorado today were of interest (fig. 4E.1). The Douglas-fir zone may not have occurred in the project area per se during the occupation of LeMoc Shelter, but it is included because isolated trees do occur today in the vicinity of the site. The category "other" includes a variety of types, most

importantly, agricultural fields, shelter belts, and habitat-altered (cleared) areas.

The percentage of each assemblage that might have been found in each zone was determined by summing the proportions for each taxon that occur in that zone. This information is summarized in figure 4E.1. The percentages in this table do not sum to 100.0 percent because most taxa are found in more than one zone.

The most important habitats appear to be the pinyon-juniper, ponderosa pine, Douglas-fir woodland, mountain (oak) brush, and grassland zones. Sagebrush and riparian woodland is less well represented, and the proportions of faunal remains from aspen, aquatic, and other zones are extremely small. Figure 4E.1 supports the impression that intensive use of a special agricultural microenvironment does not occur. However, the data in the Latilong studies on agricultural fields, shelter belts, and habitat-altered areas appear to be sketchy, and some underrepresentation may be occurring. Thus, only further research will conclusively answer the question of habitat preference.

Considerable variation in site function among the elements has been postulated in the chapter. During Elements 1 and 2, LeMoc is believed to have functioned as a small, year-round habitation. During Element 3, the site is believed to have been a field house, and during the last 2 elements, the site is believed to have served as an extractive camp.

The Element 1 faunal assemblage meets expectations for small, single- or double-household Anasazi habitations. Opportunistic procurement would be expected for groups with such small labor forces. A slight emphasis on small animals such as rabbits might be expected of agriculturalists engaged in garden hunting. However, it is still unclear why the assemblage from Element 2, a similar occupation, does not conform as well with the second of these expectat ons.

The assemblage from Element 3, a field house, would be expected to reflect the greatest emphasis on small mammals such as rabbits. Nevertheless, it differs little from Elements 1 and 2 in diversity and, like Element 2, suggests a slight preference for artiodactyls rather than rab-

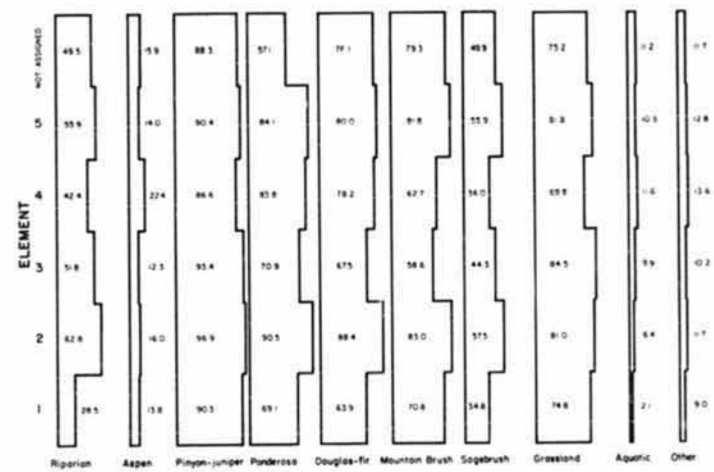

Figure 4E.1 – Percentage of faunal taxa by vegetation zone, LeMoc Shelter bits. Furthermore, there is little evidence of the special microenvironment created by agricultural fields.

The Element 4 assemblage is distinctive because of the presence of fish and because elk rather than deer is the principal artiodactyl. This does not correspond to expectations for a large-game-hunting camp, but it may indicate the extraction of a variety of resources. On the other hand, the composition of the Element 4 assemblage may suggest that food was being collected while using the shelter for the extraction of abiotic resources. Study of body-part representation would provide additional insights into site function.

The assemblage from Element 5 also might be expected to show more evidence of large-game hunting. However, except for the fact that mule deer is the most common artiodactyl from Element 5 contexts, the Element 4 and 5 faunal assemblages are quite similar. Again, a broader range of extractive activities than is usually associated with a hunting camp is suggested, and body-part analysis is required.

In general, the similarity of all the faunal assemblages argues against great change in procurement activities through time at LeMoc Shelter. Either some mixing of these assemblages has taken place or assumptions about the activities performed at different Dolores Anasazi site types need revision. A final possibility is that LeMoc Shelter represents a unique site type.

Summary

The faunal assemblage from LeMoc Shelter consists of 6964 pieces of nonhuman bone belonging to 5 cultural elements and numerous unassigned contexts. A wide variety of taxa representing small and large mammals from habitats that occur in the vicinity of the site today have been recovered. Even preliminary analysis indicates that the LeMoc Shelter assemblage will be important in assessing the exploitation of fauna by the Dolores area Anasazi. Several of the working assumptions being used by the DAP may not apply to LeMoc Shelter, which may indicate a need to revise these assumptions, or may indicate that LeMoc Shelter is a unique site deserving of detailed analysis. In any case, further analysis of the LeMoc Shelter faunal assemblage should be undertaken.

APPENDIX 4F

THE MACROBOTANICAL ASSEMBLAGE FROM LEMOC SHELTER

Meredith H. Matthews

Introduction[1]

The macrobotanical assemblage from LeMoc Shelter consists of a diverse and well-preserved array of botanical remains. Twenty-two families were recognized during preliminary analysis; within these families, 30 genera, some of which could be identified to species level, were recognized (table 4F.1). It is assumed that a major factor contributing to the diversity and condition of taxa from LeMoc Shelter is the greater preservation potential of the shelter compared to open-air sites. In a dry site situation, many of the pedoturbative and destructive processes that affect open-air sites (Keepax 1977; Wood and Johnson 1978) are either not active or their deleterious effects are minimized. Macrobotanical remains from LeMoc Shelter are separated into two categories on the basis of size and mode of collection. Small-scale macrobotanical remains, e.g., seeds and fruits, were recovered from bulk soil flotation samples. Macrobotanical remains that were more readily visible, e.g., *Zea mays* cobs, *Cucurbita* seeds, and wood fragments, were recovered as artifacts during excavation; herein such materials will be referred to as vegetal remains.

Bulk soil samples at LeMoc Shelter were collected from stratigraphic profiles, trash deposits, structure fills, surfaces, and features. Collection of samples during the 1978 field season was at the discretion of the site supervisor; collection of samples during the 1979 field season was carried out in accordance with a standardized, project-wide biotic sampling design (Litzinger 1979). Vegetal remains were arbitrarily collected from a range of proveniences.

The results of macrobotanical analysis are presented in tables 4F.1 through 4F.11. The taxa identified for each element and proveniences not assignable to an element are listed in table 4F.1. Results of analysis of vegetal remains and bulk soil samples are combined in this table. Tables 4F.2 through 4F.11 provide more detailed descriptions of the remains identified from each study unit within an element and are separated into bulk soil and vegetal remains categories.

Before discussing the results of analysis, several factors that have created problems in interpreting the macrobotanical assemblage should be presented. Contamination of a macrobotanical assemblage can easily bias interpretations. Awareness of pedoturbative processes and excavation techniques has led some analysts (cf. Keepax 1977; Minnis 1981) to view noncharred botanical remains from open-air sites as probable contaminants that are not directly associated with the prehistoric occupation of a site. However, due to the preservation potential of the situation, noncharred remains in a cave shelter cannot be as easily categorized as contaminants. Therefore, one could categorically assume that all botanical remains recovered from a shelter were associated with the prehistoric occupation unless they were obviously modern (e.g., introduced genera) or were from obviously disturbed areas of the site (e.g., rodent burrows). The contemporary vegetation associated with the site, the provenience of the remains, and the condition of the associated remains must be considered when identifying potential contaminants.

As tables 4F.2 through 4F.11 illustrate, both charred and noncharred macrobotanical remains were recovered from LeMoc Shelter. Except for the *Citrus* sp. seeds from disturbed deposits in Area 3 (table 4F.11), the cultigens are not considered to be contaminants regardless of condition or provenience, because cultigens are dependent upon human manipulation. Macrobotanical remains such as noncharred *Chenopodium* sp. fruits, *Descurainia* sp. seeds, or *Pinus edulis* and *Quercus gambelii* nuts and seeds prove problematic. Most of the taxa recovered from LeMoc Shelter could have occurred close to the site prehistorically, and all of the taxa, except for *Phragmites* sp., occur on or close to the site at present. Some of the noncharred material was possibly brought into the site and intermixed with the cultural strata after the site was abandoned.

Extensive human and faunal disturbance was noted at LeMoc Shelter. Approximately 63 percent of the proveniences from which vegetal remains were collected were

[1] Tables for this appendix were compiled by Carol Brandt, Botanical Studies Group, Dolores Archaeological Program.

Table 4F.1 - Taxa represented in the macrobotanical assemblage, LeMoc Shelter

Family Genus species	Element No. 1	2	3	4	5	Unassigned contexts
Amaranthaceae						
Amaranthus sp.		x				x
Anacardiaceae	x					
Rhus aromatica						
Cactaceae						
Opuntia sp.		x				x
Opuntia fragilis						x
Capparidaceae						
Cleome serrulata						x
Chenopodiaceae						
Chenopodium sp.	x	x				x
"Cheno-am"	x					x
Compositae	x					x
Artemisia sp.						x
Chrysothamnus sp.						x
Helianthus sp.						x
Helianthus annuus						x
Cruciferae						
Descurainia sp.	x					x
Cucurbitaceae						
Cucurbita sp.				x	x	x
C. pepo						x
Cupressaceae						
Juniperus sp.	x				x	x
J. osteosperma	x					x
J. scopulorum	x					
Cyperaceae		x				x
Scirpus sp.						x
Equisetaceae						
Equisetum sp.						x
Fagaceae						
Quercus gambelii	x	x	x	x	x	x
Gramineae						
Phragmites sp.		x				x
Zea mays	x	x	x		x	x

Table 4F.1 - Taxa represented in the macrobotanical assemblage, LeMoc Shelter

Family Genus species	Element No. 1	2	3	4	5	Unassigned contexts
Leguminosae						
Phaseolus sp.	x				x	
Liliaceae						
Yucca sp.				x		
Yucca baccata				x	x	x
Pinaceae						
Picea pungens					x	
Pinus sp.	x	x	x	x	x	x
P. edulis	x	x	x	x	x	x
P. ponderosa	x	x	x	x		x
Pseudotsuga menziesii	x	x				
Portulacaceae						
Portulaca sp.		x				x
Rosaceae	x	x	x			x
Amelanchier sp.						x
Cercocarpus sp.		x		x		x
Peraphyllum ramosissimum						x
Purshia tridentata						x
Salicaceae	x	x				
Populus sp.		x	x		x	x
Populus angustifolia						x
Scrophulariaceae						x
Solanaceae						
Nicotiana attenuata	x					x
Physalis sp.						x
Typhaceae						
Typha sp.						x

x - Present.

identified as disturbed deposits (tables 4F.10 and 4F.11). Although some of the better-preserved macrobotanical remains were recovered from these deposits, the interpretative value of the noncharred remains is less than that of noncharred remains from undisturbed cultural deposits. The looter's spoil dirt deposits cannot be assigned to an element, which precludes using the macrobotanical information from these contexts on more than a general level.

If a particular taxon is recovered only in a charred condition, it is assumed to have been associated with the site occupation. A taxon represented in only a noncharred condition is considered suspect unless it is a plant part that could have been used as a construction element or is a plant part that is consistently recovered from secure cultural proveniences. The recovery of both charred and noncharred remains, especially from the same deposit, enhances the cultural association of the noncharred remains, although disturbance factors still must be taken into account.

The bulk soil sampling design initiated in 1979 is based on a vertical control system to aid in the recognition of

Table 4F.2 – Bulk soil sample results, Element 1, LeMoc Shelter

[illegible]

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Table 4F.2 – Bulk soil sample results, Element 1, LeMoc Shelter – Continued

[illegible]

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Table 4F.3 – Vegetal remains, Element 1, LeMoc Shelter

Family Genus species Plant part	Stratum I-3	Pithse 2 Floor 1	1 x 1 m grid 10S/13E Stratum I-4	2 x 2 m grid 10S/14E Stratum I-4
Gramineae				
Zea mays				
cupule	1/C			
inflorescence (cob)	2frg/C			
Pinaceae				
Pinus sp.				
wood			<1g/C	
Dicotyledoneae				
rachis		frg/N		
bark				<1g/N

#/ – Number present.
g/ – Weight in grams.
/N – Noncharred.
/C – Charred.
frg – fragment.
Pithse – Pithouse.

contaminants within cultural deposits. If remains from a sample collected from above the cultural stratum (i.e., an "upper control" sample) are the same as those recovered from the cultural stratum itself, then some sort of contamination is assumed to have occurred and very little can be stated about the macrobotanical remains from the cultural deposit. Since a similar control system has not been established for the collection of vegetal remains, interpretation of this class of macrobotanical material is dependent upon the factors already discussed.

Results

Tables 4F.2 through 4F.11 are organized by element and are subdivided into the major spatial units associated with each element. When priority bulk soil samples were selected for analysis, information permitting the correlation of secure proveniences with specific elements was not available; thus, some of the elements, e.g., Elements 4 and 5, are not represented by bulk soil analysis. Because vegetal remains were arbitrarily collected, this class of materials is not equally represented in the macrobotanical assemblage.

Element 1

Macrobotanical remains from Element 1 proveniences were recovered from Pithouse 2 and from strata associated with Pithouse 2 (tables 4F.2 and 4F.3). It has been suggested that the occupants of the shelter during Element 1 were subsistence agriculturalists who occupied the shelter year-round. The macrobotanical assemblage does not reflect this dependence on agriculture, as the only evidence of domesticates are a few cupule and cob fragments of *Zea mays*. These fragments are from the floor and central hearth (Feature 88) of Pithouse 2, as well as from a trash deposit associated with the occupation of the structure (Stratum I-4). The integrity of the corn remains from the floor of Pithouse 2 (bulk soil samples 256, 260, 261, and 265 is difficult to assess because the upper control sample (sample 262), taken from the roof fall/postoccupation deposit above the floor samples, also contained a maize cupule. The paucity of domesticates from this element could be due to collection bias, poor preservation, or destruction during later occupations. In addition, the occupants during Element 1 might not have been dependent upon agriculture alone, but possibly relied more on a mixed agricultural/hunting-gathering subsistence strategy. This hypothesis is supported by the recovery of ruderal plant remains from Element 1 deposits. Three of the four bulk soil samples from the 4 strata within the central hearth of Pithouse 2 (samples 281, 283, and 284) yielded evidence for the probable use of *Rhus aromatica*, *Chenopodium*, sp., *Descurainia* sp., Cactaceae, and Compositae. Although the occurrence of a single seed or fruit within a genus is not strong evidence for exploitation, the occurrence of 68 charred *Descurainia* sp. seeds from this feature does seem significant.

Table 4F.4 – Bulk soil sample results, Element 2, LeMoc Shelter

Family Genus species Plant part	Room 12 Floor 2 [illegible] BS 221	Floor 1 [illegible] BS 223	[illegible] BS 225	Pithouse 1 Floor 1 BS 111	[illegible] BS 124	Floor 1 BS 112	Floor 1 BS 114	Floor 1 BS 120
Amaranthaceae								
[illegible]								
seed				[illegible]			[illegible]	
Chenopodiaceae								
[illegible]								
[illegible]						[illegible]		
Cheno-am								
[illegible]							[illegible]	
Compositae								
[illegible]								
[illegible]								
[illegible]								
Fagaceae								
[illegible]								
wood	[illegible]				[illegible]			
Gramineae								
[illegible]			[illegible]	[illegible]			[illegible]	
Zea mays								
cupule	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
[illegible]								[illegible]
kernel		[illegible]	[illegible]					
[illegible]								
[illegible]								
[illegible]								
seed								
Pinaceae								
Pinus sp.								
bark	[illegible]	[illegible]	[illegible]					
wood		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
[illegible]								
[illegible]								
needle		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	
wood	[illegible]	[illegible]			[illegible]		[illegible]	
[illegible]								
needle				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
wood	[illegible]	[illegible]	[illegible]					
[illegible]								
[illegible]								
needle					[illegible]			
[illegible]								
[illegible]								
seed								
[illegible]								
wood			[illegible]					
[illegible]								
wood				[illegible]			[illegible]	
[illegible]								
wood			[illegible]	[illegible]		[illegible]		
[illegible]								
wood			[illegible]					
[illegible]								
bark	[illegible]							
seed		[illegible]	[illegible]					
wood	[illegible]				[illegible]			
[illegible]								
bark						[illegible]		
wood						[illegible]	[illegible]	[illegible]

Table 4F.4 – Bulk soil sample results, Element 2, LeMoc Shelter – Continued

[illegible]

#/ Number present
g/ Weight in grams
x/ Seed fragments present; no count possible
/N Noncharred
/C Charred
Fg – Fragment
BS – Bulk soil sample
UC – Upper control sample
F – Feature
inflor. – Inflorescence

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Table 4F.5 – Vegetal remains, Element 2, LeMoc Shelter

Family / Genus species / Plant part	Pithouse 1			Occupation Area 1	
	Stratum II-2	Floor 1	Feature 64 (posthole)	F25 (cist) Stratum 1	F25 (cist) Stratum 3
Cactaceae					
Opuntia sp.					
seed		1/N			
Cupressaceae					
Juniperus sp.					
bark				- 1g/N	
Fagaceae					
Quercus gambelii					
fruit		1/N			
Pinaceae					
Pinus sp.					
bark	- 1g/C				
Pinus edulis					
branch	4.9g/C				
needle	100x/C				
seed				X/N	2/N
Pinus ponderosa					
needle	100x/C				
wood			14.1g/P		
Salicaceae					
Populus sp.					
wood	57.1g/C	12.8g/C			

#/ – Number present.
g/ – Weight in grams.
x/ – Seed fragments present; no count possible.
/N – Noncharred.
/C – Charred.
/P – Partially charred.
F – Feature.

Macrobotanical materials were also recovered from a possible warming pit (Feature 96) in Pithouse 2 (sample 288). The botanical remains from this feature appear to have been used as fuel rather than having been associated with food processing activities.

The most frequently occurring taxa of wood recovered from Element 1 deposits are *Quercus gambelii* and *Pinus* sp. The other commonly identified woody plants are *Juniperus* sp., *J. osteosperma*, *J. scopulorum*, *Pinus edulis*, and *P. ponderosa*. The more ubiquitous occurrence of these genera compared to other woody genera suggests that the Element 1 occupants of LeMoc Shelter preferred to use the pinyon-juniper woodland and ponderosa pine-oak forest vegetation zones to the riparian woodland or Douglas-fir/mountain shrubland zones for the gathering of fuel and construction resources.

Element 2

For purposes of artifact analysis, Element 2 is defined to include Feature 25 in Occupation Area 1, and the floors, features, and associated strata of Pithouse 1 and Room 12. It is postulated in the chapter that the number of people occupying the shelter increased and that an extended rather than a nuclear family occupied the site year-round. The occupants of the shelter are believed to have been subsistence agriculturalists.

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Table 4F.6 - Bulk soil sample results, Element 3, LeMoc Shelter

Family Genus species Plant part	Room 11		
	Floor 2 BS 210	Floor 2 BS 211	Feature 78 (hearth) BS 208
Gramineae			
Zea mays			
fruit	<1g/C		
cupule	x/C	6/C	2/C
Pinaceae			
Pinus sp.			
wood		<1g/C	<1g/C
Pinus edulis			
wood		<1g/C	
Dicotyledoneae			
wood			<1g/C
Gymnospermae			
wood	<1g/C	<1g/C	

#/ - Number present.
g/ - Weight in grams.
x/ - Seed fragments present; no count possible.
/C - Charred.
BS - Bulk soil sample.

In general, the macrobotanical assemblage from Element 2 (tables 4F.4 and 4F.5) does not differ greatly from that from Element 1; this suggests a similar interpretation of a mixed agricultural/hunting-gathering subsistence strategy. The only evidence of domesticates consists of fragments of *Zea mays* recovered from the floors and hearths of both structures. Once again, the paucity of domestics was surprising considering the year-round habitation of the site by agriculturalists. Possibly the cultigens would have been better represented had more trash deposits been sampled. The major difference in bulk soil contents between Elements 1 and 2 was the occurrence of two different genera of ruderal plants, *Amaranthus* sp. and *Portulaca* sp., and the absence of *Descurainia* sp. seeds in the Element 2 assemblage.

Of the wood remains recovered from Element 2 deposits, those of the Pinaceae family appear most frequently. The recovery of a variety of charred wood from the surfaces of the structures is indicative of use as construction material, and charcoal fragments from Features 46 and 80 (hearths) are considered representative of fuel resources. Although more wood plant remains from the Douglas-fir/mountain shrubland and riparian woodland vegetation zones were recovered from Element 2 proveniences than were recovered from Element 1 proveniences, it appears that the pinyon-juniper woodland and ponderosa pine-oak forest vegetation zones continued to provide the preferred fuel and construction resources.

Element 3

LeMoc Shelter is believed to have been seasonally occupied as an agricultural station during Element 3. As indicated in tables 4F.6 and 4F.7 only three bulk soil samples and a few vegetal remains were assigned to this element and a limited diversity of taxa are represented. Other than *Zea mays*, the fill of Feature 78, the central hearth in Room 11, did not yield evidence for possible food resources. The fragments of *Zea mays* from bulk soil samples collected from Floor 2 in Room 11 (samples 210 and 211) could be interpreted as general debris, evidence of a food processing area, or, since wood charcoal was intermixed, as part of roof fall debris inadvertantly collected with material from the floor.

The genera of wood charcoal recovered were less diverse than those found within deposits from Elements 1 and

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Table 4F.7 - Vegetal remains, Element 3, LeMoc Shelter

Family Genus species Plant part	Pithouse 1 Stratum II-4	1 × 1 m grid 9S/11E Stratum I-8	1 × 1 m grid 10S/12E Stratum I-8
Fagaceae			
Quercus gambelii			
fruit		x/N	
wood	<1g/C		
Gramineae			
Zea mays			
inflorescence	6frg/C		
Pinaceae			
Pinus sp.			
wood	<1g/C		
Pinus edulis			
seed	1/N		
wood	9.6g/C		
Pinus ponderosa			
wood			4.3g/C
Rosaceae			
wood			<1g/C
Salicaceae			
Populus sp.			
wood	3g/N		

\# - Number present.
g/ - Weight in grams.
x/ - Seed fragments present; no count possible.
/C - Charred.
/N - Noncharred.
frg - Fragments.

2. Genera within the Pinaceae family predominate in the assemblage. The noncharred *Quercus gambelii* fruit fragments and the noncharred *Pinus edulis* seed are probably intrusive because they are noncharred and are favored food of rodents.

Elements 4 and 5

Elements 4 and 5 are the last prehistoric occupations recognized at LeMoc Shelter. Both elements are characterized as sporadic occupations, during which the shelter was used as a resource procurement base camp or short-term campsite. Vegetal remains associated with these two elements were collected from stratigraphic units or use surfaces (tables 4F.8 and 4F.9). The cultural integrity of these proveniences is questionable due to disturbance of some of the deposits. No bulk soil samples collected from Element 4 and 5 contexts were analyzed.

Interestingly, it is from deposits associated with Elements 4 and 5 that a second domesticate type, squash (*Cucurbita* sp.), was recovered. It is surprising that the remains of neither squash nor beans (*Phaseolus* sp.) were recovered from the first 3 elements of occupation, as these earlier occupations were associated with agricultural activities. Although there is no reason why the occupants of the shelter during Elements 4 and 5 would not have used squash as a subsistence item, the remains that were recovered could also be refuse from the previous occupation intermixed with the later deposits.

Also, *Yucca* sp., *Y. baccata*, and *Picea pungens* occur for the first time in the Element 4 and 5 assemblages. Direct evidence for the use of yucca is provided by some noncharred yucca leaf matting on a use surface (Occupation Area 3; Element 4). The other taxa are similar to those found in the assemblages for the previous 3 elements.

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Table 4F.8 – Vegetal remains, Element 4, LeMoc Shelter

Family / Genus species / Plant part	Pithouse 1 Stratum II-5	Occupation Area 3 Surface 1	Occupation Area 3 Surface 1 PL 1	Pithouse 2 Stratum I-10	1 x 1 m grid 9S/13E Stratum I-10
Cucurbitaceae					
Cucurbita sp.					
seed				1/N	
Fagaceae					
Quercus gambelii					
fruit	x/N				x/N
wood	2g/C				
Liliaceae					
Yucca sp.					
leaf	x/C		w/N		
Yucca baccata					
leaf	x/C				
Pinaceae					
Pinus sp.					
bark	<1g/C				
wood	1.5g/C	<1g/C	<1g/C	3.5g/C	
Pinus edulis					
seed	1/N				2/N
wood	7g/C:2.4g/N				
Pinus ponderosa					
wood	20g/C				
Rosaceae					
Cercocarpus sp.					
wood	1g/C				
Dicotyledoneae					
branch	2.3g/N				
Gymnospermae					
wood	<1g/c				

#/ – Number present.
g/ – Weight in grams.
x/ – Seed fragments present; no count possible.
/N – Noncharred.
/C – Charred.
w/ – Worked vegetal item.
PL – Point location.

Table 4F.9 – Vegetal remains, Element 5, LeMoc Shelter

Family / Genus species / Plant part	Pithouse 1 Stratum II-6	Pithouse 1 Stratum I-11	Occupation Area 1 Feature 166 (fireplace)	Pithouse 2 Stratum I-11
Cucurbitaceae				
Cucurbita sp.				
seed				
Cuppressaceae				
Juniperus sp.				
wood	<1g/C			
Fagaceae				
Quercus gambelii				
cupule				19/N
fruit		1x/N		5/N
wood	<1g/C	1/N		
Gramineae				
Zea mays				
fruit	1g/C			
Liliaceae				
Yucca baccata				
seed				
Pinaceae				
Picea pungens				
cone		1/N		
seed		2/N		
Pinus sp.				
wood	<1g/C			<1g/N
Pinus edulis				
branch	3.0g/N			
seed	x/N	4x/N		
wood	3.1g/C			
Salicaceae				
Populus sp.				
wood	<1g/C			
Dicotyledoneae				
leaf				x/N
bark			1.0g/N	

Table 4F.9 – Vegetal remains, Element 5, LeMoc Shelter – Continued

Family Genus species Plant part	1 x 1 m grid 9S/16E Stratum II-6	1 x 1 m grid 9S/16E Stratum I-11
Cucurbitaceae		
Cucurbita sp.		
seed	1/N	
Cuppressaceae		
Juniperus sp.		
wood		
Fagaceae		
Quercus gambelii		
cupule		
fruit		
wood		
Gramineae		
Zea mays		
fruit		
Liliaceae		
Yucca baccata		
seed	8/N	
Pinaceae		
Picea pungens		
cone		
seed		
Pinus sp.		
wood		
Pinus edulis		
branch		
seed	x/N	x/N
wood		
Salicaceae		
Populus sp.		
wood		
Dicotyledoneae		
leaf		
bark		

#/ – Number present.
g/ – Weight in grams.
x/ – Seed fragments present; no count possible.
/N – Noncharred.
/C – Charred.

Table 4F.10 – Bulk soil sample results, unassigned contexts, LeMoc Shelter

Family Genus species Plant part	Room 4		Room 6	Pithouse 1
	F 15 (pit) Stratum 1 BS 14	F15 (pit) Stratum 2 BS 15	F12 (hearth) BS 11	F35 (fireplace) BS 84
Amaranthaceae				
Amaranthus sp.				
seed	29/N	3/N		
Capparidaceae				
Cleome serrulata				
seed	2/N			
Chenopodiaceae				
Chenopodium sp.				
fruit	7/N		4/N	
"Cheno-am"				
fruit	6/N	2/N		
Compositae				
Artemisia sp.				
wood				<1g/C
Chrysothamnus sp				
leaf			4/N	
Helianthus annuus				
fruit		x/N		
Cruciferae				
Descurainia sp.				
seed	+500/N	+150/N	1/N	
Cuppressaceae				
Juniperus sp.				
bark	<1g/N			
scale	+1000/N,52/C	12/N	128/C	8/C
J. osteosperma				
scale			16/C,278/N	
Cyperaceae				
achene				1/C
Fagaceae				
Quercus gambelii				
wood	<1g/N,<4g/C			
Gramineae				
fruit			2/N	
Zea mays				
cupule				
leaf	frg/N	X/N		

Table 4F.10 – Bulk soil sample results, unassigned contexts, LeMoc Shelter – Continued

Family Genus species Plant part	Room 4		Room 6	Pithouse 1
	F 15 (pit) Stratum 1 BS 14	F15 (pit) Stratum 2 BS 15	F12 (hearth) BS 11	F35 (fireplace) BS 8?
Pinaceae				
Pinus sp.				
bark	<1g/N			
stamen	1/N		<1g/C	10.2g/C
wood	1.5g/N			
Pinus edulis				
needle	3/N		1/C	X/C
seed	frg/N			
wood	<1g/N			
Pinus ponderosa				
branch	<1g/N			
needle	X/N	X/N	1/N	
Portulacaceae				
Portulaca sp.				
seed	11/N	12/N	1/C	
Rosaceae				
wood			<1g/C	
Cercocarpus sp.				
wood				<1g/C
Purshia tridentata				
leaf	1/N			
Salicaceae				
twig				0.1g/C
wood	<1g/N, <1g/C		<1g/C	<1g/C
Scrophulariaceae				
fruit	3/N			
Solanaceae				
Nicotiana attenuata				
seed	3/N	2/N		
Physalis sp.				
seed	11/N, 1/C	9/N		
Dicotyledoneae				
spine	1/N			
leaf	X/N			
wood			<1g/C	
Gymnospermae				
bark			<1g/C	<1g/C
wood	<1g/N, <1g/C	<1g/C	<1g/C	<1g/C
Monocotyledoneae				
stem	<1g/N			

#/ - Number present.
x/ - Seed fragments present; no count possible.
g/ - Weight in grams.
/N - Noncharred.
/C - Charred.
BS - Bulk soil sample.
F - Feature.

Table 4F.11 – Vegetal remains, unassigned contexts, LeMoc Shelter*

Family Genus species Plant part				Test trench 2						
	General site and Rooms 1-10	Pithse 1	Occ Area 1 & F129-131	Stratum IV-1	Stratum IV-4	Stratum IV-5	Strat IV-6	Disturbed deposits	Deposits ¾ of Rooms 7 and 8	RDA's and 1 × 1 m grids
Amaranthaceae										
Amaranthus sp.										
seed			3/N							
Cactaceae										
flower	1/N									
spine	1/N									
Opuntia sp.										
spine					1/N					
fruit			2/N							
stem	<1g/N,1.4g/P		38.2g/N		<1g/N			<1g/N		
Opuntia fragilis										
stem			22.5g/N							
Compositae										
Artemisia sp.										
bark	<1g/N									
wood										3.5g/N
Helianthus sp.										
fruit			1/N							
Cucurbitaceae										
pericarp								frg/N		x/N
Cucurbita sp.										
peduncle	1/N									
pericarp	x/N		x/N,x/C			frg/N		x/N		
seed	27/N,frg/P	frg/N	9/N,1/C					4/N		5N,frg/P
Cucurbita pepo										
peduncle										1/N
Cupressaceae										
Juniperus sp.										
bark	1.8g/N		2/N,2.8g					<1g/N		x/N,6.0g/N
scale	1/C									

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Table 4F.11 - Vegetal remains, unassigned contexts, LeMoc Shelter* - Continued

Family Genus species Plant part	General site and Rooms 1-10	Pithse 1	Occ Area 1 & F129-131	Test trench 2 Stratum IV-1	Stratum IV-4	Stratum IV-5	Strat IV-6	Disturbed deposits	Deposits N of Rooms 7 and 8	RDA's and 1 × 1 m grids
seed	2/N									
wood	<1g/N,7.8g/C, 22.3g/P	<1g/C	w/N	<1g/C			1.2g/C	<1g/N		
J. Osteosperma										
seed	5/N		1/N					3/N		
Cyperaceae										
Scirpus sp.										
stem	<1g/N									
Equisetaceae										
Equisetum sp.										
stem	<1g/N		<1g/N							
Fagaceae										
Quercus gambelii										
cupule	7/N	21/N	3/N	6/N	6/N			2/N		12+x/N
fruit	57+x/N	2+x/N	18/N	x/N	2/N					
seed	x/N									
wood	24.6g/N, 2.5g/C		8.5g/N, 1g/C	<1g/C		<1g/C		w/N, <1g/N, <1g/C		w/N,5.4g/N, 8.0g/C
Gramineae										
leaves	x/N		<1g/N							
stem	<1g/N		<1g/N					<1g/N		
Phragmites sp.										
stem	3.2g/N		<1g/N, <1g/P, <1g/C							
Zea mays	4/N,3/C		12/N							
cupule			17/C							
fruit	2.8g/N,2.3g/C		1.1g/N, <1g/P, 4.4g/C							

Table 4F.11 – Vegetal remains, unassigned contexts, LeMoc Shelter* – Continued

Family Genus species Plant part				Test trench 2						
	General site and Rooms 1-10	Pithse 1	Occ Area 1 & F129-131	Stratum IV-1	Stratum IV-4	Stratum IV-5	Strat IV-6	Disturbed deposits	Deposits N of Rooms 7 and 8	RDA's and 1 × 1 m grids
inflor (cob)	107frg/N, 8frg,P, 59frg/C		58frg/N, 8frg/p, 88frg/C					w/N 81frg/N, 1frg/P, 69frg/C		
infructescence										
leaf	1/N							2/N		frg/N
stem	<1g/P,<g/N		<1g/N					<1g/N		
Leguminosae										
Phaseolus sp.										
cotyledon			6/C					1/N		
fruit			frg/N							
seed	1/N,1/C		1/C					8/N		
Liliaceae										
Yucca sp.										
stem					<1g/N					
fruit	1frg/N							1/C,1/N		
leaf	w/N,x/N		w/N,x/N					w/N,x/N		x/N,frg/N
leaf fiber	w/N		w/N					w/N		
seed	17/N				1/N			1/N		2/N
Yucca baccata										
leaf	w/N,4+x/N							x/N		w/N,x/C
pericarp	frg/C		frg/N							
seed	22/N,2/C		26/N					21/N		1/N
Pinaceae										
Pinus sp.										
bark	<1g/N							<1g/N		<1g/N,<1g/C
cone	frg/N		3/N					frg/N		

Table 4F.11 - Vegetal remains, unassigned contexts, LeMoc Shelter* - Continued

Family Genus species Plant part				Test trench 2						
	General site and Rooms 1-10	Pithse 1	Occ Area 1 & F129-131	Stratum IV-1	Stratum IV-4	Stratum IV-5	Strat IV-6	Disturbed deposits	Deposits N of Rooms 7 and 8	RDA's and 1 × 1 m grids
wood	<1g/N,2.0g/P 18.5g/C	<1g/C	<1g/N, 12g/P, <1g/C	<1.1g/N, 257.6g/P		<1g/N	1.1g/C	21/1g/N, <1g/C		w/N,32.5g/NC 41.1g/P, <1g/C
Pinus edulis										
cone								1/N		
needle	w/N		4/N							
seed	50+x/N	10+x/N	44/N	frg/C				33+x/N		30+x/N,x/C
wood	2/N,40.1g/N, 4.6g/P, 12.9g/C			4.4g/C	<1g/N	<1g/N	5.9g/C	10.1g/N, 3.5g/P, 7.5g/C		7.3g/C
Pinus ponderosa										
bark	<1g/N	<1g/N	5.7g/N, <1g/P					324.3g		<1g/N
cone	5/N	1/N		frg/N, frg/P	1/N			frg/N		
seed	46/N			1/N				1/N		
wood	<1g/C		7.3g/N	198.[illegible]g/P						4g/N
needle					1/N					6/N
Rosaceae										
wood	<1g/N		<1g/N							
Amelanchier sp.										
wood			<1g/C							
Cercocarpus sp.										
wood	16.4g/P									<1g/C
Peraphyllum ramosissimum										
wood	<1g/C									
Rutaceae										
Citrus sp.										
seed								2/N		

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Table 4F.11 – Vegetal remains, unassigned contexts, LeMoc Shelter* – Continued

Family Genus species Plant part				Test trench 2						
	General site and Rooms 1-10	Pithse 1	Occ Area 1 & F129-131	Stratum IV-1	Stratum IV-4	Stratum IV-5	Strat IV-6	Disturbed deposits	Deposits N of Rooms 7 and 8	RDA's and 1 × 1 m grids
Salicaceae wood	<1g/N, <1g/C		w/N, 1.5g/N, <1g/P							
Populus sp. wood	w/N, 11.8g/N, <1g/C						w/N			3.5g/N, 3.2g/C
Populus angustifolia bark	<1g/N									
Scophulariaceae fruit			1/N							
Typhaceae *Typha* sp. stem	<1g/N		<1g/N							
Dicotyledoneae bark	<1g/N		<1g/N, <1g/P		<1g/N			1.6g/N, 3.1g/C		2.5g/N
leaf	x/N			frg/N		x/N				
wood	w/N, 1.8g/N, 4.3g/P, <1g/C						w/N			2.8g/N
Gymnosperrnae wood	101.0g/N		w/N, 7.6g/N, <1g/C	11.3g/C, 22.6g/P	w/N	<1g/N		w/N, 3.6g/N 12g/P		5.5g/N

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Table 4F.11 – Vegetal remains, unassigned contexts, LeMoc Shelter* – Continued

Family Genus species Plant part				Test trench 2						
	General site and Rooms 1-10	Pithse 1	Occ Area 1 & F129-131	Stratum IV-1	Stratum IV-4	Stratum IV-5	Strat IV-6	Disturbed deposits	Deposits N of Rooms 7 and 8	RDA's and 1 × 1 m grids
Monocotyledoneae indeterminate plant part									< 1g/N	

*Macrobotanical information was collapsed into gross study unit categories, if the deposits from which material was collected were disturbed.

#/ - Number present.
g/ - Weight in grams.
s/ - Seed fragments present; no count possible.
/N - Noncharred.
/C - Charred.
/P - Partly charred.
w/ - with.
frg - Fragment.
RDA - Recently disturbance area.
Pthse - Pithouse.
Occ Area - Occupation area.
inflor - Inflorescence.
Strat - Stratum.

Unassigned Contexts

The macrobotanical materials from deposits that were not assignable to a particular occupation period are listed in tables 4F.10 and 4F.11. The purpose of presenting this material is to illustrate the full range of diversity in the macrobotanical assemblage from LeMoc Shelter. Except for *Rhus aromatica*, *Juniperus scopulorum*, *Picea pungens*, and *Pseudotsuga menziesii*, all of the genera found within the 5 elements also occur in these mixed deposits, although a greater variety of plant parts and worked vegetable material were recovered from the mixed deposits.

Approximately 75 percent of the vegetal remains from the mixed deposits are noncharred. At LeMoc Shelter, the noncharred remains of cultigens or worked vegetal items are unquestionably associated with the prehistoric occupation of the site, but other types of noncharred remains are not as easily categorized. Some deposits contain potentially intrusive, noncharred genera mixed with charred or noncharred material, such as corn, that is believed to be associated with the prehistoric occupation. An extreme example is the vegetal material from the disturbed deposits: in these deposits, noncharred citrus seeds, obviously intrusive, were recovered with charred wood, cultigens, worked vegetal material, and noncharred oak fruit and juniper bark that may or may not have been introduced into the site after abandonment. Given the disturbed nature of the deposits from which the botanical remains were retrieved, and the lack of temporal assignment, it is considered impractical to attempt to isolate the contaminants from the culturally significant debris without inadvertantly biasing interpretations of subsistence resources and procurement strategies.

Discussion

Given the interpretation that LeMoc Shelter was occupied through time by a range of socioeconomic groups, i.e., subsistence agriculturalists and mobile resource procurement groups, one would expect significant differences in the macrobotanical assemblages from Elements 1, 2, and 3 compared to the assemblages from Elements 4 and 5. A greater variety of cultigens would be expected to occur more frequently and in greater quantities in the earlier occupations. The later 2 occupations would be characterized by a decrease in the frequency of cultigens and possibly by an increase in the frequency of ruderal and/or wild plant resources. In reviewing the results of analysis, an obvious trend or change in the macrobotanical assemblage relevant to subsistence/exploitation patterns is not apparent.

Two factors may have obscured exploitation patterning in the data. Bulk soil samples from deposits associated with Elements 4 and 5 were not analyzed. One purpose of bulk soil sampling is to recover small-scale remains such as the seeds and fruits of ruderal and/or wild plants, which may have been especially important to mobile procurement groups. Since bulk soil samples were not collected from Element 4 and 5 deposits, there is a bias in the data base. Also, the tremendous amount of disturbance to the site limited information retrieval and skewed interpretation of those remains that were recovered. Not only is a high percentage of the vegetal remains from looter's spoil dirt, but deposits associated with the later three elements, and especially Elements 4 and 5, are of questionable cultural significance due to disturbance. Therefore, if a particular genus or plant part was restricted to a specific element of occupation, the indication of cultural preference or specialized procurement strategy would probably be obscured. If the macrobotanical remains that were recovered from nonelement deposits could be assigned to the appropriate element, then a clearer picture of the subsistence regime for each element could be formulated. Because such assignments are not possible, exploitation patterns must be discussed in general terms.

It is assumed that the present-day vegetation zones that have been delineated around LeMoc Shelter (Bye 1982) existed in a fairly similar state during the prehistoric occupation of the site. Therefore, the ubiquitous occurrence of *Pinus* sp., *P. edulis*, *P. ponderosa*, and *Quercus gambelii* in the macrobotanical assemblage indicates a preference for the pinyon-juniper woodland and ponderosa pine-oak forest vegetation zones, at least for fuel and construction resources. Also, many of the small remains recovered are representative of the understory vegetation within these zones: *Chenopodium* sp., *Descurainia* sp., *Opuntia* sp., and *Yucca baccata*. Plants from the upland Douglas-fir/mountain shrubland zone (e.g., *Pseudotsuga menziesii*, *Picea pungens*, *Amelanchier* sp., *Cercocarpus* sp., and *Peraphyllum ramosissimum*) and from the riparian woodland and Douglas-fir/mountain shrubland zones (e.g., *Typha* sp., *Scirpus* sp., *Equisetum* sp., *Phragmites* sp., *Nicotiana attenuata*, and *Populus* sp.) were recovered from LeMoc Shelter as well. However, as demonstrated in table 4F.11, most of the genera from these 2 zones were recovered from nonelement deposits; therefore, any indication of zone-specific exploitation patterns for any particular element are obscured. Nonetheless, since LeMoc Shelter is located in what is assumed to have been a rich biotic resource area, it was expected that a cross section of vegetation zones would be represented in the macrobotanical assemblage.

Remains of the 3 domesticates typically found in Anasazi sites (*Zea mays*, *Cucurbita* sp., *Phaseolus* sp.) were recovered from LeMoc Shelter, although only in Element 5 did any two cultigen types occur simultaneously. Considering that the occupants of the shelter during Elements 1, 2, and 3 are presumed to have been subsistence agriculturalists, it is unusual that remains of beans and squash

were not recovered from these elements. Disturbance, preservation, and collection bias may be partially responsible for this discrepancy. Although arable land is located near the site, the agricultural potential of these soils has not been fully assessed. As Shuster (1981) has pointed out, however, cold air drainage would have been the major limiting factor for agriculture in the valley bottom.

Given a nutritional need and probably a desire for a varied diet, the occupants of LeMoc Shelter hunted game and gathered ruderal and wild plant resources. A review of the ethnobotanical literature for the Greater Southwest (cf. Castetter 1935; Castetter and Bell 1942; Elmore 1944; Harrington 1967; Niethammer 1974; Pennington 1963, 1969; Stevenson 1915; Whiting 1939) shows that all genera in the macrobotanical assemblage from LeMoc Shelter have some sort of economic use attributed to them, although not all are referred to as food resources. Some are cited as being used for construction, ceremonial, craft production, and medicinal purposes. Most of the small-scale remains recovered are from plants commonly used for their greens or fruiting parts: *Amaranthus* sp., *Chenopodium* sp., *Descurainia* sp., *Cleome serrulata*, *Portulaca* sp., and *Yucca baccata*. Other plants, such as *Phragmites*, sp., *Typha* sp., *Scirpus* sp., and *Yucca* sp., are used for matting, basketry, or roofing. Wood charcoal may represent fuel resources or construction materials. Many genera of plants have several different economic parts; for example, *Pinus edulis* has been exploited for its wood, pitch, and nuts. Caution must be exercised when using ethnobotanical information to interpret macrobotanical assemblages. Preparation techniques affect the visibility of remains, and the part recovered is not necessarily the part that was used (Dennell 1976:232).

Several factors have created problems in interpreting the macrobotanical remains from LeMoc Shelter, especially in distinguishing between the remains of plants that were used prehistorically and those that are intrusive. Most of the remains from the deposits not assignable to an element are noncharred materials recovered from disturbed deposits and only rarely from cultural deposits with a high integrity. Some plant remains, such as *Pinus edulis* nuts, *Quercus gambelii* seeds, and cupules and seeds of *Nicotiana attenuata*, were recovered only in a noncharred condition; however, they were usually found in context with charred material. Although these noncharred remains cannot be totally discounted as contaminants, there is limited confidence in their direct prehistoric association. Some of the noncharred plant remains may represent ruderal varieties that thrived in the disturbed habitat of the site area and persisted after abandonment of the site, accidentally becoming incorporated into the site deposits. Others may represent plants that were never associated with the prehistoric occupations but were incorporated into the site through contemporary bioturbative processes. Of course, some of the noncharred remains may be directly indicative of prehistoric exploitation.

In summary, the macrobotanical assemblage from LeMoc Shelter shows that both cultivated and gathered plant resources were used, although the proportions used during each element cannot be assessed. It appears that the pinyon-juniper woodland and ponderosa pine-oak forest vegetation zones were preferred for resource exploitation, while other vegetation zones were of lesser importance. The problems with disturbance, collection bias, and preservation preclude describing subsistence patterns for each occupation period because these factors obscure patterning that may have at one time existed in the macrobotanical assemblage.

APPENDIX 4G

POLLEN REPORT FOR LEMOC SHELTER

Linda J. Scott

LeMoc Shelter (Site 5MT2151) is located on the north side of the Dolores River canyon in Grass Mesa Locality. Two pithouses, a 10-room roomblock, three individual surface structures, and various occupation areas were identified at the site. Five occupations, or elements, spanning the Sagehen, McPhee, and Sundial Phases were identified at LeMoc Shelter. The first 2 elements are believed to have been year-round habitations; the third, a field house; and the fourth and fifth, base camps for the procurement of local resources.

Of the 49 pollen samples collected at LeMoc Shelter, 20 of the highest priority samples were selected for analysis (table 4G.1). The taxa observed in these samples are listed in table 4G.2, the relative frequencies of the taxa are provided in table 4G.3. The large amount of disturbance (the result of recent pothunting) makes paleoenvironmental reconstruction very tenuous. Pollen samples known to be from undisturbed contexts will be noted individually in this discussion.

Sample 2 was taken from a posthole (Feature 21) in Room 10; this posthole contained a mixture of ash and sand. Because much of the floor of this room was fire reddened, the accumulation of the ash might have been coincidental. The pollen sample from this feature yielded a high percentage of arboreal pollen (53.5 percent), comprised primarily of pine pollen (33.2 percent). The nonarboreal pollen percentages from sample 2 are fairly low when compared with samples from sites in the Sagehen Flats area. The frequency of Gramineae pollen (13.1 percent) in sample 2, however, is much larger than that observed in other samples from LeMoc or from any other DAP site previously examined. No economic pollen types were noted in sample 2.

Pollen sample 5 was taken from the floor plaster in Room 6. This sample has much less arboreal pollen than sample 2; however, the cheno-am pollen frequency in sample 5 is 42.0 percent. Since the samples from this site generally contain very low frequencies of cheno-am pollen, it is less likely that its high frequency in this sample is the result of wind transport. Rather, the large amount of cheno-am pollen in sample 5 may indicate that vegetable materials were being stored or prepared. Small amounts of *Cleome* pollen (0.5 percent) and *Zea* pollen (0.5 percent) were also observed in this sample.

Pollen sample 19 was taken from a pit (Feature 81) in Room 11, which is 1 of 3 surface rooms that had not been disturbed by pothunter. This pollen sample has a high frequency of arboreal pollen (52.5 percent) consisting primarily of *Pinus* pollen. Sample 19 is very similar to sample 2 in terms of the frequencies of arboreal and nonarboreal pollen and in terms of the types of nonarboreal pollen noted. The primary difference between samples 2 and 19 is that the latter does not contain a large amount of Gramineae pollen. Also, *Zea* pollen comprises 1.0 percent and *Cleome* pollen 6.8 percent of sample 19. The presence of both *Cleome* and *Zea* pollen in this sample suggests that Feature 81 might have been used in the preparation of food for consumption or for storage.

Pollen sample 11 was taken from the interior of a partial ceramic bowl (vessel 15) found in a pit feature (Feature 72) in Pithouse 1. Although the amount of pollen recovered in this sample was insufficient for a complete analysis, the material was scanned in an effort to ascertain whether or not economic pollen was present in the sample. Evidence of both *Cleome* and *Zea* pollen was noted in this sample, although no frequency estimates were made.

Pollen samples 48 and 49 were taken from a large corrugated jar (vessel 8) found in the fill of Pithouse 1. Sample 48 consisted of a pollen wash from the interior surface of this vessel; sample 49 was taken from jar fill. Both samples yielded an extremely high frequency (81.9 percent and 80.7 percent, respectively) of arboreal pollen. Most of the nonarboreal pollen frequencies from these 2 samples are similar to one another, the exception being that *Zea* pollen makes up 1.9 percent of the pot fill sample, but is absent in the pot wash sample. The pollen evidence from samples 48 and 49 suggests that the vessel was not used in the preparation or serving of vegetal food containing pollen, since the only other economic pollen noted in the samples was *Cleome* pollen (0.5 percent in

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Table 4G.1 – Pollen samples, LeMoc Shelter

Provenience	Comments	Sample No.	Pollen count
Element 1:			
Pithouse 2			
Fill	From possible paint-grinding stone (V)	30	198
Floor 1	East of hearth (Feature 88)(D)	33	100
Floor 1	Beneath inverted metate (PL 151)(J)	34	100
Floor 1	Associated surface at open end of metate (PL 151)(A)	35	98
Floor 1	Associated surface east of metate (PL 152)(D)	36	100
Floor 1	Associated surface between the two metates (PL 151 and PL 152)(D)	38	100
Floor 1	Associated surface north of metate (PL 152)(B)	39	204
Floor 1	Under canine skull, behind west wingwall (Y)	40	72
Feature 88 (hearth)	Stratum 1, north half (F)	41	188
Feature 88	Stratum 3, north half (F)	42	103
Feature 88	Stratum 4, north half (F)	43	201
Feature 96 (warming pit)	Inside wall (W)	44	I
Feature 100 (pit)	(F)	46	I
Element 2:			
Pithouse 1			
Floor 1	(S)	6	I
Feature 72 (pit)	Sample taken from two gray ware bowl sherds (vessel 15)(F)	11	I
Element 3:			
Room 11			
Feature 81 (pit)	Southeast 1/4 of pit (F)	19	103
Element 5:			
Pithouse 1			
Fill	Pollen wash from corrugated jar (vessel 8)(V)	48	221
Fill	Fill from corrugated jar (vessel 8)(V)	49	104
Unassigned contexts:			
Room 10			
Feature 21 (posthole)	(F)	2	99
Room 6			
Floor 1	Floor plaster (S)	5	200

I - Insufficient pollen for analysis.
A - Feature-associated sample from floor south of feature.
B - Feature-associated sample from floor west of feature.
D - Feature-associated sample from floor east of feature.
F - Sample from feature fill.
J - Sample from beneath metate.
S - Sample scraped from floor or bottom of feature.
V - Sample from artifact surface.
W - Sample from feature wall.
Y - Sample from beneath cranium.

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sample 48; 1.0 percent in sample 49). Most of the pollen observed in both the pot-fill and pollen-wash samples was probably derived from deposition after the site was abandoned.

The remainder of the analyzed pollen samples at LeMoc Shelter were taken from Pithouse 2. Pollen sample 30 was taken from a possible paint-grinding stone in the northwest corner of Pithouse 2. This sample yielded a relatively high frequency of arboreal pollen (62.1 percent), composed primarily of *Pinus* pollen. The nonarboreal pollen frequencies within this sample were very small. Possible economic pollen noted within this sample includes *Cleome* pollen (3.5 percent), *Sphaeralcea* pollen (0.5 percent), Umbelliferae pollen (1.0 percent), and *Zea* pollen (2.5 percent). The presence of economic pollen in this sample suggests that this portion of the pithouse might have been used for storing or preparing vegetal materials.

Pollen samples 33, 41, 42, and 43 are associated with the hearth (Feature 88) in Pithouse 2. Pollen sample 33 was taken from the pithouse floor just east of the hearth, and pollen samples 41, 42, and 43 were taken from the first, third, and fourth strata of the hearth, respectively. Strata 1 and 3 apparently consist of sediments that were deposited by natural processes. Interpretations of samples 41 and 42 will be made based on the assumption that they represent postoccupational fill. However, the lowest stratum, represented by pollen sample 43, contains charcoal and ash directly associated with the use of the feature.

Sample 33 contains the smallest amount of arboreal pollen of any of the samples associated with the hearth. It

Table 4G.2 – Pollen taxa observed at LeMoc Shelter

Scientific name	Common name
Arboreal pollen:	
Abies	Fir
Alnus	Alder
Juniperus	Juniper
Picea	Spruce
Pinus	Pine
Quercus	Oak
Salix	Willow
Nonarboreal pollen:	
Chenopodiaceae and *Amaranthus*	Cheno-am: pigweed and members of the goosefoot family
Cleome	Beeweed
Artemisia	Sagebrush
Low-spine Compositae	Members of the sunflower family that include ragweed, burweed, etc.
High-spine Compositae	Members of the sunflower family that include sunflower, aster, daisy, rabbitbrush, snakeweed, etc.
Liguliflorae	Members of the sunflower family that include dandelion, false dandelion, lettuce, etc.
Cruciferae	Mustard family
Cyperaceae	Sedge family
Ephedra nevadensis-type	Mormon tea including Nevada ephedra, green ephedra, etc.
Gramineae	Grass family
Liliaceae	Lily family
Sphaeralcea	Globemallow
Onagraceae	Evening primrose family
Cactaceae	Cactus family
Eriogonum	Buckwheat
Polygonum sawatchense-type	Sawatch knotweed
Rosaceae	Rose family
Umbelliferae	Parsley or carrot family
Cucurbita	Gourd, squash
Zea mays	Maize; corn

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Table 4G.3 – Results of analysis of selected pollen samples, LeMoc Shelter

Taxon	Sample No. 2		5		19		30	
	N	%	N	%	N	%	N	%
Arboreal pollen								
Abies								
Alnus	1	1.0						
Juniperus	10	10.1	16	8.0	5	4.9	18	9.1
Picea								
Pinus	33	33.3	24	12.0	46	44.7	98	49.5
Quercus	9	9.1			3	2.9	6	3.0
Salix							1	0.5
Nonarboreal pollen								
Cheno-am	5	5.1	84	42.0	7	6.8	16	8.1
Cleome			1	0.5	7	6.8	7	3.5
Artemisia	17	17.2	17	8.5	9	8.7	17	8.6
Low-spine Compositae			3	1.5	1	1.0	4	2.0
High-spine Compositae	6	6.1	25	12.5	12	11.7	12	6.1
Liguliflorae			1	0.5				
Cruciferae								
Cyperaceae								
Ephedra nevadensis-type	1	1.0			2	1.9	1	0.5
Gramineae	13	13.1	1	0.5	2	1.9	2	1.0
Liliaceae								
Sphaeralcea							1	0.5
Onagraceae								
Cactaceae			1	0.5				
Eriogonum	1	1.0			1	1.0		
Polygonum sawatchense-type			1	0.5				
Rosaceae							1	0.5
Umbelliferae							2	1.0
Cucurbita								
Zea mays			1	0.5	1	1.0	5	2.5
Indeterminate								
Poorly preserved	3	3.0	25	12.5	7	6.8	7	3.5
Total pollen	99	100.0	200	100.0	103	100.0	198	100.0

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Table 4G.3 – Results of analysis of selected pollen samples, LeMoc Shelter – Continued

Taxon	Sample No.							
	33		34		35		36	
	N	%	N	%	N	%	N	%
Arboreal pollen:								
Abies								
Alnus								
Juniperus	2	2.0	5	5.0	4	4.1	2	2.0
Picea								
Pinus	27	27.0	7	7.0	56	57.1	51	51.0
Quercus	2	2.0	2	2.0	4	4.1	4	4.0
Salix								
Nonarboreal pollen:								
Cheno-am	31	31.0	50	50.0	8	8.2	18	18.0
Cleome			7	7.0	1	1.0	5	5.0
Artemisia	10	10.0	8	8.0	7	7.1	5	5.0
Low-spine Compositae	4	4.0	2	2.0	2	2.0	4	4.0
High-spine Compositae	8	8.0	5	5.0	3	3.1	3	3.0
Liguliflorae								
Cruciferae								
Cyperaceae								
Ephedra nevadensis-type	1	1.0						
Gramineae	3	3.0	1	1.0	2	2.0		
Liliaceae								
Sphaeralcea								
Onagraceae								
Cactaceae								
Eriogonum	1	1.0						
Polygonum sawatchense-type								
Rosaceae					2	2.0		
Umbelliferae					1	1.0		
Cucurbita								
Zea mays	3	3.0						
Indeterminate								
Poorly preserved	8	8.0	13	13.0	8	8.2	8	8.0
Total pollen	100	100.0	100	100.0	98	100.0	100	100.0

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Table 4G.3 – Results of analysis of selected pollen samples, LeMoc Shelter – Continued

Taxon	Sample No.							
	38		39		40		41	
	N	%	N	%	N	%	N	%
Arboreal pollen:								
Abies	1	1.0						
Alnus			1	0.5			2	1.1
Juniperus	3	3.0	20	9.8	8	8.0	2	1.1
Picea			1	0.5			1	0.5
Pinus	17	17.0	102	50.0	19	19.0	59	31.4
Quercus	2	2.0	16	7.8	2	2.0	7	3.7
Salix								
Nonarboreal pollen:								
Cheno-am	29	29.0	16	7.8	10	10.0	9	4.8
Cleome	11	11.0	5	2.5	29	29.0	1	0.5
Artemisia	12	12.0	15	7.4	6	6.0	14	7.4
Low-spine Compositae	3	3.0	6	2.9	2	2.0	3	1.6
High-spine Compositae	9	9.0	4	2.0	4	4.0	50	26.6
Liguliflorae							1	0.5
Cruciferae								
Cyperaceae								
Ephedra nevadensis-type			1	0.5	1	1.0	2	1.1
Gramineae					1	1.0	6	3.2
Liliaceae			2	1.0				
Sphaeralcea								
Onagraceae			1	0.5				
Cactaceae								
Eriogonum	1	1.0	2	1.0				
Polygonum sawatchense-type								
Rosaceae			1	0.5				
Umbelliferae							3	1.6
Cucurbita								
Zea mays			1	0.5	2	2.0	15	8.0
Indeterminate								
Poorly preserved	12	12.0	10	4.9	16	16.0	13	6.9
Total pollen	100	100.0	204	100.0	100	100.0	188	100.0

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Table 4G.3 – Results of analysis of selected pollen samples, LeMoc Shelter – Continued

Taxon	Sample No. 42 N	42 %	43 N	43 %	48 N	48 %	49 N	49 %
Arboreal pollen:								
Abies								
Alnus								
Juniperus			7	3.5	26	11.8	12	11.5
Picea								
Pinus	69	67.0	109	54.0	136	61.5	51	49.0
Quercus	1	1.0	3	1.5	19	8.6	21	20.2
Salix								
Nonarboreal pollen:								
Cheno-am	1	1.0	9	4.5	12	5.4	2	1.9
Cleome			11	5.4	1	0.5	1	1.0
Artemisia	8	7.8	11	5.4	7	3.2	2	1.9
Low-spine Compositae	2	1.9	8	4.0	5	2.3		
High-spine Compositae	6	5.8	3	1.5	8	3.6	2	1.9
Liguliflorae			1	0.5				
Cruciferae			1	0.5				
Cyperaceae			1	0.5				
Ephedra nevadensis-type			1	0.5				
Gramineae	1	1.0	6	3.0	4	1.8	6	5.8
Liliaceae								
Sphaeralcea								
Onagraceae								
Cactaceae								
Eriogonum					1	0.5		
Polygonum sawatchense-type								
Rosaceae			1	0.5			1	1.0
Umbelliferae			14	6.9				
Cucurbita			2	1.0				
Zea mays	6	5.8	8	4.0			2	1.9
Indeterminate								
Poorly preserved	9	8.7	6	3.0	2	0.9	4	3.8
Total pollen	103	100.0	202	100.0	221	100.0	104	100.0

Only those samples that yielded adequate pollen counts are reported here.

does, however, exhibit a high frequency of cheno-am pollen (31.0 percent) and some *Zea* pollen (3.0 percent). The large amount of cheno-am pollen in this sample is probably of economic significance, as most of the samples from this site contain less than 10 percent cheno-am pollen.

Sample 43 was taken from the lowest stratum of the hearth fill, which contained charcoal and ash. This sample has a relatively high frequency of arboreal pollen, and it contains the only evidence of Cyperaceae pollen from this study. *Zea* pollen was noted as 4.0 percent, *Cleome* pollen as 5.5 percent, and Umbelliferae pollen as 7.0 percent of the total pollen. Several clumps of Umbelliferae pollen were noted in this sample, which would probably occur only if a flower (or whole plant) had been deposited in the hearth. The presence of *Zea*, *Cleome*, and Umbelliferae pollen in this sample may indicate that *Zea*, *Cleome*, and Umbelliferae were cooked in this hearth.

[illegible]llen samples 41 and 42 from the upper fill of the hearth also contain evidence of economic pollen. Sample 42, from Stratum 3, directly above the charcoal and ash sample, contains more arboreal pollen than sample 43. *Zea* pollen constitutes 5.8 percent of the total pollen from this sample. Sample 41, from the uppermost stratum, contains less arboreal pollen than either of the other samples and also contains *Cleome* (0.5 percent), Umbelliferae (1.6 percent), and *Zea* (8.0 percent) pollen. The presence of the economic pollen types in these postoccupational deposits in the hearth is probably indicative of their presence in the soil that washed into the hearth after abandonment of the pithouse.

Pollen samples 34 through 39 were taken in association with 2 metates (PL's 151 and 152) in Pithouse 2. Sample 34 was taken from beneath the large, inverted metate (PL 151), and sample 35 was taken from the open end of the same metate. Sample 38 was taken from the associated surface between the 2 metates, and sample 39 was taken from the associated surface to the north of the smaller metate (PL 152).

Pollen sample 34 contains a relatively small amount of arboreal pollen. The frequency of cheno-am pollen (50.0 percent) is much higher than that observed in any of the other samples associated with the 2 metates. It also contains *Cleome* pollen (7.0 percent), but it did not yield *Zea* pollen. This metate may have been used to grind cheno-am and *Cleome* seeds.

Sample 35 was expected to yield pollen frequencies similar to those for sample 34 because vegetal remains processed on a metate might be expected to fall off the open end of the trough. The frequencies for these 2 samples, however, differ radically. Pollen sample 35, taken from the open end of the large metate (PL 151) contains a high frequency of arboreal pollen (65.3 percent), comprised primarily of *Pinus* pollen (57.1 percent). The frequency of cheno-am pollen in this sample is very low compared to that in the sample taken from beneath the inverted metate. Furthermore, sample 35 contains 1.0 percent *Cleome* pollen, while this particular pollen type constitutes 7.0 percent of sample 34.

The pollen sample taken from the associated surface between the 2 metates (sample 38) more closely resembles the pollen sample taken from beneath the inverted metate. However, it does contain a slightly higher frequency of arboreal pollen and a smaller frequency of cheno-am pollen (29.0 percent) than does the sample beneath the inverted metate. Sample 38 also contains 11.0 percent *Cleome* pollen.

The 2 samples (samples 36 and 39) taken from the floor east and north of the smaller metate (PL 152) yielded high frequencies of arboreal pollen similar to that noted at the open end of the large metate. Again, most of the nonarboreal pollen frequencies are relatively low. *Zea* pollen was noted as only 0.5 percent of the pollen taken from the north of the smaller metate (sample 39). The samples taken from the open ends of the large metate and from the north and east of the smaller metate are very similar to other samples taken in this pitstructure and probably represent ambient pollen. Only samples 34 and 38 differ significantly from other pollen samples from this pitstructure. Pollen sample 34 contains large quantities of cheno-am pollen and a moderate amount of *Cleome* pollen, suggesting that both cheno-am and *Cleome* seeds might have been ground on the associated metate. This supposition is supported by the higher frequencies of cheno-am and *Cleome* pollen found in most of the samples associated with the metates.

Pollen sample 40 was taken from beneath a canine skull (PL 172) located behind the west wingwall in Pithouse 2. This pollen sample contains a relatively small amount of arboreal pollen and typical amounts of most of the nonarboreal pollen types. The only exception is the very large frequency of *Cleome* pollen observed (29.0 percent). *Zea* pollen was also noted (2.8 percent). It is possible that the *Cleome* was used in association with the burial; however, it is more probable that the *Cleome* and *Zea* pollen were deposited in the area during food preparation or storage, making the association of these economic types with the canine remains incidental.

The pollen record from this site indicates that the prehistoric environment of LeMoc Shelter contained the following plants, some of which might have been exploited by the inhabitants of the shelter: *Alnus*, *Juniperus*, *Pinus*, *Quercus*, *Salix*, low-spined Compositae, *Artemisia*, high-spined Compositae, cheno-am, *Cleome*, Cruciferae, Cyperaceae, and Umbelliferae. *Zea* pollen is noted consistently in the samples from LeMoc Shelter in frequencies varying from 0.5 percent to 8.0 percent. In addition to the cultigen *Zea*, cheno-am, *Cleome*, and Umbelliferae pollen appear to have been used at the site. High frequencies of cheno-am pollen were noted in Room 6 and in the vicinity of 2 in situ metates. The concentration of cheno-am pollen in these locations is probably indicative of food preparation and possibly of storage of cheno-am at this site. The largest quantity of *Cleome* pollen was noted in the sample taken from beneath the canine cranium behind the west wingwall in Pithouse 2. In Pithouse 2, moderate amounts of *Cleome* pollen were noted in the lowest stratum of the hearth, under the large, overturned metate, between the 2 metates, and to the east of the smaller metate. A moderate amount of *Cleome* was also noted in the sample from Room 11. The presence of *Cleome* pollen in these contexts is probably indicative of the preparation or cooking of *Cleome* in each of the proveniences. Umbelliferae pollen was noted in the sample from the lowest stratum of the hearth in Pithouse 2 and probably indicates that Umbelliferae was either cooked or prepared near the hearth.

Chapter 5

EXCAVATIONS AT PRINCE HAMLET (SITE 5MT2161), A PUEBLO I HABITATION SITE

ABSTRACT

Prince Hamlet, Site 5MT2161, is a Pueblo I habitation site that was investigated by the Dolores Archaeological Program during the 1979 and 1980 field seasons. Evidence of 3 separate periods of occupation was encountered. The first occupation appears to have begun sometime after A.D. 720 and to have ended prior to A.D. 840. The exact nature and areal extent of this occupation is uncertain, but it definitely included at least 1 substantial surface structure and probably 1 pitstructure. The second occupation, which is believed to have taken place sometime between A.D. 840 and 900, was marked by the construction of a large, double-row roomblock and two large, masonry-lined pithouses. The third occupation of the site appears to have been quite brief and was localized in and around the partially filled depression of one of the pitstructures. This use of the site, which is represented by a cluster of late ceramics that may be associated with the remains of a temporary shelter, is believed to have occurred sometime during the A.D. 1050-1200 time period.

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I would like to thank several people: Don Howes, for providing able assistance in the field and for making written contributions to this report, including most of the Pithouse 1 discussion; Ed Huber for cheerfully accepting considerable responsibility beyond what was required and doing an outstanding job; Patrick Hogan, the 1979 crew chief at Prince Hamlet, for his advice, assistance, patience, and encouragement during fieldwork and later report writing; and Al Kane of the Dolores Archaeological Program, for providing comments and suggestions on the draft of this report.

Most of all, I want to thank my 1980 field crew. They moved Herculean quantities of dirt under impossible time pressures and maintained their good humor despite heat, cold, rain, mud, dust, roots, rocks, and gnats. You folks are the best.

Do not for ever with thy vailed lids
Seek for thy noble father in the dust.
Thou know'st 'tis common. All that lives must die,
Passing through nature to eternity.
Hamlet (I, ii, 70-73)

Chapter 5

EXCAVATIONS AT PRINCE HAMLET (SITE 5MT2161), A PUEBLO I HABITATION SITE

by Lynne Sebastian with contributions by Donald Howes

INTRODUCTION

Prince Hamlet (Site 5MT2161), a multicomponent Anasazi habitation site, is located in the Dolores River canyon, approximately 12.6 km northwest of the town of Dolores in southwestern Colorado. The site is in the proposed pool area of the McPhee Reservoir, a major construction feature of the Bureau of Reclamation's Dolores Project. Prince Hamlet is located in the NW 1/4 of the SE 1/4 of sec. 1, T38N, R15W (U.S. Geological Survey 1965 7.5' Trimble Point Quadrangle). The Universal Transverse Mercator grid coordinates for the site are 4,161,700 mN, 714,830 mE, zone 12.

Test excavations at Prince Hamlet were conducted in 1979 and 1980 by Washington State University and Youth Conservation Corps crews under the auspices of the DAP (Dolores Archaeological Program). In addition to the author, the 1979 crew members were Richard Beatty, Harley Crane, Jack Elliss, Randy Harper, Jean Hudson, Carrie Lipe, Terry Sampson-Brown, and Linda Wheelbarger, all of Washington State University; Barney Carter and Anthony Quintana were Youth Conservation Corps employees. The 1980 crew was comprised of Kate Aasen, Tim Gross, Betty Havers, George Havers, Don Howes, Ed Huber, Carrie Lipe, Peter Robinson, Mike Samuels, and Lynn Foburen, all Washington State University employees. University field school students Nancy Aker, Mark Cravalho, Royal Kopperud, Ruth Lambert, Chris O'Brien-Darby, Paul Slayton, and Carol Thompson also participated in the 1980 excavations. Patrick Hogan and the author, both of Washington State University, supervised the investigations at Prince Hamlet during 1979 and 1980, respectively.

Evidence for at least 2 and possibly 3 occupations was encountered at Prince Hamlet. The first major occupation, or "element," is represented by an isolated surface room that may have been associated with an early pithouse; a second element is represented by a double-row roomblock with 2 associated pithouses. A cluster of ceramics that dates to the post-A.D. 900 time period was recovered from the fill of one of the pithouses and may represent a third, ephemeral use of the site, termed an "episode." On the basis of ceramic evidence, the first element is believed to date sometime between A.D. 720 and 840; this element is assigned to the Sagehill and Dos Casas Subphases (A.D. 700-780 and A.D. 760-850, respectively) of the Sagehen Phase, according to DAP temporal systematics (Kane 1981). The second element is believed to date to sometime between A.D. 840 and 900; this element is assigned to the Periman Subphase (A.D. 850-975) of the McPhee Phase. Both of these occupations date to the Pueblo I period of the Pecos classification. The possible brief episode of use represented by the sherd cluster probably occurred sometime during the Sundial Phase (A.D. 1050-1200), or during Pueblo III times.

Site Setting

Prince Hamlet is situated north of the Dolores River at an elevation of 2048 m above sea level (fig 5.1). Located near the geographical center of the Grass Mesa Locality, the site is slightly more than 1 km downstream from Grass Mesa Village (5MT23). Although several sites in the locality have been extensively surface collected by the DAP, the only other excavated or tested sites in the immediate vicinity are LeMoc Shelter (5MT2151), Calmate Shelter (5MT4651), and Hanging Rock Hamlet (5MT4650). Site 5MT2169, a habitation site that has not been excavated, is located approximately 100 m upstream from Prince Hamlet. (See Chapter 3 – Ed.)

Geology

Prince Hamlet is situated on an old river terrace at the base of a colluvial slope, approximately 10 to 20 m above the current flood plain. The main portion of the site is bordered on the east and west by small drainages that are 45 to 50 m apart (fig. 5.1). The southern boundary of the site was lost to road construction prior to the recording of the site in 1972. Given the steepness of the

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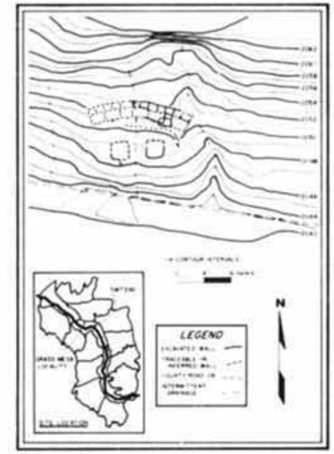

Figure 5.1 – Topographic map of Prince Hamlet

slope south of the road and the shallowness of the deposits seen in excavation units adjacent to the road cut, the site did not likely extend south much beyond its current point of truncation. The northern boundary of the site is uncertain, but it does not extend beyond a nearly vertical, 11-m-high outcrop of Junction Creek Sandstone located 42 m north of the road. The top of this escarpment is at the same elevation as Grass Mesa, suggesting it may be a small remnant of a second, older river terrace. However, since lag gravels characteristic of the river terraces in the project area do not occur atop this escarpment, it is equally likely that this "terrace" is the result of some localized variation in the resistance of the bedrock. Whatever the cause of this escarpment, the colluvial slope below it is gentler in grade than is usual in this part of the Dolores River canyon. In this flatter area, which extends approximately 50 to 75 m upstream and downstream from the site, a pattern of small, channeled drainages, rather than the sheet runoff that is typical of most of the canyon walls, has developed.

Although the slope is less steep here than in other nearby parts of the canyon, the site area is by no means flat (fig. 5.2). Within 12 m of the road cut, the terrain of the site is quite level (roughly a 5° slope) due to the presence of the 2 large pitstructures. The slope steepens appreciably to between 10° and 12°, however, in the vicinity of the roomblock rubble mound. Beyond the roomblock, and extending to the sandstone cliff, the natural hill slope is about 15° to 20°. The steepness of this slope has resulted in so much erosion of the roomblock and filling of the pitstructure area that it, in conjunction with the drainage pattern, is probably the major force that shaped the present topography of the site.

In addition to the 2 drainages that border the site on the east and west, a third minor drainage, an ephemeral rill, originates as a waterfall at a low spot in the sandstone cliff north of the site and runs through the approximate center of the hamlet. The major effects of this drainage have been increased damage to the 2 surface rooms (Rooms 1 and 2) through which it runs and accelerated downslope movement of surface artifacts along its course. Undoubtedly this drainage also accelerated the filling of the 2 pitstructures once the roofs had collapsed. The fill of both structures was laminated and showed other evidence of having been water-deposited.

The colluvial sediments at Prince Hamlet consist of loamy sands and sandy loams that show some evidence of soil development. The deposits underlying the river terrace are undoubtedly alluvial, but the colluvium in the vicinity of the site is so thick that no alluvial materials were noted even in the deepest excavations. A more detailed discussion of the geology and soils of the project area is presented in Leonhardy and Clay (1982).

Vegetation

The groups that inhabited Prince Hamlet probably were in an advantageous location in relation to plant resources (refer to Bye [1982] for a discussion of the vegetation of the project area). The depth and steepness of the canyon made a large number of different resources available within a very small radius of the site. Five major vegetation belts occur on the north slope of the canyon immediately above and below the site: a cottonwood/willow belt along the flood plain; an oak zone on the river terrace; a pinyon/juniper woodland interspersed with thickets of scrub oak (*Quercus gambelii*) and serviceberry (*Amelanchier* spp.) and open patches of yucca (*Yucca* spp.) and pricklypear (*Opuntia* spp.) on the slopes; a mountain shrubland dominated by scrub oak, serviceberry, and true mountain mahogany (*Cercocarpus montanus*) on the upper slopes; and, near the rim and on the plateau above the canyon, an area dominated by ponderosa pine (*Pinus ponderosa*) and groves of mountain shrubs, with highland meadow plant communities in open areas and stands of quaking aspen (*Populus tremuloides*) in sheltered locations.

Plant species observed within the limits of the site during the 1980 field season included the following: Utah junip-

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Figure 5.2 - View of Prince Hamlet, early in the investigation, looking east (DAP 009823)

er (*Juniperus osteosperma*), pinyon pine (*Pinus edulis*), scrub oak (*Quercus gambelii*), squawbush (*Rhus aromatica* ssp. *trilobata*), snowberry (*Symphoricarpos* sp.), holly grape (*Mahonia repens*), cheatgrass brome (*Bromus tectorum*), yellow sweetclover (*Melilotus officinalis*), penstemon (*Penstemon* spp.), beardlip penstemon (*Penstemon barbatus* ssp. *trichander*), and baldheaded gilia (*Ipomopsis* sp.).

Abrupt shifts in elevation in the vicinity of the site would have ensured considerable prehistoric floral diversity. On the other hand, this very diversity would imply a limited amount of any one resource near at hand. The steepness and narrowness of the canyon near the site and the effects of cold air drainage at this location would have made flood plain agriculture a high-risk strategy. If the climate were similar to that of today, the groups occupying the hamlet probably buffered this risk with both social networks and backup subsistence strategies such as hunting and gathering, or they may have located their agricultural fields at a higher elevation. The potential floral diversity in this part of the canyon would make possible a generalized collecting strategy, one in which many species rather than a few abundant species could be used.

Agricultural Potential

The question of what land in the project area was under cultivation aboriginally is not addressed in the DAP research design (Kane et al. 1981), and may be a question that is unanswerable archaeologically, given the current state of the art. Even the question of what potential agricultural land was available to the aboriginal inhabitants of Prince Hamlet is difficult to answer without a more thorough knowledge of the recent history of the Dolores River than is currently available.

The modern flood plain is approximately 0.25 km wide. An old meander channel indicates that the river once ran along the south edge of the valley at this point rather than along the north edge as it does today. When this south to north shift of the river channel occurred is not known, nor whether this shift effected a widening of the flood plain. In addition, what types of land other than the flood plain were used for agriculture is not known. As a result, a determination of the amount of arable land that was available to the inhabitants of Prince Hamlet is not possible. (Refer to chapter 2 for a discussion of the agricultural potential of soils in Grass Mesa Locality.)

Apparently at least some occupations at LeMoc Shelter and Hanging Rock Hamlet were contemporaneous with the occupation of Prince Hamlet, therefore, several socioeconomic units would have been dependent on the local arable land.

In the absence of more detailed information about the location and configuration of the prehistoric flood plain, assessing either the potential of the plain for agriculture or the possible importance of slope-side farming techniques is difficult.

Fauna

Even today, the area of the Dolores River canyon near Prince Hamlet is rich in fauna. Mule deer (*Odocoileus hemionus*), cottontail (*Sylvilagus* spp.), and squirrel and chipmunk (Sciuridae) were observed almost daily; coyote (*Canis latrans*), porcupine (*Erethizon dorsatum*), and skunk (*Mephitis mephitis* and *Spilogale putorius*) are common as well. Numerous bird species - mostly raptors and scavengers (Falconiformes) and songbirds (Passeriformes) - occur in the area, while blue grouse (*Dendragapus obscurus*) dove (*Zenaida macroura*), and other game species are found nearby. Several species of snake, including western rattlesnake (*Crotalus viridis*) and kingsnake (*Lampropeltis* spp.), appeared on the site with alarming frequency. Refer to Emslie (1982) for a more comprehensive discussion of the fauna of the project area.

The potential contributions of the Dolores River itself to prehistoric subsistence probably have been underemphasized. Today, the Dolores River is nearly dry in the summer due to the demand for irrigation water; it is impossible to estimate the productivity in fish, plants, and waterfowl of the free-flowing prehistoric river. Since no studies of the productive potential of the prehistoric Dolores River or of archaeological evidence for actual use of riverine resources have been undertaken, estimating the impact that irrigation diversion, modern agriculture, mining, and other historic activities may have had on this resource is difficult.

Site Condition

Site 5MT2161 was first recorded by the Dolores River Project Survey on 17 September 1972. It was believed to date to the Basketmaker III-Pueblo I period on the basis of masonry walls that were visible in looters' pits and the presence of Moccasin Gray, Mancos Gray, Chapin Black-on-white, and Abajo Red-on-orange ceramics.

Given its proximity to the road, Prince Hamlet had been subjected to surprisingly little vandalism. Looter's pits in 3 surface rooms near the east end of the roomblock and some evidence of digging near the west end had occurred, but the damage was not great. No walls had been destroyed, and most of the holes did not penetrate to floor level. The entire central section of the roomblock appeared undisturbed, and the pithouses had been protected from vandalism by the deep deposits of slope wash material that effectively masked all surface traces of their existence.

The greatest damage to the site had been caused by the construction of County Road 28. Exactly how much of the site midden was lost to the cut and filling process is unknown, but it seems likely that the midden extended no more than 4 m south of its current point of truncation.

Investigative Strategy

Research Objectives

Prince Hamlet was chosen for testing in 1979 because it was expected to yield important information regarding artifact assemblages and architectural patterning at small late Sagehen/early McPhee Phase habitations in Grass Mesa Locality. This was considered especially important because at that time the only other sites under excavation in the locality were LeMoc Shelter and Grass Mesa Village. At LeMoc Shelter, the occupation contemporaneous with Prince Hamlet was probably patterned in atypical ways by the spatial constraints of the rock shelter, and its remains were altered in various ways as the result of subsequent occupations. Grass Mesa Village, since it was a community center rather than a single hamlet, could not yield information on typical small site structure and activities.

In the design of the 1979 testing operation at Prince Hamlet, first priority was given to completion of the probability sample so that direct comparisons could be made with hamlets in other localities and with hamlets representative of other time periods. The next priority was to date the occupations of the site. Third priority was given to generating data on the internal organization of a Grass Mesa Locality hamlet.

Obviously, these priorities conflicted to some degree, and the excavation strategy employed during the 1979 season was a compromise among them due to the inevitable constraints of time, money, and personnel. Completion of the probability sample entailed a large labor investment in areas unlikely to supply the types of data required to satisfy the other priorities. For example, chronological placement would have required an emphasis on pitstructure excavation, since these structures have the greatest potential for yielding tree-ring and archaeomagnetic samples. The identification of activity areas to provide data on internal organization would have required that effort be divided among surface structures, pitstructures, and potential exterior use areas. The balancing of these conflicting requirements resulted in the sampling techniques described in the "Investigative Methods" section that follows.

On the basis of the 1979 test excavations, it was decided that the site warranted further investigation in 1980. During that year, additional investigation of the midden was undertaken to determine its extent and characteristics, and to provide data about the adaptation of apparently agricultural people to this steep, narrow section of the Dolores River canyon. Additional excavation in the pitstructures was directed toward determining the occupation sequences and functions of these structures.

The presence of surface living rooms at the site and the unusual use of masonry in the pitstructures cast some doubt as to whether the latter were simple, domestic pithouses or whether they incorporated integrative activities usually associated with kivas. If the pitstructures were not simple, domestic structures, it was hoped that the site might provide information on the process of the pithouse-to-kiva transition. Finally, additional investigation of several surface rooms that constituted an "apartment" was undertaken to address questions concerning the size and function of the rooms and concerning the construction and occupation sequence for the surface structures. In addition, plans were made to delineate the walls in the unexcavated portions of the roomblock in an effort to determine its exact size and the sequence of construction. Thus, by the end of the 1980 season, work was conducted at a "Track 1" level of investigation, as outlined in the DAP mitigation design (Knudson et al. 1981).

Investigative Methods

At the beginning of the 1979 season, Prince Hamlet was cleared of vegetation, topographically mapped (fig. 5.1), gridded into 4-m squares, and subjected to an intensive surface collection. A 5-percent, stratified random sample of 2-m squares was chosen, and all of these squares were excavated in the manner prescribed for probability samples. An approximate 4- by 8-m excavation unit (excavation unit 1) was laid out in the roomblock area to connect 2 of the probability squares and to provide an exposure large enough to delimit partial roomblock boundaries. The 2 probability squares that proved to be inside of pitstructures were expanded as excavation units 2 and 3 to define the dimensions of the structures. Finally, a backhoe was used to cut a trench (excavation unit 4) in the vicinity of the road cut so that the extent of the midden could be assessed and the amount of midden that had been lost to road construction could be estimated. The major units of excavation at Prince Hamlet are shown in figure 5.3.

During the 1980 season, additional excavations were carried out in accordance with the research goals. An additional 2- by 2-m square (70S/76E) was excavated in the midden, midway between the 2 probability squares dug in 1979 (squares 68S/84E and 74S/72E). Approximately half of each of the pitstructures was excavated, and excavation was completed on the 3-room surface apartment that was investigated initially in 1979 (Rooms 1, 2, and 3). Part or all of 4 other surface rooms (4, 5, 7, and 8) were explored also, and walls were delineated in the unexcavated portion of the roomblock. The configuration of the site as known at the end of the 1980 field season, is shown in figure 5.4.

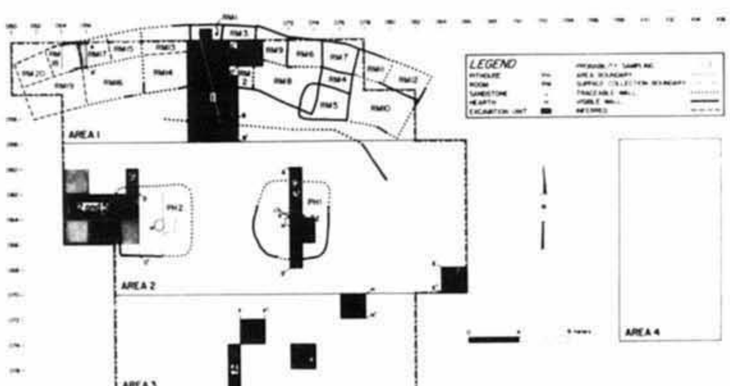

Figure 5.3 - Site sampling plan, Prince Hamlet. "Traceable" wall lines were extrapolated from known wall lines. Profiles A, B, C, D, E, F, G, and H are shown in figures 5.7, 5.8, 5.9, 5.10, 5.11, 5.12, 5.27, and 5.43, respectively (DAP 140001).

SURFACE EVIDENCE

Surface Artifact Collection

The large quantities of igneous cobbles present in both surface and subsurface contexts at Prince Hamlet rendered the site unsuitable for magnetometer survey. The quantity of surface rock, the amount of slope wash, and the heavy vegetation had obliterated most surface clues as to the nature and location of subsurface structures at the site. Although the approximate location of the roomblock was apparent from the quantity of rubble, its exact location was impossible to pinpoint because much of the rubble had been displaced downslope, the location and size of the pitstructures were masked by slope wash material. An intensive surface collection was conducted, and density maps were generated for the purpose of dividing the site into sampling strata on the basis of surface cultural remains.

The site was divided into 4- by 4-m squares from which all surface artifacts were recovered. All ceramic, bone, flaked lithic, and nonflaked lithic items were collected; building stone was counted, weighed, and then discarded. The percent of the square covered by vegetation and the percent of the square that had been disturbed prior to collection (for example, by pothunting or equipment moving) were estimated and recorded also. Artifact and building stone densities are shown in figures 5.5 and 5.6.

The results of the surface artifact collection were used to divide the site into 4 study areas, 3 of which served as sampling strata for the probability sample. Area 1 consisted of the roomblock and was defined largely on the basis of building stone density. Initially, there was some concern that the downslope movement of noncultural stone might have obscured the surface distribution of

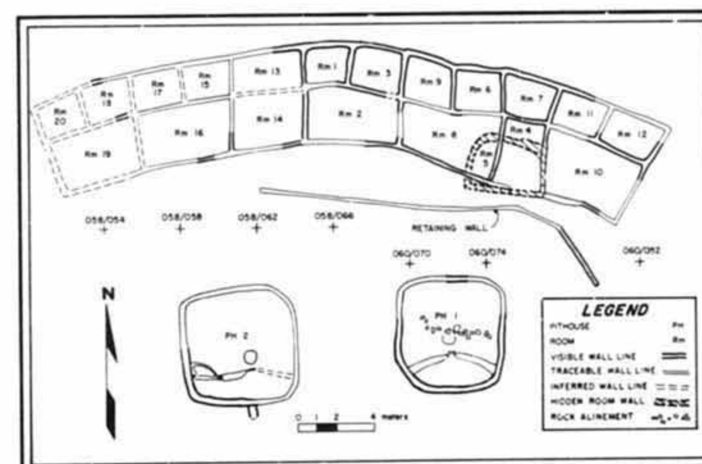

Figure 5.4 - Spatial relationships of major cultural units, Prince Hamlet. "Traceable" wall lines were extrapolated from known wall lines.

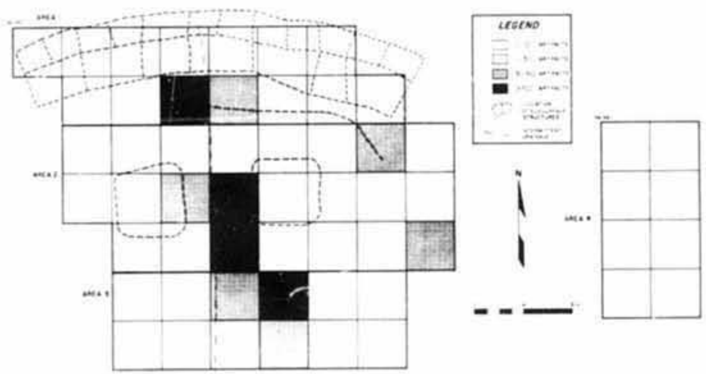

Figure 5.5 – Surface distribution of artifacts, Prince Hamlet

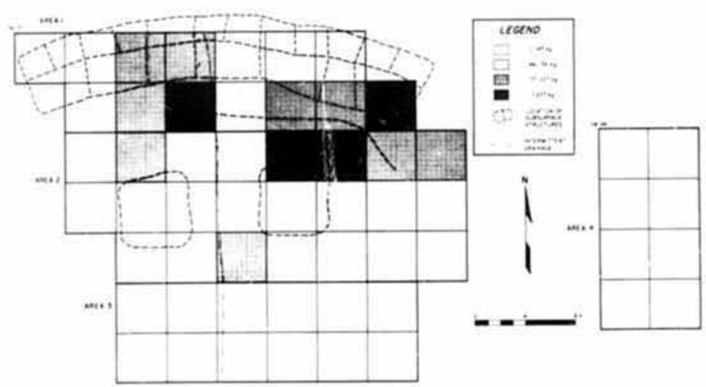

Figure 5.6 – Surface distribution of building stone, by weight, Prince Hamlet

building stone, but the rubble that marked the roomblock proved to be quite distinct from the "noise" of naturally occurring stone. Although the roomblock was approximately where expected, excavation in Area 1 demonstrated that the effect of downslope movement had been to displace the entire rubble mound some 3 to 4 m downslope from the actual location of the rooms. Thus, the front row of rooms and area just in front of the roomblock were under the rubble mound, while the back row of rooms was uphill from it.

Area 2 was identified as the pitstructure and open work area of the site largely on the basis of site topography, i.e., a noticeable flattening of the terrain. In this particular case, the surface artifact distribution was somewhat misleading in predicting the location of subsurface remains. As can be seen in figure 5.5, artifact density markedly increases in Area 2. Typically, the locations of pitstructures and open work areas, or plazas, are identified on the basis of a scarcity of artifacts on modern ground surface; that downslope movement of artifacts from the roomblock might have resulted in the observed concentration at Prince Hamlet.

Area 3 was identified as the midden on the basis of the materials visible in the road cut and on the basis of the position of the area relative to the rest of the site. The boundary between it and Area 2 was defined on the basis of an increase in slope angle. The surface artifacts from Area 3 were not collected at the beginning of the 1979 field season for 2 reasons: the subsurface deposits in this area were already visible in the road cut, and the scrub oak would have to have been removed to perform an intensive surface collection. The brush screen was left in place because it was hoped that the privacy thereby afforded would protect the site from vandalism during the field season. When it became clear that the site would most likely be reopened in 1980, the artifacts on modern ground surface in Area 3 were collected while leaving the brush in place to conceal the site during the winter. The surface collection in this area was somewhat sketchy due to the extreme steepness of the slope and to the heavy brush and leaf litter cover. The artifact densities for Area 3 are mapped in figure 5.5; no building stone was noted in this area.

A fourth study area east of the eastern drainage at the site was defined for the surface artifact collection but was not included in the probability sample because, on the basis of field examination, the cultural remains were believed confined to the modern ground surface. Most of the few artifacts from Area 4 (fig. 5.5) were flaked lithic items, suggesting that an aboriginal lithic workshop existed somewhere in or near the area. The steepness of the slope, the large amount of slope wash, and the sparse, widely scattered distrib[illegible] indicate they were probably not in situ remains of a[illegible] working.

The materials recovered in the surface artifact collection are tallied, by area, in tables 5.1 through 5.4. Given the small number of items involved, any interpretations based on these data are tentative. Comparison between areas in terms of the items recovered within each material culture type suggests a general similarity between areas; e.g., the same types of ceramics are found in roughly the same percentages in all 4 areas. Indeed, there is no variability within any material culture category that cannot be accounted for by the small sample size. However, differences do exist among the areas in absolute frequencies of artifacts and in relative percentages of the 4 classes of material culture (ceramics, nonflaked lithic tools, flaked lithic tools, and flaked lithic debitage) that warrant discussion.

More artifacts were recovered from the surface in Area 2 than from the surface in any other area. This is partly a function of the greater size of Area 2 but also appears to be the result of postabandonment processes. Area 1 is located on a relatively steep slope that breaks and levels out towards the south (Area 2). One of the artifact concentrations in Area 2 occurs at this break in the slope; presumably, many of the artifacts in this concentration were originally deposited in Area 1, and their redeposition in Area 2 was a postoccupational event. The relative paucity of artifacts in Area 3, which at first seems surprising since this area has been interpreted as midden, is probably more apparent than real. The steep slope and the extremely heavy brush and leaf litter cover – many squares were recorded as having 100 percent vegetation cover – greatly reduced the effectiveness of the surface collection in Area 3 and undoubtedly affected the recovery rate, especially for small items such as flakes.

The relative percentages of various artifact classes in the surface collection are tallied, by area, in table 5.5. The 2 interesting figures are the preponderance of ceramics in Area 1 and the abundance of debitage in Area 4. The debitage in Area 4 is believed to be lithic detritus that washed in from upslope; both the relative abundance of debitage and the unusually large percentage of flakes that exhibit cortex on their dorsal surfaces (approximately 56 percent as opposed to approximately 38 percent in Areas 1 through 3; refer to table 5.3) support the interpretation that flaked lithic tool manufacture was conducted somewhere in or upslope from Area 4.

As for the high percentage of ceramics in Area 1, 2 explanations can be suggested. The surface collection may reflect the patterns of deposition at the site and relatively greater numbers of ceramic sherds were deposited in Area 1 than in the other areas of the site. Alternatively, it is possible that the ceramics in Area 1 were not as subject to downslope movement as were other artifacts and, therefore, are overrepresented relative to the other artifact classes on the surface in Area 1. A third possibility is that

Table 5.1 - Ceramic data summary, surface collection, Prince Hamlet

Culture category: Ware Type	Area 1			Area 2			Area 3			Area 4			Site total		
	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt
Mesa Verde:															
Gray ware															
Chapin Gray	4	10.2	1.0	8	41.9	2.6	3	73.5	5.1	0	0	0	15	125.6	3.0
Moccasin Gray	28	170.5	16.7	32	142.5	9.0	3	159.3	11.1	1	5.0	4.4	64	477.3	11.5
Mancos Gray	1	2.0	0.2	2	6.0	0.4	1	7.0	0.5	1	14.1	12.4	5	29.1	0.7
EP Gray	135	681.9	66.8	288	1292.8	81.3	150	1095.1	76.0	19	90.4	79.4	592	3160.2	75.9
Dolores Brown	0	0	0	1	6.9	0.4	0		0	0	1.2	0	1	6.9	0.2
White ware															
EP White	5	47.9	4.7	14	85.3	5.4	14	93.7	6.5	1	3.1	1.1	34	228.1	5.2
Red ware															
Abajo R/O	1	13.6	1.3	0	0	0	0	0	0	0		0	1	13.6	0.3
EP Red	11	92.2	9.0	3	15.2	1.0	4	12.5	0.9	1		2.7	19	123.0	3.0
Kayenta:															
White ware															
Unclassifiable White	1	1.8	0.2	0	0	0	0	0	0	0		0	1	1.8	<0.1
Total	186	1020.1	100.0	348	1590.6	100.0	175	1441.1	100.0	23	113.8	100.0	732	4165.6	100.0
Vessel form:															
Jar	177	945.4	92.7	332	1500.4	94.3	157	1334.9	92.6	21	109.5	96.2	687	3890.2	93.4
Bowl	9	74.7	7.3	16	90.2	5.7	18	106.2	7.4	2	4.3	3.8	45	275.4	6.6

EP - Early Pueblo.
R/O - Red-on-orange.

Table 5.2 - Flaked lithic tools, surface collection, Prince Hamlet

	Area 1			Area 2			Area 3			Area 4			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	19	100.0	177	45	100.0	86	18	100.0	145	6	100.0	173	88	100.0	124
Tool morpho-use															
Indeterminate	0	0	0	1	2.2	1	0	0	0	0	0	0	1	1.1	1
Utilized flake	9	47.3	59	33	73.3	72	8	44.4	43	2	33.3	42	52	59.1	64
Core	0	0	0	3	6.7	100	1	5.6	574	1	16.7	567	5	5.7	288
Used core, cobble tool	5	26.3	281	0	0	0	0	0	0	0	0	0	5	5.7	281
Thick uniface	1	5.3	92	6	13.3	161	4	22.2	150	3	50.0	129	14	15.9	146
Thin uniface	0	0	0	0	0	0	3	16.7	39	0	0	0	3	3.4	39
Specialized form*	2	10.5	36	1	2.2	44	0	0	0	0	0	0	3	3.4	38
Thick biface	2	10.5	626	1	2.2	185	2	11.1	489	0	0	0	5	5.7	483
Grain size															
Fine	4	21.0	48	8	17.8	90	5	27.8	106	3	50.0	123	20	22.7	90
Very fine	11	57.9	240	23	51.1	108	8	44.4	241	2	33.3	314	44	50.0	174
Microscopic	4	21.0	131	14	31.1	50	5	27.8	31	1	16.7	42	24	27.3	59
Item condition															
Indeterminate	0	0	0	1	2.2	1	0	0	0	0	0	0	1	1.1	1
Complete/nearly complete	19	100.0	177	44	97.8	88	18	100.0	145	6	100.0	173	87	98.9	125
Lithic material type															
Siltstone	4	21.0	48	8	17.8	90	5	27.8	106	3	50.0	123	20	22.7	90
Chert	5	26.3	108	18	40.0	90	5	27.8	31	2	33.3	52	30	34.1	81
Silicified sandstone	10	52.6	262	19	42.2	82	8	44.4	241	1	16.7	567	38	43.2	175
Specific material															
Indeterminate	19	100.0	177	44	97.8	85	17	94.4	152	6	100.0	173	86	97.7	124
Quartzite, Morrison green	0	0	0	1	2.2	160	1	5.6	31	0	0	0	2	2.3	96

*The three specialized forms are gravers.

Table 5.3 - Flaked lithic debitage, surface collection, Prince Hamlet

	Area 1			Area 2			Area 3			Area 4			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:															
Grain size															
Medium	0	0	0	0	0	0	0	0	0	1	2.3	38	1	0.2	38
Fine	14	26.9	13	63	31.3	34	43	31.9	33	18	41.9	37	138	32.0	32
Very fine	28	53.8	20	95	47.3	25	62	45.9	28	19	44.2	36	204	47.3	26
Microscopic	10	19.2	16	43	21.4	19	30	22.2	15	5	11.6	30	88	20.4	17
Total flakes/ flake frags	52	100.0	17	201	100.0	26	135	100.0	27	43	100.0	36	431	100.0	26
Items with cortex	16	30.8	. . .	84	41.8	. . .	55	40.7	. . .	24	55.8	. . .	179	41.5	. . .
Whole flakes	26	50.0	. . .	98	48.8	. . .	41	30.4	. . .	10	23.3	. . .	175	40.6	. . .

frags - Fragments.
. . . - Information not available.

Table 5.4 – Nonflaked lithic tools, surface collection, Prince Hamlet*

	Area 1 N	Area 1 %	Area 1 Mean wt(g)	Area 2 N	Area 2 %	Area 2 Mean wt(g)	Area 3 N	Area 3 %	Area 3 Mean wt(g)	Total site N	Total site %	Total site Mean wt(g)
Total tools	7	100.0	970	11	100.0	1949	1	100.0	348	19	100.0	1504
Tool morpho-use												
Indeterminate	0	0	0	1	9.1	108	0	0	0	1	5.3	108
Polishing stone	2	28.6	13	4	36.4	57	0	0	0	6	31.6	42
Hammerstone	3	42.9	187	1	9.1	1022	1	100.0	348	5	26.3	386
One-hand mano	0	0	0	2	18.2	850	0	0	0	2	10.5	850
Two-hand mano	1	14.3	1656	1	9.1	1231	0	0	0	2	10.5	1444
Trough metate	1	14.3	4550	2	18.2	8575	0	0	0	3	15.8	7233
Material type												
Indeterminate	1	14.3	14	1	9.1	15	0	0	0	2	10.5	15
Igneous	1	14.3	70	1	9.1	16	0	0	0	2	10.5	43
Sedimentary	2	28.6	125	1	9.1	108	0	0	0	3	15.8	119
Fine to very fine sandstone	2	28.6	3103	2	18.2	4116	1	100.0	348	5	26.3	2957
Shale	1	14.3	253	1	9.1	127	0	0	0	2	10.5	190
Quartzite	0	0	0	5	45.5	2588	0	0	0	5	26.3	2588
Item condition												
Broken	3	42.9	1680	5	45.5	3791	0	0	0	8	42.1	2999
Complete/nearly complete	4	57.1	438	6	54.5	414	1	100.0	348	11	57.9	417
Production evaluation												
Natural (unmodified)	5	71.4	117	8	72.7	408	1	100.0	348	14	73.7	300
Minimally modified	2	28.6	3103	3	27.3	6057	0	0	0	5	26.3	4875

*No nonflaked lithic tools were recovered from the surface in Area 4.

Table 5.5 – Artifact frequencies by material culture class, surface collection, Prince Hamlet

	Area 1 (%)	Area 2 (%)	Area 3 (%)	Area 4 (%)
Ceramics	70.5	57.5	53.2	31.9
Nonflaked lithic tools	2.7	1.8	0.3	0
Flaked lithic tools	7.2	7.4	5.5	8.3
Flaked lithic debitage	19.7	33.2	41.0	59.7

depositional processes in Areas 2, 3, and 4 had operated in such a way that ceramics were underrepresented on the surface in those areas. The only way to resolve the question was to compare the percentages of the 4 material classes in the surface collection with those percentages for subsurface excavated units – the subject of the next section.

Predictability of Subsurface Cultural Material

Fiscal considerations and other constraints usually limit the number of sites that can be excavated on a research- or mitigation-oriented archaeological project. Consequently, many inferences or regional syntheses of settlement patterns and population characteristics must be

based on surface collections from surveyed sites. It is extremely important, therefore, that advantage be taken of every possible opportunity to study the relationships between surface and subsurface deposits on excavated sites in an attempt to support assumptions made about sites on the basis of their surface manifestations. Two general questions that are well suited to the small size of the surface collection and to the limited extent of the subsurface excavations at Prince Hamlet will be addressed: (1) How accurately does the composition of the surface collection reflect the composition of the artifact assemblages from excavated units? and (2) Do the locations of surface artifact concentrations indicate the locations of subsurface features or structures?

Percentages of artifacts are presented by area and material class for the subsurface deposits at the site in table 5.6. A comparison of the data presented in tables 5.5 and 5.6 suggests that the differences observed in the percentages of artifacts from the surface collection for Area 1 and those for Areas 2 and 3 are at least partly a result of postabandonment processes. The mechanism(s) by which ceramics came to be underrepresented (relative to the subsurface collections) on the surface in Areas 2 and 3 is not known. The surface collection made during the original survey plus the efforts of weekend potsherd collectors may have caused this skewing of the percentages, but it seems unlikely, since 275 to 300 sherds would have to have been removed from Area 2 alone to lower that ceramic percentage to the level shown in table 5.5. More likely, something in the slope wash process – the erosion of sediments in Area 1 and the deposition of those sediments in Area 2 – accounts for this phenomenon. It would be very interesting to compare the Prince Hamlet surface collection with those from other sites, both sloping and flat, to determine whether all sloping sites show this tendency toward underrepresentation of ceramics on the surface in low-lying areas, and, if so, why. Only by means of many such processes of comparison and explanation can interpretations of patterns observed on the surface of archaeological sites be warranted.

The artifacts recovered from subsurface excavations are tallied, by area, in tables 5.7 through 5.10. It is apparent from a comparison of the data presented in tables 5.1 through 5.4 and tables 5.7 through 5.10 that the artifacts collected from the surface differ from the artifacts collected from subsurface units in a number of ways – most of them probably related to differential collecting by both amateurs and professionals. For example, 88.8 percent of the subsurface ceramics are gray wares, 6.9 percent are white wares, 4.0 percent are red wares, and 0.2 percent are imports of various sorts. The surface collection consists of 92.5 percent gray wares, 4.6 percent white wares, 2.7 percent red wares, and less than 1 percent imports; noticeably fewer of those sherd types considered "diagnostic" by archaeological surveyors and "pretty" by weekend collectors are present in the surface collection. Additional support for interpreting this surface-subsurface difference as the result of differential collecting can be gleaned from the fact that Area 2 – which had the flattest, least vegetated, most accessible surface – shows the greatest discrepancy between surface and subsurface percentages.

The flaked lithic tool assemblages from surface and subsurface proveniences show a similar, though less pronounced, pattern. Again, tools that are "diagnostic" to the professional and "collectible" to the amateur are underrepresented in the surface collection relative to the subsurface assemblage. Once again, Area 2 shows the greatest surface-subsurface disparity.

Differences between surface and subsurface assemblages of nonflaked lithic tools are difficult to assess due to the small number of items involved, but the most readily apparent difference is in the "production stage" evaluation. Nearly 19 percent of the subsurface nonflaked lithic items are classified as well shaped or stylized; none of the nonflaked lithic items recovered from the surface are classified as such. Nearly three-fourths of the surface nonflaked lithics are classified as "natural" or unshaped; only a little more than half of the subsurface tools are unshaped. A related phenomenon is the relatively lower percentages of manos and metates found on the surface. Cultural factors prior to abandonment possibly resulted in this dearth of grinding implements (and, therefore, of shaped items) on the surface. However, it is more likely

Table 5.6 – Artifact frequencies by material culture class, excavated contexts, Prince Hamlet*

	Area 1 (%)	Area 2 (%)	Area 3 (%)
Ceramics	75.3	72.6	73.8
Nonflaked lithic tools	0.7	0.8	0.4
Flaked lithic tools	1.3	1.6	1.3
Flaked lithic debitage	22.7	24.9	24.5

*No subsurface excavation was conducted in Area 4.

Table 5.7 - Ceramic data summary, excavated contexts, Prince Hamlet

Culture category: Ware Type	Area 1 N	Area 1 wt(g)	Area 1 %wt	Area 2 N	Area 2 wt(g)	Area 2 %wt	Area 3 N	Area 3 wt(g)	Area 3 %wt	Total N	Total wt(g)	Total %wt
Mesa Verde:												
Gray ware												
Chapin Gray	34	255.0	1.3	249	1 826.9	3.1	326	2 766.9	5.9	609	4 848.8	3.9
Moccasin Gray	309	2 670.4	14.0	779	5 945.2	10.2	323	2 093.1	4.5	1 411	10 708.7	8.6
Mancos Gray	40	289.0	1.5	115	1 161.4	2.0	18	86.9	0.2	173	1 537.3	1.2
EP Gray	1 883	13 701.2	71.8	7 485	43 892.8	75.0	5 933	35 602.6	76.4	15 301	93 196.6	75.0
LP Gray	0	0	0	1	6.6	*	0	0	0	1	6.6	*
Dolores Brown	0	0	0	2	3.8	*	2	18.9	*	4	22.7	*
White ware												
Chapin B/W	2	4.2	*	4	30.1	0.1	10	147.5	0.3	16	181.8	0.1
Piedra B/W	6	39.6	0.2	25	158.3	0.3	28	318.2	0.7	59	516.1	0.4
Cortez B/W	5	81.8	0.4	7	49.6	0.1	0	0	0	12	131.4	0.1
Mancos B/W	0	0	0	2	4.6	*	0	0	0	2	4.6	*
EP White	138	1 230.2	6.4	476	3 340.2	5.7	629	3 868.9	8.3	1 243	8 439.3	6.8
LP White	2	11.5	0.1	29	189.9	0.3	1	6.7	*	32	208.1	0.2
Red ware												
Abajo R/O	3	10.9	0.1	22	179.9	0.3	40	365.5	0.8	65	556.3	0.4
Abajo Poly	0	0	0	2	0	0	1	21.8	*	1	21.8	*
Bluff B/R	6	140.6	0.7	17	113.6	0.2	1	1.2	*	24	255.4	0.2
McPhee B/R	0	0	0	1	5.2	*				1	5.2	*
EP Red	109	620.1	3.2	279	1 446.8	2.5	299	1 207.0	2.6	687	3 273.9	2.6
LP Red	0	0	0	3	13.5	*	0	0	0	3	13.5	*
Unclass Red	0	0	0	2	4.0	*	0	0	0	2	4.0	*
Smudged ware												
MV smudged	0	0	0	5	17.1	*	0	0	0	5	17.1	*
Kayenta:												
Red ware												
LP Red	1	5.2	*	0	0	0	0	0	0	1	5.2	*
Kayenta or Cibola:												
Gray ware												
Neckband Gray	0	0	0	1	3.7	*	1	9.3	*	2	13.0	*
EP Gray	7	22.8	0.1	5	42.3	0.1	12	32.8	0.1	24	97.9	0.1
White ware												
EP White	0	0	0	1	50.5	0.1	3	30.9	0.1	4	81.4	0.1
Chuska:												
Gray ware												
EP Gray	2	4.4	*	0	0	0	3	5.0	*	5	9.4	*
Mogollon:												
Smudged				1	5.3	*	0	0	0	1	5.3	*
Indeterminate:												
Gray ware												
Unclass Gray	0	0	0	2	2.6	*	2	13.8	*	4	16.4	*
White ware												
Unclass White	0	0	0	0	0	0	1	3.6	*	1	3.6	*
Total	2 547	19 086.9	100.0	9 513	58 493.9	100.0	7 633	46 600.6	100.0	19 693	124 181.4	100.0
Vessel form:												
Jar	2 301	16 972.3	88.9	8 757	53 036.9	90.7	6 709	40 908.7	87.8	17 767	110 917.9	89.3
Bowl	232	1 708.6	9.0	692	4 591.4	7.8	900	5 419.5	11.6	1 824	11 719.5	9.5
Other	14	406.0	2.1	64	865.6	1.5	24	272.4	0.6	102	1 544.0	1.2
Unfired clay	1	3.4	100.0	6	97.8	100.0	1	39.5	100.0	8	140.7	100.0

EP - Early Pueblo.
LP - Late Pueblo.
Unclass - Unclassifiable.
* - Less than 0.05 grams.
R/O - Red-on-orange.
B/R - Black-on-red.
B/W - Black-on-white.
Poly - Polychrome.
MV - Mesa Verde.
Neckband - Neckbanded.

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Table 5.8 - Flaked lithic tools, excavated contexts, Prince Hamlet

	Area 1 N	Area 1 %	Area 1 Mean wt(g)	Area 2 N	Area 2 %	Area 2 Mean wt(g)	Area 3 N	Area 3 %	Area 3 Mean wt(g)	Total N	Total %	Total Mean wt(g)
Total tools	44	100.0	133	208	100.0	77	132	100.0	100	384	100.0	91
Tool morpho-use												
Indeterminate	0	0	0	0	0	0	1	0.8	1	1	0.3	1
Utilized flake	15	34.1	54	87	41.8	35	44	33.3	44	146	38.0	39
Core	3	6.8	130	12	5.8	189	19	14.4	126	34	8.9	148
Used core, cobble tool	8	18.2	341	18	8.7	299	12	9.1	283	38	9.9	303
Thick uniface	4	9.1	121	31	14.9	83	21	15.9	89	56	14.6	88
Thin uniface	5	11.4	67	21	10.1	35	13	9.8	56	39	10.2	46
Specialized form*	2	4.5	56	7	3.4	164	2	1.5	134	11	2.9	139
Thick biface	3	6.8	334	6	2.9	106	12	9.1	185	21	5.5	184
Thin biface	1	2.3	2	10	4.8	26	6	4.5	66	17	4.4	39
Projectile point	[illegible]	6.8	1	16	7.7	2	2	1.5	2	21	5.5	2
Grain size												
Coarse	0	0	0	2	1.0	750	0	0	0	2	0.5	750
Medium	0	0	0	1	0.5	168	0	0	0	1	0.3	168
Fine	10	22.7	195	41	19.7	145	38	28.8	95	89	23.2	130
Very fine	25	56.8	139	113	54.3	63	66	50.0	127	204	53.1	93
Microscopic	8	18.2	43	51	24.5	25	28	21.2	43	87	22.7	32
Irregular	1	2.3	97	0	0	0	0	0	0	1	0.3	97
Item condition												
Indeterminate	0	0	0	0	0	0	2	1.5	1	2	0.5	1
Broken												
Indeterminate	0	0	0	9	4.3	50	1	0.8	2	10	2.6	46
Distal present	1	2.3	1	3	1.4	2	0	0	0	4	1.0	2
Proximal present	2	4.5	4	3	1.4	5	1	0.8	2	6	1.6	4
Medial present	2	4.5	8	9	4.3	20	1	0.8	8	12	3.1	17
Complete/nearly complete	39	88.6	150	184	88.5	84	127	96.2	104	350	91.1	98
Material type												
Hornfels	1	2.3	103	9	4.3	237	1	0.8	2	11	2.9	204
Mafic	0	0	0	1	0.5	749	0	0	0	1	0.3	749
Obsidian	0	0	0	3	1.4	3	0	0	0	3	0.8	3
Metamorphic	0	0	0	1	0.5	1 028	0	0	0	1	0.3	1 028
Siltstone	5	11.4	211	9	4.3	130	7	5.3	193	21	5.5	170
Shale	0	0	0	0	0	0	1	0.8	136	1	0.3	136
Chalcedony	0	0	0	7	3.4	3	3	2.3	4	10	2.6	4
Chert	12	27.3	44	61	29.3	42	38	28.8	43	111	28.9	429
Silicified sandstone /siltstone	26	59.1	161	117	56.3	71	82	62.1	122	225	58.6	100
Specific material												
Indeterminate	26	59.1	128	99	47.6	57	72	54.5	95	197	51.3	80
Obsidian	0	0	0	1	0.5	3	0	0	0	1	0.3	3
Chert, nonlocal	0	0	0	1	0.5	60	0	0	0	1	0.3	60
Chert, nfs	0	0	0	4	1.9	17	2	1.5	15	6	1.6	16
Chert, Morrison	1	2.3	43	4	1.9	20	3	2.3	11	8	2.1	20
Chert, Morrison green	4	9.1	72	3	1.4	63	4	3.0	62	11	2.9	66
Chert, Burro Canyon				9	4.3	10	4	3.0	60	13	3.4	25
Quartzite, nfs	4	9.1	43	17	8.2	45	14	10.6	61	35	9.1	51
Quartzite, Morrison green	5	11.4	218	28	13.5	73	13	9.8	156	46	12.0	112
Quartzite, Morrison purple	1	2.3	53	6	2.9	47	3	2.3	32	10	2.6	43
Quartzite, Burro Canyon/Dakota	0	0	0	5	2.4	16	5	3.8	44	10	2.6	3
Silicified siltstone, Mancos	0	0	0	1	0.5	106	1	0.8	136	2	0.5	121
Local cobble/gravel	3	6.8	302	30	14.4	223	11	8.3	224	44	11.5	229

*Specialized forms consist of 6 gravers, beaks, or perforators; 2 denticulates; 2 flaked axes; and 1 drill.

nfs - Not further specified.

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Table 5.9 – Flaked lithic debitage, excavated contexts, Prince Hamlet

	Area 1			Area 2			Area 3			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:												
Grain size												
Medium	14	1.9	41	66	2.2	14	63	2.8	30	143	2.4	24
Fine	241	32.2	14	928	31.5	11	510	22.4	11	1679	28.1	11
Very fine	399	53.3	10	1557	52.8	9	1255	55.1	10	3211	53.8	9
Microscopic	94	12.6	7	396	13.4	6	450	19.8	8	940	15.7	7
Total flakes/ flake frags	748	100.0	11	2947	100.0	9	2278	100.0	10	5973	100.0	10
Items with cortex	318	42.5	. . .	1244	42.2	. . .	888	39.0	. . .	2450	41.0	. . .
Whole flakes	311	41.6	. . .	1429	48.5	. . .	1030	45.2	. . .	2771	46.4	. . .
Angular debris	20	100.0	16	319	100.0	11	160	100.0	13	499	100.0	12

frags - Fragments.
. . . - Information not available.

Table 5.10 - Nonflaked lithic tools, excavated contexts, Prince Hamlet

	Area 1			Area 2			Area 3			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	23	100.0	2 655	112	100.0	4 878	36	100.0	778	171	100.0	3 716
Tool morpho-use												
Indeterminate	0	0	0	0	0	0	2	5.6	179	2	1.2	179
Miscellaneous	3	13.0	1 158	54	48.2	2 348	11	30.6	119	68	39.8	1 935
Hammerstone	1	4.3	1 272	7	6.3	1 012	12	33.3	374	20	11.7	642
One-hand mano	3	13.0	868	4	3.6	693	2	5.6	1 113	9	5.3	844
Two-hand mano	11	47.8	1 281	9	8.0	2 028	2	5.6	1 011	22	12.9	1 562
Metate fragment, nfs	0	0	0	4	3.6	3 605	3	8.3	1 909	7	4.1	2 878
Trough metate	3	13.0	12 835	28	25.0	12 517	1	2.8	10 100	32	18.7	12 471
Slab metate	0	0	0	2	1.8	11 450	0	0	0	2	1.2	11 450
Hafted item	2	8.7	556	4	3.6	903	3	8.3	597	9	5.3	724
Material type												
Igneous, nfs	2	8.7	556	24	21.4	539	9	25.0	659	35	20.5	571
Fragmentary igneous	0	0	0	2	1.8	19	0	0	0	2	1.2	19
Coarse mafic	1	4.3	2 200	4	3.6	2 955	0	0	0	5	2.9	2 804
Medium felsic/silicic	0	0	0	1	0.9	530	0	0	0	1	0.6	530
Medium mafic	0	0	0	1	0.9	1 048	2	5.6	478	3	1.[illegible]	668
Sedimentary, nfs	0	0	0	5	4.5	46	0	0	0	5	2.9	46
Coarse sandstone	1	4.3	1 505	3	2.7	1 703	0	0	0	4	2.3	1 654
Medium sandstone	4	17.4	885	32	28.6	11 931	5	13.9	2 456	41	24.0	9 698
Fine to very fine sandstone	12	52.2	661	21	18.8	5 768	10	27.8	617	43	25.1	3 145
Shale	0	0	0	3	2.7	65	3	8.3	29	6	3.5	47
Microcrystal quartz	0	0	0	0	0	0	1	2.8	18	1	0.6	18
Azurite	0	0	0	0	0	0	1	2.8	1	1	0.6	1
Metamorphic, nfs	0	0	0	1	0.9	19	0	0	0	1	0.6	19
Quartzite	3	13.0	841	13	11.6	629	3	8.3	640	19	11.1	665
River cobble, nfs	0	0	0	2	1.8	1 641	2	5.6	324	4	2.3	982
Item condition												
Broken												
Unidentifiable	0	0	0	3	2.7	2 727	0	0	0	3	1.8	2 727
Identifiable	9	39.1	1 397	39	34.8	5 950	13	36.1	1 453	61	35.7	4 320
Complete/nearly complete	14	60.9	3 464	70	62.5	4 373	23	63.9	[illegible]97	107	62.6	3 399
Production evaluation												
Indeterminate	0	0	0	7	6.3	3 623	0	0	0	7	4.1	3 623
Natural (unmodified)	10	43.5	4 053	58	51.8	709	28	77.8	863	96	56.1	1 102
Minimally modified	6	26.1	1 512	24	21.4	9 024	6	16.7	636	36	21.1	6 374
Well shaped	7	30.4	1 638	22	19.6	11 965	1	2.8	26	30	17.5	9 157
Stylized	0	0	0	1	0.9	8	1	2.8	16	2	1.2	12

nfs - Not further specified.

that postabandonment scavenging of readily visible grinding implements by subsequent aboriginal visitors (a practice documented among the Pueblo Indians [Hill 1982]) and collecting by modern visitors accounts for this low frequency of obvious ground stone tools on the surface of the site.

Although the differences between the characteristics of the surface and subsurface assemblages of ceramics and stone tools are attributed to differential collecting, one would expect little difference between the debitage assemblages because debitage is less likely to be collected by professionals or by amateurs. As tables 5.1 through 5.4 and tables 5.7 through 5.10 show, however, there are 2 conspicuous differences between the 2 assemblages - in the percentages of "angular debris"[1] and in the percentages of medium-grained flakes. The angular debris difference is a result of analytic procedure rather than cultural factors. The 1979 surface and subsurface collections were analyzed during the 1979 season when angular debris was not a recognized category; the 1980 subsurface collection was analyzed when angular debris **was** a recognized category. The paucity of medium-grained flakes in the surface collection, however, appears to be real. It was hypothesized that, since the surface collection presumably is composed largely of materials from the later periods of use at a site, at some point toward the end of the occupation of Prince Hamlet, there was a change in preference toward finer-grained lithic raw materials. To test this hypothesis, debitage from areas of the site with good stratigraphic control was examined to determine whether the upper, stratigraphically later levels contained less medium-grained material than the lower levels. The results are presented in the probability sampling and midden discussions later in the chapter.

The second question addressed here concerns the relationship between surface artifact concentrations and subsurface structures. The outlines of subsurface structures that have been superimposed on the density maps in figures 5.5 and 5.6 show no simple or obvious relationship between surface concentrations and subsurface structures. The locations of artifact and building stone concentrations at the site seem to correspond more to the topography and drainage patterns; the main surface concentration, which runs north-south between the 62E and 74E lines, coincides exactly with the ephemeral drainage that runs through the central portion of the site. The greater density of surface artifacts probably was caused by water erosion and by the churning up of material due to foot traffic (for the first several days of work, the Prince Hamlet crew and site visitors used this drainage as the major access to the site).

The second obvious surface concentration is just south of the roomblock between the 52S and 62S lines, especially on the east side of the site. This concentration occurs at the topographic break in the slope where the site flattens out over the pitstructure area; therefore, some of this concentration is probably the result of downslope movement. The presence of what has been interpreted as the remains of a retaining wall (fig. 5.4), however, seems to account for the precise location of this concentration. A lesser concentration occurs in the western portion of the site because the ephemeral drainage has gradually washed out the retaining wall and carried artifacts downslope, past the topographic break.

A third area of artifact concentration, in 4- by 4-m square 66S/82E, is less easily explained. A considerable amount of material had washed into this square, but other squares in a similar position relative to drainage patterns did not have such high concentrations of artifacts. Excavation of a probability square (68S/84E) within this 4- by 4-m square revealed that the square contained midden deposits, which would provide a potential cultural explanation for this concentration. Again, however, other areas of equally dense or denser midden deposits (e.g., midden test square 70S/76E) yielded very few surface artifacts.

The relationship between surface artifact concentrations and subsurface structures is a complex result of both prehistoric cultural factors and postabandonment events. This is certainly the case on all sites, but perhaps more so on a site such as Prince Hamlet where slope and runoff have had a heavy impact. In terms of predicting subsurface manifestations on the basis of surface material, both this discussion of surface artifact concentrations vs. subsurface structures and the earlier discussion of assemblage compositions demonstrate that the relationship is neither direct nor simple. The prehistoric cultural and postabandonment factors potentially responsible for modern distributions and compositions of surface collections must be carefully evaluated when attempts are made to predict subsurface manifestations on the basis of surface remains.

PROBABILITY SAMPLING EXCAVATIONS

During the 1979 field season at Prince Hamlet, first priority was given to completing the probability sampling. A detailed discussion of the theory of probability sampling and of the statistical techniques for arriving at estimates and inferences on the basis of the sample is presented in Kohler (1979); therefore, these issues will be addressed only briefly here. The artifact population estimates for Prince Hamlet, based on the results of the probability sample, are presented in Kohler and Gross (1981).

The procedures by which the Prince Hamlet probability sample was selected are quite simple. The site was divided

[1] "Angular debris" refers to items that exhibit some, but not all, characteristics of flakes; it is not known whether or not these items are of cultural significance.

into Areas 1 through 4, which were believed to correspond to the roomblock, the pitstructures and open work area, the midden, and a surface scatter of lithic debris, respectively. With the exception of Area 4, which was excluded from the probability sample, each area was divided into consecutively numbered 2- by 2-m squares. Because a 5 percent sample of the site was desired, a 5 percent sample of the squares in each of the 3 areas was drawn by means of a table of random numbers. This resulted in the selection of 3 squares from Area 1, 5 squares from Area 2, and 2 squares from Area 3. Such a sample is termed a "stratified proportional cluster sample."

With minor exceptions, excavation techniques were the same for all squares. Sediments were removed in arbitrary 20-cm levels measured from the highest corner of the square – usually the northeast corner. Given the steep slope of most of the site, this often meant that Level 1 existed only on the uphill side of the square. Since the relationship between modern slope and aboriginal slope could not be anticipated, and since it was expected that at least some structure floors would be encountered, flat horizontal levels seemed to be a better choice than levels that followed the slope. All excavated sediments were screened through one-quarter-inch (6.4 mm) mesh. Bulk soil samples were taken in Areas 1 and 2 only when surfaces of structures or features within structures were encountered. In Area 3, bulk soil samples were taken from each arbitrary level to monitor any change through time in the material deposited, both culturally and naturally, in the midden. Excavation of each probability square was terminated when sterile deposits or surfaces within structures were reached. Subfloor testing was very limited at Prince Hamlet due to time constraints, and no subfloor material was included in the probability sample.

Area 1

The 3 probability squares excavated in Area 1 were 50S/54E, 50S/68E, and 56S/66E (fig. 5.3). A detailed description of each of these squares is given, followed by a discussion of the artifacts recovered. Square 56S/66E became part of excavation unit 1, which exposed a wide area in the center of the roomblock.

Square 50S/54E

Two strata were recognized during the excavation of probability square 50S/54E (fig. 5.7). The upper 30 cm (Stratum 1) consisted of a light brownish-gray loamy sand with pebble- to boulder-sized inclusions of tabular sandstone blocks and river cobbles. Some cultural material was present, but it appeared to be the result of secondary deposition. This description characterizes the upper stratum found everywhere on the site.

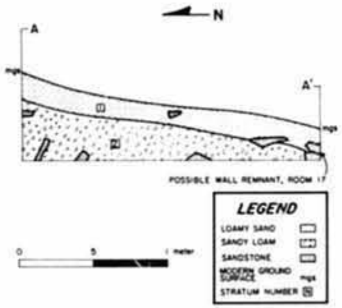

Figure 5.7 – Stratigraphic profile of east wall of probability square 50S/54E, Prince Hamlet. Profile A located in plan in figure 5.3.

The lower stratum, Stratum 2, was a light brown sandy loam with a very hard consistency and numerous cobble- to boulder-sized inclusions. This stratum initially was interpreted as being the natural subsoil of the site because it resembled the subsoil in terms of color, texture, and hardness. However, some charcoal and other organic inclusions, which were not noted in the subsoil elsewhere on the site, were noted in Stratum 2. Initially it was believed that this material had been introduced into Stratum 2 by bioturbation. Along the extreme southern edge of this square, an alinement of rocks that appeared to be the remains of a wall was encountered. Because soil that appeared to be culturally sterile had been encountered to the north, this alinement originally was interpreted as the northernmost wall of the roomblock; this initial impression later proved to be incorrect.

When more extensive roomblock excavations were carried out during the 1980 season, the probable size and configuration of the roomblock became clearer (fig. 5.4). It is obvious from figure 5.3 that, rather than being north of the roomblock, square 50S/54E was largely inside the hypothesized structures that have been designated Room 18 and Room 17. The remnant of wall along the south edge of the square was in exactly the right place and was oriented at the correct angle to be the south wall of Room 18 and the north wall of Room 19. In addition, maps of square 50S/54E show a rock concentration along the southern part of the east wall of the square that could be rubble from the east wall of Room 18. The inferred limits of the rooms shown in figure 5.4 may be incorrect and the configuration of the roomblock may change toward

the west end, perhaps becoming only one room wide. If this is the case, probability square 50S/54E indeed may have been north of the roomblock. However, on the basis of the configuration of the roomblock in the sections that are clearly visible and on the basis of the charcoal and organic mottling in Stratum 2 of probability square 50S/54E, most likely Stratum 2 was Room 18 fill, rather than sterile subsoil. If sterile subsoil had been used as mortar and plaster in the walls of Room 18, the collapsed wall could have been mistaken for sterile subsoil. It was later discovered that, in some rooms, adobe wash and wall collapse was devoid of artifacts and sometimes nearly devoid of charcoal or other organic material.

Square 56S/66E

This probability square was directly in front of and approximately 2 m downslope (south) from the south wall of the roomblock. Five 20-cm levels were removed from this square, although due to the angle of the slope, Level 1 existed only in the northern portion and Level 5 only in the southern portion of the square. Excavation was terminated wherever a culturally sterile, brown sandy loam stratum with heavy concentrations of cobble- and boulder-sized rocks was encountered. This stratum is the natural subsoil of the site and probably represents the aboriginal ground surface as well.

Figure 5.8 shows a profile of the east wall of the square. Stratum 4 was a rich cultural deposit, probably laid down during the occupation of the site. It appeared to have been either secondary refuse (Schiffer 1976) or fill used to intentionally level out the slope in this area. Stratum 3, a loam, appeared to be adobe slump or melt with noticeable, probably predepositional, fire reddening. This material probably originated from the walls of the roomblock. Stratum 2, a loamy sand, was a combination of cultural material and colluvium and probably represents material washed out of the abandoned and deteriorating roomblock. Stratum 1 in this square, as elsewhere on the site, was the uppermost postoccupational deposit and, like Stratum 4, consisted of loamy sand.

To recapitulate, the fill sequence in this part of the site (as it can be inferred from the profile of square 56S/66E) consisted of the natural subsoil and apparent aboriginal ground surface overlain by rich cultural deposits. The latter were either secondary refuse or fill intentionally laid down during the occupation of the site. These deposits were overlain by adobe melt (probably from the walls of the roomblock), colluvial and cultural material that washed down from the deteriorating roomblock, and the postoccupational surface sediments.

Square 50S/68E

This square was located over the southeast corner of Room 3, including parts of the south and east walls of

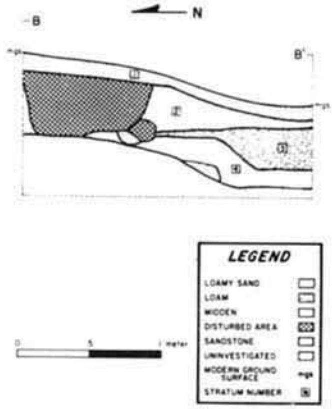

Figure 5.8 – Stratigraphic profile of east wall of probability square 56S/66E, Prince Hamlet. Profile B located in plan in figure 5.3.

the room (the southeast corner of the room had been destroyed by tree roots). As shown in figure 5.9, fill in the room consisted of 3 strata; these were removed in 5 arbitrary levels.

Stratum 3, a light brown loam devoid of artifacts and nearly devoid of charcoal, probably represents wall melt that was deposited on the floor of Room 3 before the general collapse of the structure. Stratum 2, a pale brown sandy loam with inclusions of adobe, adobe melt, charcoal, and an abundance of rock rubble, represents the subsequent collapse of the roof and walls. The adobe melt and the rocks in the fill were from the walls – mostly the south wall – while the chunks of adobe and the charcoal were probably from the roof, as were the artifacts recovered from this stratum. Stratum 1 was the site-wide postoccupational deposit (loamy sand).

Artifacts from the Area 1 Probability Sample

The artifacts recovered from the Area 1 probability sample are tallied in tables 5.11 through 5.14. The larger quantities of ceramics and debitage from square 56S/66E reflect the redeposition of material from the roomblock after the site was abandoned as well as the filling/dumping which produced Stratum 4 in that square. The metate

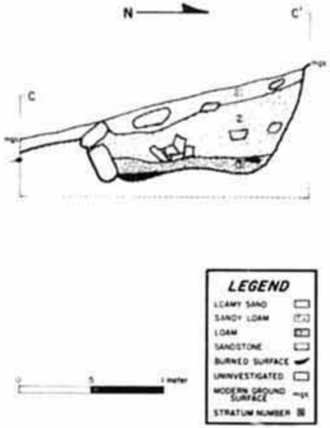

Figure 5.9 - Stratigraphic profile of west wall of probability square 50S/68E, Prince Hamlet. Profile C located in plan in figure 5.3.

fragment and 2 manos from square 50S/54E could be items that were on the roof of the hypothesized Room 18 when it collapsed, or they may be items that were reused in wall construction, a common practice in the project area (cf. Brisbin 1983).

Although a level-by-level breakdown of artifacts from these squares is not given in tables 5.11 through 5.14, note that Mancos Gray sherds were found in all levels of probability square 56S/66E. Since the introduction of this ceramic type in the project area has been dated to approximately A.D. 860,[1] the purposeful filling or trash dumping that produced Stratum 4 in this square occurred sometime after this date and, therefore, was a fairly late event in the main occupation of the site. Since Mancos Gray sherds occur only in the very top level of square 50S/68E, Room 3 may have already fallen into disuse before the events represented by Stratum 4 in the area in front of the roomblock occurred, although the small numbers of sherds involved make this interpretation tentative at best.

Area 2

The probability sample in Area 2 consisted of 5 squares: 60S/54E, 64S/54E, 64S/58E, 64S/72E, and 68S/84E. As a "finding strategy" the probability sample in Area 2 was very successful. Two of the five squares (64S/58E and 64S/72E) came down on the wingwalls of what were almost certainly the only pitstructures at the site. The clustering of 3 of the Area 2 squares so close together at the western margin of the site (fig. 5.3) was unfortunate, but such clustering is one of the hazards of random sampling.

Squares 60S/54E and 64S/54E

These 2 squares are discussed together because of their proximity and because, based on the results of the excavation of square 60S/54E, square 64S/54E was excavated by cultural and natural strata, rather than in arbitrary levels.

Square 60S/54E was dug in arbitrary 20-cm levels. In the fourth level (60 to 80 cm below datum), many rocks that appeared to have been naturally deposited were uncovered; as these rocks were found to be resting on the sterile subsoil, excavation was terminated. All of the material above this level of rocks closely resembled the postoccupational surface deposits found across the site and contained only secondarily deposited cultural material. The greater depth of this surface slope wash material in this square (approximately 70 cm as opposed to 10 to 20 cm over most of the rest of the site) and the presence of the rock layer at the bottom of Level 4 can be attributed to the topography of the site. Square 60S/54E is located at a break in the general slope of the site, where decreasing energy of flow in sheet wash would cause deposition of sediments and where downslope movement of rocks would tend to halt.

Square 64S/54E was dug by natural and cultural zones rather than in arbitrary levels (a profile of this square is not provided). Stratum 1 (the uppermost stratum) in this square was found to rest directly on the subsoil, approximately 40 cm below modern ground surface. The shallow depth of Stratum 1 and the lack of the rock layer are consistent with the interpretation of events in square 60S/54E. Although square 64S/54E was located close to square 60S/54E, the former is approximately 2 to 4 m farther from the break in the slope; most of the rocks and a large part of the sediment load would have lost momentum and been deposited before reaching square 64S/54E. In addition, the character of the deposits in square 64S/54E might have been altered by the drainage at the western boundary of the site. The runoff into this channel could have eroded some of the material from square 64S/54E.

[1] Ceramic type dates used in this report are based on Blinman (1981).

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Table 5.11 - Ceramic data summary, Area 1 probability sample, Prince Hamlet

Culture category: Ware Type	Square 50S/54E			Square 56S/66E			Square 50S/68E			Area 1 total		
	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt
Mesa Verde:												
Gray ware												
Chapin Gray	1	4.9	0.9	6	54.0	1.9	2	12.5	1.6	9	71.4	1.7
Moccasin Gray	13	59.0	11.2	42	214.1	7.7	13	76.8	9.8	68	349.9	8.5
Mancos Gray	4	69.2	13.2	14	62.4	2.2	2	17.9	2.3	20	149.5	3.6
EP Gray	72	374.4	71.2	321	2227.1	79.9	121	644.7	82.0	514	3246.7	79.2
White ware												
Chapin B/W	0	0	0	2	4.2	0.2	0	0	0	2	4.2	0.1
Piedra B/W	0	0	0	0	0	0	1	3.6	0.5	1	3.6	0.1
EP White	4	10.3	2.0	26	166.0	6.0	6	20.1	2.6	36	196.4	4.8
Red ware												
EP Red	3	8.2	1.6	17	46.9	1.7	3	10.2	1.3	23	65.3	1.6
Kayenta or Cibola:												
Gray ware												
EP Gray	0	0	0	5	11.5	0.4	0	0	0	5	11.5	0.3
Total	97	526.0	100.0	433	2786.2	100.0	148	785.8	100.0	678	4098.0	100.0
Vessel form:												
Jar	93	515.7	98.0	390	2571.9	92.3	139	752.9	95.8	622	3840.5	93.7
Bowl	4	10.3	2.0	43	214.3	7.7	9	32.9	4.2	56	257.5	6.3

EP - Early Pueblo.
B/W - Black-on-white.

Square 64S/58E

To facilitate the discussion of this probability square, the following rough correlations of probability square levels with pitstructure strata may be used (these correlations also apply to the artifact discussion that appears later):

Level	Stratum
1,2	1,2
3,4	3
5	4
6,7	5
8	6
9	7
10	8
11,12	9

The top of a masonry wall that eventually proved to be the west wall of Pithouse 2 was encountered in Level 4 (60 to 80 cm below modern ground surface), along the west edge of this probability square. At the bottom of Level 8 (Stratum 6), approximately 160 cm below modern ground surface, an east-west ridge of adobe and rock was encountered near the south edge of the square; this ridge proved to be the top of the west wingwall of the pithouse. Levels 9, 10, 11, and 12 (Strata 7, 8, and 9) were excavated only along the north edge of the square (fig. 5.10) to protect the wingwall and to preserve the many potential tree-ring samples that appeared in Strata 8 and 9.

Strata 1 through 7 were postoccupational slope wash material. Stratum 1 consisted of sandy loam; Strata 2 through 7 were primarily loamy sand. Strata 4, 5, and 6 were characterized by some laminated sediments, while Strata 2, 3, and 7 were poorly sorted with no bedding apparent. Between Strata 2 and 3 in the northern part of the square was a large pocket of unsorted gravels that indicate an episode of extremely rapid deposition. Strata 8 and 9 were the result of the structural collapse of Pithouse 2, and they included roof fall and wall material. Stratum 8 was mixed sand-loamy sand; Stratum 9 was loamy sand.

Square 64S/72E

This square, like 64S/58E, was located in a pitstructure. The top of a masonry wall that proved to be the east wingwall of Pithouse 1 was encountered in Level 6, near the south edge of the square. The floor of the structure

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Table 5.12 - Flaked lithic tools, Area 1 probability sample, Prince Hamlet

	Square 50S/54E						Square 50S/68E			Square 56S/66E											
	Level 2			Level 3			Level 4			Level 1			Level 2			Level 3			Level 4		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	1	100.0	1	1	100.0	54	1	100.0	27	1	100.0	171	4	100.0	92	2	100.0	70	1	100.0	72
Tool morpho-use																					
Utilized flake	0	0	0	1	100.0	54	1	100.0	27	0	0	0	2	50.0	47	1	50.0	15	0	0	0
Core	0	0	0	0	0	0	0	0	0	1	100.0	171	0	0	0	0	0	0	1	100.0	72
Used core	0	0	0	0	0	0	0	0	0	0	0	0	1	25.0	269	1	50.0	124	0	0	0
Thin uniface	0	0	0	0	0	0	0	0	0	0	0	0	1	25.0	5	0	0	0	0	0	0
Projectile point	1	100.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grain size																					
Fine	0	0	0	0	0	0	0	0	0	0	0	0	1	25.0	269	0	0	0	0	0	0
Very fine	0	0	0	1	100.0	54	0	0	0	1	100.0	171	1	25.0	72	0	0	0	1	100.0	72
Microscopic	1	100.0	1	0	0	0	1	100.0	27	0	0	0	2	50.0	14	2	100.0	70	0	0	0
Item condition																					
Broken																					
Identifiable	0	0	0	0	0	0	0	0	0	0	0	0	1	25.0	5	0	0	0	0	0	0
Complete/nearly complete	1	100.0	1	1	100.0	54	1	100.0	27	1	100.0	171	3	75.0	121	2	100.0	70	1	100.0	72
Material type																					
Chert	1	100.0	1	0	0	0	1	100.0	27	0	0	0	2	50.0	14	2	100.0	70	0	0	0
Silicified sandstone/ siltstone	0	0	0	1	100.0	54	0	0	0	1	100.0	171	1	25.0	72	0	0	0	1	100.0	72
Siltstone	0	0	0	0	0	0	0	0	0	0	0	0	1	25.0	269	0	0	0	0	0	0

Table 5.13 – Flaked lithic debitage, Area 1 probability sample, Prince Hamlet

	Square 50S/54E			Square 56S/66E			Square 50S/68E			Area 1 total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:												
Grain size												
Medium	4	12.5	24	1	0.5	15	1	1.6	1	6	2.0	19
Fine	14	43.8	8	47	23.5	7	17	26.6	13	78	26.4	8
Very fine	9	28.1	5	108	54.0	9	38	59.4	6	155	52.4	8
Microscopic	5	15.6	8	44	22.0	7	8	12.5	3	57	19.3	7
Total flakes/ flake frags	32	100.0	9	200	100.0	8	64	100.0	7	296	100.0	8
Items with cortex	11	34.4	...	62	31.0	...	18	28.1	...	91	30.7	...
Whole flakes	12	37.5	...	69	34.5	...	16	25.0	...	97	32.8	...

frags - Fragments.
... - Information not available.

Table 5.14 – Nonflaked lithic tools, Area 1 probability sample, Prince Hamlet

	Square 50S/54E			Square 56S/66E			Square 50S/68E			Area 1 total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	4	100.0	1179	2	100.0	1366	1	100.0	1272	7	100.0	1245
Tool morpho-use												
Polishing stone	1	25.0	159	0	0	0	0	0	0	1	14.3	159
Hammerstone	0	0	0	0	0	0	1	100.0	1272	1	14.3	1272
One-hand mano	1	25.0	656	0	0	0	0	0	0	1	14.3	656
Two-hand mano	1	25.0	1295	2	100.0	1366	0	0	0	3	42.9	1342
Trough metate	1	25.0	2605	0	0	0	0	0	0	1	14.3	2605
Material type												
Fine to very fine sandstone	3	75.0	1519	1	50.0	898	0	0	0	4	57.1	1364
Quartzite	1	25.0	159	1	50.0	1833	1	100.0	1272	3	42.9	1088
Item condition												
Broken												
Identifiable	2	50.0	1631	2	100.0	1366	0	0	0	4	57.1	1498
Complete/nearly complete	2	50.0	727	0	0	0	1	100.0	1272	3	42.9	909
Production evaluation												
Natural (unmodified)	2	50.0	408	0	0	0	0	0	0	3	42.9	696
Minimally shaped	2	25.0	1950	2	100.0	1366	1	100.0	1272	4	57.1	1658

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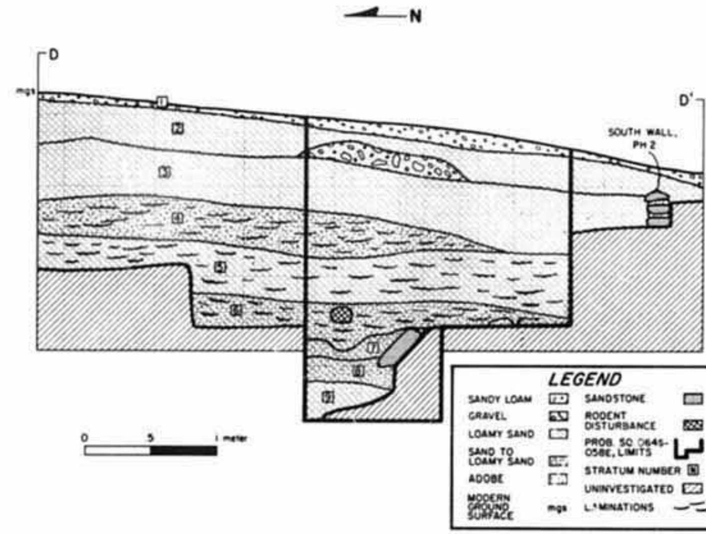

Figure 5.10 – Stratigraphic profile of east wall of probability square 64S/58E and east wall of excavation unit 2, Prince Hamlet. Profile D roughly bisects Pithouse 2 and is located in plan on figure 5.3. The following approximate correlations between the strata shown in this figure and the levels discussed in text apply: Strata 1 and 2 – Levels 1 and 2; Stratum 3 – Levels 3 and 4; Stratum 4 – Level 5; Stratum 5 – Levels 6 and 7; Stratum 6 – Level 8; Stratum 7 – Level 9; Stratum 8 – Level 10; Stratum 9 – Levels 11 and 12.

was reached at approximately 2.05 m below modern ground surface. A rock alinement that was 1 to 2 courses high and roughly 70 cm above the floor of the pitstructure also was plainly visible in the structure fill along the north side of the probability square. A detailed description of the stratigraphy and depositional history of Pithouse 1 and, therefore, of probability square 64S/72E, appears in the discussion of Pithouse 1 in the "Pitstructures" section of this chapter.

For purposes of comparison in the later discussion of artifacts from the Area 2 probability sample, the following correlations between excavation levels and pitstructure strata observed in profile should be used:

Level	Stratum
1	1
2,3	2
4	3
5,6	4
7	5
8,9,10	6

Square 68S/84E

This square was located on a slope that dips south toward the river and east toward the drainage that forms the eastern boundary of the main portion of the site. The slope of the prehistoric surface in this area – as revealed by the excavation of this probability square – was approximately the same as that of the modern slope toward the south but was steeper toward the east. This suggests that the aboriginal eastern drainage was west of the modern drainage, closer to the main site area. In addition, eastward dipping laminae visible in the south face of the

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probability square imply a shallower, less deeply entrenched drainage than that which currently bounds the site.

Six arbitrary levels comprising three strata were removed from this square. Correlations between the two types of vertical units are difficult to suggest since the levels were horizontal while the natural strata dipped quite sharply. To compare the artifact data with the stratigraphy shown in figure 5.11, the reader may very roughly equate the following levels and strata (the artifact data are displayed by individual levels in tables 5.15 through 5.18):

Level	Stratum
1,2,3,4	1,2
5,6	3

Stratum 3 was a brownish-gray loamy sand that was a mixture of midden materials and colluvial sediments. At the base of Stratum 3, sterile soil was encountered. Stratum 2 was a dark gray to black sandy loam that appeared to be an in situ midden deposit. Stratum 1 consisted of the site-wide postoccupational deposit; in this location it consisted of a sandy loam.

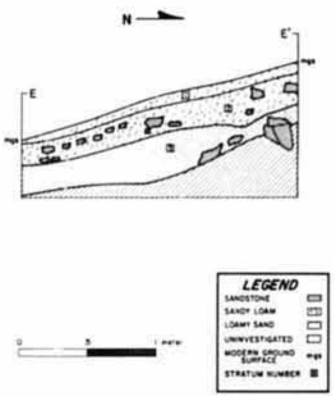

Figure 5.11 – Stratigraphic profile of west wall of probability square 68S/84E, Prince Hamlet. Profile E is located in plan in figure 5.3. The following approximate correlations between the strata shown in this figure and the levels discussed in text apply: Strata 1 and 2 = Levels 1 through 4; Stratum 3 = Levels 5 and 6.

Even though square 68S/84E was excavated as part of the Area 2 probability sample, it quickly became apparent that this square was actually part of the midden (Area 3). On the basis of the presence of 2 distinct midden strata (Strata 2 and 3), it was originally believed that 2 periods of trash deposition were represented. This belief, which was reinforced during excavation of probability square 72S/68E in Area 3, served to structure the excavation strategy for the site midden during the 1980 season.

Artifacts from the Area 2 Probability Sample

Tables 5.15 through 5.18 present the artifacts recovered from the Area 2 probability sample by square. The data for probability square 68S/84E are presented by level to facilitate comparison with other midden data presented in the "Midden" section; the data for squares 64S/58E and 64S/72E are presented according to the combined levels that very approximately correspond to the natural strata; and the data for squares 60S/54E and 64S/54E are presented in terms of total artifact tallies.

Several contrasts between the artifact assemblages from squares 60S/54E and 64S/54E are apparent. Given that roughly twice as much sediment was removed from 60S/54E as from 64S/54E, the much larger quantities of sherds and flaked lithic tools recovered from the latter seem to be significant. Although this difference in artifact density could be the result of differential trash dumping or of slope wash, one would expect that, in either of these cases, all classes of material culture would be equally affected. As tables 5.15 through 5.18 demonstrate, however, debitage does not approach the relative abundance of ceramics or flaked lithic tools.

Most or all of the material in both of these squares appears to have been redeposited; the steep slope of the aboriginal surface in this area of the site makes it unlikely that the materials in these squares were in use context. The artifact assemblage in square 64S/54E, however, does reflect some activity that produced relatively greater quantities of sherds and of flaked lithic tools than of other types of debris. The number and variety of flaked lithic tool types recovered distinguishes this square from other excavation units, but the relative paucity of debitage and of flakes bearing cortex precludes interpreting this assemblage as the remains of a lithic workshop.

Previously, it was suggested that the stratigraphy of the pitstructure probability squares indicated very similar filling processes for both structures; the artifacts from those probability square support that interpretation. The artifact distributions for squares 64S/58E and 64S/72E are very similar. The only really noticeable difference between them is the overrepresentation of nonflaked lithic items and the underrepresentation of flaked lithic tools in square 64S/72E relative to square 64S/58E and to the

Table 5.15 – Ceramic data summary, Area 2 probability sample, Prince Hamlet

Culture category / Ware / Type	Square 60S/54E			Square 64S/54E			Square 64S/58E											
	Total			Total			Levels 1 and 2			Levels 3 and 4			Level 5			Levels 6 and 7		
	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt
Mesa Verde:																		
Gray ware																		
Chapin Gray	6	28.3	1.0	31	129.5	3.6	7	36.5	6.8	3	9.2	0.8	0	0	0	3	18.7	1.8
Moccasin Gray	56	317.7	12.5	25	122.2	3.4	21	96.3	17.8	24	148.9	13.6	6	105.1	18.8	15	142.1	13.5
Mancos Gray	1	1.7	0.1	11	57.5	1.6	4	9.3	1.7	0	0	0	0	0	0	3	16.1	1.5
EP Gray	394	1978.9	78.0	1207	2825.9	78.1	95	363.8	67.4	183	841.8	76.9	83	429.9	76.9	160	791.1	74.9
White ware																		
Chapin B/W	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piedra B/W	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3.0	0.3
EP White	24	145.1	5.7	53	314.7	8.7	5	19.3	3.6	8	58.6	5.4	3	15.8	2.8	6	32.9	3.1
Red ware																		
Abajo R/O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EP Red	10	68.7	2.7	36	168.5	4.7	5	14.9	2.8	6	35.7	3.3	2	8.6	1.5	11	52.0	4.9
Indeterminate:																		
Gray ware																		
Unclassifiable Gray	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	491	2338.4	100.0	1363	3618.3	100.0	137	540.1	100.0	224	1094.2	100.0	94	559.4	100.0	199	1055.9	100.0
Vessel form:																		
Jar	465	2342.4	92.3	1278	3143.9	86.9	128	508.7	94.2	213	1019.8	93.2	91	543.6	97.2	185	982.8	93.1
Bowl	26	196.0	7.7	82	458.2	12.7	9	31.4	5.8	11	74.4	6.8	3	15.8	2.8	13	64.9	6.1
Other	0	0	0	3	16.2	0.4	0	0	0	0	0	0	0	0	0	1	8.2	0.8

Table 5.15 – Cermaic data summary, Area 2 probability sample, Prince Hamlet – Continued

Culture category / Ware / Type	Square 64S/58E															Square 64S/72E		
	Level 8			Level 9			Level 10			Levels 11 and 12			Square total			Level 1		
	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt
Mesa Verde:																		
Gray ware																		
Chapin Gray	1	7.8	1.5	4	8.9	8.2	0	0	0	2	3.8	0.8	20	84.9	1.9	5	31.3	7.0
Moccasin Gray	5	27.7	5.4	0	0	0	2	3.6	1.7	2	11.9	2.5	75	535.6	11.8	5	11.5	2.6
Mancos Gray	3	18.1	3.5	1	9.4	8.7	2	14.7	6.8	2	5.4	1.2	15	73.0	1.6	0	0	0
EP Gray	69	418.2	81.4	21	69.7	64.2	30	188.3	87.6	65	410.5	87.7	706	3 513.3	77.1	81	392.3	87.9
White ware																		
Chapin B/W	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piedra B/W	0	0	0	0	0	0	0	0	0	0	0	0	1	3.0	0.1	0	0	0
EP White	6	41.7	8.1	2	3.8	3.5	2	7.2	3.4	2	9.7	2.1	34	189.0	4.1	0	0	0
Red ware																		
Abajo R/O	0	0	0	0	0	0	0	0	0	1	1.7	0.4	1	1.7	*	0	0	0
EP Red	0	0	0	5	16.7	15.4	2	1.1	0.5	4	25.3	5.4	35	154.3	3.4	5	11.4	2.6
Indeterminate:																		
Gray ware																		
Unclassifiable Gray	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	84	513.5	100.0	33	108.5	100.0	38	214.9	100.0	78	468.3	100.0	887	4 554.8	100.0	96	446.5	100.0
Vessel form:																		
Jar	78	471.8	91.9	26	81.3	74.9	34	206.6	96.1	73	451.6	96.4	828	4 266.2	93.7	92	433.3	97.0
Bowl	6	41.7	8.1	6	18.6	17.1	4	8.3	3.9	5	16.7	3.6	57	271.8	6.0	3	5.4	1.2
Other	0	0	0	1	8.6	7.9	0	0	0	0	0	0	2	16.8	0.4	1	7.8	1.8

* Less than 0.05 grams.

Table 3.15 – Ceramic data summary, Area 2 probability sample, Prince Hamlet – Continued

Culture category / Ware / Type	Square 64S/72E																	
	Levels 2 and 3			Level 4			Levels 5 and 6			Level 7			Levels 8, 9, & 10			Square total		
	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt
Mesa Verde																		
Gray ware																		
Chapin Gray	12	77.4	4.2	4	42.6	11.0	5	25.4	2.0	1	2.9	0.6	3	41.6	2.7	30	221.2	3.7
Moccasin Gray	30	210.1	11.5	4	45.6	11.8	37	229.4	18.4	6	39.1	7.4	31	253.7	16.8	113	789.4	13.3
Mancos Gray	0	0	0	1	10.9	2.8	0	0	0	2	7.6	1.4	3	31.9	2.1	6	50.4	0.8
EP Gray	208	1 406.1	76.7	41	266.2	68.6	194	794.7	63.7	78	451.8	85.9	147	1 027.4	67.9	709	4 338.5	72.9
White ware																		
Chapin B/W	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piedra B/W	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EP White	13	97.2	5.3	3	18.1	4.7	21	146.3	11.7	4	14.7	2.8	13	142.7	9.4	54	419.0	7.0
Red ware																		
Abajo R/O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EP Red	7	40.0	2.2	1	4.5	1.2	13	51.5	4.1	3	10.0	1.9	4	15.7	1.0	33	133.1	2.2
Indeterminate																		
Gray ware																		
Unclassifiable																		
Gray	2	2.6	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	2.6	*
Total	272	1 833.4	100.0	54	387.9	100.0	270	1 247.3	100.0	94	526.1	100.0	201	1 513.0	100.0	987	5 954.2	100.0
Vessel form																		
Jar	252	1 695.9	92.5	50	365.3	94.2	236	1 046.3	83.9	87	501.4	95.3	184	1 354.6	89.5	901	5 396.8	90.6
Bowl	18	130.1	7.1	4	22.6	5.8	32	187.9	15.1	7	24.7	4.7	17	158.4	10.5	81	529.3	8.9
Other	2	7.2	0.4	0	0	0	2	13.1	1.0	0	0	0	0	0	0	5	28.1	0.5

* – Less than 0.05 grams

Table 3.15 – Ceramic data summary, Area 2 probability sample, Prince Hamlet – Continued

Culture category / Ware / Type	Square 64S/84E																				
	Level 1			Level 2			Level 3			Level 4			Level 5			Level 6			Square total		
	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt
Mesa Verde																					
Gray ware																					
Chapin Gray	1	6.3	6.9	5	27.0	5.3	3	7.4	0.5	10	31.9	2.9	7	26.9	5.1	9	53.7	12.1	35	153.2	3.7
Moccasin Gray	1	6.6	7.2	13	44.6	8.7	36	212.7	14.3	11	43.4	3.9	3	29.7	5.6	0	0	0	64	337.0	8.1
Mancos Gray	0	0	0	1	0.7	0.1	0	0	0	6	36.0	3.2	1	23.9	4.9	0	0	0	8	62.6	1.5
EP Gray	16	71.4	77.9	73	415.2	81.1	216	1 165.8	78.4	173	923.8	83.0	89	379.1	71.9	53	336.4	76.1	620	3 291.9	78.9
White ware																					
Chapin B/W	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Piedra B/W	0	0	0	0	0	0	2	4.8	0.3	0	0	0	0	0	0	0	0	0	2	4.8	0.1
EP White	1	7.3	8.0	2	17.6	3.4	11	66.5	4.5	5	40.2	3.6	8	57.0	10.8	5	23.7	5.4	32	212.3	5.1
Red ware																					
Abajo R/O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EP Red	0	0	0	3	6.8	1.3	6	29.1	2.0	14	38.3	3.4	2	8.5	1.6	8	28.4	6.4	33	111.1	2.7
Indeterminate																					
Gray ware																					
Unclassifiable																					
Gray	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	19	91.6	100.0	97	511.9	100.0	274	1 486.3	100.0	219	1 113.6	100.0	[illegible]	527.3	100.0	75	442.2	100.0	794	4 172.9	100.0
Vessel form																					
Jar	18	84.3	92.0	93	483.6	94.5	[illegible]	1 398.7	94.1	204	1 042.5	93.6	101	468.1	88.8	65	409.5	92.6	740	3 886.7	93.1
Bowl	1	7.3	8.0	3	20.4	4.0	15	87.6	5.9	13	71.1	6.4	9	59.2	11.2	10	32.7	7.4	53	278.3	6.7
Other	0	0	0	1	7.9	1.5	0	0	0	0	0	0	0	0	0	0	0	0	1	7.9	0.2

EP – Early Pueblo
B/W – Black-on-white
R/O – Red-on-orange

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Table 3.16 – Flaked lithic tools, Area 2 probability sample, Prince Hamlet*

	Square 64S/54E			Square 64S/58E														
				Levels 1 and 2			Levels 3 and 4			Level 5			Levels 6 and 7			Level 8		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools	22	100.0	79	4	100.0	8	6	100.0	28	1	100.0	93	3	100.0	33	2	100.0	24
Tool morpho-use																		
Unifaced flake	4	18.2	41	0	0	0	5	83.3	27	1	100.0	93	2	66.7	49	1	50.0	32
Core	3	13.6	186	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Used core, cobble tool	3	13.6	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thick uniface	1	4.5	88	0	0	0	1	16.7	31	0	0	0	0	0	0	1	50.0	15
Thin uniface	4	18.2	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Specialized form	1	4.5	19	1	[illegible]	22	0	0	0	0	0	0	0	0	0	0	0	0
Thick biface	3	13.6	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thin biface	0	0	0	1	25.0	6	0	0	0	0	0	0	0	0	0	0	0	0
Projectile point	3	13.6	2	2	50.0	1	0	0	0	0	0	0	1	33.3	1	0	0	0
Grain size																		
Fine	2	9.1	271	1	25.0	22	0	0	0	1	100.0	93	1	33.3	60	0	0	0
Very fine	11	50.0	68	2	50.0	4	3	50.0	28	0	0	0	1	33.3	38	2	100.0	24
Microscopic	9	40.9	49	1	25.0	1	3	50.0	27	0	0	0	1	33.3	1	0	0	0
Item condition																		
Broken																		
Proximal present	0	0	0	2	50.0	4	0	0	0	0	0	0	0	0	0	0	0	0
Medial present	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Complete/nearly complete	22	100.0	79	2	50.0	12	6	100.0	28	1	100.0	93	3	100.0	33	2	100.0	24
Material type																		
Obsidian	1	4.5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Siltstone	2	9.1	271	1	25.0	22	0	0	0	1	100.0	93	1	33.3	60	0	0	0
Chert	8	36.4	55	1	25.0	1	4	66.7	36	0	0	0	1	33.3	1	0	0	0
Silicified sandstone/siltstone	11	50.0	69	2	50.0	4	2	33.3	12	0	0	0	1	33.3	38	2	100.0	24
Silicified sandstone/quartzite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Specific material																		
Indeterminate	18	81.8	82	4	100.0	8	6	100.0	28	1	100.0	93	2	66.7	20	2	100.0	24
Quartzite, Morrison green	4	18.2	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chert, nonlocal	0	0	0	0	0	0	0	0	0	0	0	0	1	33.3	60	0	0	0
Chert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quartzite, nfs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
River cobbles/gravels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 5.16 - Flaked lithic tools, Area 2 probability sample, Prince Hamlet - Continued

	Square 64S/58E									Square 64S/72E								
	Level 10			Levels 11 and 12			Square total			Level 1			Levels 2 and 3			Level 8-10		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools	1	100.0	103	2	100.0	25	19	100.0	31	3	100.0	16	2	100.0	32	3	100.0	40
Tool morpho-use																		
Utilized flake	0	0	0	0	0	0	9	47.4	40	0	0	0	0	0	0	0	0	0
Core	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Used core, cobble tool	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thick uniface	0	0	0	1	50.0	42	3	15.8	29	3	100.0	16	2	100.0	32	3	100.0	40
Thin uniface	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Specialized form	0	0	0	1	50.0	7	2	10.5	15	0	0	0	0	0	0	0	0	0
Thick biface	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thin biface	1	100.0	103	0	0	0	2	10.5	55	0	0	0	0	0	0	0	0	0
Projectile point	0	0	0	0	0	0	3	15.8	1	0	0	0	0	0	0	0	0	0
Grain size																		
Fine	1	100.0	103	1	50.0	42	5	26.3	64	0	0	0	0	0	0	0	0	0
Very fine	0	0	0	1	50.0	7	9	47.4	20	3	100.0	16	2	100.0	32	2	66.7	46
Microscopic	0	0	0	0	0	0	5	26.3	17	0	0	0	0	0	0	1	33.3	29
Item condition																		
Broken																		
Proximal present	0	0	0	0	0	0	2	10.5	4	0	0	0	0	0	0	0	0	0
Medial present	0	0	0	1	50.0	42	1	5.3	42	0	0	0	0	0	0	0	0	0
Complete/nearly complete	1	100.0	103	1	50.0	7	16	84.2	34	3	100.0	16	2	100.0	32	3	100.0	40
Material type																		
Obsidian	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Siltstone	0	0	0	0	0	0	3	15.8	58	1	33.3	22	0	0	0	0	0	0
Chert	0	0	0	0	0	0	6	31.6	24	0	0	0	0	0	0	1	33.3	29
Silicified sandstone/ siltstone	1	100.0	103	2	100.0	25	10	52.6	27	0	0	0	0	0	0	0	0	0
Silicified sandstone/ quartzite	0	0	0	0	0	0	0	0	0	2	66.7	14	2	100.0	32	2	66.7	46
Specific material																		
Indeterminate	0	0	0	0	0	0	15	78.9	25	3	100.0	16	2	100.0	32	3	100.0	40
Quartzite, Morrison green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chert, nonlocal	0	0	0	0	0	0	1	5.3	60	0	0	0	0	0	0	0	0	0
Chert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quartzite, nfs	0	0	0	1	50.0	7	1	5.3	7	0	0	0	0	0	0	0	0	0
River cobbles/gravels	1	100.0	103	1	50.0	42	2	10.5	73	0	0	0	0	0	0	0	0	0

Table 5.16 - Flaked lithic tools, Area 2 probability sample, Prince Hamlet - Continued

	Square 64S/72E			Square 68S/84E																		
	Square total			Level 2			Level 3			Level 4			Level 5			Level 6			Square total			
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	
Total tools	8	100.0	29	1	100.0	56	4	100.0	45	3	100.0	23	1	100.0	23	4	100.0	24	13	100.0	32	
Tool morpho-use																						
Utilized flake	0	0	0	0	0	0	3	75.0	35	3	100.0	23	1	100.0	23	4	100.0	24	11	84.6	26	
Core	0	0	0	0	0	0	1	25.0	74	0	0	0	0	0	0	0	0	0	1	7.7	74	
Used core, cobble tool	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Thick uniface	8	100.0	29	1	100.0	56	0	0	0	0	0	0	0	0	0	0	0	0	1	7.7	56	
Thin uniface	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Specialized form	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Thick biface	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Thin biface	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Projectile point	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grain size																						
Fine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	25.0	22	1	7.7	22	
Very fine	7	87.5	29	1	100.0	56	3	75.0	54	1	33.3	31	0	0	0	2	50.0	33	7	53.8	45	
Microscopic	1	12.5	29	0	0	0	1	25.0	15	2	66.7	19	1	100.0	23	1	25.0	7	5	38.5	16	
Item condition																						
Broken																						
Proximal present	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Medial present	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Complete/nearly complete	8	100.0	29	1	100.0	56	4	100.0	45	3	100.0	23	1	100.0	23	4	100.0	24	13	100.0	32	
Material type																						
Obsidian	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Siltstone	1	12.5	22	0	0	0	0	0	0	0	0	0	0	0	0	1	25.0	22	1	7.7	22	
Chert	1	12.5	29	0	0	0	3	75.0	41	2	66.7	19	1	100.0	23	1	25.0	7	7	53.8	27	
Silicified sandstone/ siltstone	0	0	0	1	100.0	56	1	25.0	56	1	33.3	31	0	0	0	2	50.0	33	5	38.5	42	
Silicified sandstone/ quartzite	6	75.0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Specific material																						
Indeterminate	8	100.0	29	1	100.0	56	4	100.0	45	2	66.7	26	1	100.0	23	4	100.0	24	12	92.3	34	
Quartzite, Morrison green	0	0	0	0	0	0	0	0	0	1	33.3	16	0	0	0	0	0	0	1	7.7	16	
Chert, nonlocal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Chert	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Quartzite, nfs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
River cobbles/gravels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

*No flaked lithic tools were recovered from probability square 60S/54E, from Level 9 of square 64S/58E, from Levels 4, 5, 6, and 7 of square 64S/72E, or from Level 1 of square 68S/84E.

†Specialized forms consist of 1 denticulate, 1 graver, beak, or perforator; and 1 drill.

nfs - Not further specified

Table 5.17 - Flaked lithic debitage, Area 2 probability sample, Prince Hamlet

	Square 60S/54E			Square 64S/54E			Square 64S/58E								
	Total			Total			Levels 1 and 2			Levels 3 and 4			Level 5		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags															
Grain size															
Medium	0	0	0	0	0	0	0	0	0	1	1.0	3	0	0	0
Fine	59	27.6	14	19	10.5	9	6	11.5	6	30	30.0	12	7	20.0	7
Very fine	108	50.5	10	104	57.5	11	30	57.7	8	45	45.0	6	19	54.3	12
Microscopic	47	22.0	7	58	32.0	5	16	30.8	4	24	24.0	4	9	25.7	2
Total flakes/ flake frags	214	100.0	10	181	100.0	9	52	100.0	7	100	100.0	7	35	100.0	8
Items with cortex	95	44.4		48	26.5		18	34.6		49	49.0		15	42.9	
Whole flakes	87	40.7		84	46.4		27	51.9		37	37.0		22	62.9	
Angular debris	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

frags - Fragments
... - Information not available

Table 5.17 - Flaked lithic debitage, Area 2 probability sample, Prince Hamlet - Continued

	Square 64S/58E														
	Levels 6 and 7			Level 8			Level 9			Level 10			Levels 11 and 12		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags															
Grain size															
Medium	1	1.9	16	0	0	0	0	0	0	3	8.6	4	1	2.3	6
Fine	11	21.2	12	6	18.2	5	4	18.2	3	12	34.3	4	23	52.3	5
Very fine	25	48.1	6	22	66.7	6	17	77.3	3	17	48.6	2	20	45.5	9
Microscopic	15	28.8	5	5	15.2	2	1	4.5	1	3	8.6	<1	0	0	0
Total flakes/ flake frags	52	100.0	7	33	100.0	5	22	100.0	3	35	100.0	3	44	100.0	7
Items with cortex	17	32.7		17	51.5		11	50.0		18	51.4		21	47.7	
Whole flakes	35	67.3		16	48.5		9	40.9		12	34.3		18	40.9	
Angular debris	3	100.0	3	1	100.0	3	5	100.0	<1	2	100.0	3	11	100.0	1

Table 5.17 - Flaked lithic debitage, Area 2 probability sample, Prince Hamlet - Continued

	Square 64S/58E			Square 64S/72E											
	Square total			Level 1			Levels 2 and 3			Level 4			Level 5 and 6		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags															
Grain size															
Medium	6	1.6	6	0	0	0	0	0	0	1	4.0	4	0	0	0
Fine	99	26.5	8	4	17.4	9	17	21.5	32	7	28.0	8	31	27.4	6
Very fine	195	52.3	7	12	52.2	11	52	65.8	16	14	56.0	10	64	56.6	7
Microscopic	73	19.6	4	7	30.4	12	10	12.7	5	3	12.0	2	18	15.9	9
Total flakes/ flake frags	373	100.0	7	23	100.0	11	79	100.0	18	25	100.0	5	113	100.0	8
Items with cortex	166	44.5		14	60.9		39	49.4		15	60.0		48	42.5	
Whole flakes	176	47.2		14	60.9		48	60.8		17	68.0		50	44.2	
Angular debris	24	100.0	1	0	0	0	0	0	0	0	0	0	0	0	0

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Table 5.17 - Flaked lithic debitage, Area 2 probability sample, Prince Hamlet - Continued

	Square 64S/72E									Square 68S/84E					
	Level 7			Levels 8-10			Square total			Level 1			Level 2		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags															
Grain size															
Medium	0	0	0	0	0	0	1	0.3	4	0	0	0	0	0	0
Fine	7	26.9	16	10	20.4	10	76	24.1	15	4	33.3	19	19	38.0	9
Very fine	12	46.2	5	30	61.2	16	184	58.4	11	7	58.3	4	25	50.0	7
Microscopic	7	26.9	6	9	18.4	16	54	17.1	9	1	8.3	1	6	12.0	5
Total flakes/ flake frags	26	100.0	8	49	100.0	15	315	100.0	12	12	100.0	9	50	100.0	8
Items with cortex	11	42.3	...	15	30.6	...	142	45.1	...	5	41.7	...	19	38.0	...
Whole flakes	10	38.5	...	28	57.1	...	167	53.0	...	4	33.3	...	18	36.0	...
Angular debris	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 5.17 - Flaked lithic debitage, Area 2 probability sample, Prince Hamlet - Continued

	Square 68S/84E														
	Level 3			Level 4			Level 5			Level 6			Square total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags															
Grain size															
Medium	4	3.1	20	7	9.1	23	3	5.1	6	4	11.1	5	18	4.9	15
Fine	28	21.5	12	5	6.5	12	12	20.3	4	12	33.3	4	80	22.0	9
Very fine	67	51.5	11	58	75.3	10	34	57.6	4	13	36.1	1	204	56.0	8
Microscopic	31	23.8	9	7	9.1	3	10	16.9	3	7	19.4	8	62	17.0	7
Total flakes/ flake frags	130	100.0	11	77	100.0	11	59	100.0	4	36	100.0	4	364	100.0	8
Items with cortex	49	37.7	...	31	40.3	...	18	30.5	...	15	41.7	...	137	37.6	...
Whole flakes	56	43.1	...	42	54.5	...	29	49.2	...	10	27.8	...	159	43.7	...
Angular debris	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 5.18 – Nonflaked lithic tools, Area 2 probability sample, Prince Hamlet*

	Square 60S/54E			Square 64S/54E			Square 64S/58E					
	Total			Total			Levels 1 and 2			Level 5		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	19	100.0	239	8	100.0	1 372	3	100.0	58	1	100.0	19
Tool morpho-use												
Polishing stone	13	68.4	90	5	62.5	122	3	100.0	58	1	100.0	19
Abrading stone	1	5.3	46	0	0	0	0	0	0	0	0	0
Anvil stone	1	5.3	169	0	0	0	0	0	0	0	0	0
Hammerstone	1	5.3	1 671	1	12.5	315	0	0	0	0	0	0
One-hand mano	2	10.5	535	0	0	0	0	0	0	0	0	0
Two-hand mano	1	5.3	418	0	0	0	0	0	0	0	0	0
Metate, nfs	0	0	0	2	25.0	5 025	0	0	0	0	0	0
Trough metate	0	0	0	0	0	0	0	0	0	0	0	0
Slab metate	0	0	0	0	0	0	0	0	0	0	0	0
Specialized form	0	0	0	0	0	0	0	0	0	0	0	0
Material type												
Igneous, nfs	7	36.8	84	4	50.0	1 710	3	100.0	58	0	0	0
Fragmentary igneous	0	0	0	0	0	0	0	0	0	0	0	0
Sedimentary, nfs	3	15.8	26	0	0	0	0	0	0	0	0	0
Coarse sandstone	1	5.3	418	0	0	0	0	0	0	0	0	0
Fine to very fine sandstone	2	10.5	130	0	0	0	0	0	0	0	0	0
Medium sandstone	0	0	0	0	0	0	0	0	0	0	0	0
Metamorphic, nfs	0	0	0	1	12.5	19	0	0	0	0	0	0
Quartzite	6	31.6	533	3	37.5	1 372	0	0	0	1	100.0	19
Shale	0	0	0	0	0	0	0	0	0	0	0	0
Item condition												
Broken												
Identifiable	5	26.3	310	1	12.5	315	0	0	0	0	0	0
Complete/nearly complete	14	73.7	214	7	87.5	1 523	3	100.0	58	1	100.0	19
Production evaluation												
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0
Natural (unmodified)	18	94.7	250	8	100.0	1 372	3	100.0	58	1	100.0	19
Minimally modified	1	5.3	46	0	0	0	0	0	0	0	0	0
Stylized	0	0	0	0	0	0	0	0	0	0	0	0

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Table 5.18 – Nonflaked lithic tools, Area 2 probability sample, Prince Hamlet* – Continued

	Square 64S/58E									Square 64S/72E		
	Levels 6 and 7			Level 8			Square total			Level 1		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	3	100.0	52	1	100.0	6 725	8	100.0	884	3	100.0	39
Tool morpho-use												
Polishing stone	3	100.0	52	0	0	0	7	87.5	50	3	100.0	39
Abrading stone	0	0	0	0	0	0	0	0	0	0	0	0
Anvil stone	0	0	0	0	0	0	0	0	0	0	0	0
Hammerstone	0	0	0	0	0	0	0	0	0	0	0	0
One-hand mano	0	0	0	0	0	0	0	0	0	0	0	0
Two-hand mano	0	0	0	0	0	0	0	0	0	0	0	0
Metate, nfs	0	0	0	0	0	0	0	0	0	0	0	0
Trough metate	0	0	0	1	100.0	6 725	1	12.5	6 725	0	0	0
Slab metate	0	0	0	0	0	0	0	0	0	0	0	0
Specialized form	0	0	0	0	0	0	0	0	0	0	0	0
Material type												
Igneous, nfs	2	66.7	55	0	0	0	5	62.5	57	3	100.0	39
Fragmentary igneous	0	0	0	0	0	0	0	0	0	0	0	0
Sedimentary, nfs	0	0	0	0	0	0	0	0	0	0	0	0
Coarse sandstone	0	0	0	0	0	0	0	0	0	0	0	0
Fine to very fine sandstone	1	33.3	46	1	100.0	6 725	2	25.0	3 386	0	0	0
Medium sandstone	0	0	0	0	0	0	0	0	0	0	0	0
Metamorphic, nfs	0	0	0	0	0	0	0	0	0	0	0	0
Quartzite	0	0	0	0	0	0	1	12.5	19	0	0	0
Shale	0	0	0	0	0	0	0	0	0	0	0	0
Item condition												
Broken												
Identifiable	0	0	0	1	100.0	6 725	1	12.5	6 725	0	0	0
Complete/nearly complete	3	100.0	52	0	0	0	7	87.5	50	3	100.0	39
Production evaluation												
Indeterminate	0	0	0	1	100.0	6 725	1	12.5	6 725	0	0	0
Natural (unmodified)	3	100.0	52	0	0	0	7	87.5	50	3	100.0	39
Minimally modified	0	0	0	0	0	0	0	0	0	0	0	0
Stylized	0	0	0	0	0	0	0	0	0	0	0	0

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Table 5.18 – Nonflaked lithic tools, Area 2 probability sample, Prince Hamlet* – Continued

	Square 64S/72E											
	Levels 2 and 3			Level 4			Levels 5 and 6			Level 7		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	4	100.0	103	1	100.0	55	1	100.0	1 234	2	100.0	19
Tool morpho-use												
Polishing stone	1	25.0	31	1	100.0	55	0	0	0	2	100.0	19
Abrading stone	1	25.0	94	0	0	0	0	0	0	0	0	0
Anvil stone	0	0	0	0	0	0	0	0	0	0	0	0
Hammerstone	0	0	0	0	0	0	0	0	0	0	0	0
One-hand mano	2	50.0	144	0	0	0	1	100.0	1 234	0	0	0
Two-hand mano	0	0	0	0	0	0	0	0	0	0	0	0
Metate, nfs	0	0	0	0	0	0	0	0	0	0	0	0
Trough metate	0	0	0	0	0	0	0	0	0	0	0	0
Slab metate	0	0	0	0	0	0	0	0	0	0	0	0
Specialized form	0	0	0	0	0	0	0	0	0	0	0	0
Material type												
Igneous, nfs	0	0	0	0	0	0	0	0	0	0	0	0
Fragmentary igneous	0	0	0	0	0	0	0	0	0	2	100.0	19
Sedimentary, nfs	0	0	0	1	100.0	55	0	0	0	0	0	0
Coarse sandstone	0	0	0	0	0	0	0	0	0	0	0	0
Fine to very fine sandstone	1	100.0	31	0	0	0	1	100.0	1 234	0	0	0
Medium sandstone	0	0	0	0	0	0	0	0	0	0	0	0
Metamorphic, nfs	0	0	0	0	0	0	0	0	0	0	0	0
Quartzite	0	0	0	0	0	0	0	0	0	0	0	0
Shale	0	0	0	0	0	0	0	0	0	0	0	0
Item condition												
Broken												
Identifiable	3	75.0	127	0	0	0	1	100.05	1 234	0	0	0
Complete/nearly complete	1	25.0	31	1	100.0	55	0	0	0	2	100.0	19
Production evaluation												
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0
Natural (unmodified)	3	75.0	106	1	100.0	55	1	100.0	1 234	2	100.0	19
Minimally modified	1	25.0	94	0	0	0	0	0	0	0	0	0
Stylized	0	0	0	0	0	0	0	0	0	0	0	0

Table 5.18 – Nonflaked lithic tools, Area 2 probability sample, Prince Hamlet* – Continued

	Square 64S/72E						Square 68S/84E								
	Levels 8-10†			Square total			Level 3			Level 4			Square total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	6	100.0	4 010	17	100.0	1 525	3	100.0	414	1	100.0	542	4	100.0	446
Tool morpho-use															
Polishing stone	1	16.7	140	8	47.1	48	0	0	0	0	0	0	0	0	0
Abrading stone	0	0	0	1	5.9	94	0	0	0	0	0	0	0	0	0
Anvil stone	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hammerstone	1	16.7	1 357	1	5.9	1 357	0	0	0	0	0	0	0	0	0
One-hand mano	0	0	0	3	17.6	507	1	33.3	1 227	1	100.0	542	2	50.0	885
Two-hand mano	2	33.3	2 506	2	11.8	2 506	0	0	0	0	0	0	0	0	0
Metate, nfs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trough metate	1	16.7	11 700	1	5.9	11 700	0	0	0	0	0	0	0	0	0
Slab metate	1	16.7	5 850	1	5.9	5 850	0	0	0	0	0	0	0	0	0
Specialized form	0	0	0	0	0	0	§2	66.7	8	0	0	0	2	50.0	8
Material type															
Igneous, nfs	1	16.7	1 357	6	35.3	294	1	33.3	1 227	0	0	0	1	25.0	1 227
Fragmentary igneous	0	0	0	2	11.8	19	0	0	0	0	0	0	0	0	0
Sedimentary, nfs	0	0	0	2	11.8	75	0	0	0	0	0	0	0	0	0
Coarse sandstone	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fine to very fine sandstone	3	50.0	3 080	5	29.4	2 101	0	0	0	0	0	0	0	0	0
Medium sandstone	2	33.3	6 731	2	11.8	6 731	0	0	0	0	0	0	0	0	0
Metamorphic, nfs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quartzite	0	0	0	0	0	0	0	0	0	1	100.0	542	1	25.0	542
Shale	0	0	0	0	0	0	2	66.7	8	0	0	0	2	50.0	8
Item condition															
Broken															
Identifiable	2	33.3	8 775	6	35.3	3 194	0	0	0	1	100.0	542	1	25.0	542
Complete/nearly complete	4	66.7	1 627	11	64.7	614	3	100.0	414	0	0	0	3	75.0	414
Production evaluation															
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Natural (unmodified)	2	33.3	749	12	70.6	272	1	33.3	1 227	1	100.0	542	2	50.0	885
Minimally modified	4	66.7	5 640	5	29.4	4 531	0	0	0	0	0	0	0	0	0
Stylized	0	0	0	0	0	0	2	66.7	8	0	0	0	2	50.0	8

*No nonflaked lithic tools were recovered from Levels 3, 4, 9, 10, 11, and 12 of square 64S/54E, or from Levels 1, 2, 5, and 6 or square 68S/84E.

†Does not include material found on the floor of Pithouse 2.

§One effigy and one pendant.

nfs - Not further specified.

subsurface totals for Area 2 in general (table 6). Even so, the small numbers involved in these 2 material classes probably render this difference insignificant.

Mancos Gray sherds were found in these 2 probability squares, suggesting that filling of the pitstructures did not begin until sometime after A.D. 860. The relatively small percentage of Mancos Gray sherds (0.8 percent in square 64S/72E and 1.6 percent in square 64S/58E) may indicate that abandonment of the site occurred not too long after this ceramic type was introduced.

A tendency for medium-grained lithic materials to be less common in later deposits was noted in the in situ midden of probability square 64S/84E; this portion of the midden appears to span much of the occupation of the site. A greater percentage of fine-grained materials occurs in the upper levels of this square, and the trend is apparent in both debitage and tools (although the flaked lithic tool sample size is small). No such tendency is apparent in the level-by-level data for the probability squares in the pitstructures, but this may be due to the relatively late deposition of these sediments.

One of the most noteworthy aspects of the artifact assemblage from square 68S/84E is the absence of Moccasin Gray sherds in the lowest level of the square. Given the small number of sherds in this level, the absence of Moccasin Gray could be coincidental, but when combined with similar results for the other midden test squares, this lack of Moccasin Gray suggests a fairly long duration for the occupation of the site.

Area 3

Two probability sample squares were located in Area 3: 74S/72E and 72S/68E. The inclusion of square 74S/72E proved to be fortuitous in 2 ways: it permitted definition of the midden to the south, and it demonstrated that less of the midden had been lost to the roadcut than had been previously supposed. The thin skift of midden deposits on its surface proved to be entirely slope wash; after the first few centimeters, fill in this square consisted wholly of the sterile subsoil of the site. No subsurface artifacts were recovered. The selection of this "empty" square was unfortunate, however, in that it broadened the confidence intervals for the artifact population estimates for the whole probability sample and especially for the Area 3 sample.

Square 72S/68E

As expected, given its south-central location, this square proved to be located in the site midden. Figure 5.12 shows a profile of the strata recorded in this square. Stratum 3 gave every evidence of being in situ midden in a loamy sand matrix; it was darkly stained with organic material

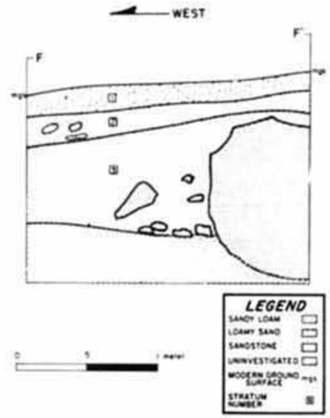

Figure 5.12 – Stratigraphic profile of north wall of probability square 72S/68E, Prince Hamlet. Profile F shown in plan in figure 5.3. The following approximate correlations between the strata shown in this figure and the levels discussed in text apply: Strata 1 and 2 = Levels 1 through 4; Stratum 3 = Levels 5 through 8.

and was rich in artifacts. Sterile soil was encountered at the base of Stratum 3. The interface between sterile soil and the overlying midden is inferred to have been the ground surface during the prehistoric occupation of the site; this interface was littered with rocks, including the boulder that partially obstructed the north wall of the square. Stratum 2 was similar to Stratum 3 in texture and color, but it contained much more rock, and the artifacts, though numerous, were judged subjectively to be smaller on the average. This stratum appeared to consist of midden deposited under a slightly different regime than the Stratum 3 midden. Stratum 1, a sandy loam, was the postoccupational surface deposit.

As was the case with square 68S/84E, the dip of the strata in square 72S/68E precludes any direct translation of the arbitrary level artifact data into stratum artifact counts. However, separating the artifacts recovered from this square into the same kind of "upper" (Levels 1 through 4) and "lower" (Levels 5 through 8) divisions that were created for square 68S/84E is possible. Again, the upper division corresponds very approximately to Strata 1 and 2 and the lower division corresponds to Stratum 3.

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Artifacts from the Area 3 Probability Sample

Tables 5.19 through 5.22 give level-by-level tabulations of the artifacts from square 72S/68E (as noted previously, no subsurface artifacts were recovered from square 74S/72E). As with square 68S/64E, the lowest level yielded no Moccasin Gray (introduced in the project area approximately A.D. 760). Abajo Red-on-orange (introduced approximately A.D. 720) was recovered from the lowest level of square 72S/68E, and Chapin Black-on-white (relatively rare after A.D. 800) was recovered from the next to the lowest level. Considered together, the patterns of occurrence of these ceramic types suggest a date range for the earliest occupation of Prince Hamlet of approximately A.D. 720-800, with the major midden deposition occurring during the mid-eighth century.

The flaked lithic debitage data for square 72S/68E provide limited support for the notion that medium-grained lithic materials became less popular and fine-grained materials more popular through time at the site. This trend is not particularly pronounced, but it is sufficient to support the pattern observed in the surface collection.

The artifacts from probability square 72S/68E can also be examined in terms of the level groupings that approximately correspond to Strata 2 and 3. From the appearance of the strata, one would expect a higher percentage of artifacts from the lower division, and this is indeed the case with most artifact classes: 31.3 percent of the ceramics were in the upper division and 68.7 percent were in the lower; 20.0 percent of the nonflaked lithics were in the upper and 80.0 percent in the lower; and 38.5 percent of the debitage was in the upper division and 61.5 percent in the lower. In addition, 26.0 percent of the faunal material recovered was from the upper division while 75.0 percent was from the lower division. The flaked lithic tool assemblage, however, does not display this pattern; only slightly over half (54.4 percent) of the tools occurred in the lower division.

INTENSIVE EXCAVATIONS

Roomblock

The roomblock at Prince Hamlet (fig. 5.4) is composed of at least 4 and possibly 5 of the typical Pueblo I roomsuites or "apartments" described by Hayes and Lancaster (1975), plus what may be 2 or more smaller roomsuites. Each large suite consists of a large front room and 2 smaller back rooms; each small suite consists of a small front room and a single back room. Most of 1 large unit (Rooms 2, 1, and 3) and most of 1 small unit (Rooms 4 and 7) were excavated. A second large apartment (Rooms 8, 9, and 6) was subjected to wall outlining and limited excavation, and a third large apartment (Rooms 10, 11, and 12) was outlined only. The 3 westernmost roomsuites shown in figure 5.4 (Rooms 14 and 13; Rooms 16, 17, and 15; and Rooms 19, 20, and 18) were traced only by wall alinements visible on the modern ground surface and through evidence encountered during limited shovel scraping.

In addition to these roomsuites, excavation in the roomblock revealed a single room (Room 5) beneath Rooms 4 and 8, and surface clearing in front of the eastern portion of the roomblock revealed the remains of what appeared to be a low retaining wall (fig. 5.4). All of these structures are discussed individually below.

Retaining Wall

Because of the enormous number of naturally occurring rocks on the surface of the site, the roomblock was nearly impossible to define by visual inspection of modern ground surface. When the alinements were mapped at the end of the 1979 season, however, the "noise" of trees and surface rubble was filtered out, and the general outline of the roomblock became clear. At that time, a rock alinement was noted well in front of and apparently unconnected with the eastern end of the roomblock.

During the 1980 season, surface clearing of the area south of Rooms 4 and 5 revealed faint traces of a rock alinement oriented roughly east-west in front of the roomblock and connected with the alinement noted in 1979. Because of its location in front of the roomblock and perpendicular to the slope (fig. 5.1), this alinement is interpreted as the remnant of a retaining wall.

The extensive erosion to which the site has been subjected since abandonment has all but destroyed this retaining wall. If the wall ever extended farther west, that portion has been totally obliterated by the more extensive erosion on the western side of the site. The original height or manner of construction of the retaining wall is unknown, and even its inferred function cannot be demonstrated. If this was a retaining wall, it would have served either to check the flow of water onto the roofs of the pitstructures, or to permit the construction of relatively flat work areas in front of the surface rooms, or both. Probability square 56S/66E was located in the vicinity of the retaining wall, but there was no indication of any use surfaces beneath or within the cultural fill of that square. As noted in the discussion of this probability square, the aboriginal surface here was overlain by rich cultural deposits (Stratum 4 in fig. 5.8) that may represent intentional filling to level the natural slope in front of the roomblock. But, as figure 5.8 shows, this cultural deposit conforms to the natural slope. Possibly, Stratum 4 originally did level out the slope and the Stratum 3 material filled a later pit feature that was bisected by this profile (no feature was actually defined).

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Table 5.19 – Ceramic data summary, Area 3 probability sample, Prince Hamlet

Culture category: Ware Type	Square 72S/68E Level 1 N	wt(g)	%wt	Level 2 N	wt(g)	%wt	Level 3 N	wt(g)	%wt
Mesa Verde:									
Gray ware									
Chapin Gray	0	0	0	6	12.5	3.5	36	111.0	7.6
Moccasin Gray	1	3.2	5.5	1	4.6	1.3	11	66.7	4.6
Mancos Gray	0	0	0	0	0	0	3	7.4	0.5
EP Gray	15	50.7	87.9	98	311.3	87.2	497	1 104.4	75.6
Dolores Brown	0	0	0	0	0	0	0	0	0
White ware									
Chapin B/W	0	0	0	0	0	0	0	0	0
Piedra B/W	0	0	0	0	0	0	1	3.6	0.2
EP White	1	3.8	6.6	1	12.0	3.4	17	112.2	7.7
Red ware									
Abajo R/O	0	0	0	0	0	0	0	0	0
EP Red	0	0	0	7	15.0	4.2	15	52.9	3.6
Chuska:									
Gray ware									
EP Gray	0	0	0	0	0	0	1	0.9	0.1
Kayenta or Cibola:									
Gray ware									
EP Gray	0	0	0	1	1.7	0.5	1	1.4	0.1
Indeterminate:									
Gray ware									
Unclassifiable									
Gray	0	0	0	0	0	0	0	0	0
Total	17	57.7	100.0	114	357.1	100.0	582	1 460.5	100.0
Vessel form:									
Jar	16	53.9	93.4	107	334.1	93.6	557	1 299.4	89.0
Bowl	1	3.8	6.6	7	23.0	6.4	24	145.5	10.0
Other	0	0	0	0	0	0	1	15.6	1.1

Table 5.19 – Ceramic data summary, Area 3 probability sample, Prince Hamlet – Continued

Culture category: Ware Type	Square 72S/68E Level 4 N	wt(g)	%wt	Level 5 N	wt(g)	%wt	Level 6 N	wt(g)	%wt
Mesa Verde:									
Gray ware									
Chapin Gray	38	116.8	2.5	21	224.2	5.9	44	490.1	7.0
Moccasin Gray	39	254.9	5.5	32	265.4	7.0	15	89.6	1.3
Mancos Gray	4	7.8	0.2	2	3.4	0.1	3	37.6	0.5
EP Gray	718	3 691.9	79.3	514	2 849.0	75.2	817	5 210.3	74.1
Dolores Brown	0	0	0	1	12.7	0.3	0	0	0
White ware									
Chapin B/W	0	0	0	0	0	0	0	0	0
Piedra B/W	5	24.0	0.5	2	12.2	0.3	5	135.6	1.9
EP White	45	343.9	7.4	53	289.4	7.6	108	774.4	11.0
Red ware									
Abajo R/O	1	2.7	0.1	0	0	0	0	0	0
EP Red	47	185.4	4.0	33	129.9	3.4	63	298.4	4.2
Chuska:									
Gray Ware									
EP Gray	2	4.1	0.1	0	0	0	0	0	0
Kayenta or Cibola:									
Gray ware									
EP Gray	3	10.3	0.2	0	0	0	0	0	0
Indeterminate:									
Gray ware									
Unclassifiable									
Gray	2	13.8	0.3	0	0	0	0	0	0
Total	904	4 655.6	100.0	658	3 786.2	100.0	1055	7 036.0	100.0
Vessel form:									
Jar	835	4 208.0	90.4	574	3 360.5	88.8	888	5 907.0	84.0
Bowl	68	445.3	9.6	84	425.7	11.2	163	1 115.5	15.5
Other	1	2.3	*	0	0	0	4	13.5	0.4

Table 5.19 – Ceramic data summary, Area 3 probability sample, Prince Hamlet – Continued

Culture category: Ware Type	Square 72S/68E Level 7 N	wt(g)	%wt	Level 8 N	wt(g)	%wt	Square total N	wt(g)	%wt
Mesa Verde:									
Gray ware									
Chapin Gray	34	495.9	7.8	45	463.0	6.6	244	1 911.5	6.2
Moccasin Gray	6	55.3	0.9	0	0	0	105	739.7	2.4
Mancos Gray	1	4.2	0.1	0	0	0	13	60.4	0.2
EP Gray	683	5 039.2	79.3	775	5 397.9	77.4	4 117	23 656.7	77.1
Dolores Brown	0	0	0	0	0	0	1		*
White ware									
Chapin B/W	8	136.3	2.1	0	0	0	8	136.3	0.4
Piedra B/W	2	36.2	0.6	5	47.9	0.7	20	259.5	0.8
EP White	72	461.9	7.3	149	941.2	13.5	446	2 938.8	9.6
Red ware									
Abajo R/O	0	0	0	5	63.5	0.9	6	66.2	0.2
EP Red	30	117.0	1.8	17	54.9	0.8	212	853.5	2.8
Chuska:									
Gray ware									
EP Gray	0	0	0	0	0	0	3	5	*
Kayenta or Cibola:									
Gray ware									
EP Gray	1	5.9	0.1	2	5.9	0.1	8	25.2	0.1
Indeterminate:									
Gray ware									
Unclassifiable									
Gray	0	0	0	0	0	0	2	13.8	*
Total	837	6 351.9	100.0	998	6 974.3	100.0	5 165	30 679.3	100.0
Vessel form:									
Jar	733	5 631.7	88.7	824	5 869.5	84.2	4 534	26 664.1	86.9
Bowl	104	720.2	11.3	173	1 103.4	15.8	624	3 982.4	13.0
Other	0	0	0	1	1.4	*	7	32.8	0.1

EP – Early Pueblo.
R/O – Red-on-orange.
B/W – Black-on-white.
* – Less than 0.05 grams.

Table 5.20 – Flaked lithic tools, Area 3 probability sample, Prince Hamlet*

	Square 72S/68E								
	Level 2			Level 3			Level 4		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	5	100.0	49	7	100.0	186	19	100.0	58
Tool morpho-use									
Indeterminate	0	0	0	0	0	0	0	0	0
Utilized flake	1	20.0	18	1	14.3	33	9	47.4	35
Core	0	0	0	3	42.9	110	1	5.3	86
Used core, cobble tool	1	20.0	129	0	0	0	1	5.3	100
Thick uniface	2	40.0	42	2	28.6	156	3	15.8	79
Thin uniface	0	0	0	0	0	0	4	21.1	33
Specialized form†	0	0	0	0	0	0	0	0	0
Thick biface	0	0	0	1	14.3	625	1	5.3	227
Thin biface	1	20.0	16	0	0	0	0	0	0
Grain size									
Fine	0	0	0	0	0	0	2	10.5	140
Very fine	3	60.0	63	6	85.7	190	13	68.4	51
Microscopic	2	40.0	28	1	14.3	160	4	21.1	38
Item condition									
Indeterminate	0	0	0	0	0	0	1	5.3	1
Broken Identifiable	0	0	0	0	0	0	0	0	0
Complete/nearly complete	5	100.0	49	7	100.0	186	18	94.7	61
Material type									
Siltstone	0	0	0	0	0	0	2	10.5	140
Chert	2	40.0	28	0	0	0	4	21.1	38
Silicified sandstone/ siltstone	3	60.0	63	7	100.0	186	13	68.4	51
Specific material									
Indeterminate	5	100.0	49	6	85.7	190	17	89.5	62
Chert, chalcedony; Burro Canyon	0	0	0	1	14.3	160	0	0	0
Quartzite, Morrison green	0	0	0	0	0	0	2	10.5	25

Table 5.20 – Flaked lithic tools, Area 3 probability sample, Prince Hamlet – Continued

	Square 72S/68E								
	Level 5			Level 6			Level 7		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	4	100.0	153	8	100.0	111	6	100.0	91
Tool morpho-use									
Indeterminate	0	0	0	1	12.5	1	0	0	0
Utilized flake	0	0	0	3	37.5	62	1	16.7	28
Core	1	25.0	108	2	25.0	278	2	33.3	86
Used core, cobble tool	1	25.0	438	0	0	0	0	0	0
Thick uniface	1	25.0	63	2	25.0	74	1	16.7	32
Thin uniface	1	25.0	2	0	0	0	0	0	0
Specialized form†	0	0	0	0	0	0	0	0	0
Thick biface	0	0	0	0	0	0	2	33.3	158
Thin biface	0	0	0	0	0	0	0	0	0
Grain size									
Fine	0	0	0	1	12.5	104	1	16.7	146
Very fine	2	50.0	220	3	37.5	188	2	33.3	99
Microscopic	2	50.0	86	4	50.0	56	3	50.0	68
Item condition									
Indeterminate	0	0	0	1	12.5	1	0	0	0
Broken Identifiable	1	25.0	2	0	0	0	0	0	0
Complete/nearly complete	3	75.0	203	7	87.5	127	6	100.0	91
Material type									
Siltstone	0	0	0	1	12.5	104	1	16.7	146
Chert	2	50.0	86	5	62.5	55	3	50.0	68
Silicified sandstone/ siltstone	2	50.0	220	2	25.0	255	2	33.3	99
Specific material									
Indeterminate	4	100.0	153	8	100.0	111	6	100.0	91
Chert, chalcedony; Burro Canyon	0	0	0	0	0	0	0	0	0
Quartzite, Morrison green	0	0	0	0	0	0	0	0	0

Table 5.20 – Flaked lithic tools, Area 3 probability sample, Prince Hamlet – Continued

	Square 72S/68E					
	Level 8			Square total		
	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	8	100.0	59	57	100.0	91
Tool morpho-use						
Indeterminate	0	0	0	1	1.8	1
Utilized flake	5	62.5	37	20	35.1	38
Core	1	12.5	62	10	17.5	131
Used core, cobble tool	1	12.5	222	4	7.0	222
Thick uniface	0	0	0	11	19.3	80
Thin uniface	0	0	0	5	8.8	27
Specialized form	1	12.5	5	1	1.8	5
Thick biface	0	0	0	4	7.0	292
Thin biface	0	0	0	1	1.8	16
Grain size						
Fine	0	0	0	4	7.0	132
Very fine	2	25.0	148	31	54.4	113
Microscopic	6	75.0	30	22	38.6	52
Item condition						
Indeterminate	0	0	0	2	3.5	1
Broken						
Identifiable	0	0	0	1	1.8	2
Complete/nearly complete	8	100.0	59	54	94.7	96
Material type						
Siltstone	0	0	0	4	7.0	132
Chert	6	75.0	30	22	38.6	47
Silicified sandstone/ siltstone	2	25.0	148	31	54.4	116
Specific material						
Indeterminate	8	100.0	59	54	94.7	92
Chert, chalcedony: Burro Canyon	0	0	0	1	1.8	160
Quartzite, Morrison green	0	0	0	2	3.5	25

* No flaked lithic tools were recovered from Level 1 of square 72S/68E.
† Graver.

Table 5.21 – Flaked lithic debitage, Area 3 probability sample, Prince Hamlet

	Square 72S/68E														
	Level 1			Level 2			Level 3			Level 4			Level 5		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:															
Grain size															
Medium	0	0	0	0	0	0	1	0.5	40	9	2.3	42	7	2.2	14
Fine	5	50.0	5	7	31.8	4	43	23.1	5	58	14.5	10	45	14.3	12
Very fine	5	50.0	5	12	54.5	19	72	38.7	7	241	60.4	9	194	61.6	7
Microscopic	0	0	0	3	13.6	25	70	37.6	9	91	22.8	9	69	21.9	7
Total flakes/ flake frags	10	100.0	5	22	100.0	15	186	100.0	7	399	100.0	10	315	100.0	8
Items with cortex	2	20.0	...	10	45.5	...	52	28.0	...	164	41.1	...	98	31.1	...
Whole flakes	2	20.0	...	9	40.9	...	62	33.3	...	130	32.6	...	154	48.9	...

frags - Fragments.
... - Information not available.

Table 5.21 – Flaked lithic debitage, Area 3 probability sample, Prince Hamlet – Continued

	Square 72S/68E											
	Level 6			Level 7			Level 8			Square total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:												
Grain size												
Medium	11	3.3	83	2	1.2	4	0	0	0	30	1.9	48
Fine	50	15.0	16	12	7.3	44	14	8.2	21	234	14.6	13
Very fine	191	57.2	8	98	59.8	16	115	67.2	14	928	58.0	10
Microscopic	82	24.5	7	52	31.7	9	42	24.6	11	409	25.5	9
Total flakes/ flake frags	334	100.0	12	164	100.0	16	171	100.0	14	1 601	100.0	11
Items with cortex	105	31.4	...	66	40.2	...	65	38.0	...	562	35.1	...
Whole flakes	162	48.5	...	77	47.0	...	91	53.2	...	687	42.9	...

Table 5.22 – Nonflaked lithic tools, Area 3 probability sample, Prince Hamlet*

	Square 72S/68E											
	Level 3			Level 4			Level 5			Level 6		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	1	100.0	861	6	100.0	909	3	100.0	3 846	13	100.0	701
Tool morpho-use												
Indeterminate	0	0	0	0	0	0	0	0	0	1	7.7	50
Polishing stone	0	0	0	0	0	0	0	0	0	2	15.4	65
Anvil stone	0	0	0	0	0	0	1	33.3	864	0	0	0
Hammerstone	0	0	0	1	16.7	149	1	33.3	574	4	30.8	326
One-hand mano	1	100.0	861	1	16.7	406	0	0	0	3	23.1	1 336
Two-hand mano	0	0	0	2	33.3	1 011	0	0	0	1	7.7	770
Metate fragment, nfs	0	0	0	1	16.7	2 850	0	0	0	1	7.7	2 850
Trough metate	0	0	0	0	0	0	1	33.3	10 100	0	0	0
Maul	0	0	0	0	0	0	0	0	0	0	0	0
Specialized form†	0	0	0	1	16.7	26	0	0	0	1	7.7	1
Material type												
Igneous, nfs	0	0	0	1	16.7	406	1	33.3	864	6	46.2	1 123
Medium sandstone	0	0	0	0	0	0	2	66.7	5 336	3	23.1	676
Fine to very fine sandstone	1	100.0	861	3	50.0	1 624	0	0	0	2	15.4	150
Shale	0	0	0	1	16.7	26	0	0	0	1	7.7	45
Azurite	0	0	0				0	0	0	1	7.7	1
Quartzite	0	0	0	1	16.7	146	0	0	0	0	0	0
Item condition												
Broken												
Identifiable	0	0	0	4	66.7	1 096	3	100.0	3 846	5	38.5	798
Complete/nearly complete	1	100.0	861	2	33.3	534	0	0	0	8	61.5	640
Production evaluation												
Indeterminate	0	0	0	1	16.7	406	0	0	0	0	0	0
Natural (unmodified)	1	100.0	861	2	33.3	1 500	3	100.0	3 846	11	84.6	758
Minimally modified	0	0	0	2	33.3	1 011	0	0	0	2	15.4	386
Well shaped	0	0	0	1	16.7	26	0	0	0	0	0	0

Table 5.22 – Nonflaked lithic tools, Area 3 probability sample, Prince Hamlet – Continued

	Square 72S/68E								
	Level 7			Level 8			Square total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	3	100.0	213	9	100.0	454	35	100.0	905
Tool morpho-use									
Indeterminate	0	0	0	0	0	0	1	2.9	50
Polishing stone	2	66.7	70	3	33.3	45	7	20.0	58
Anvil stone	0	0	0	0	0	0	1	2.9	864
Hammerstone	0	0	0	3	33.3	422	9	25.7	366
One-hand mano	1	33.3	498	2	22.2	925	8	22.9	953
Two-hand mano	0	0	0	0	0	0	3	8.6	930
Metate fragment, nfs	0	0	0	0	0	0	2	5.7	2 850
Trough metate	0	0	0	0	0	0	1	2.9	10 100
Maul	0	0	0	1	11.1	836	1	2.9	836
Specialized form†	0	0	0	0	0	0	2	5.7	14
Material type									
Igneous, nfs	1	33.3	88	2	22.2	497	11	31.4	826
Medium sandstone	1	33.3	498	2	22.2	555	8	22.9	1 789
Fine to very fine sandstone	1	33.3	52	3	33.3	71	10	28.6	630
Shale	0	0	0	0	0	0	2	5.7	36
Azurite	0	0	0	0	0	0	1	2.9	1
Quartzite	0	0	0	2	22.2	886	3	8.6	640
Item condition									
Broken									
Identifiable	1	33.3	498	2	22.2	925	15	42.9	1 484
Complete/nearly complete	2	66.7	70	7	77.8	320	20	57.1	471
Production evaluation									
Indeterminate	0	0	0	1	11.1	122	2	5.7	264
Natural (unmodified)	3	100.0	638	7	77.8	447	27	77.1	1 019
Minimally modified	0	0	0	1	11.1	836	5	14.3	726
Well shaped	0	0	0	0	0	0	1	2.9	26

*No nonflaked lithic tools were recovered from Levels 1 and 2 of square 72S/68E.
†One specialized form is a pipe; the other is an ornament.
nfs - Not further specified.

Room 1

Dimensions:

North wall	
length:	2.35 m
thickness:	0.20 m
greatest height:	0.65 m
South wall	
length:	2.07 m
thickness:	0.15 m
greatest height:	0.15 m
East wall	
length:	2.05 m
thickness:	0.15 m
greatest height:	0.50 m
West wall	
length (inferred):	1.90 m
thickness:	0.20 m
greatest height:	0.53 m
Floor area:	4.6 m^2

Room 1 is one of the smaller back rooms in the approximate center of the roomblock (fig. 5.4). Rooms 1, 2, and 3 are shown in plan in figure 5.13; figure 5.14 shows Room 1 after excavation.

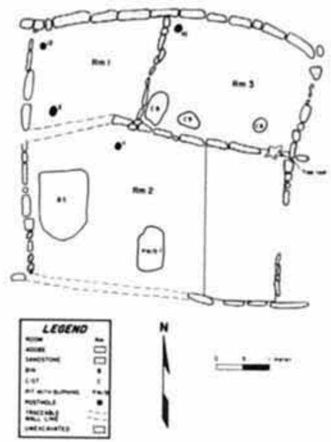

Figure 5.13 – Map of Rooms 1 through 3, Prince Hamlet. "Traceable" wall lines were extrapolated from known wall lines.

Construction. – As can be seen from figure 5.14, the north wall of Room 1 (which is also the north or back wall of the roomblock) is massive. The lowest course of the wall consists of 10 large, upright sandstone slabs that measure up to 65 cm high and 25 cm wide. Above these vertical slabs are 2 to 3 courses of long (up to 75 cm), thin (approximately 10 cm) horizontal slabs. The upper portions of this wall had long since collapsed, and the fill of this room contained large quantities of irregular blocky pieces of sandstone, some of which can be seen near the top edge of figure 5.14. Many of these rocks occurred as roughly linear, east-west alinements. Apparently, the upper portion of the wall consisted of horizontally coursed sandstone held together by considerable quantities of mortar, judging by the amount of adobe melt found in the fill of the room.

The east wall of Room 1 consists of 2 very different styles of masonry. Four large, vertical sandstone slabs form most of the southern portion of the wall, but the northernmost 80 cm or so consists of irregular coursed masonry composed of tabular pieces of sandstone with large quantities of mortar (fig. 5.15). Although walls reflecting more than 1 masonry style are not unknown (refer to the description of the west wall of Room 2), this section of coursed masonry gave a distinct impression of wall patching or remodeling. If it were not for the corner location, this coursed area would strongly suggest a walled-up doorway; since the north walls of Room 1 and Room 3 are continuous and appear to have been constructed at the same time, the 2 rooms originally might have been 1, or were separated only by a partial partition that was later extended to meet the rear wall. None of the upper courses of the east wall of Room 1 remain, but rock rubble, some of it still alined in north-south rows, was removed from the fill of Room 3. Apparently, the upper portions of the Room 1 east wall, like those of the north wall, consisted of courses of irregular sandstone blocks held together with large quantities of adobe mortar. The upper portion of the east wall of Room 1 appears to have collapsed eastward into Room 3.

The west wall of Room 1 is also slab based, although the basal rocks here are less uniform and more massive and blocky than those used in the other walls. Since there was no north-south patterning of wallfall in the fill of Room 1, the upper portions of this wall may have collapsed into the unexcavated Room 13 to the west. A few rocks that were probably part of the upper wall remain above the slabs near the north end of this wall. They are more rounded than the rocks removed from the fill of this

Figure 5.14 – View of Room 1, Prince Hamlet, looking northwest. Note construction of north wall (DAP 048010).

Figure 5.15 – View of east wall of Room 1, Prince Hamlet (DAP 055312).

room, and their arrangement suggests less coursing of rock and a greater emphasis on mud in this wall than in the other walls of Room 1.

The south wall of Room 1 was almost completely destroyed by erosion after the abandonment of the site. Because this wall was built largely on fill rather than on the sterile subsoil, it was especially prone to destruction when exposed to weathering. At its eastern end, the base of the south wall is preserved in the form of a very large block of sandstone (approximately 20 cm high by 15 cm wide by 70 cm long); the west end of the wall had been destroyed. As described in greater detail in the Room 2 discussion, the fill beneath the floor in Room 1 was probably faced with upright slabs on the Room 2 side; the part of this wall that extended above the floor in Room 1 appears to have been composed wholly of courses of unshaped chunks of sandstone with adobe mortar. One fallen but nearly intact course with mortar still adhering was found just south of the wall line; it appears from the distribution of rubble that part of this wall collapsed into Room 1, but most of it slumped into Room 2.

Depositional history. – Figure 5.16 represents a simplified, reconstructed profile of Room 1 fill. The base of Stratum 4 is believed to mark the approximate depth of the prehistoric ground surface; Stratum 4 fill represents material placed by the prehistoric inhabitants to level the surface. The demarcation between Strata 4 and 3 is the inferred original floor surface of the room. This surface was indistinct because it was only use compacted rather than prepared and because Stratum 3 was similar to Stratum 4 except for the presence of some wall melt in the former. Furthermore, centuries of water soaking into this fill had all but obliterated the distinction between Strata 4 and 3. Stratum 2 contained the bulk of the material from the collapse of the structure (e.g., wallfall from the north wall and adobe melt). Stratum 2 was distinguished from Stratum 3 largely on the basis of a line of charcoal that probably represents the burned remains of the roof. Stratum 1 was the slope wash material that formed the present surface of the site.

This stratigraphic record can be interpreted as follows: the ground where Room 1 stood was leveled by excavating the north wall into the slope and filling the low place left by the drainage. The room was built with slab-based walls topped by heavily mortared courses of sandstone rocks. The walls probably were plastered, but the floor was use compacted. After the room was abandoned, the plaster and mud from the roof melted onto the use surface, the main roof timbers might have been removed, and the smaller wooden components of the roof fell in and burned (or vice versa). Unprotected from the weather, the walls collapsed – the north wall falling into Room 1, the south wall falling into Room 2, the east wall falling into Room 3, and the west wall probably falling into Room 13. The small drainage that caused the low place, being no longer blocked by the north wall, again ran through the room over the remnant of the north wall, washing away the main portion of the south wall.

Floor 1. – The floor in Room 1 had been destroyed by the same erosive forces that had destroyed the south wall. An ephemeral drainage runs through this section of the

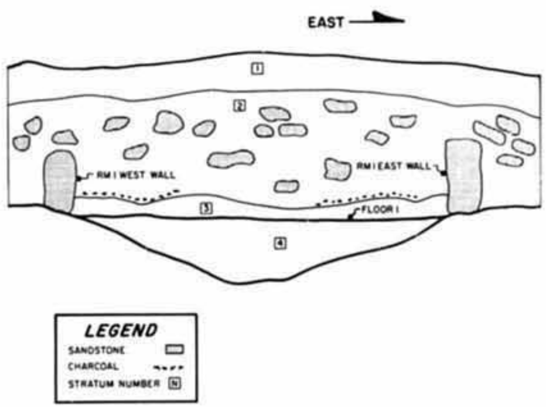

Figure 5.16 – Reconstructed cross section of Room 1 fill, Prince Hamlet. Reconstruction based on field observation. Not to scale.

roomblock. When Room 1 was built, the slight low spot caused by this drainage had to be filled in to level the floor. Evidence of floor preparation was not encountered; apparently the depression was filled in to about the same level as the floor in Room 3, and any surface that may have been present on this fill would have been simply use compacted. When the superstructure of this room collapsed, the floor was exposed to the weather, and water soaking and tree root disturbance rendered the surface indistinguishable from the fill above and below.

The level of the floor could be estimated quite easily from indications on the 3 remaining walls of the room. The west wall bears a very distinct line where the wall plaster ended and the subfloor fill began. The large slabs of the north wall are stained white with calcium to a line about 10 cm above the bottoms of these slabs. This line is at approximately the same level as the plaster line on the west wall, and the stains are interpreted as resulting from the lowest parts of these slabs having been below the floor surface. Finally, the bottoms of the slabs and the bottoms of the coursed section in the east wall are at generally the same level as the plaster line and the calcium line on the other 2 walls.

Features: Two features – both of them postholes – were encountered in this room. These cylindrical postholes (Features 2 and 12) are located in the southwest and northwest corners of the room, respectively (fig. 5.13). They are similar in size and method of construction: Feature 2 is 19 by 15 cm and originally was approximately 39 cm deep; Feature 12 is 10 by 11 cm and was 43 cm deep. The bottoms of the 2 features are at exactly the same absolute elevation and both have a tabular rock at the bottom. Feature 2 was recognized in plan because of a high concentration of charcoal in it. Feature 12 contained chunks of unburned wood near the bottom.

The position of these 2 postholes suggests a roof support function, but no postholes were observed on the eastern side of this room. The irregular distribution of postholes in this roomsuite in general – only one in Room 3, two in Room 1, and one in the excavated portion of Room 2 – suggests that the roofs of these structures were partly or largely supported by the walls rather than by a system of posts. Two large, thin sandstone slabs found in the fill near the east wall were most likely part of the roof.

Room 2

Dimensions:

North wall	
length:	4.90 m
thickness:	0.26 m
greatest height:	0.65 m

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South wall	
length:	4.60 m
thickness:	0.22 m
greatest height:	0.28 m
East Wall	
length:	2.80 m
thickness:	0.20 m
greatest height:	unknown
West wall	
length:	2.90 m
thickness:	0.36 m
greatest height:	0.43 m
Floor area:	14.70 m²

Figure 5.17 – View of Room 2 at Prince Hamlet, looking northwest (DAP 048011)

Room 2 is one of the larger "front" rooms of the roomblock (fig. 5.13). Room 2 is near the center of the arc of rooms and its western half is directly south of Room 1. Time constraints and the presence of several large trees whose roots most likely would have destroyed the floor and any floor features precluded the excavation of the easternmost 1.4 m of this room.

Construction. – Figure 5.13 shows the plan of the excavated portion of the room; figure 5.17 shows the room as it appeared after excavation. Shovel scraping exposed standing slabs constituting the northern and southern ends of the east wall, but the central section of the wall had been destroyed by two large trees. The south wall of Room 2 had been badly eroded. The western portion of this was destroyed; the eastern portion consisted of some formerly upright, blocky sandstone slabs that had slumped to the south. Presumably, the upper portion of this south wall was the source of the considerable mass of rubble that was found just south of this line of slabs. If so, this south wall crumbled nearly in place rather than actually falling outward.

The north wall of this room consists of 2 distinct sections. The section shared with Room 1 has already been discussed. This wall was built on the fill beneath the Room 1 floor, and it collapsed more or less in place after the abandonment of Room 1. On the Room 2 side, the Room 1 subfloor fill appeared to have been faced with thin sandstone slabs. These slabs slumped as the fill washed out, and they were found within the upper fill of Feature 5, a storage bin in Room 2. The section of north wall that Room 2 shared with Room 3 had been constructed in a different manner. Because of the natural slope of the site, the floor of Room 2 was some 50 cm below that of Room 3. Since the back part of Room 2 was cut into the slope, the lower 40 cm of the north wall of Room 2 consisted of the sterile material below the floor of Room 3. The masonry portions of this north wall were footed by large, blocky sandstone slabs set vertically on top of this sterile material. The consistency of this subsoil apparently was firm enough to not require facing with slabs on the Room 2 side – at least no slabs were found.

The west wall of Room 2 provides an excellent argument against attributing too much importance to construction techniques as an indicator of time period or of cultural affiliation. The southernmost 1.5 m consists of simple courses of small tabular rock and adobe. The style of masonry then changes abruptly and the rest of the wall is footed with vertical sandstone slabs topped with rock and adobe courses. This change in masonry might have been related to the northern portion of the room having been dug into the slope, but this is not certain. This wall appeared to have collapsed west into the unexcavated Room 14.

Depositional history. – The fill of Room 2 consisted of 3 strata: Stratum 1 was the uppermost postoccupational deposit; Stratum 2 consisted of wallfall, adobe chunks, and burned roof material and had relatively more artifacts than comparable strata in Rooms 1 and 3; Stratum 3 consisted of adobe wall and ceiling melt that was deposited on the floor before the collapse of the roof.

Floor 1. – The floor in Room 2 was strongly affected by the problems of building on a steep slope. The back or northern part of Room 2 had been dug into the slope; it became clear during the excavation of Features 5 and 7 (a storage bin and a burned pit, respectively) that the front part of the room had been filled in an additional effort to make the floor level. The part of the floor over-

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lying sterile soil is a flat, well-preserved, puddled adobe surface, approximately 3 to 4 cm thick. The part of the floor overlying fill at the front of the room is melted, uneven, and, in places, wholly destroyed. No artifacts were found in direct association with Floor 1.

Features: The only evidence concerning the manner in which Room 2 was roofed is Feature 11, a cylindrical posthole containing the remains of a post, near the north wall of the room. This posthole measures 15 cm in length, 10 cm width, and 13 cm in depth. Because the eastern part of this room was not excavated, and because the floor at the south side of the room had been so badly damaged, other postholes in the room may not have been discovered. Most likely the roof in this room, like that of the other excavated rooms, was supported by the walls and by occasional posts.

A large, rectangular, subfloor storage bin (Feature 5) and an oval pit showing some evidence of burning (Feature 7) were also encounter... in Room 2. Feature 5 was cut through the floor along the west wall of the room; the pit measures 135 cm north-south, 90 cm east-west, and 64 cm deep. Both the plaster of the room wall above this feature and the edge of the floor around it show evidence of burning; apparently the contents of this feature burned fiercely enough to create considerable fire reddening. The fill of this feature consisted of a dark, ashy, organic matrix containing considerable quantities of wallfall and some artifacts in the upper portions, and little except numerous charred corn kernels in the lower portion. The steep prehistoric ground surface and the fill placed to level the floor of Room 2 were clearly visible in the east wall of this feature.

Feature 7 is located near the center of what was apparently a large living room and was very obviously fire reddened around the edges. The pit is 80 cm long, 52 cm wide, and 42 cm deep. Unfortunately, this feature had been dug into loose subfloor fill and had been disturbed by rodents, so it was impossible to be certain of its function or even of its original depth. Some burned corn kernels were recovered from the feature, but whether these were related to the aboriginal use of the feature or to the subsequent rodent disturbance was unclear.

Room 3

Dimensions:

North wall	
length:	2.80 m
thickness:	0.20 m
greatest height:	0.82 m
South wall	
length:	2.80 m
thickness:	0.10 m
greatest height:	0.26 m
East wall	
length:	1.90 m
thickness:	0.15 m
greatest height:	0.65 m
West wall	
length:	1.94 m
thickness:	0.10 m
greatest height:	0.60 m
Floor area:	4.90 m²

Room 3 is the second back room of the three-room suite that consists of Rooms 1, 2, and 3. Figure 5.4 shows its location in the roomblock, figure 5.13 is a plan map of the structure, and figure 5.18 shows Room 3 after excavation. Because this room was built solidly on the sterile subsoil and is out of the path of the drainage, it was much better preserved than Rooms 1 and 2, and it presented fewer problems of interpretation. The only serious damage to the room had been caused by a large tree root that had grown through the south wall and into the floor.

Construction. – As figure 5.18 shows, the north wall of this room, like that of Room 1, consists of large sandstone slabs coursed horizontally on top of upright sandstone slabs. Also like Room 1, the upper courses of the wall consisted of tabular sandstone with abundant adobe mortar. The north wall had collapsed into the fill of the room.

The west and sout' walls have been discussed under Rooms 1 and 2, re...ely. The east wall was badly disturbed by roots, but it appears to have consisted of an upright-slab-based wall toward the south and of simple, fairly rough coursed masonry toward the north. This wall appears to have collapsed into the neighboring Room 9.

One posthole (refer to the discussion of features) in the northwest corner of Room 3 was the only definite evidence of the roof support system. Some burned twigs and charred, stick-impressed ad be were recovered from room fill, but the pattern of roof construction could not be discerned.

Depositional history. – The fill in Room 3, like that in the neighboring rooms, consisted of a culturally sterile stratum of adobe melt overlying the floor, a stratum of roof fall and wallfall, and postoccupational colluvial deposits. Relatively few artifacts and little burned roof material were found in Stratum 2 in Room 3 as compared with Stratum 2 in Room 2.

Floor 1 and associated features. – The floor in Room 3 was use compacted, but the surface had been leveled dur-

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Figure 5.18 – Overhead view of Room 3 at Prince Hamlet (DAP 048009).

ing construction. No artifacts were found in association with this floor. Two oval storage cists (Features 8 and 9) were found in the southwest corner of the room. Feature 8 is a small basin that measures 60 by 34 by 9 cm; Feature 9 is cylindrical and measures 44 by 27 by 11 cm. The proximity of these 2 features suggests that they were functionally associated – possibly for storage, although even their combined capacity is rather small.

Feature 6 is a small, round pit measuring 29 c.n long, 27 cm wide, and 9 cm deep. The presence of a slab in the bottom might indicate use as a seat for a roof support post; however, this feature most likely functioned as a small cist. Feature 10, a cylindrical posthole that measures 15 by 16 by 17 cm, is the only firm evidence for the roof support system; this posthole is located in the northwest corner of the room.

Room 4

Dimensions:

North wall	
length:	2.20 m
thickness:	0.10 m
greatest height:	1.05 m
South wall	
length:	2.60 m
thickness:	unknown
greatest height:	unknown
East wall	
length:	3.30 m
thickness:	0.10 m
greatest height:	0.55 m
West wall	
length:	3.20 m
thickness:	0.15 m
greatest height:	0.35 m
Floor area:	ca. 8.30 m²

Room 4 was chosen for excavation because its east wall was visible in a looter's pit and a line of standing slabs visible on the surface appeared to constitute its north wall. Room 4 was assumed to be the front room of another three-room apartment and the visible walls would presumably facilitate the definition and excavation of another apartment with which to compare Rooms 1, 2, and 3. Indeed, the wall in the looter's pit was the eastern wall of Room 4, but most of the other assumptions proved to be wrong. As can be seen in figure 5.19, Room 4 was

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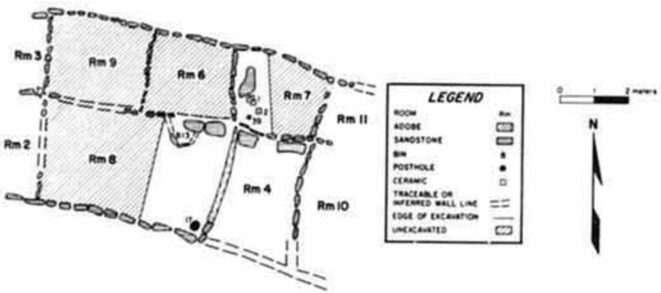

Figure 5.19 – Map of Rooms 4, 6, 7, 8, and 9, Prince Hamlet. "Traceable" wall lines were extrapolated from known wall lines. Refer to text for Room 7 artifact descriptions.

a front room, but did not appear to be a living room, or, if it was, it was part of a smaller, two-room apartment having only one back room (Room 7).

Construction. – South of and below the upright slabs that had been identified as the north wall, a series of large (approximately 60 cm wide by 70 cm long) sandstone boulders was encountered. At first the upright slabs were suspected to be wallfall from a masonry wall that had rested on these boulde: , but subsequent excavation demonstrated that they were uprights that formed the south wall of Room 7, Room 4's neighbor to the north. The wall between Rooms 4 and 7, like that between Rooms 2 and 3, appears to have consisted of a masonry wall that rested on sterile soil. The coursed masonry was based on upright slabs. The subsoil below Room 7, however, was not as firm as that below Room 3 – perhaps because of the excavation of the earlier Room 5 just to the south (refer to the Room 5 discussion). At some point, the sandstone boulders were placed against this subsoil footing of the Room 4 north wall, evidently to shore it up. These boulders have been interpreted as constituting a remodeling episode rather than as being part of the original construction because they are set in fill and are somewhat above the floor level of the room.

The east wall of this room was easily defined and consists of a series of upright sandstone slabs against which the slabs of the north wall abutted (fig. 5.20). The south wall of Room 4, however, was indistinct – a f w displaced and fallen slabs mark its approximate location. It was later determined that the south wall had been built primarily on Room 5 f'' which might explain its total collapse.

Figure 5.20 – View of Room 4 at Prince Hamlet, looking northeast. Note construction of east wall (DAP 048033).

The west wall was not apparent at first, but careful brushing of the floor and spraying with water eventually revealed a light yellowish band across the surface approximately 2.5 m west of the east wall. This band continues for some 35 cm up the north wall, and joins with two upright slabs at the south end of the room. This apparently is the base of a wholly adobe west wall that had been removed prior to the abandonment of this part of the roomblock or had deteriorated so completely as to have been indetectable within the adobe-rich fill of the room during excavation. No rock rubble that could have come from this wall was found within the fill of Room

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4 or in the excavated portion of Room 8 to the west. The north wall had collapsed to the north, the south wall had collapsed in place, and most of the rubble in the fill appeared to be from the east wall. Except for some stick-impressed adobe in fill, no evidence for roof construction was encountered in Room 4.

Depositional history. – The fill of Room 4, like that of Rooms 1 through 3, consisted of postoccupational colluvial deposits: a stratum of wallfall, charcoal, adobe chunks, and artifacts; and a stratum of relatively clean adobe melt.

Floor 1. – The use-compacted floor of Room 4 is indistinct; the tops of rocks protrude through the surface near the north wall (fig. 5.20). No features were discernible, and the general unevenness of the flo-* (as well as the protruding rocks) argues against Room 4 having served as a living room. No artifacts were found in direct association with Floor 1. Considerable rodent disturbance was noted in the southwest corner of the room.

Room 5

Dimensions:

North wall	
length:	4.00 m
thickness:	0.10-0.40 m
greatest height:	0.80 m
South wall	
length:	4.10 m
thickness:	0.15 m
greatest height:	0.45 m
East wall	
length:	2.15 m
thickness:	0.20 m
greatest height:	0.50 m
West wall	
length:	2.15 m
thickness:	0.15 m
greatest height:	0.70 m
Floor area:	8.80 m^2

A subfloor test in Room 4 to check for sterile soil produced not only evidence of cultural fill beneath that room but uncovered a portion of the north wall of a lower, earlier structure – Room 5 (figs. 5.4 and 5.21). The rocks that protruded through the Room 4 floor were the basal course of the Room 5 north wall. These uprights and many chunky rocks formed a rough but sturdy wall that bowed noticeably to the north – perhaps it was built in this manner to counter the pressure of the slope. With

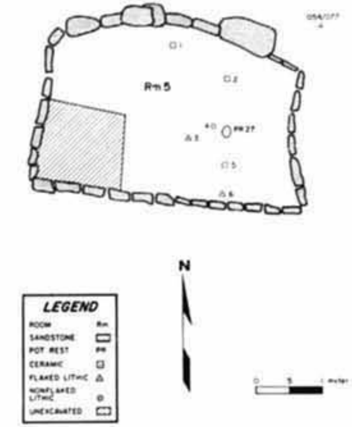

Figure 5.21 – Map of Room 5, Prince Hamlet. Refer to table 5.23 for artifact descriptions.

the exception of a small portion in the southwest corner of the room, all of Room 5 was excavated.

Construction. – The remains of the west wall consist of a basal course of large, regular, upright, shaped sandstone slabs, while the south and east walls consist of quite regular masonry without the slab base (figs. 5.22 and 5.23). The upright slabs shown in figure 5.23 are the base of the Room 4 east wall, which rested directly on the coursed masonry of the Room 5 east wall. None of the other walls of the upper and lower structures were shared. The north and south walls of Room 4 were both farther north; the latter was built on Room 5 fill, apparently resulting in the eventual collapse of the Room 4 south wall. The west wall of Room 4 was farther east than that of Room 5; being built on Room 5 fill may have contributed to the disintegration of the Room 4 west wall. No evidence for a roof support system was encountered in Room 5.

Depositional history. – Several interesting features were noted in the fill of this structure. A large patch of burned brush (roughly 1 m square) was found a few centimeters above the structure floor near the north wall. This layer of probable building material, which rested on about 3 cm of fill, was approximately 4 cm thick and contained charred remains of many small sticks that apparently had

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Figure 5.22 - View of south wall Room 5, Prince Hamlet (DAP 035022).

Figure 5.23 - View of east wall Room 5, Prince Hamlet (DAP 055017).

been incorporated into the roof over this part of the structure. In a sandy stratum above the level of this roof fall, 3 manos were found in various parts of the room - all at approximately the same level and all lying horizontally. Although an associated use surface was never identified, the similarity of the elevations and orientations of these tools led to the conclusion that these manos represented a later, nonintensive reuse of the room.

Floor 1 and associated features. - The floor in Room 5 is patchy and discontinuous and appears to have been use compacted. The floor is underlain by sterile subsoil. Floor artifacts, which appeared to be in use context, consisted of a few gray ware jar sherds, 1 white bowl sherd, 1 utilized flake, 1 piece of flaked lithic debitage, and a piece of ochre; these artifacts were grouped into 6 PL (point location) clusters (fig. 5.21 and table 5.23). The only feature in the excavated portion of the floor was a small, oval, sand-filled depression (Feature 27). This feature is 20 cm long, 16 cm wide, and 5 cm deep; it probably functioned as a pot rest.

Room 7

Dimensions:

North wall	
length:	2.90 m
thickness:	0.18 m
greatest height:	0.50 m
South wall	
length:	2.20 m
thickness:	0.10 m
greatest height:	0.53 m
East wall	
length:	1.70 m
thickness:	0.10 m
greatest height:	0.38 m
West wall	
length:	2.05 m
thickness:	0.10 m
greatest height:	0.50 m
Floor area:	5.40 m^2

As can be seen in figure 5.19, only the western portion of Room 7 was excavated. The goals of excavation were to determine whether the yellow adobe line noted previously was indeed the west wall of Room 4 and to uncover more evidence concerning the construction of the north wall of Room 4 (the south wall of Room 7). Since the adobe line proved to be continuous with the wall between Rooms 6 and 7, it probably was the west wall of Room 4.

Construction. - The south wall of Room 7 consists of the upright slabs that constituted the north wall of Room 4; the floor in Room 7 was encountered just above the base of these uprights. The north and west walls of Room 7, like the south wall, consist of upright slabs that apparently had supported coursed sandstone block masonry. Upright slabs were observed in the corners of the east wall, but the central portion of this wall consists entirely of coursed masonry. The direction of collapse for these walls was uncertain due to the limited excavation and to considerable disturbance of the room fill by tree roots.

Table 5.23 - Point-located artifacts, Floor 1, Room 5, Prince Hamlet

PL No.	Material class	Item description
1	Ceramic	SS Polished White bowl sherd DL Early Pueblo Gray jar sherds (7)
2	Ceramic	DL Early Pueblo Gray jar sherd
3	Flaked lithic	Utilized flake
4	Nonflaked lithic	Ochre
5	Ceramic	DL Early Pueblo Gray jar sherds (2)
6	Flaked lithic	Debitage

See figure 5.21 for artifact locations.

(N) - Number of items.
DL - Dolores Manufacturing Tract.
SS - Sandstone Manufacturing Tract.

Floor 1. - The floor in the excavated portion of this room is an interesting combination of a prepared surface on an unprepared base. Mud plaster had been laid down on an uneven surface, forming a slight collar around a posthole (Feature 39) and a lip against a large, subfloor boulder which protruded approximately 30 cm above the floor of the room. The presence of so large an obstacle in so small a room would have rendered Room 7 much better suited to storage than to the multiple uses of a "living" area - an interpretation supported by its "back room" location. The 2 PLs on the floor consisted of 2 gray ware jar sherds and 7 Piedra Black-on-white bowl sherds (PL 1) and a large, red ware bowl sherd (PL 2) (fig. 5.19). No floor features other than the posthole were encountered in the excavated portion of this room; the presence of this feature, which measures 10 cm long by 6 cm wide by 10 cm deep, suggests that the roof of this room was at least partially post supported, but no post fragments were recovered and no roofing material was noted. The fill in the excavated portion of the room contained considerable rubble, and melted adobe and charcoal were common.

Room 8

Room 8 was not extensively excavated; during the search for the western wall of Room 4 and before the yellow adobe line had been discovered, the eastern portion of Room 8 had been exposed, and 2 features had been uncovered. The use-compacted floor of Room 8 was exactly the same level as and similar in appearance to the floor in Room 4.

Feature 13, a bin of upright slabs, was found near the northeast corner of this room (fig. 5.24). The feature is

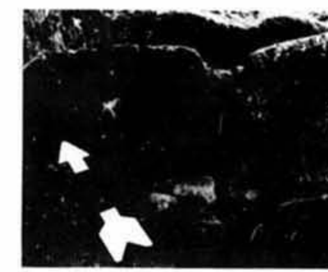

Figure 5.24 - View of bin (Feature 13), Room 8, Prince Hamlet (DAP 049109).

60 cm long by 30 cm wide by 35 cm deep; because only 2 of the slabs remained standing, these dimensions are approximate. A posthole (Feature 17) near the southeast corner was the largest found in the roomblock: it measures 17 cm wide by 20 cm long by 37 cm deep. Its size and the presence of the sandstone slab in the bottom suggest that this post (part of the charred butt of which remained in the hole) was a major structural support for the roof. Certainly the apparently large size of Room 8 (fig. 5.19) would have made roof support a more serious problem than it was in the smaller rooms, and if the construction of the wall between Rooms 4 and 8 was as insubstantial as it appears to have been, this wall would have been unsuitable for roof support.

Rooms 6 and 9 through 20

None of these rooms were excavated, and only those toward the eastern end of the site (Rooms 6 and 9 through 12) were outlined thoroughly by means of shovel scraping. The limits of Rooms 13 through 20 have been established with varying degrees of confidence on the basis of rock alinements visible on the surface. Figure 5.4 shows the locations and approximate sizes of these rooms.

Roomblock Artifacts

Two important points require consideration before discussing the artifacts recovered from the roomblock (tables 5.24 through 5.27). First, the collection units varied considerably in size; not only did the rooms differ in size, but different percentages of each room were excavated. Rooms 1, 3, and 4 were excavated completely, while roughly 70 percent of Room 2, 80 percent of Room 5, and 30 percent of Rooms 7 and 8 were excavated. Because of this variability and because of the resultant small sample size for some artifact classes in some rooms, room-to-room comparisons are somewhat difficult and speculative.

The second point is that almost all of the artifacts found in the rooms were recovered from postoccupational fill rather than from contexts directly associated with the use of the artifacts. Some artifacts that were in situ at the time of abandonment may have been displaced as a result of bioturbation, but most appear to have been deposited after abandonment. In general, the origin of postoccupational deposits from which artifacts are recovered must be considered when interpreting the significance of those artifacts. Some such postoccupational fill contains large quantities of ash, charcoal, bone scrap, and macrobotanical material, which suggests intentional trash dumping. However, artifacts can also be introduced into fill by use of "dirty" soil from the site area for mortar, plaster, or roofing materials, and by the collapse of upper stories or roofs used as work areas into ground floor rooms. These various contexts of deposition must be recognized because artifacts dumped into a room represent activities subsequent to the use of the room, while artifacts introduced in mortar or roofing material represent activities prior to the construction of the room, and artifacts from roof or upper story collapse may represent activities contemporaneous with or subsequent to, room use.

Artifacts recovered from all the rooms except Rooms 5 and 7 are clearly associated with postoccupational deposits. In Room 2, the artifacts in the fill appear to represent materials that were on the roof when it was pulled down or collapsed and burned, and materials that were dumped into this room after it was abandoned. Artifacts from Rooms 1, 3, 4, and 8 appear to be associated primarily with the collapsed roofs, although some refuse might have been intentionally dumped as well. The 2 sherd clusters in Room 7 appeared to be in use context, but the remainder of the artifacts seemed to be associated with roof fall. The fill in Room 5, on the other hand, included no particular evidence of structural collapse or of trash dumping. Many of the artifacts appeared to be in use context; they constitute the main evidence for multiple uses and abandonments of the structure.

A comparison of the artifact collection from the various rooms gives an impression of considerable uniformity. Differences in absolute frequencies and weights of artifacts are primarily the result of differences in room size and excavated area; differences in variety within artifact classes are mostly a function of sample size for those classes. Despite this basic uniformity, several interesting observations can be made about the artifacts from Room 5 relative to those from the other surface rooms – interesting because the artifacts were apparently deposited primarily in use context and because the stratigraphic position of Room 5 indicates that it predates the other surface rooms at the site. In addition, as Room 5 apparently is an isolated room, it might have been functionally different from the other rooms, which are part of a large roomblock.

In the ceramic tabulations, the 2 points of interest in Room 5 are the absence of Mancos Gray and the presence of a sherd identified as Kayenta Late Pueblo red ware. This latter sherd is clearly anomalous in a structure that is stratigraphically earlier than the main occupation at the site. This sherd was recovered in the uppermost stratum of the Room 5 fill and almost certainly had been displaced downward by human trampling or rodent activity; evidence of rodent disturbance was observed in the southwest corner of Room 4, located above Room 5. The absence of Mancos Gray could be happenstance, since this type is relatively scarce at the site (approximately 2 percent of the total site ceramics). However, the absence of this ceramic type may be a result of the postoccupational filling of Room 5 having been interrupted by construction of the main roomblock subsequent to the introduction of Moccasin Gray (A.D. 760) but prior to the introduction of Mancos Gray (A.D. 860).

Although not interpretable in a use context, 3 ceramic artifacts from the fill of Room 2 warrant mention. These include the only 2 nearly complete vessels from the site and a fragment of what was presumably a human figurine or perhaps an anthropomorphic support for a vessel (fig. 5.25). The small Moccasin Gray jar (volume = 900 ml) was broken before it was incorporated into the room fill, and only about three-quarters of the sherds were found. The gray ware dipper is missing sherds from one side of the bowl, and the wear on the remaining rim indicates considerable use prior to its breakage and discard. The

Table 5.24 – Ceramic data summary, roomblock, Prince Hamlet

Culture category / Ware / Type	Room 1			Room 2			Room 3			Room 4			Room 5			Room 7			Room 8			Total		
	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt
Mesa Verde																								
Gray ware																								
Chapin Gray	2	15.9	0.8	8	44.5	1.2	2	12.5	1.4	7	78.2	1.8	5	7.5	1.6	1	2.0	0.5	0	0	0	25	180.6	1.4
Moccasin Gray	14	87.9	4.5	107	1 056.8	27.6	14	79.8	8.7	50	565.5	13.0	17	[illegible]	9.0	4	33.9	8.7	6	79.2	33.1	212	2 057.9	15.4
Mancos Gray	1	17.8	0.9	6	44.8	1.2	2	17.9	2.0	4	37.6	0.9	0	0	0	4	8.3	2.1	0	0	0	17	126.4	0.9
EP Gray	198	1 587.0	82.0	362	2 231.8	58.3	136	752.9	82.1	313	2 836.5	65.4	157	1 329.3	77.6	33	232.8	59.5	21	139.3	58.3	1 220	9 109.8	68.2
White Ware																								
Piedra B/W	0	0	0	3	23.9	0.6	2	8.3	0.9	0	0	0	0	0	0	7	83.7	21.4	1	7.4	3.1	13	123.3	0.9
Cortez B/W	0	0	0	0	0	0	0	0	0	4	74.7	1.7	0	0	0	1	7.1	1.8	0	0	0	5	81.8	0.6
EP White	16	151.8	7.8	20	229.3	6.0	7	34.2	3.7	35	359.9	8.3	11	166.4	9.7	1	4.3	1.1	2	4.8	2.0	92	950.7	7.1
LP White	2	11.5	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	11.5	0.1
Red ware																								
Abajo R/O	0	0	0	0	0	0	0	0	0	0	0	0	1	3.3	0.2	1	4.5	1.2	1	3.1	1.3	3	10.9	0.1
Bluff B/R	1	7.4	0.4	0	0	0	0	0	0	3	128.0	3.0	0	0	0	0	0	0	2	5.2	2.2	6	140.6	1.1
EP Red	10	55.7	2.9	30	199.0	5.2	4	11.3	1.2	34	246.3	5.7	5	26.4	1.5	1	14.6	3.7	0	0	0	84	553.3	4.1
Kayenta																								
Red ware																								
LP Red	0	0	0	0	0	0	0	0	0	0	0	0	1	5.2	0.3	0	0	0	0	0	0	1	5.2	*
Kayenta or Cibola																								
Gray ware																								
EP Gray	0	0	0	0	0	0	0	0	0	2	11.3	0.3	0	0	0	0	0	0	0	0	0	2	11.3	0.1
Total	244	1 935.0	100.0	536	3 830.1	100.0	167	916.9	100.0	452	4 338.0	100.0	197	1 712.9	100.0	53	391.2	100.0	33	239.2	100.0	1 682	13 363.3	100.0
Vessel form																								
Jar	218	1 731.5	89.5	484	3 326.4	86.8	155	864.1	94.2	386	3 545.8	81.7	182	1 527.5	89.2	42	277.0	70.8	27	218.7	91.4	1 494	11 491.0	86.0
Bowl	26	203.5	10.5	46	311.2	8.1	12	52.8	5.8	58	578.7	13.3	15	185.4	10.8	11	114.2	29.2	6	20.5	8.6	174	1 466.3	11.0
Other	0	0	0	6	192.5	5.0	0	0	0	8	213.5	4.9	0	0	0	0	0	0	0	0	0	14	406.0	3.0
Unfired clay	0	0	0	0	0	0	0	0	0	1	3.4	100.0	0	0	0	0	0	0	0	0	0	1	3.4	100.0

EP – Early Pueblo
R/O – Red-on-orange
B/R – Black-on-red
B/W – Black-on-white
* – Less than 0.05 grams

Table 5.25 - Flaked lithic tools, roomblock, Prince Hamlet*

	Room 1			Room 2			Room 3			Room 4			Room 5			Room 8			Roomblock total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools	7	100.0	105	8	100.0	199	2	100.0	460	9	100.0	136	2	100.0	9	1	100.0	14	29	100.0	136
Tool morpho-use																					
Utilized flake	2	28.6	55	2	25.0	170	1	50.0	27	2	22.2	41	2	100.0	9	0	0	0	9	31.0	63
Core	1	14.3	146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3.4	146
Used core, cobble tool	1	14.3	222	1	12.5	290	1	50.0	893	2	22.2	402	0	0	0	0	0	0	5	17.2	442
Thick uniface	1	14.3	97	0	0	0	0	0	0	1	11.1	18	0	0	0	1	100.0	14	3	10.3	43
Thin uniface	1	14.3	96	0	0	0	0	0	0	3	33.3	79	0	0	0	0	0	0	4	13.8	83
Specialized form†	1	14.3	67	1	12.5	45	0	0	0	1	11.1	84	0	0	0	0	0	0	2	6.9	56
Thick biface	0	0	0	2	25.0	459	0	0	0	0	0	0	0	0	0	0	0	0	3	10.3	134
Thin biface	0	0	0	1	12.5	2	0	0	0	0	0	0	0	0	0	0	0	0	1	3.4	2
Projectile point	0	0	0	1	12.5	1	0	0	0	0	0	0	0	0	0	0	0	0	1	3.4	1
Grain size																					
Fine	1	14.3	222	3	37.5	187	0	0	0	4	44.4	222	0	0	0	1	100.0	14	9	31.0	187
Very fine	4	57.1	68	5	62.5	206	1	50.0	893	5	55.6	67	2	100.0	9	0	0	0	17	58.6	150
Microscopic	1	14.3	146	0	0	0	1	50.0	27	0	0	0	0	0	0	0	0	0	2	6.9	87
Irregular	1	14.3	97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3.4	97
Item condition																					
Broken																					
Distal present	0	0	0	1	12.5	1	0	0	0	0	0	0	0	0	0	0	0	0	1	3.4	1
Proximal present	0	0	0	1	12.5	2	0	0	0	0	0	0	0	0	0	0	0	0	1	3.4	2
Medial present	0	0	0	0	0	0	0	0	0	0	0	0	1	50.0	13	0	0	0	1	3.4	13
Complete/nearly complete	7	100.0	105	6	75.0	265	2	100.0	460	9	100.0	136	1	50.0	4	1	100.0	14	26	89.7	173
Material type																					
Hornfels	1	14.3	103	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3.4	103
Siltstone	1	14.3	222	3	37.5	187	0	0	0	0	0	0	0	0	0	0	0	0	4	13.8	196
Chert	4	57.1	79	0	0	0	0	0	0	2	22.2	41	0	0	0	0	0	0	7	24.1	61
Silicified sandstone/siltstone	1	14.3	96	5	62.5	207	2	100.0	460	7	77.8	163	2	100.0	9	1	100.0	14	17	58.6	188
Specific material																					
Indeterminate	0	0	0	5	62.5	241	0	0	0	0	0	0	0	0	0	0	0	0	5	17.2	241
Chert, Morrison	0	0	0	0	0	0	0	0	0	1	11.1	43	0	0	0	0	0	0	1	3.4	43
Chert, Morrison green	3	42.8	83	0	0	0	0	0	0	1	11.1	38	0	0	0	0	0	0	4	13.8	72
Quartzite, nfs	1	14.3	222	0	0	0	0	0	0	3	33.3	33	0	0	0	1	100.0	14	5	17.2	79
Quartzite, Morrison green	2	28.6	82	1	12.5	290	2	100.0	460	2	22.2	90	2	100.0	9	0	0	0	9	31.0	175
Quartzite, Morrison purple	0	0	0	1	12.5	33	0	0	0	0	0	0	0	0	0	0	0	0	1	3.4	33
Local cobbles/gravels	1	14.3	103	1	12.5	45	0	0	0	2	22.2	402	0	0	0	0	0	0	4	13.8	238

*No flaked lithic tools were recovered from Room 7.
†Gravers
nfs - Not further specified

foot is unique in current DAP collections, and no other fr gments that could be associated with it were recovered from the site. If the foot were part of a correctly proportioned human figure, the figure would have stood slightly less than 40 cm. tall.

The nonflaked lithic tool assemblage from the roomblock contains no surprises; that the Room 5 tools are all grinding stones (3 manos and 1 mortar) is to be expected with such a small sample on a site where nearly half of the nonflaked lithic items are grinding tools. The flaked lithic tool assemblage from Room 5 fill is conspicuously small; only 2 very small utilized flakes were recovered. The presence of grinding implements in this room, coupled with the dearth of flaked lithic tools (and the unspecialized nature of the tools that do occur), suggests tnat raw material or food processing activities might have been based in this room. Alternatively, if Room 5 was a storage facility, the grinding tools might have been stored in this location.

Pitstructures

The 2 pitstructures at Prince Hamlet were masonry lined and had large masonry wingwalls. Both pitstructures were quite large - approximately 6 m across and 2 m deep - making total excavation impossible given the constraints involved in the investigation of the site. Therefore, the decision was made to excavate the south half of Pithouse 1 and the west half of Pithouse 2. In this manner, evidence of domestic activities would be obtained (the "kitchen" or food preparation areas of previously excavated pitstructures in the DAP area seemed most often to be in the southwest part of the structure).

The fill sequence for these structures has already been discussed to some extent in the section on probability sampling. The sequence for Pithouse 1 will be discussed in more detail in the following section; the sequence for Pithouse 2, since it is very similar to that for Pithouse 1, will be discussed only where the two sequences differ.

Table 5.26 - Flaked lithic debitage, roomblock, Prince Hamlet*

	Room 1			Room 2			Room 3			Room 4			Room 5			Room 7			Room 8			Roomblock total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags																								
Grain size																								
Medium	0	0	0	5	5.0	48	1	1.4	1	3	4.3	71	0	0	0	0	0	0	0	0	0	9	2.4	50
Fine	19	30.2	25	26	25.7	10	19	37.1	13	41	58.6	15	17	29.3	15	7	77.8	19	5	50.0	10	134	35.2	15
Very fine	34	54.0	28	61	60.4	10	42	60.0	6	26	27.1	11	38	65.5	8	2	22.2	14	5	50.0	16	208	54.6	12
Microscopic	10	15.9	8	9	8.9	9	8	11.4	3	0	0	0	3	5.2	3	0	0	0	0	0	0	30	7.9	7
Total flakes/flake frags	63	100.0	24	101	100.0	12	70	100.0	7	70	100.0	16	58	100.0	10	9	100.0	18	10	100.0	13	381	100.0	14
Items with cortex	33	52.4	—	44	43.6	—	22	31.4	—	34	48.6	—	37	63.8	—	8	88.9	—	6	60.0	—	184	48.3	—
Whole flakes	27	42.9	—	46	45.5	—	20	28.6	—	44	62.9	—	29	50.0	—	3	33.3	—	6	60.0	—	175	45.9	—
Angular debris	5	100.0	21	1	100.0	1	1	100.0	19	6	100.0	21	3	100.0	9	2	100.0	4	0	0	0	18	100.0	16

* No flaked lithic debitage was recovered from Room 6.
frgs - Fragments.
— - Information not available.

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Table 5.27 – Nonflaked lithic tools, roomblock, Prince Hamlet*

	Room 1			Room 2			Room 3			Room 4			Room 5			Room 8			Roomblock total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	2	100.0	1 188	7	100.0	1 018	1	100.0	1 272	2	100.0	17 317	4	100.0	1 770	1	100.0	2 200	17	100.0	3 217
Tool morpho-use																					
Anvil stone	0	0	0	1	14.3	65	0	0	0	0	0	0	0	0	0	0	0	0	1	5.9	65
Mortar, bowl	0	0	0	0	0	0	0	0	0	0	0	0	1	25.0	3 250	0	0	0	1	5.9	3 250
Hammerstone	0	0	0	0	0	0	1	100.0	1 272	0	0	0	0	0	0	0	0	0	1	5.9	1 272
One-hand mano	1	50.0	1 063	1	14.3	885	0	0	0	0	0	0	0	0	0	0	0	0	2	11.8	974
Two-hand mano	1	50.0	1 312	2	28.6	1 281	0	0	0	1	50.0	1 234	3	75.0	1 277	1	0	2 200	8	47.1	1 392
Trough metate	0	0	0	1	14.3	2 500	0	0	0	1	50.0	33 400	0	0	0	0	100.0	0	2	11.8	17 950
Maul	0	0	0	2	28.6	556	0	0	0	0	0	0	0	0	0	0	0 0	0	2	11.8	556
Material type																					
Igneous, nfs	0	0	0	2	28.6	556	0	0	0	0	0	0	0	0	0	0	0	0	2	11.8	556
Coarse, mafic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	100.0	2 200	1	5.9	2 200
Coarse sandstone	0	0	0	0	0	0	0	0	0	0	0	0	1	25.0	1 505				1	5.9	1 505
Medium sandstone	0	0	0	1	14.3	648	0	0	0	0	0	0	2	50.0	1 163	0	0	0	3	17.6	991
Fine to very fine sandstone	2	100.0	1 188	4	57.1	1 341	0	0	0	2	100.0	17 317	1	25.0	3 250	0	0	0	9	52.9	5 070
Quartzite	0	0	0	0	0	0	1	100.0	1 272	0	0	0	0	0	0	0	0	0	1	5.9	1 272
Item condition																					
Broken																					
Identifiable	0	0	0	4	57.1	1 065	0	0	0	1	50.0	1 234	1	25.0	3 250	0	0	0	6	35.3	1 457
Complete/nearly complete	2	100.0	1 188	3	42.9	955	1	100.0	1 272	1	50.0	33 400	3	75.0	1 277	1	100.0	2 200	11	64.7	4 177
Production evaluation																					
Natural (unmodified)	1	50.0	1 063	5	71.4	795	1	100.0	1 272	1	50.0	33 400	0	0	0	0	0	0	8	47.1	4 964
Minimally modified	1	50.0	1 312	0	0	0	0	0	0	0	0	0	0	0	0	1	100.0	2 200	2	11.8	1 756
Well shaped	0	0	0	2	28.6	1 574	0	0	0	1	50.0	1 234	4	100.0	1 770	0	0	0	7	41.2	1 638

*No nonflaked lithic tools were recovered from Room 7.

Figure 5.25 – Ceramic items from the fill of Room 2, Prince Hamlet. Top: Moccasin Gray jar (vessel 3). Center: gray ware dipper (vessel 4). Bottom: gray ware ceramic foot (vessel 2) (DAP 135401).

Questions regarding the pithouses at Prince Hamlet pertained largely to structure function. Since the results of ceramic analysis indicated that Prince Hamlet was a Pueblo I site, any pitstructures encountered probably would have been domestic (pithouses) or combined domestic/ceremonial (protokivas) in function. Both of these pitstructures, however, were masonry lined, a characteristic of kivas as opposed to pithouses. Prior to investigation of Prince Hamlet, masonry-walled subterranean structures in the project area (cf. Brisbin 1980; Reed 1979) possessed the formal attributes of kivas. In the case of Prince Hamlet, however, it was suspected that the presence of masonry was not related to the social function of these pitstructures but to the structural problems associated with construction of pitstructures on a steep slope. A grain size analysis of sediments from within and around the pitstructures was carried out to asses the possibility that the pitstructures were only partially subterranean, with the aboveground portions being built of masonry. This analysis is discussed in appendix 5A.

Pithouse 1

Dimensions:

North wall	
length (inferred):	ca. 5.20 m
thickness:	ca. 0.25 m
greatest height:	unknown
South wall	
length:	4.95 m
thickness:	ca. 0.25 m
greatest height:	1.49 m
East wall	
length (inferred):	5.60 m
thickness:	ca. 0.25 m
greatest height:	1.52 m
West wall	
length (inferred):	5.60 m
thickness:	ca. 0.25 m
greatest height:	1.59 m
Floor area (inferred):	28.0 m²

Pithouse 1 was first identified when the eastern portion of its large, masonry wingwall was encountered during the excavation of probability square 64S/72E. Based on partial excavation of the structure, Pithouse 1 is inferred to have measured approximately 5.0 m east-west, 5.6 m north-south, and more than 2 m deep. The structure is also inferred to have been wholly masonry lined. Results of grain size analysis (appendix 5A) suggest that the deposits immediately south of the pitstructure were not undisturbed subsoil; rather, these deposits closely resembled pitstructure fill. The implication is that these deposits are postabandonment coluvial fill and that much of the south wall and at least part of the east and west walls were originally aboveground. The rear (north) wall would have required robust masonry construction to resist the downslope movement of colluvial sediments. Thus, the masonry construction observed in Pithouse 1 seems to have been a strategy for coping with the geological setting of the site rather than being indicative of kiva architecture.

Construction. – The east wall of the structure was by far the best preserved; almost certainly this is due to the post reinforced masonry construction used to strengthen that wall. Most of the south wall had slumped into the structure. The west wall had also fallen into the structure, damaging the western portion of the wingwall; possibly this collapse was hastened by the presence of the small drainage running through this part of the site. The north wall was not excavated except for a small portion exposed in an exploratory north-south trench (fig. 5.26).

The roof support system probably consisted of 4 large posts, 2 in the wingwall and 2 in the unexcavated north

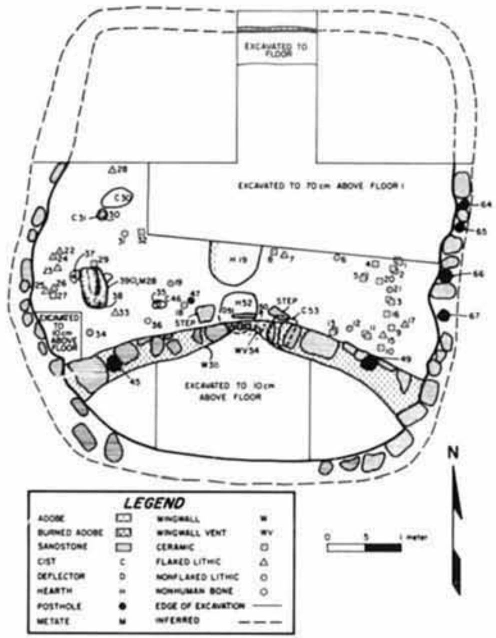

Figure 5.26 – Map of Pithouse 1, Prince Hamlet. All point-located artifacts and all features (with the exception of Features 52 and 53, which are associated with Floor 2) are associated with Floor 1. "Traceable" wall line was extrapolated from known wall line. Refer to tables 5.28 and 5.29 for artifact and feature descriptions, respectively.

half. Numerous burned roof timbers were found in the roof fall zone and were collected as tree-ring samples, but, unfortunately, only 1 sample yielded a usable date (refer to the "Material Culture" section for further discussion). Two distinct floors constitute evidence for major remodeling of the structure.

Depositional history.[1] – During initial test excavations at Prince Hamlet, architectural features indicative of the presence of a pitstructure were encountered in probability square 64S/72E. Excavation of the square was discontinued, and an exploratory north-south trench was excavated to locate the pitstructure walls. Seven strata were identified in the profile of this trench (fig. 5.27). These strata can be grouped into 3 sedimentary classes (sand, sandy loam, and loamy sand), based on the field identification of grain size parameters.

Stratum 1 consisted of a thin, colluvial sand deposit. This stratum can best be interpreted as a relatively recent colluvial deposit that was depleted of fines by sheet wash.

[1] The "Depositional History" section and the remainder of the Pithouse 1 discussion was written by Donald Howes, Department of Anthropology, Washington State University, Pullman.

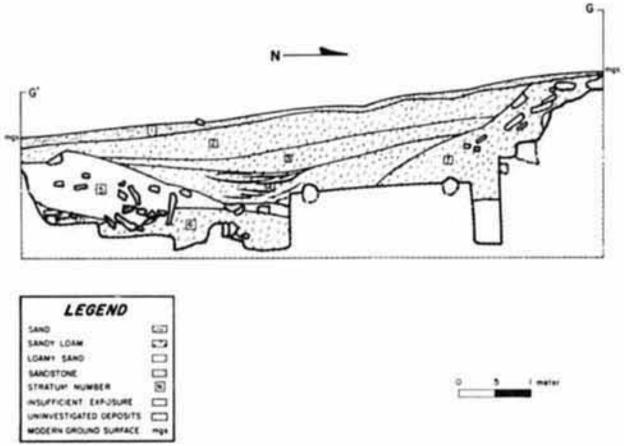

Figure 5.27 – North-south stratigraphic profile of Pithouse 1, Prince Hamlet. Profile was drawn before excavation of the structure was completed and is intended to show postabandonment depositional sequence. Profile G is shown in plan in figure 5.3.

A moderate number of pebble-sized sandstone fragments were present within the stratum.

Stratum 2, also of colluvial origin, consisted of a sandy loam and probably represents the last stages of infilling of Pithouse 1. The sediments in this stratum were poorly sorted; no sedimentary structure was noted. The depositional environment within the pitstructure also might have contributed to the lack of sedimentary structure; by the time the sediments constituting Stratum 2 were being deposited, the depth of sediment within the pitstructure had risen to such a height that ponding of runoff was no longer a factor.

Strata 3 and 4 consisted of sandy loam and can best be regarded as a single unit. The main defining criterion used for their separation was the near lack of laminae within Stratum 3, which perhaps can be attributed to disturbance from roots and burrowing animals. Considered as a single unit, this deposit (Strata 3 and 4) showed a large number of rhythmic beds, each of which had 2 members. The lower member was a gleylike unit that was very rich in organic material; the upper member was a fine to medium sand with some silt. The source of these rhythmic beds was probably the ponding of spring runoff within the partially filled pitstructure depression. This ponding allowed the entire sediment load carried by runoff waters to be deposited within the depression and accounts for the graded bedding present within the gleylike units. The fine to medium sands that overlay the gleys were probably the accumulated deposits from runoff produced by summer thunderstorms. It would be inappropriate, however, to consider these deposits as analogous to varves, since each set of beds does not necessarily constitute one year's worth of deposits. Any event that produced enough runoff to cause significant ponding within the pitstructure could have produced a deposit similar to the gleylike units in terms of grain size characteristics. While spring runoff is the most probable way for ponding to occur, severe rainstorms could also provide enough runoff to cause ponding.

Stratum 5 consisted of wallfall from the south wall of the pitstructure. The finer material of this unit (loamy sand) was probably the result of the intermixing of large amounts of adobe mortar and plaster, which had been used in the construction of the wall. After the 1979 excavations, it was believed that the presence of this stratum both inside and outside the pitstructure boundary could be interpreted as the melting and resultant collapse of a wall that was at least partially aboveground. The distribution of wall stone within the unit indicated that this is only a partial explanation. The jumbled and heaped wall stone, some of which partially intruded into Stratum 6, was indicative of a catastrophic collapse of the south wall of Pithouse 1. This distribution of wall stone contrasted markedly with that found for the east (fig. 5.28) and west (fig. 5.29) walls, which indicated a more gradual collapse onto the sloping surface of Stratum 6. A complete melting and final collapse of the south wall of the pitstructure took place only after the initial catastrophic collapse, and there was no obvious gradual deposition of stone. At this stage, the deposition of wall material outside of the pitstructure would have occurred.

Figure 5.29 – Wallfall from west wall of Pithouse 1, Prince Hamlet (DAP 048024)

Stratum 6 was composed of roof fall and sediment that accumulated immediately after the roof had collapsed but prior to the collapse of the walls. Roof fall composed of burned and unburned adobe, fragments of burned roof beams, and some sediment overlay the floor of the pitstructure and extended upward for approximately 20 to 50 cm. Above this were colluvial deposits that filled the pitstructure to an approximate depth of 70 cm before the walls collapsed. Within the roof fall zone were several large sandstone slabs that might have been wall stone from the upper courses of the walls that were pulled into the pitstructure when the roof collapsed or might have been rocks that were present on the roof at the time of collapse.

Stratum 7, a colluvial deposit that might have been roughly contemporaneous with Stratum 5, consisted of sandy loam. Because it was stratigraphically superior to Stratum 6, the stratum obviously postdated initial colluvial deposition within the pitstructure. Sandstone slabs within the stratum lay at the same angle as the slope at which sediments were deposited within the pitstructure depression. However, because the majority of these slabs were found north of the north wall of the pitstructure, they probably were not wall stones from the pitstructure wall (pressure from downslope movement would probably force most of the standing wall to collapse south, into the depression). If this is the case, the upper portion of the north wall of the pitstructure had probably been destroyed by erosion, either during the deposition of Stratum 6 or early in the deposition of Stratum 7. Therefore, the sandstone slabs contained within the upper portion of Stratum 7 were probably derived from surface structures to the north of the pitstructure. This suggests that the site had been abandoned for some period of time before the deposition of Stratum 7 was complete.

Figure 5.28 – Wallfall from east wall of Pithouse 1, Prince Hamlet (DAP 044125)

In summary, the following depositional sequence for Pithouse 1 can be proposed. The initial event was the burning of the pithouse roof and the deposition of colluvial sediments in the pitstructure depression. At that time, the walls of the pitstructure collapsed, forming a thick deposit in the vicinity of the south wall and much thinner deposits near the east and west walls. At approximately the same time, the north wall of the pitstructure partially eroded, and sediments containing rock derived from the surface structures upslope of Pithouse 1 were deposited. Within the partially filled depression, sediments originating from spring runoff and summer rainstorms began to accumulate. These sediments continued to be deposited until the depression was too shallow to hold water.

The last depositional stage consisted of the final filling of the depression with colluvial sediments.

Rock alinement. – During the excavation of probability square 64S/72E, a rock alinement was located along the north wall of the square, approximately 70 cm. above the floor of Pithouse 1 (fig. 5.30). During the 1980 field season, it became apparent that this alinement was cultural in origin and had been built in the pitstructure depression subsequent to the main occupation of the site. The inference that the alinement is of cultural origin is supported by the presence of a small patch of adobe (possibly a floor remnant) to the north of and at the same elevation as the rock alinement, in excavation unit 3.

The alinement is composed of a single course of sandstone slabs. The individual slabs measure approximately 20 by 40 cm and are similar in size to the sandstone slabs used in the construction of the walls of Pithouse 1; the slabs could have been obtained from wall fall within the pitstructure. Fallen stone or adobe melt that could be associated with the rock alinement was not observed. Apparently, the alinement did not serve as the footing for either a masonry or jacal wall. Indeed, the alinement caused so little disruption in the filling of the pitstructure depression that only very detailed examination of the stratigraphic profile of Pithouse 1 showed any indication of its presence. The only evidence of the alinement was a thin (less than 1 cm thick) layer of charcoal immediately to the south of the alinement. The alinement appears to represent a limited reuse of Prince Hamlet after the main site occupation had concluded; it perhaps is the remains of a temporary shelter.

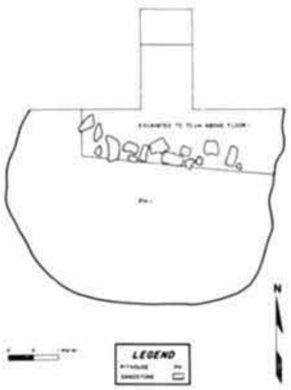

Figure 5.30 – Map of rock alinement in Pithouse 1 fill, Prince Hamlet.

Use of the partially filled depression would not have been unusual because the pitstructure depressions would have been the only relatively level spots at the site. However, because excavation deadlines did not allow intensive examination of the area to the north of the rock alinement, to positively identify the function of this alinement is impossible.

Floor 1. – Floor 1 (fig. 5.26) is the uppermost of 2 partially excavated floors in Pithouse 1. The finish of this surface is highly variable, ranging from puddled adobe in the area of the hearth (Feature 19) to a layer of sand over leveled substrate around the metate (Feature 28). South of the wingwall, the exposed portion of the surface consisted of roughly leveled substrate; no attempt had been made to create a finished surface. Artifacts recovered from Floor 1 of Pithouse 1 are listed and described in table 5.28; features associated with Floor 1 and 2 are listed and described in table 5.29.

Feature 19: Feature 19 is an adobe-lined hearth, the size and location of which (fig. 5.26) suggest that it was the main hearth for Pithouse 1. Only the southern portion of this feature was excavated; therefore, the plan shape and length measurement given in table 5.29 are inferred. The hearth was cross sectioned, providing a stratigraphic exposure in which five strata could be recognized. Stratum 1 consists of gray, consolidated ash with charcoal fragments that vary from 1 to 4 cm in length; this stratum probably is the collapsed roof of Pithouse 1. Stratum 2 is a light brown to beige sand with charcoal flecks and inclusions of gray ash. Stratum 3 is a heterogeneous unit of ash, charcoal, and sand. Stratum 4 consists almost entirely of charcoal. Stratum 5 is a light to medium brown sand immediately overlying the base of the hearth. This fill sequence suggests continual use of the hearth through the deposition of Stratum 2. At that time, the roof of the pitstructure burned and collapsed, depositing Stratum 1, which capped the earlier deposits. The hearth appeared to have been remodeled by the addition of a small adobe ledge that narrowed the hearth by approximately 5 cm along its west side.

Feature 28: Feature 28 (also designated PL 39) is an in situ trough metate that was found resting on 3 props, one under each front corner and the third under the rear edge. These props raised the rear of the metate approximately 4 cm higher than the front to create an incline that, in conjunction with the slope of the trough, would

Table 5.28 – Point-located artifacts, Floor 1, Pithouse 1, Prince Hamlet

PL No.	Material class	Item description
1	Ceramic	DL Early Pueblo Gray jar sherds (4)
2	Ceramic	DL Early Pueblo Gray jar sherds (5) DL Mancos Gray jar sherd
3	Ceramic	DL Early Pueblo Gray jar sherds (5) DL Chapin Gray jar sherd
4	Ceramic	DL Moccasin Gray jar sherd
5	Ceramic	DL Mancos Gray jar sherd CA Early Pueblo Gray jar sherd
6	Nonflaked lithic	Minimally altered
7	Flaked lithic	Debitage
8	Ceramic	DL Early Pueblo Gray jar sherd
9	Ceramic	BL Abajo Red-on-orange bowl sherd
10	Ceramic	DL Early Pueblo Gray jar sherd
11	Ceramic	DL Moccasin Gray jar sherds (5) DL Early Pueblo Gray jar sherds (3)
12	Nonflaked lithic	Hammerstone, minimally used
13	Ceramic	DL Early Pueblo Gray jar sherds (5)
15	Flaked lithic	Unused core
16	Ceramic	DL Early Pueblo Gray jar sherd
17	Flaked lithic	Used core
18	Nonhuman bone	Mammalia, large
19	Nonflaked lithic	Lapstone
20	Ceramic	DL Moccasin Gray jar sherd
21	Nonflaked lithic	Abrading/grinding stone
22	Flaked lithic	Debitage
23	Flaked lithic	Debitage
24	Flaked lithic	Debitage
25	Flaked lithic	Debitage
26	Flaked lithic	Debitage
27	Ceramic	DL Early Pueblo Gray jar sherd
28	Flaked lithic	Debitage
29	Ceramic	DL Polished White bowl sherd
30	Ceramic	DL Chapin Gray bowl sherd
31	Nonhuman bone	*Odocoileus hemionus*
32	Ceramic	DL Polished White jar sherd
33	Flaked lithic	Debitage
34	Nonhuman bone	*Lepus californicus*
35	Nonflaked lithic	Trough metate fragment, one end closed
36	Nonflaked lithic	Shaped stone slab
37	Nonflaked lithic	Abrading/grinding stone, curved surface
38	Nonflaked lithic	Notched maul
39*	Nonflaked lithic	Trough metate, one end closed

* Also designated Feature 28.

PL numbers not listed represent items later determined not to be associated with the floor. See figure 5.26 for artifact locations.

DL – Dolores Manufacturing Tract.
CA – Cahone Manufacturing Tract.
BL – Blanding Manufacturing Tract.
(N) – Number of items.

Table 5.29 – Feature summary, Pithouse 1, Prince Hamlet

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth (cm)
19	Hearth	Round	Basin	§82.0	75.0	23.0
28*	In situ metate	...	...	61.0	45.0	8.5
30	Small floor cist	Oval	Basin	39.5	23.0	10.0
31	Small floor cist	Oval	Basin	19.0	17.0	8.5
38	Wingwall	Complex	Rectangular	485.00	40.0	105.0
45	Posthole with post	Oval	Cylindrical	23.0	16.0	163.0
46	Small floor cist	Oval	Basin	19.0	12.0	10.0
47	Posthole	Round	Cylindrical	12.0	11.0	26.0
49	Posthole with post	Round	Cylindrical	22.0	21.0	175.0
50	Posthole	Round	Cylindrical	4.0	4.0	18.5
51	Deflector	Rectangular	Rectangular	34.0	5.0	39.0
52†	Hearth	Oval	Basin	§60.0	49.0	35.0
53†	Small floor cist	...	...	§40.0	§40.0	24.0
54	Wingwall vent	Rectangular	Other	18.0	9.0	11.5
64	Posthole	Round	...	...	...	...
65	Posthole	Round	...	...	...	...
66	Posthole	Round	...	...	...	...
67	Posthole	Round	...	...	...	...

* Also designated PL 39.
† Features 52 and 53 are associated with Floor 2 of Pithouse 1; all other features are associated with Floor 1.
§ Inferred dimensions.

Refer to figure 5.26 for feature locations.
... – Information not available.

have facilitated the movement of meal out of the trough. The metate had been used virtually to exhaustion; at its thinnest point, the bed of the trough was approximately 2 cm thick. This worn condition was probably one reason that the metate was abandoned when the pitstructure was vacated. When the metate was excavated, a hole was found in the trough, probably the result of damage acquired during resurfacing or roughening of the trough. when the metate was removed from its props, it was found that 2 of those props were recycled tools. The rear prop was a notched maul (PL 38), and the front left prop was an abrading stone (PL 37).

Features 38, 45, 49, and 54: Feature 38 is the masonry wingwall (fig. 5.26) that partitions Pithouse 1. Features 45 and 49 are the 2 wingwall postholes, and Feature 54 is the wingwall vent. These 4 features are discussed together because all are integral elements of the wingwall. Feature 38 is described as a single wingwall rather than as a pair, because the 2 major segments (the east and west sections) are joined by a low rock and adobe wall (fig. 5.31). Detailed examination of the construction of the wingwall showed that this low central wall had been bonded onto the 2 major segments and that the entire structure had been built as a unit (fig. 5.32).

The wingwall was constructed of horizontally coursed masonry slabs that had been plastered over. This type of wingwall construction has been noted at other sites in the project area and apparently was common during the A.D. 850-900 time period (cf. Hewitt et al. 1981; Chenault 1983; Kleidon 1983). The southwest and southeast main roof support posts (Features 45 and 49) were incorporated into the wingwall (figs. 5.33 and 5.34). These postholes could be delineated for a major part of their length, from the bases of the holes (approximately 75 cm below Floor 1) to the upper edge of the wingwall (approximately 90 cm above Floor 1). In the central section

Figure 5.31 – View of wingwall (Feature 38) and deflector (Feature 51), Pithouse 1, Prince Hamlet (DAP 055319).

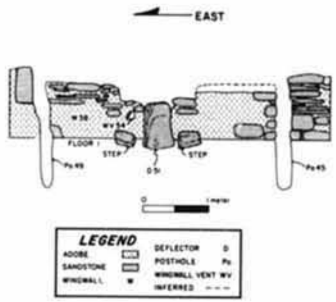

Figure 5.32 – Construction details of wingwall (Feature 38) and associated features (Features 45, 49, 51, and 54), Pithouse 1, Prince Hamlet.

Figure 5.33 – View of posthole (Feature 45) in wingwall, Pithouse 1, Prince Hamlet (DAP 055307).

of the wingwall is a small rectangular hole or vent (Feature 54; fig. 5.35). The vent is lined with small sandstone slabs and apparently functioned to direct drafts around the main hearth.

Feature 51: The deflector (fig. 5.31) was placed immediately north of the wingwall, with a space of approximately 5 cm between it and the central portion of the wingwall. Upon excavation, the deflector was found to be set into the hearth associated with Floor 2 (Feature 52). The deflector is made from a large fragment of a shallow trough metate.

Other features: Three small floor cists (Features 30, 31, and 46) and two small postholes (Features 47 and 50) were also associated with Floor 1. Because all 3 cists are very small, they probably were not used for the storage of foodstuffs. The major distinction that can be made between the three cists is that 2 of them (Features 30 and 31) were filled with clean sand, while the third (Feature 46) was filled with roof fall. The 2 postholes are widely divergent in size (table 29), indicating different, although unknown, uses. Both of the postholes were filled with clean sand.

Four additional postholes (Features 64, 65, 66, and 67) were incorporated into the masonry of the east wall of Pithouse 1. The posts that would have been placed in them functioned to strengthen the east wall rather than to support the pithouse roof.

The general morphology and floor feature complement of Pithouse 1 correspond to the normal pattern for this period (Kane n.d.). Thus, a ventilator system consisting of a vertical shaft and horizontal tunnel was probably

Figure 5.34 – View of posthole (Feature 49) in wingwall, Pithouse 1, Prince Hamlet (DAP 054136).

Figure 5.35 – View of wingwall vent (Feature 54), Pithouse 1, Prince Hamlet (DAP 055302).

present south of the structure; this area was not investigated because of time constraints and higher data recovery priorities. If the south wall of the pitstructure was partially free standing, then the ventilator shaft may have been in the form of a vertical opening to the horizontal tunnel.

Floor 2. – Only a small section of Floor 2, north of the Floor 1 wingwall, was exposed. The excavated section was composed of puddled adobe, similar to that of Floor 1 in the same area. Two features, a hearth and a cist, were found in association with this floor (table 5.29 and fig. 5.26). No artifacts were recovered from Floor 2.

Feature 52: This feature is an oval, adobe-lined hearth, situated partially under the wingwall of Floor 1. Only the portion of the feature that was not covered by the wingwall was investigated. No signs of burning were evident in this excavated portion. The hearth had been filled with a mixture of rock rubble and adobe, apparently to provide a footing for the wingwall and deflector of Floor 1; the deflector had been set into the Floor 2 hearth. The upper 5 cm of deposits within the hearth, to the north of the Floor 1 deflector, were rich in ash.

Feature 53: Feature 53 is a small floor cist located almost entirely under the wingwall of Floor 1. Only the small portion of the cist not covered by the wingwall was excavated. Unlike the hearth, this cist was filled with a clean, yellow sand. Although this cist is much deeper than any associated with Floor 1, nothing can be said about its possible function because so little was excavated.

Interpretations. – The initial event in the construction of Pithouse 1 was the excavation and lining of the structure with horizontal slab masonry. This masonry was then plastered over with adobe, remnants of which are still present on the pitstructure walls. A tree-ring sample from the roof fall stratum near the west wall yielded a date of A.D. 862vv (refer to "Material Culture" section). This beam appeared to be large enough to have been a secondary roof member, but to ascertain the cutting date or to determine whether this beam was part of the original roof construction is not possible.

The earliest known surface within the pitstructure is Floor 2, which was at least partly composed of puddled adobe. Although only a small portion of this surface was excavated, a hearth (Feature 52) and a small floor cist (Feature 53) were found. The location of these 2 features within the pitstructure precludes the possibility that the large masonry wingwall associated with Floor 1 was in use during the occupation associated with Floor 2. If a wingwall (or a pair of wingwalls) had been associated with this earlier surface, it probably would have been placed farther south to allow room for the hearth.

At some point the features were filled in, and a new floor was constructed over Floor 2. The construction sequence becomes somewhat problematic at this point. The presence of both a deflector and a continuous wingwall in association with Floor 1 argues that there were 2 distinct

building phases associated with the use of the surface. Unless one is willing to accept that the deflector was set in place even though the closed wingwall with internal vent rendered it superfluous, then the presence of the deflector indicates that there was probably an earlier set of wingwalls associated with Floor 1. These wingwalls, plus the deflector, would have comprised the more usual set of features seen in Pueblo I pitstructures. The early wingwalls on Floor 1 may have been the original Floor 2 wingwalls; however, because the deflector for Floor 1 was set within the filled hearth associated with Floor 2, more likely the first set of Floor 1 wingwalls was set somewhat north of the current Floor 1 wingwalls. In the latter case, any wingwalls that might have been associated with Floor 2 would have been removed. After a period of time, the original wingwalls for Floor 1 would have been replaced by the present masonry wingwall. Although the wingwall vent rendered the deflector unnecessary, it was not removed, probably due to the difficulty of removing the rubble fill from the hearth. As shown in figure 5.32, the masonry wingwall was constructed around the southwest and southeast support posts. The fact that the slabs abut the postholes and conform to the outlines of the posts, clearly confirms this.

Sometime following the construction of Floor 1, a portion of the east wall of the pitstructure was reinforced with a patch made of rough masonry and posts (figs. 5.36 and 5.37). This patch rests on Floor 1, and the plaster overlying the original masonry wall extends behind the slabs of the patch. This patch probably represents only one small battle in what was a continuing war against downslope movement waged throughout the occupation of Prince Hamlet.

Abandonment of Pithouse 1 appears to have proceeded at a leisurely pace, with the structure being stripped of all usable materials. Although the pitstructure roof burned, few cultural remains were found on the floor, indicating that the structure had been abandoned before the fire. Burned roof fall was found in contact with Floor 1 throughout the excavated portion of the pitstructure. No evidence of degradation of the edges of the roof of the pitstructure before burning was found. Apparently, the structure roof burned soon after abandonment.

Once the roof had collapsed, the open pit filled to a depth of approximately 70 cm. At that time, the south wall of the pitstructure collapsed, and sediments containing building material from abandoned surface rooms upslope of the pitstructure began to be deposited in the pitstructure depression. Shortly following this, it is inferred that a small structure, possibly a temporary shelter, was constructed in the partially filled depression. This structure must have been of insubstantial construction and

Figure 5.36 – View of wall reinforcement, east wall, Pithouse 1, Prince Hamlet (DAP 055309).

probably was used only briefly, since deposition of sediments within the depression was not disrupted to any appreciable degree. Following this brief use, the structure was subject only to natural depositional processes, until the pitstructure depression had been completely filled.

Pithouse 2

Dimensions:*

South wall	
length (inferred):	6.50 m
thickness:	0.30 m
greatest height:	1.75 m
West wall	
length (inferred):	6.50 m
thickness:	0.25 m
greatest height:	1.60 m
Floor area (inferred):	ca. 33.3 m^2

*No dimensions were recorded or inferred for the north and east walls of Pithouse 2.

Figure 5.37 - Detail of wall reinforcement, east wall, Pithouse 1, Prince Hamlet. Note plaster to right of slab (DAP 055025).

Pithouse 2 was first defined when probability square 64S/58E revealed a well-preserved coursed masonry wall that proved to be the west wall of the pitstructure. The west half of this structure was selected for excavation, but actual digging was stopped short of the north wall because the extremely slumped condition and considerable height (at least 2 m) of the wall made rock falls a serious hazard. A 1-m-wide trench was extended from the excavated portion of the structure to the collapsed east wall; although none of the east wall was exposed, the east-west dimensions of the structure are inferred to be 6.5 m. Original wall height of the pitstructure was approximately 2 m.

Construction. - The exposed portion of the south wall of this structure was extremely well preserved (fig. 5.38), as was the southern half of the west wall (fig. 5.39). The south wall and the west wall south of the wingwall consisted of a basal course of upright slabs that were 40 to 60 cm high and that supported seven to eight courses of irregular but well-laid masonry. North of the wingwall, a masonry bench (Feature 35) had been constructed along the west wall; this bench ranged from 60 cm high at the south to 90 cm high where excavation was stopped short of the north wall. The bench was approximately 20 cm wide.

The lower portion of the west wall north of the wingwall consisted of upright slabs that supported coursed masonry with small posts set into the masonry at approximate 50-cm intervals. The placement of these posts in the wall suggests a wall-strengthening function rather than a roof support function. The average depth of the posts below the floor surface was 20 cm, which suggests that resistance to side stress was important. Because this post-reinforced masonry was only 60 to 90 cm high (the pitstructure was nearly 2 m deep), the upper portion of this wall was apparently not subject to the same shearing forces as the lower portion, perhaps because it was aboveground. The steepness of the slope might have required that the upper portions of the south, southwest, and southeast walls be built of aboveground masonry set on the edge of the pit. At some later point, the lower, earthen portion of the walls might have begun to give way due to downslope pressure, necessitating the construction of the post reinforced masonry wall to shore up the earthen portion of at least part of the west wall. Although time constraints precluded excavation outside of the pitstructure walls to test this theory, the supposition that the upper walls were aboveground seems to be supported by several architectural features of the pitstructure itself. For example, the upright slabs at the base of the south wall were only 40 cm high but became more massive in the southern portion of the west wall, reaching a height of 60 cm at the wingwall. Just north of the wingwall, the post reinforced wall also was 60 cm high, but it sloped up to 90 cm high at the point where excavation ceased. This pattern is perhaps what would be expected if the structure were dug into the slope; construction techniques with greater shear resistance would be used in the subsurface portion of the structure, while simple coursed masonry would be sufficient aboveground. To counter this argument, if the south and the southwest portions of Pithouse 2 were indeed partly aboveground, the excellent preservation of the walls is difficult to account for in this part of the structure; one would expect them to have collapsed as the structure deteriorated.

As seen in figure 5.40, the post reinforced portion of the west wall curved noticeably to the northeast. Because the upper portion of this wall had collapsed north of the point at which the post reinforced lower wall began to curve in, it was not possible to determine whether the upper portion of the wall followed this curve, forming a D-shaped structure, or whether the upper wall formed a more conventional rounded square shape while the bench "cut" the northwest corner.

Roof support in Pithouse 2 apparently depended on a four-post system. In the excavated west half, 1 large post (Feature 29) was in the wingwall and 1 was near the north wall (Feature 25). Numerous burned beams were found

Figure 5.38 - South wall of Pithouse 2, Prince Hamlet (DAP 116814).

Figure 5.39 - West wall of Pithouse 2, Prince Hamlet (DAP 116815).

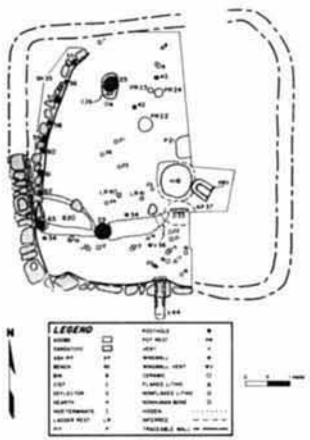

Figure 5.40 - Map of Pithouse 2, Prince Hamlet. "Traceable" wall line was extrapolated from known wall line. All point-located artifacts are associated with Floor 1. Refer to tables 5.30 and 5.31 for artifact and feature descriptions, respectively.

in the roof fall stratum, but the roof had collapsed so unevenly that no roofing pattern could be discerned from the fallen beams. Many of these beams were submitted as tree-ring samples, but none yielded dates.

Depositional history. - Figure 5.10 shows a stratigraphic profile of a portion of Pithouse 2 fill, and the sequence of events represented by that fill has been discussed previously in the section on probability square 64S/58E. The fill sequence for the 2 pitstructures is remarkably similar. The only major difference is the lack of a substantial wall fall stratum in Pithouse 2 comparable to that in Stratum 5 in Pithouse 1 (fig. 5.27). The apparent absence of such a stratum in the Pithouse 2 profile is due largely to the south wall not having collapsed; had safety considerations not precluded excavation closer to the north wall, a considerable amount of wall fall from that direction might have been visible in the profile.

Floor 1. - Floor 1, the upper of 2 distinct floors defined in Pithouse 2, consists of more than a dozen distinct adobe replasterings near the center of the structure, but the edges exposed by excavation appeared to consist simply of use-compacted, sandy material. Below Floor 1 was a 2- to 3-cm thick layer of yellow sand and adobe overlying Floor 2. Floor 2 also consisted of puddled adobe near the center, but whether this floor was prepared all the way to the edges or whether it, too, was simply use compacted near the walls is not known. The point-located artifacts from Floor 1 are shown in figure 5.40 and are listed in table 5.30.

Of the floor features defined in Pithouse 2, only the hearth (Feature 18) is definitely associated with both floors; several others are tentatively associated with the upper and lower surfaces. These relationships, as well as feature dimensions and shapes, are described in table 5.31.

Feature 18. The central hearth in Pithouse 2 (Feature 18) appears to have been used throughout the history of the structure. It bore evidence of at least 4 separate remodelings, 2 of which were associated with Floor 2 and two with Floor 1. The hearth was deepened, changed from round to rectangular, and adobe coping was added. During the occupation associated with Floor 2, an ash pit (Feature 37) apparently was associated with the hearth.

Feature 33: Feature 33, the large, worked, sandstone slab deflector associated with Floor 1 (visible in fig. 5.38), was set into the Floor 2 ash pit, and the wingwall was extended over the ash pit to join the deflector; whether this remodeling took place at the same time that Floor 1 was constructed is unclear.

Features 34, 29, 20, and 36: The wingwall (Feature 34) and its associated features can be seen in figure 5.38. This complex of features includes one of the major roof support postholes (Feature 29), a large corner storage bin (Feature 20), and the wingwall vent (Feature 36). In its original form, the wingwall probably consisted of two separate segments, each approximately 77 cm high. Presumably, a deflector would have been placed behind the wingwall and in front of the ventilator tunnel opening. Later, this area was remodeled; the deflector (Feature 33) was probably moved north into the former ash pit and a lower section of wall (approximately 40 cm high), which incorporated the deflector and joined the two wingwalls, was built. During the same remodeling episode, a small, adobe-lined ventilator (Feature 36) with a slab cover (fig. 5.41) was built into this lower portion of the wingwall to the west of the deflector.

One of the main roof support postholes (Feature 29) was incorporated into the wingwall. The slab-bottomed post-

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Table 5.30 - Point-located artifacts, Floor 1, Pithouse 2, Prince Hamlet

PL No.	Material class	Item description
6	Nonhuman bone	Mammalia, large - tool, too fragmentary to determine type
7	Ceramic	SJ Polished White bowl sherd
8	Flaked lithic	Debitage
9	Ceramic	DL Moccasin Gray jar sherd
		DL Early Pueblo Gray jar sherds (2)
10	Ceramic	DL Polished White bowl sherds (3)
11	Ceramic	BL Early Pueblo Red bowl sherds (2)
12	Ceramic	DL Moccasin Gray jar sherd
13	Ceramic	DL Early Pueblo Gray jar sherds (2)
14	Flaked lithic	Debitage
15	Ceramic	DL Early Pueblo Gray jar sherds (3)
16	Ceramic	DL Early Pueblo Gray jar sherd
17	Flaked lithic	Debitage - angular debris
18	Ceramic	DL Early Pueblo Gray jar sherd
19	Nonflaked lithic	Shaped pestle
20	Flaked lithic	Debitage (2)
21	Ceramic	DL Early Pueblo Gray jar sherd
22	Nonhuman bone	Mammalia or Aves - pendant
23	Nonhuman bone	*Odocoileus hemionus* - simple awl
24	Nonflaked lithic	Abrading/grinding stone, curved surface
25	Nonflaked lithic	Two-hand mano, single use surface
26	Nonhuman bone	Mammalia, large - simple awl
27	Ceramic	DL Early Pueblo Gray jar sherd
28	Nonflaked lithic	Trough metate, one end open

PL numbers not listed represent items later determined not to be associated with the floor. See figure 5.40 for artifact locations.

SJ - San Juan Manufacturing Tract.
DL - Dolores Manufacturing Tract.
BL - Blanding Manufacturing Tract.
(N) - Number of items.

hole was dug approximately 70 cm below Floor 1, and the post was set into the wall and plastered with adobe (a portion of the post was found in the posthole). A large corner bin (Feature 20; figs. 5.38 and 5.39) made of upright slabs abutted the wingwall just west of the post. The bin was slab bottomed and heavily mortared; its function was almost certainly storage, but no direct evidence of this was recovered.

Feature 44: The ventilator (Feature 44) opening is in the south wall of the pithouse, slightly to the west of the deflector-hearth complex on Floor 1. This feature was roughly square with thick adobe coping. The horizontal tunnel of the ventilator was slab lined on the sides and adobe plastered throughout. If, as has been suggested, the south wall of Pithouse 2 was partially free standing, then the vertical shaft portion of the ventilator may have been truncated or may have taken the form of a vertical opening into the horizontal tunnel. The shaft was not investigated due to time constraints.

Other features: The second main roof support post encountered during excavation was set into an adobe-lined, slab-bottomed posthole (Feature 25) with an adobe collar on Floor 1. A small hole (Feature 26) had been cut through this collar to the south of the post; the function of this hole is unknown.

A part of small holes located 35 cm apart (Features 40 and 41) near the center of the structure has been interpreted as ladder rests. The western hole (Feature 40) had been remodeled slightly with adobe along the south edge, apparently to narrow the opening.

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Table 5.31 - Feature summary, Pithouse 2, Prince Hamlet

Feature number	Type	Associated floor*	Plan	Profile	Length (cm)	Width	Depth (cm)
18	Hearth	1 and 2	Round	Basin	[illegible]	[illegible]	27.0
20	Bin	1 (2)	Complex	Rectangular	[illegible]	[illegible]	42.0
21	Pit	2 (1)	. . .	Basin	. . .	. . .	. . .
22	Pot rest	1	Round	Basin	40.0	40.0	10.0
23	Pot rest	1	Round	Cylindrical	15.0	15.0	20.0
24	Pot rest	1	Round	Basin	20.0	20.0	9.0
25	Posthole w/post	1 (2)	Round	Cylindrical	46.0	42.0	67.0
26	Indeterminate	1	Oval	. . .	9.0	9.0	10.0
29	Posthole w/post	1 (2)	Round	Cylindrical	32.0	30.0	70.0
33	Deflector		Rectangular	Rectangular	43.0	3.5	87.0
34	Wingwall	1 (2)	Complex	Rectangular	†315.0	30.0	77.0
35	Bench	1 (2)	Other	Other	†420.0	23.0	70.0
36	Wingwall vent	1	Other	Other	26.0	10.0	16.0
37	Ash pit§	2	Round	Basin	80.0	65.0	20.0
40	Ladder hole	1	Oval	Cylindrical	13.0	11.0	14.0
41	Ladder hole	1	Round	Cylindrical	10.0	10.0	9.0
42	Posthole	1	Round	Cylindrical	10.0	10.0	18.0
43	Posthole	1	Oval	Cylindrical	13.0	10.0	20.0
44	Ventilator	1 (2)	. . .	. . .	. . .	. . .	. . .
55	Posthole	1	Round	. . .	. . .	. . .	. . .
56	Posthole	1	Round	. . .	. . .	. . .	. . .
57	Posthole	1	Round	. . .	. . .	. . .	. . .
58	Posthole	1	Round	. . .	. . .	. . .	. . .
59	Posthole	1	Round	. . .	. . .	. . .	. . .
60	Posthole	1	Round	. . .	. . .	. . .	. . .
61	Posthole	1	Round	. . .	. . .	. . .	. . .
62	Posthole	1	Round	. . .	. . .	. . .	. . .
63	Posthole	1	Round	. . .	. . .	. . .	. . .

*Numbers in parentheses indicate a tentative association between the feature and floor indicated. Dimensions of features associated with both floors are dimensions at the Floor 1 level.
†These features continue into the unexcavated portion of the pithouse. Length measurements represent existing dimensions.
§All dimensions for the ash pit are inferred.

Refer to figure 5.40 for feature locations.

. . . - Information not available.

Feature 22 was sand filled and adobe lined; it was probably a pot rest. Features 23 and 24 are small pits, similar in size and shape. Their similarity and proximity to one another imply a functional association, and both have been interpreted as pot rests. Two small, adobe-lined postholes (Features 42 and 43) might have been associated with these pits also. Feature 43 showed signs of having been remodeled to make it deeper and narrower.

The bench (Feature 35; fig. 5.42) has already been discussed in the "Construction" section. Nine postholes (Features 55 through 63) were incorporated into the masonry west wall of the pitstructure. The posts that would have been placed in them functioned to strengthen the pithouse wall.

Floor 2. - Floor 2, the lower of the 2 recognized surfaces in Pithouse 2, was not excavated to any appreciable extent; its presence became known only during excavation of the Floor 1 features and during Floor 1 subfloor testing. No artifacts were recovered from this surface, but several features were identified. Feature 18, the central hearth

Figure 5.41 - View of wingwall vent (Feature 36), Pithouse 2, Prince Hamlet (DAP 054121).

Figure 5.42 - View of bench (Feature 35), Pithouse 2, Prince Hamlet (DAP 054123).

associated with both surfaces, has already been discussed, as have Features 20, 25, 29, 34, 35, and 44, which are only tentatively linked to this earlier use of the pithouse. In this section, Features 21 and 37, which are definitely associated with Floor 2, are discussed. Refer to figure 5.40 for feature locations and to table 5.31 for feature dimensions.

Feature 21: Feature 21, a large, shallow pit, was associated with the hearth during its Floor 2 use, and possibly during its Floor 1 use as well. This feature was first observed as a sandy patch on Floor 1 immediately north of the hearth. Upon excavation it was determined that the feature penetrated Floor 2, and that Floor 2, in fact, lipped up against the north edge of the feature. The pit was filled with clean sand, and the sides and bottom of the basin were ill defined. The function of this feature, which extended into the unexcavated portion of the structure, is unknown.

Feature 37: Pithouse remodeling, apparently associated with the construction of Floor 1, had largely obliterated Feature 37, but judging from the portion of the feature that remained, this ash pit was simply a basin without adobe lining or coping.

Interpretations. - Although possibly Pithouse 2 was wholly subterranean with the sides of the pit being lined with masonry, the structure was more likely excavated partially into the slope, approximately 50 cm deep toward the south end of the pithouse and 1 m or more deep toward the north end. The portions of the wall that might have been below ground were faced with slabs toward the south; toward the north, a reinforcing wall was built either as part of the original construction or was added later to shore up the subsurface wall. The presumed aboveground walls were of coursed masonry. The roof was supported largely or wholly by 4 large posts. In the original pitstructure, 2 separate wingwalls divided the structure into north and south segments; there was a central hearth with an ash pit and probably a deflector to the south. A shallow, sand-filled pit was located north of the hearth.

After an unknown term of occupancy with some minor architectural remodeling, a major remodeling episode took place. A thin layer of sand and adobe was laid down on the first living surface (Floor 2) - possibly due to sediment accumulation during a brief abandonment of the structure, but more likely due to deliberate preparation of the new floor (Floor 1). At this time, the deflector was moved north into the ash pit, the two wingwalls were joined to the deflector and to each other by a low section of wall, a vent was constructed through the wingwall, and the hearth was deepened and given an adobe coping. After this, periodic minor remodelings, as evidenced by a number of replasterings of the floor, occurred.

The structure was later cleaned out and abandoned. Shortly after abandonment, the roof burned and collapsed. Structural debris filled the pitstructure depression to a depth of approximately 60 to 70 cm, then material carried by runoff was deposited in the depression. The north, northwest, and probably the northeast walls collapsed during this filling process, but the south, southwest, and possibly the southeast walls remained standing.

Pitstructure Artifacts

As stressed in the discussion of roomblock artifacts above, it is important to consider the source of the artifacts recovered from structure fill. The burning and collapse of the roofs of Pithouses 1 and 2 left 2 very large holes in the ground at the base of a steep slope on a site littered with artifacts. No evidence of intentional trash dumping in the fill of either structure exists; the artifacts simply washed in from Areas 1 and 2. During the excavation of the 2 probability squares (64S/58E and 64S/72E), when it became apparent that the fill in the pitstructures was postoccupational, this fill was excavated in 4 vertical levels to save time. However, the artifact data are displayed by cultural and natural units rather than by level in tables 5.32 through 5.35, because ordering by level would give only a very approximate separation of artifacts from different depositional contexts.

The flaked and nonflaked tool assemblages from the 2 pitstructures are very similar. In both assemblages there is a strong emphasis on grinding tools; the flaked lithic tools are primarily expedient, unspecialized tools such as utilized flakes and thick, unidirectionally worked tools. This variety of tool types suggests that numerous activities were being carried out at the site. Nonflaked lithic tools are the only artifacts that were more abundant in Pithouse 1 than in Pithouse 2. This is partly a function of the use of a number of worn out or broken metates in the masonry of the Pithouse 1 wall. Several grinding implements were also found in the roof fall stratum in Pithouse 1, near the western wingwall. Apparently these items had been left in place on the roof in anticipation of later use. This suggests that the occupants of Pithouse 1 expected to return to the site and that they did not deliberately fire the roof when they abandoned the structure. Alternatively, if a long-distance move was involved, the tools may have been left behind deliberately – making new tools at the new location might have been easier than transporting the old tools from Prince Hamlet.

Similar ceramic wares and types were present in the 2 pitstructures. However, the appearance of a few sherds of ceramic types that postdate A.D. 900 in the fill of Pithouse 1 is significant. The latest ceramic type that occurs in all areas of the site (table 5.6) is Cortez Black-on-white; this ceramic type was introduced in the project area in approximately A.D. 890. Three other late types that occur only in Area 2 are Late Pueblo White, Late Pueblo Gray, and Mancos Black-on-white; sherds of these types are concentrated in the fill of Pithouse 1. These few sherds constitute evidence for a possible, brief, late (mid-10th century or possibly later) reuse of the site, apparently centered in or near the Pithouse 1 depression. Associating this reuse with the rock alinement found in the fill of the pitstructure is very tempting. It seems highly coincidental for both this later reuse of the pithouse depression and the handful of late sherds to appear in the same place. But direct evidence for associating these sherds with the rock alinement is lacking.

The floor artifacts in both pitstructures appeared to be in situ. This is not to say that they are necessarily in their use context; both structures were apparently abandoned in a leisurely fashion, and many of the items left on the floor could be the result of abandonment activities.

Two distinct artifact clusters were observed on Floor 1 of Pithouse 1 (fig. 5.26 and table 5.28). The first cluster, located near the east wall, consisted of 26 gray ware jar sherds (PL's 2, 3, 4, 5, 10, 11, 16, and 20), 1 abrading stone (PL 21), 1 hammerstone (PL 12), and 2 cores (PL's 15 and 17). The second cluster consisted of 5 very fine grained flakes (PL's 22 through 26) recovered in the area just west of the in situ metate (PL 39 and Feature 28). Most of these flakes retained some cortex on their dorsal surfaces.

Few floor artifacts were recovered from Pithouse 2 (fig. 5.40, table 5.30). Nearly all of the ceramic items were south of the wingwall, and since most of these were from gray ware jars, ceramic containers may have been stored behind the wingwall. In addition, the presence of the pestle (PL 19) suggests that some food preparation was conducted in this area as well. The metate (PL 28) next to the hearth did not appear to be in use association, but it might have been propped against the wingwall at the time of abandonment and then have fallen over when the roof collapsed.

Midden

Investigation of the midden during the 1979 field season included the excavation of 1 backhoe trench (excavation unit 4) and 3 probability squares: 74S/72E, 72S/68E, and 68S/84E (fig. 5.3). As noted in the section on the probability sample, square 68S/84E was included in Area 2 when the sample was drawn, but it became apparent during excavation that it was actually part of the site midden, which had been designated Area 3. These units were excavated in an effort to determine the depth and horizontal extent of the midden, whether or not the midden was stratified, and how much material had been lost to road construction.

It became apparent during excavation of the backhoe trench and probability square 74S/72E that the midden

Table 5.32 – Ceramic data summary, Pithouses 1 and 2, Prince Hamlet

Culture category: Tract Ware Type	Pithouse 1								
	Fill			Floor			Features		
	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt
Mesa Verde:									
Dolores Tract									
Gray ware									
Chapin Gray	73	668.7	3.6	1	4.6	1.6	0	0	0
Moccasin Gray	255	2 369.0	12.6	7	33.2	11.8	0	0	0
Mancos Gray	32	348.2	1.9	3	77.2	27.4	0	0	0
EP Gray	1 959	13 717.4	73.1	28	136.2	48.4	0	0	0
LP Gray	1	6.6	*	0	0	0	0	0	0
Dolores Brown	0	0	0	0	0	0	0	0	0
White ware									
Chapin B/W	2	21.1	0.1	0	0	0	0	0	0
Piedra B/W	4	20.0	0.1	0	0	0	0	0	0
Cortez B/W	6	40.1	0.2	0	0	0	0	0	0
Mancos B/W	2	4.6	*	0	0	0	0	0	0
EP White	128	963.2	5.1	3	19.2	6.8	1	9.3	100.0
LP White	0	0	0	0	0	0	0	0	0
Blanding Tract									
Red ware									
Abajo R/O	5	56.4	0.3	1	11.2	4.0	0	0	0
Bluff B/R	2	10.6	0.1	0	0	0	0	0	0
EP Red	70	428.4	2.3	0	0	0	0	0	0
LP Red	3	13.5	0.1	0	0	0	0	0	0
McPhee B/R	1	5.2	*	0	0	0	0	0	0
Unclassifiable Red	2	4.0	*	0	0	0	0	0	0
Smudged ware									
MV smudged	2	3.3	*	0	0	0	0	0	0
Kayenta or Cibola:									
Gray ware									
Neckbanded Gray	1	3.7	*	0	0	0	0	0	0
EP Gray	3	20.0	0.1	0	0	0	0	0	0
White Ware									
EP White	1	50.5	0.3	0	0	0	0	0	0
Mogollon:									
Smudged	0	0	0	0	0	0	0	0	0
Indeterminate:									
Gray ware									
Unclassifiable Gray	2	2.6	*	0	0	0	0	0	0
Total ceramics	2 554	18 757.1	100.0	43	281.6	100.0	1	9.3	100.0
Vessel form:									
Jar	2 331	17 042.4	90.9	40	260.5	92.5	0	0	0
Bowl	203	1 488.4	7.9	3	21.1	7.5	1	9.3	100.0
Other	20	226.3	1.2	0	0	0	0	0	0
Unfired clay	1	3.0	100.0	0	0	0	0	0	0

Table 5.32 - Ceramic data summary, Pithouses 1 and 2, Prince Hamlet - Continued

Culture category: Tract Ware Type	Pithouse 1 total			Pithouse 2 Fill			Pithouse 2 Floor 1		
	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt
Mesa Verde:									
Dolores Tract									
Gray ware									
Chapin Gray	74	673.3	3.5	66	510.2	2.7	11	134.1	4.7
Moccasin Gray	262	2 402.2	12.6	207	1 707.5	9.1	70	386.1	13.5
Mancos Gray	35	425.4	2.2	51	533.3	2.8	4	17.4	0.6
EP Gray	1 987	13 853.6	72.7	2 174	14 499.2	77.1	282	1 939.5	67.6
LP Gray	1	6.6	*	0	0	0	0	0	0
Dolores Brown	0	0	0	1	2.5	*	0	0	0
White ware									
Chapin B/W	2	21.1	0.1	0	0	0	0	0	0
Piedra B/W	4	20.0	0.1	11	73.3	0.4	1	5.9	0.2
Cortez B/W	6	40.1	0.2	1	9.5	0.1	0	0	0
Mancos B/W	2	4.6	*	0	0	0	0	0	0
EP White	132	991.7	5.2	123	854.4	4.5	43	252.0	8.8
LP White	0	0	0	1	8.6	*	0	0	0
Blanding Tract									
Red ware									
Abajo R/O	6	67.6	0.4	14	66.5	0.4	1	27.2	0.9
Bluff B/R	2	10.6	0.1	7	70.0	0.4	2	22.9	0.8
EP Red	70	428.4	2.2	86	436.1	2.3	17	69.8	2.4
LP Red	3	13.5	0.1	0	0	0	0	0	0
McPhee B/R	1	5.2	*	0	0	0	0	0	0
Unclassifiable Red	2	4.0	*	0	0	0	0	0	0
Smudged ware									
MV Smudged	2	3.3	*	1	0.6	*	2	13.2	0.5
Kayenta or Cibola:									
Gray ware									
Neckbanded Gray	1	3.7	*	0	0	0	0	0	0
EP Gray	3	20.0	0.1	2	22.3	0.1	0	0	0
White Ware									
EP White	1	50.5	0.3	0	0	0	0	0	0
Mogollon:									
Smudged	0	0	0	1	5.3	*	0	0	0
Indeterminate:									
Gray ware									
Unclassifiable Gray	2	2.6	*	0	0	0	0	0	0
Total ceramics	2 598	19 048.0	100.0	2 746	18 799.3	100.0	433	2 868.1	100.0
Vessel form:									
Jar	2 371	17 302.9	90.8	2 536	17 277.7	91.9	368	2 395.6	83.5
Bowl	207	1 518.8	8.0	186	1 127.3	6.0	57	357.1	12.5
Other	20	226.3	1.2	24	394.3	2.1	8	115.4	4.0
Unfired clay	1	3.0	100.0	0	0	0	1	4.8	100.0

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Table 5.32 - Ceramic data summary, Pithouses 1 and 2, Prince Hamlet - Continued

Culture category: Tract Ware Type	Pithouse 2 Features			Pithouse 2 total		
	N	wt(g)	%wt	N	wt(g)	%wt
Mesa Verde:						
Dolores Tract						
Gray ware						
Chapin Gray	0	0	0	77	644.3	2.9
Moccasin Gray	2	28.7	9.0	279	2 122.3	9.7
Mancos Gray	0	0	0	55	550.7	2.5
EP Gray	33	240.9	75.5	2 489	16 679.6	75.9
LP Gray	0	0	0	0	0	0
Dolores Brown	1	1.3	0.4	2	3.8	*
White ware						
Chapin B/W	0	0	0	0	0	0
Piedra B/W	1	5.8	1.8	13	85.0	0.4
Cortez B/W	0	0	0	1	9.5	*
Mancos B/W	0	0	0	0	0	0
EP White	6	23.9	7.5	172	1 130.3	5.1
LP White	0	0	0	1	8.6	*
Blanding Tract						
Red ware						
Abajo R/O	1	18.6	5.8	16	112.3	0.5
Bluff B/R	0	0	0	9	92.9	0.4
EP Red	0	0	0	103	505.9	2.3
LP Red	0	0	0	0	0	0
McPhee B/R	0	0	0	0	0	0
Unclassifiable Red	0	0	0	0	0	0
Smudged ware						
MV Smudged	0	0	0	3	13.8	0.1
Kayenta or Cibola:						
Gray ware						
Neckbanded Gray	0	0	0	0	0	0
EP Gray	0	0	0	2	22.3	0.1
White Ware						
EP White	0	0	0	0	0	0
Mogollon:						
Smudged	0	0	0	1	5.3	*
Indeterminate:						
Gray ware						
Unclassifiable Gray	0	0	0	0	0	0
Total ceramics	44	319.2	100.0	3 223	21 986.6	100.0
Vessel form:						
Jar	36	271.3	85.0	2 940	19 944.6	90.7
Bowl	7	46.6	14.6	250	1 531.0	7.0
Other	1	1.3	0.4	33	511.0	2.3
Unfired clay	4	90.0	100.0	5	94.8	100.0

EP - Early Pueblo.
LP - Late Pueblo.
MV - Mesa Verde.
* - Less than 0.05 grams.

B/R - Black-on-red.
R/O - Red-on-orange.
B/W - Black-on-white.

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Table 5.33 - Flaked lithic tools, Pithouses 1 and 2, Prince Hamlet

	Pithouse 1								
	Fill			Floor 1			Pithouse 1 total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools	52	100.0	81	2	100.0	217	54	100.0	86
Tool morpho-use									
Utilized flake	22	42.3	40	0	0	0	22	40.7	40
Core	1	1.9	143	1	50.0	278	2	3.7	211
Used core, cobble tool	4	7.7	470	1	50.0	155	5	9.3	407
Thick uniface	10	19.2	73	0	0	0	10	18.5	73
Thin uniface	6	11.5	71	0	0	0	6	11.1	71
Specialized form*	2	3.8	10	0	0	0	2	3.7	10
Thick biface	2	3.8	21	0	0	0	2	3.7	21
Thin biface	1	1.9	73	0	0	0	1	1.9	73
Projectile point	4	7.7	2	0	0	0	4	7.4	2
Grain size									
Coarse	1	1.9	751	0	0	0	1	1.9	751
Medium	1	1.9	168	0	0	0	1	1.9	168
Fine	14	26.9	126	0	0	0	14	25.9	126
Very fine	29	55.8	48	2	100.0	217	31	57.4	59
Microscopic	7	13.5	16	0	0	0	7	13.0	16
Item condition									
Broken									
Indeterminate	2	3.8	67	0	0	0	2	3.7	67
Distal present	1	1.9	1	0	0	0	1	1.9	1
Proximal present	0	0	0	0	0	0	0	0	0
Medial present	4	7.7	21	0	0	0	4	7.4	21
Complete/nearly complete	45	86.5	88	2	100.0	217	47	87.0	94
Material type									
Hornfels	1	1.9	151	2	100.0	217	3	5.6	195
Mafic	0	0	0	0	0	0	0	0	0
Obsidian	0	0	0	0	0	0	0	0	0
Metamorphic	0	0	0	0	0	0	0	0	0
Siltstone	1	1.9	22	0	0	0	1	1.9	22
Chalcedony	2	3.8	2	0	0	0	2	3.7	2
Chert	12	23.1	31	0	0	0	12	22.2	31
Silicified sandstone/ siltstone	36	69.2	101	0	0	0	36	66.7	101
Specific material									
Indeterminate	10	19.2	98	0	0	0	10	18.5	98
Obsidian, nonlocal	0	0	0	0	0	0	0	0	0
Chert, nonlocal	0	0	0	0	0	0	0	0	0
Chert, nfs	2	3.8	25	0	0	0	2	3.7	25
Chert, Morrison	1	1.9	29	0	0	0	1	1.9	29
Chert, Morrison green	3	5.8	63	0	0	0	3	5.6	63
Chert, Burro Canyon	6	11.5	13	0	0	0	6	11.1	13
Quartzite, nfs	10	19.2	33	0	0	0	10	18.5	33
Quartzite, Morrison green	7	13.5	134	0	0	0	7	13.0	134
Quartzite, Morrison purple	0	0	0	0	0	0	0	0	0
Quartzite, Burro Canyon/Dakota	2	3.8	16	0	0	0	2	3.7	16
Silicified siltstone, Mancos	1	1.9	106	0	0	0	1	1.9	106
Local cobble/gravel	10	19.2	146	2	100.0	217	12	22.2	158

*Gravers, denticulate, axe, and drill.

nfs - Not further specified.

Table 5.33 - Flaked lithic tools, Pithouses 1 and 2, Prince Hamlet - Continued

	Pithouse 2											
	Fill			Floor 1			Features			Pithouse 2 total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools	61	100.0	77	11	100.0	171	1	100.0	3	73	100.0	90
Tool morpho-use												
Utilized flake	26	42.6	32	0	0	0	0	0	0	26	35.6	32
Core	4	6.6	258	0	0	0	0	0	0	4	5.5	258
Used core, cobble tool	5	8.2	204	4	36.4	408	0	0	0	9	12.3	294
Thick uniface	12	19.7	46	3	27.3	54	0	0	0	15	20.5	48
Thin uniface	3	4.9	9	1	9.1	74	0	0	0	4	5.5	25
Specialized form	3	4.9	352	0	0	0	0	0	0	3	4.1	352
Thick biface	1	1.6	57	0	0	0	0	0	0	1	1.4	57
Thin biface	3	4.9	37	2	18.2	8	0	0	0	5	6.8	25
Projectile point	4	6.6	1	1	9.1	1	1	100.0	3	6	8.2	1
Grain size												
Coarse	0	0	0	1	9.1	749	0	0	0	1	1.4	749
Medium	0	0	0	0	0	0	0	0	0	0	0	0
Fine	19	31.1	152	2	18.2	62	0	0	0	21	28.8	144
Very fine	31	50.8	52	6	54.5	167	0	0	0	37	50.7	71
Microscopic	11	18.0	16	2	18.2	4	1	100.0	3	14	19.2	13
Item condition												
Broken												
Indeterminate	2	3.3	71	1	9.1	82	0	0	0	3	4.1	74
Distal present	0	0	0	0	0	0	0	0	0	0	0	0
Proximal present	2	3.3	4	0	0	0	0	0	0	2	2.7	4
Medial present	4	6.6	25	0	0	0	0	0	0	4	5.5	20
Complete/nearly complete	53	86.9	84	10	90.9	180	1	100.0	3	64	87.7	98
Material type												
Hornfels	4	6.6	227	2	18.2	323	0	0	0	6	8.2	259
Mafic	0	0	0	1	9.1	749	0	0	0	1	1.4	749
Obsidian	0	0	0	0	0	0	1	100.0	3	1	1.4	3
Metamorphic	1	1.6	1 028	0	0	0	0	0	0	1	1.4	1 028
Siltstone	4	6.6	47	0	0	0	0	0	0	4	5.5	47
Chalcedony	1	1.6	10	0	0	0	0	0	0	1	1.4	10
Chert	14	23.0	20	2	18.2	4	0	0	0	16	21.9	18
Silicified sandstone/ siltstone	37	60.7	62	6	54.5	80	0	0	0	43	58.9	64
Specific material												
Indeterminate	25	41.0	24	0	0	0	0	0	0	25	34.2	24
Obsidian, nonlocal	0	0	0	0	0	0	1	100.0	3	1	1.4	3
Chert, nonlocal	1	1.6	60	0	0	0	0	0	0	1	1.4	60
Chert, nfs	2	3.3	9	0	0	0	0	0	0	2	2.7	9
Chert, Morrison	2	3.3	18	0	0	0	0	0	0	2	2.7	18
Chert, Morrison green	0	0	0	0	0	0	0	0	0	0	0	0
Chert, Burro Canyon	0	0	0	2	18.2	4	0	0	0	2	2.7	4
Quartzite, nfs	5	8.2	44	0	0	0	0	0	0	5	6.8	44
Quartzite, Morrison green	9	14.7	39	1	9.1	238	0	0	0	10	13.7	59
Quartzite, Morrison purple	3	4.9	49	2	18.2	50	0	0	0	5	6.8	49
Quartzite, Burro Canyon/Dakota	1	1.6	4	2	18.2	23	0	0	0	3	4.1	16
Silicified siltstone, Mancos	0	0	0	0	0	0	0	0	0	0	0	0
Local cobble/gravel	13	21.3	251	4	36.4	373	0	0	0	17	23.3	280

Table 5.34 - Flaked lithic debitage, Pithouses 1 and 2, Prince Hamlet

	Pithouse 1											
	Fill			Floor 1			Features			Pithouse 1 total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:												
Grain size												
Medium	16	2.2	14	0	0	0	0	0	0	16	2.2	14
Fine	222	30.9	13	1	12.5	5	0	0	0	223	30.7	13
Very fine	418	58.2	10	7	87.5	3	1	100.0	2	426	58.6	10
Microscopic	[illegible]	8.6	8	0	0	0	0	0	0	62	8.5	8
Total flakes/ flake frags	718	100.0	12	8	100.0	3	1	100.0	2	727	100.0	10
Items with cortex	325	45.3	...	6	75.0	...	0	0	...	331	45.5	...
Whole flakes	375	52.2	...	4	50.0	...	0	0	...	379	52.1	...
Angular debris	63	100.0	12	0	0	0	0	0	0	63	100.0	12

	Pithouse 2											
	Fill			Floor 1			Features			Pithouse 2 total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:												
Grain size												
Medium	20	2.4	15	4	2.0	9	0	0	0	24	2.1	14
Fine	362	43.8	10	57	28.9	8	42	36.2	1	461	40.5	9
Very fine	343	41.5	8	131	66.5	5	54	46.6	3	528	46.4	7
Microscopic	101	12.2	4	5	2.5	10	20	17.2	*4	126	11.1	4
Total flakes/ flake frags	826	100.0	9	197	100.0	6	116	100.0	3	1 139	100.0	8
Items with cortex	376	45.5	...	57	28.9	...	37	31.9	...	470	41.3	...
Whole flakes	74	9.0	...	72	36.5	...	49	42.2	...	195	17.1	...
Angular debris	181	100.0	9	38	100.0	9	6	100.0	7	225	100.0	9

*Mean weight estimated on basis of debitage in fill.

frags - Fragments.
... - Information not available.

Table 5.35 – Nonflaked lithic tools, Pithouses 1 and 2, Prince Hamlet

	Pithouse 1											
	Fill			Floor 1			Features			Pithouse 1 total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	35	100.0	259 737	6	100.0	17 236	1	100.0	19 900	42	100.0	296 873
Tool morpho-use												
Generalized tool	0	0	0	0	0	0	0	0	0	0	0	0
Polishing stone	7	20.0	50	1	16.7	42	0	0	0	8	19.0	49
Shaped slab	1	2.9	48 200	1	16.7	1 952	0	0	0	2	4.8	25 076
Metate frag, nfs	1	2.9	1 619	0	0	0	0	0	0	1	2.4	1 619
Trough metate	14	40.0	13 465	1	16.7	6 700	1*	100.0	19 900	16	38.1	13 445
Slab metate	1	2.9	5 850	0	0	0	0	0	0	1	2.4	5 850
Hafted item, nfs	0	0	0	0	0	0	0	0	0	0	0	0
Abrading stone	1	2.9	94	1	16.7	1 484	0	0	0	2	4.8	789
Pestle	0	0	0	0	0	0	0	0	0	0	0	0
Hammerstone	1	2.9	1 357	1	16.7	558	0	0	0	2	4.8	958
Two-hand mano	4	11.4	2 017	0	0	0	0	0	0	4	9.5	2 014
One-hand mano	2	5.7	726	0	0	0	0	0	0	2	4.8	726
Anvil stone	1	2.9	2 200	0	0	0	0	0	0	1	2.4	2 200
Grooved maul	2	5.7	1 016	0	0	0	0	0	0	2	4.8	1 016
Lap stone	0	0	0	1	16.7	6 500	0	0	0	1	2.4	6 500
Material type												
Igneous, nfs	7	20.0	247	1	16.7	558	0	0	0	8	19.0	286
Medium felsic/silicic	0	0	0	0	0	0	0	0	0	0	0	0
Sedimentary, nfs	2	5.7	75	0	0	0	0	0	0	2	4.8	75
Coarse sandstone	1	2.9	2 141	0	0	0	0	0	0	1	2.4	2 141
Medium sandstone	16	45.7	13 942	1	16.7	6 700	1	100.0	19 900	18	42.9	13 871
Fine to very fine sandstone	8	22.9	3 805	2	33.3	1 718	0	0	0	10	23.8	3 388
Quartzite	0	0	0	1	16.7	42	0	0	0	1	2.4	42
River cobble, nfs	0	0	0	0	0	0	0	0	0	0	0	0
Coarse mafic	1	2.9	2 200	1	16.7	6 500	0	0	0	2	4.8	4 350
Item condition												
Broken												
Unidentifiable	0	0	0	0	0	0	0	0	0	0	0	0
Identifiable	19	54.3	7 344	2	33.3	4 092	1	100.0	19 900	22	52.4	167 623
Complete/nearly complete	16	45.7	7 512	4	66.6	2 263	0	0	0	20	47.6	129 250
Production evaluation												
Indeterminate	1	2.9	1 619	2	33.3	4 092	0	0	0	3	7.1	3 268
Natural (unmodified)	11	31.4	487	3	50.0	2 367	0	0	0	14	33.3	890
Minimally modified	13	37.1	10 090	0	0	0	0	0	0	13	31.0	10 090
Well shaped	10	28.6	12 158	1	16.7	1 952	1	100.0	19 900	12	28.6	11 953

nfs - Not further specified.

Table 5.35 – Nonflaked lithic tools, Pithouses 1 and 2, Prince Hamlet – Continued

	Pithouse 2											
	Fill			Floor 1			Features			Pithouse 2 total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	17	100.0	74 109	10	100.0	71 463	1	100.0	22 450	28	100.0	168 022
Tool morpho-use												
Generalized tool	1	5.9	81	0	0	0	0	0	0	1	3.6	81
Polishing stone	7	41.2	50	0	0	0	0	0	0	7	25.0	50
Shaped slab	1	5.9	5 775	1	10.0	27 750	*1	100.0	22 450	3	10.7	18 658
Metate frag, nfs	1	5.9	2 750	0	0	0	0	0	0	1	3.6	2 750
Trough metate	5	29.4	9 515	3	30.0	10 208	0	0	0	8	28.6	9 775
Slab metate	1	5.9	17 050	0	0	0	0	0	0	1	3.6	17 050
Hafted items, nfs	1	5.9	530	0	0	0	0	0	0	1	3.6	530
Abrading stone	0	0	0	1	10.0	2 150	0	0	0	1	3.6	2 150
Pestle	0	0	0	1	10.0	971	0	0	0	1	3.6	971
Hammerstone	0	0	0	1	10.0	2 550	0	0	0	1	3.6	2 550
Two-hand mano	0	0	0	3	30.0	2 472	0	0	0	3	10.7	2 472
One-hand mano	0	0	0	0	0	0	0	0	0	0	0	0
Anvil stone	0	0	0	0	0	0	0	0	0	0	0	0
Grooved maul	0	0	0	0	0	0	0	0	0	0	0	0
Lap stone	0	0	0	0	0	0	0	0	0	0	0	0
Material type												
Igneous, nfs	6	35.3	505	0	0	0	0	0	0	6	21.4	505
Medium felsic/silicic	1	5.9	530	0	0	0	0	0	0	1	3.6	530
Sedimentary, nfs	0	0	0	0	0	0	0	0	0	0	0	0
Coarse sandstone	0	0	0	1	10.0	2 550	0	0	0	1	3.6	2 550
Medium sandstone	4	23.5	11 075	4	40.0	2 823	1	100.0	22 450	9	32.1	8 671
Fine to very fine sandstone	4	23.5	6 537	2	20.0	25 650	0	0	0	6	21.4	12 908
Quartzite	1	5.9	19	0	0	0	0	0	0	1	3.6	19
River cobble, nfs	1	5.9	81	1	10.0	3 200	0	0	0	2	7.1	1 641
Coarse mafic	0	0	0	2	20.0	1 561	0	0	0	2	7.1	1 561
Item condition												
Broken												
Unidentifiable	1	5.9	81	1	10.0	4 400	0	0	0	2	7.1	2 241
Identifiable	6	35.3	8 018	1	10.0	2 675	0	0	0	7	25.0	7 254
Complete/nearly complete	10	58.8	2 592	8	80.0	8 049	1	100.0	22 450	19	67.9	5 935
Production evaluation												
Indeterminate	3	17.6	3 952	0	0	0	0	0	0	3	10.7	3 952
Natural (unmodified)	8	47.1	387	4	40.0	2 218	0	0	0	12	42.9	997
Minimally modified	2	11.8	8 790	2	20.0	3 538	0	0	0	4	14.3	6 164
Well shaped	4	23.5	10 394	4	40.0	13 879	1	100.0	22 450	9	32.1	1 282

* - Deflector.

deposits were not as deep at the road cut as had been anticipated. The organic material in the trash had washed down the face of the cut, creating a dark stain that appeared to be midden; in reality, only a light surface skiff of midden, which appeared to be the result of slope wash, was present. Since the midden was over 1 m deep in probability square 72S/68E, these trenches demonstrated that very little of the site had been lost to road building.

The midden in squares 72S/68E and 68S/84E originally appeared to undergo a change approximately halfway through the depositional sequence, as discussed in the earlier section on probability sampling. During the 1980 field season, however, this change in the depositional environment was no longer observable in square 72S/68E, although 2 episodes of deposition were still recognizable in square 68S/84E.

To resolve this question about the depositional history of the midden and to increase the sample of artifacts from the midden, a third 2- by 2-m square, 70S/76E, was excavated. This square was chosen because it was located midway between the 2 probability squares. To ensure data comparability, this third square was also dug in arbitrary 20-cm levels and all material was screened through one-quarter-inch mesh. A profile of the east face of this square is shown in figure 5.43, and the artifacts recovered are tabulated in tables 5.36 through 5.39. Combined artifact totals from all 3 midden squares are presented in these tables.

A slight change in the nature of trash deposition was apparent approximately halfway through the depositional sequence in the stratigraphic profile of square 70S/76E. Stratum 1 is the general, site-wide, postoccupational deposit; the sediments in this stratum consisted of loam. Strata 2 and 5 (both silt loam) are very similar midden deposits, but Stratum 5 was slightly darker and contained more trash. Stratum 3 consisted of angular rock in a matrix of silt loam and Stratum 4 was a culturally sterile sandy loam that closely resembled the sterile subsoil and may be spoil dirt from the prehistoric excavation of a pit or from other construction activities. The deposits labeled Stratum 6 were very dark, organic trash lenses in a silt loam matrix; this stratum lay directly on sterile soil, which consisted of a sandy loam. The interface between sterile soil and the overlying deposits is inferred to be the prehistoric ground surface.

Square 70S/76E Artifacts

To interpret tables 5.36 through 5.39 in terms of figure 5.43 the reader may very roughly equate Levels 1 through 4 with Strata 1, 2, and 3 and Levels 5 through 7 with Strata 4 and 5. As noted when similar groupings were suggested for probability squares 72S/68E and 68S/84E, the steep slope of the site and the horizontal orientation of the arbitrary levels make these approximations **very** approximate indeed. This is especially true for square 70S/76E; in this square, the noticeable decrease in artifact frequencies in Level 5 is due to the inclusion of a considerable amount of the culturally sterile Stratum 4 within this level on the downslope side. Furthermore, part of Level 5 at its downslope side is actually part of Stratum 2 rather than Stratum 5.

Because probability squares 72S/68E and 68S/84E were excavated in 1979 and square 70S/76E was excavated in 1980 comparison between them is difficult. The categories of lithic artifact data recorded changed between the two seasons, angular debris was not a recognized category for the 1979 materials but accounts for approximately 23 percent of the debitage in the 1980 square. Other subtler differences between the two seasons' results may also occur that are a function of improved analysis

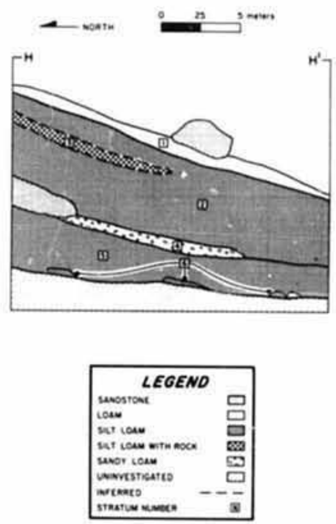

Figure 5.43 - Stratigraphic profile of east wall of square 70S/76E, Prince Hamlet. Profile H located in plan in figure 5.3

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Table 5.36 - Ceramic data summary, square 70S/76E and total midden, Prince Hamlet

Culture category: Tract Ware Type	Square 70S/76E Level 1 N	wt(g)	%wt	Level 2 N	wt(g)	%wt	Level 3 N	wt(g)	%wt
Mesa Verde:									
Dolores Tract									
Gray ware									
Chapin Gray	2	4.1	14.0	4	10.3	3.0	11	55.3	3.5
Moccasin Gray	0	0	0	8	37.8	11.0	12	107.6	6.8
Mancos Gray	0	0	0	0	0	0	1	15.3	1.0
EP Gray	7	22.8	78.1	58	281.8	81.9	224	1 252.4	78.7
Dolores Brown	0	0	0	0	0	0	0	0	0
White ware									
Chapin B/W	0	0	0	0	0	0	0	0	0
Piedra B/W	0	0	0	2	5.9	1.7	0	0	0
EP White	1	2.3	7.9	1	4.2	1.2	26	89.9	5.6
LP White	0	0	0	0	0	0	0	0	0
Blanding Tract									
Red ware									
Abajo R/O	0	0	0	0	0	0	0	0	0
Abajo Polychrome	0	0	0	0	0	0	0	0	0
Bluff B/R	0	0	0	0	0	0	0	0	0
EP Red	0	0	0	1	3.1	0.9	19	61.7	3.9
Chuska:									
Gray ware									
EP Gray	0	0	0	0	0	0	0	0	0
Kayenta or Cibola:									
Gray ware									
Neckbanded Gray	0	0	0	0	0	0	1	9.3	0.6
EP Gray	0	0	0	1	0.8	0.2	0	0	0
White ware									
EP White	0	0	0	0	0	0	0	0	0
Indeterminate:									
Gray ware	0	0	0	0	0	0	0	0	0
Unclassifiable Gray									
White ware									
Unclassifiable White	0	0	0	0	0	0	0	0	0
Total ceramics	10	29.2	100.0	75	343.9	100.0	294	1 591.5	100.0
Vessel form:									
Jar	9	26.9	92.1	72	333.8	97.1	244	1 378.7	86.6
Bowl	1	2.3	7.9	3	10.1	2.9	41	141.8	8.9
Other	0	0	0	0	0	0	9	71.0	4.5
Unfired clay	0	0	0	0	0	0	0	0	0

EP - Early Pueblo.
LP - Late Pueblo.
MV - Mesa Verde.
* - Less than 0.05 grams.
B/R - Black-on-red.
R/O - Red-on-orange.
B/W - Black-on-white.

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Table 5.36 - Ceramic data summary, square 70S/76E and total midden, Prince Hamlet - Continued

Culture category: Tract Ware Type	Square 70S/76E								
	Level 4			Level 5			Level 6		
	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt
Mesa Verde:									
Dolores Tract									
Gray ware									
Chapin Gray	18	193.5	5.1	27	234.6	11.1	19	175.7	4.0
Moccasin Gray	17	110.8	2.9	0	0	0	5	74.6	1.7
Mancos Gray	3	7.4	0.2	0	0	0	0	0	0
EP Gray	437	3 006.0	79.1	456	1 692.7	79.8	489	3 823.4	86.6
Dolores Brown	0	0	0	0	0	0	0	0	0
White ware									
Chapin B/W	0	0	0	1	7.1	0.3	1	4.1	0.1
Piedra B/W	1	21.1	0.6	1	1.7	0.1	4	30.0	0.7
EP White	47	274.2	7.2	18	92.0	4.3	59	181.5	4.1
LP White	0	0	0	1	6.7	0.3	0	0	0
Blanding Tract									
Red ware									
Abajo R/O	12	129.4	3.4	2	11.0	0.5	16	87.1	2.0
Abajo Polychrome	0	0	0	1	21.8	1.0	0	0	0
Bluff B/R	0	0	0	0	0	0	1	1.2	•
EP Red	16	59.0	1.6	11	42.6	2.0	9	30.6	0.7
Chuska:									
Gray ware									
EP Gray	0	0	0	0	0	0	0	0	0
Kayenta or Cibola:									
Gray ware									
Neckbanded Gray	0	0	0	0	0	0	0	0	0
EP Gray	0	0	0	1	1.3	0.1	1	2.5	0.1
White Ware									
EP White	0	0	0	1	10.4	0.5	0	0	0
Indeterminate:									
Gray ware									
Unclassifiable Gray	0	0	0	0	0	0	0	0	0
White ware									
Unclassifiable White	0	0	0	0	0	0	1	3.6	0.1
Total ceramics	551	3 801.4	100.0	520	2 121.9	100.0	605	4 414.3	100.0
Vessel form:									
Jar	479	3 252.1	85.6	485	1 934.2	91.2	530	4 148.6	94.0
Bowl	67	422.3	11.1	35	187.7	8.8	74	255.1	5.8
Other	5	127.0	3.3	0	0	0	1	10.6	0.2
Unfired clay	0	0	0	0	0	0	1	39.5	100.0

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Table 5.36 - Ceramic data summary, square 70S/76E and total midden, Prince Hamlet - Continued

Culture category: Tract Ware Type	Square 70S/76E								
	Level 7			Square Total			Midden total		
	N	wt(g)	%wt	N	wt(g)	%wt	N	wt(g)	%wt
Mesa Verde:									
Dolores Tract									
Gray ware									
Chapin Gray	1	6.7	19.4	82	680.2	5.5	341	2 744.9	5.8
Moccasin Gray	0	0	0	42	330.8	2.7	211	1 407.5	3.0
Mancos Gray	0	0	0	4	22.7	0.2	25	145.7	0.3
EP Gray	11	8.7	25.1	1 682	10 087.8	81.8	6 419	37 036.4	78.5
Dolores Brown	0	0	0	0	0	0	1	12.7	•
White ware									
Chapin B/W	0	0	0	2	11.2	0.1	10	147.5	0.3
Piedra B/W	0	0	0	8	58.7	0.5	30	323.0	0.7
EP White	2	19.2	55.5	154	663.3	5.4	632	3 814.4	8.1
LP White	0	0	0	1	6.7	0.1	1	6.7	•
Blanding Tract									
Red ware									
Abajo R/O	0	0	0	30	227.5	1.8	36	293.7	0.6
Abajo Polychrome	0	0	0	1	21.8	0.2	1	21.8	•
Bluff B/R	0	0	0	1	1.2	•	1	1.2	•
EP Red	0	0	0	56	197.0	1.6	301	1,161.6	2.5
Chuska:									
Gray ware									
EP Gray	0	0	0	0	0	0	3	5.0	•
Kayenta or Cibola:									
Gray ware									
Neckbanded Gray	0	0	0	1	9.3	0.1	1	9.3	•
EP Gray	0	0	0	3	4.6	•	11	29.8	0.1
White Ware									
EP White	0	0	0	1	10.4	0.1	1	10.4	•
Indeterminate:									
Gray ware									
Unclassifiable Gray	0	0	0	0	0	0	2	13.8	•
White ware									
Unclassifiable White	0	0	0	1	3.6	•	1	3.6	•
Total ceramics	14	34.6	100.0	2 069	12 336.8	100.0	8 028	47 189.0	100.0
Vessel form:									
Jar	12	15.4	45.5	1 831	11 089.7	89.9	7 105	41 640.5	88.2
Bowl	2	19.2	55.5	223	1 038.5	8.4	900	5 299.2	11.2
Other	0	0	0	15	208.6	1.7	23	249.3	0.5
Unfired clay	0	0	0	1	39.5	100.0	1	39.5	100.0

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Table 5.37 - Flaked lithic tools, square 70S/76E and total midden, Prince Hamlet*

	Level 2			Level 3			Level 4		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	4	100.0	89	5	100.0	109	14	100.0	97
Tool morpho-use									
Utilized flake	3	75.0	86	1	20.0	191	6	42.9	36
Core	0	0	0	0	0	0	2	14.3	284
Used core, cobble tool	0	0	0	0	0	0	1	7.1	183
Thick uniface	0	0	0	2	40.0	29	2	14.3	62
Thin uniface	0	0	0	1	20.0	36	1	7.1	153
Specialized form	0	0	0	1	20.0	262	0	0	0
Thick biface	0	0	0	0	0	0	2	14.3	57
Thin biface	1	25.0	98	0	0	0	0	0	0
Projectile point	0	0	0	0	0	0	0	0	0
Grain size									
Fine	2	50.0	55	3	60.0	169	5	35.7	106
Very fine	2	50.0	123	1	20.0	36	9	64.3	91
Microscopic	0	0	0	1	20.0	4	0	0	0
Item condition									
Indeterminate	0	0	0	0	0	0	0	0	0
Broken									
Medial present	0	0	0	0	0	0	0	0	0
Complete/nearly complete	4	100.0	89	5	100.0	109	14	100.0	97
Material type									
Siltstone	0	0	0	0	0	0	0	0	0
Shale	0	0	0	0	0	0	0	0	0
Chalcedony	0	0	0	1	20.0	4	0	0	0
Chert	0	0	0	1	20.0	36	3	21.4	33
Silicified sandstone/ siltstone	4	100.0	89	3	60.0	169	11	78.6	114
Specific material									
Indeterminate	0	0	0	1	20.0	4	1	7.1	76
Chert, nfs	1	25.0	13	0	0	0	0	0	0
Chert, Morrison	0	0	0	0	0	0	1	7.1	20
Chert, Morrison green	0	0	0	1	20.0	36	0	0	0
Chert, Burro Canyon	0	0	0	0	0	0	2	14.3	39
Quartzite, nfs	1	25.0	98	0	0	0	3	21.4	101
Quartzite, Morrison green	0	0	0	0	0	0	3	21.4	216
Quartzite, Morrison purple	0	0	0	0	0	0	1	7.1	26
Quartzite, Burro Canyon/Dakota	1	25.0	11	0	0	0	2	14.3	91
Silicified siltstone	0	0	0	0	0	0	0	0	0
Local cobbles/gravels	1	25.0	233	3	60.0	169	1	7.1	23

*No flaked lithic tools were recovered from Level 1.
†Specialized forms consist of 1 flaked axe and 1 graver, beak, or perforator.

nfs - Not further specified.

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Table 5.37 - Flaked lithic tools, square 70S/76E and total midden, Prince Hamlet - Continued

	Level 5			Level 6			Level 7		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	8	100.0	139	11	100.0	40	1	100.0	120
Tool morpho-use									
Indeterminate	0	0	0	0	0	0	0	0	0
Utilized flake	4	50.0	79	3	27.3	11	0	0	0
Core	1	12.5	53	5	45.5	70	0	0	0
Used core, cobble tool	2	25.0	303	0	0	0	1	100.0	120
Thick uniface	1	12.5	135	0	0	0	0	0	0
Thin uniface	0	0	0	0	0	0	0	0	0
Specialized form	0	0	0	0	0	0	0	0	0
Thick biface	0	0	0	1	9.1	34	0	0	0
Thin biface	0	0	0	1	9.1	21	0	0	0
Projectile point	0	0	0	1	9.1	1	0	0	0
Grain size									
Fine	3	37.5	41	5	45.5	71	1	100.0	120
Very fine	5	62.5	197	4	36.4	20	0	0	0
Microscopic	0	0	0	2	18.2	5	0	0	0
Item condition									
Indeterminate	0	0	0	0	0	0	0	0	0
Broken									
Medial present	1	12.5	8	0	0	0	0	0	0
Complete/nearly complete	7	87.5	157	11	100.0	40	1	100.0	120
Material type									
Siltstone	0	0	0	0	0	0	0	0	0
Shale	1	12.5	136	0	0	0	0	0	0
Chalcedony	0	0	0	2	18.2	5	0	0	0
Chert	2	25.0	80	4	36.4	20	0	0	0
Silicified sandstone/ siltstone	5	62.5	163	5	45.5	71	1	100.0	120
Specific material									
Indeterminate	1	12.5	148	3	27.3	10	0	0	0
Chert, nfs	0	0	0	0	0	0	0	0	0
Chert, Morrison	0	0	0	1	9.1	6	0	0	0
Chert, Morrison green	2	25.0	80	1	9.1	50	0	0	0
Chert, Burro Canyon	0	0	0	1	9.1	1	0	0	0
Quartzite, nfs	0	0	0	3	27.3	42	0	0	0
Quartzite, Morrison green	3	37.5	41	1	9.1	44	0	0	0
Quartzite, Morrison purple	0	0	0	0	0	0	0	0	0
Quartzite, Burro Canyon/Dakota	0	0	0	0	0	0	0	0	0
Silicified siltstone	1	12.5	136	0	0	0	0	0	0
Local cobbles/gravels	1	12.5	542	1	9.1	184	1	100.0	120

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Table 5.37 – Flaked lithic tools, square 70S/76E and total midden, Prince Hamlet – Continued

	Total			Midden total		
	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	43	100.0	91	109	100.0	82
Tool morpho-use						
Indeterminate	0	0	0	1	0.9	1
Utilized flake	17	39.5	60	48	44.0	43
Core	8	18.6	121	18	16.5	1 251
Used core, cobble tool	4	9.3	227	8	7.3	177
Thick uniface	5	11.6	63	15	13.8	75
Thin uniface	2	4.7	95	6	5.5	53
Specialized form	1	2.3	262	2	1.8	134
Thick biface	3	7.0	49	7	6.4	188
Thin biface	2	4.7	60	3	2.8	45
Projectile point	1	2.3	1	1	0.9	1
Grain size						
Fine	19	44.2	92	24	22	96
Very fine	21	48.8	103	57	52.3	97
Microscopic	3	7.0	4	28	25.7	38
Item condition						
Indeterminate	0	0	0	2	1.8	2
Broken						
Medial present	1	2.3	8	1	0.9	8
Complete/nearly complete	42	97.7	93	106	97.3	84
Material type						
Siltstone	0	0	0	5	4.6	110
Shale	1	2.3	136	1	0.9	136
Chalcedony	3	7.0	4	3	2.8	4
Chert	10	23.3	37	37	33.9	39
Silicified sandstone/ siltstone	29	67.4	117	63	57.8	108
Specific material						
Indeterminate	6	14.0	43	68	62.4	74
Chert, nfs	1	2.3	13	1	0.9	13
Chert, Morrison	2	4.7	13	2	1.8	13
Chert, Morrison green	4	9.3	62	4	3.7	62
Chert, Burro Canyon	3	7.0	26	4	3.7	60
Quartzite, nfs	7	16.3	75	7	6.4	75
Quartzite, Morrison green	7	16.3	117	10	9.2	88
Quartzite, Morrison purple	1	2.3	26	1	0.9	26
Quartzite, Burro Canyon/ Dakota	3	7.0	64	3	2.8	64
Silicified siltstone	1	2.3	136	1	0.9	136
Local cobbles/gravels	8	18.6	201	8	7.3	201

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Table 5.38 – Flaked li.'ic debitage, square 70S/76E and total midden, Prince Hamlet

	Square 70S/76E														
	Level 1			Level 2			Level 3			Level 4			Level 5		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:															
Grain size															
Medium	0	0	0	0	0	0	2	3.2	5	9	6.0	25	3	3.9	17
Fine	0	0	0	10	26.3	7	24	38.1	10	63	42.0	9	36	47.4	14
Very fine	3	100.0	16	26	68.4	4	35	55.5	8	73	48.7	11	35	46.1	11
Microscopic	0	0	0	2	5.3	1	2	3.2	1	5	3.3	3	2	2.6	2
Total flakes/ flake frags	3	100.0	16	38	100.0	5	63	100.0	9	150	100.0	10	76	100.0	11
Items with cortex	2	66.7	...	14	36.8	...	28	44.4	...	81	54.0	...	43	56.6	...
Whole flakes	2	66.7	...	17	44.7	...	38	60.3	...	73	48.7	...	46	60.5	...
Nonlocal items	0	0	0	1	2.6	...	0	0	0	0	0	0	0	0	0
Angular debris	0	0	0	1	100.0	2	3	100.0	2	33	100.0	16	22	100.0	15

frags - Fragments.
... - Information not available.

Table 5.38 – Flaked lithic debitage, square 70S/76E and total midden, Prince Hamlet – Continued

	Square 70S/76E									Midden total		
	Level 6			Level 7			Square total					
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:												
Grain size												
Medium	8	6.1	8	0	0	0	22	4.6	16	70	3.3	29
Fine	57	43.2	10	5	41.6	18	195	41.1	11	512	24.1	11
Very fine	62	47.0	8	7	58.3	2	241	50.8	9	1 373	64.6	9
Microscopic	5	3.8	7	0	0	0	16	3.3	4	487	22.9	8
Total flakes/ flake frags	132	100.0	7	12	100.0	6	474	100.0	8	2 127	100.0	11
Items with cortex	63	47.7	...	1	8.3	...	232	48.9	...	885	41.6	...
Whole flakes	69	52.3	...	3	25.0	...	248	52.3	...	1 040	48.9	...
Nonlocal items	0	0	0	0	0	0	1	0.2	...	1	<0.1	...
Angular debris	40	100.0	17	11	100.0	11	110	100.0	15	110	100.0	15

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Table 5.39 - Nonflaked lithic tools, square 70S/76E and total midden, Prince Hamlet*

	Square 70S/76E																	
	Level 3			Level 4			Level 5			Level 6			Square total			Midden total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools	1	100.0	564	4	100.0	389	1	100.0	18	2	100.0	178	8	100.0	312	47	100.0	765
Tool morpho-use																		
Indeterminate	0	0	0	1	25.0	307	0	0	0	0	0	0	1	12.5	307	2	4.3	179
Polishing stone	0	0	0	0	0	0	1	100.0	18	0	0	0	1	12.5	18	8	17.0	53
Anvil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2.1	864
Hammerstone	0	0	0	2	50.0	428	0	0	0	1	50.0	340	3	37.5	399	12	25.5	374
Maul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2.1	836
Axe	1	100.0	564	1	25.0	392	0	0	0	0	0	0	2	25.0	478	2	4.3	478
One-hand mano	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	21.3	939
Two-hand mano	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6.4	930
Trough metate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2.1	10 100
Metate fragment, nfs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4.3	2 850
Specialized form	0	0	0	0	0	0	0	0	0	1	50.0	16	1	12.5	16	5	10.6	12
Material type																		
Igneous, nfs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	25.5	860
Medium mafic	1	100.0	564	1	25.0	392	0	0	0	0	0	0	2	25.0	478	2	4.3	478
Medium sandstone	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	17.0	1 788
Fine to very fine sandstone	0	0	0	2	50.0	428	0	0	0	0	0	0	2	25.0	428	12	25.5	596
Shale	0	0	0	0	0	0	0	0	0	1	50.0	16	1	12.5	16	5	10.6	21
Azurite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2.1	1
Quartzite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	8.5	616
Microcrystalline quartz	0	0	0	0	0	0	1	100.0	18	0	0	0	1	12.5	18	1	2.1	18
River cobble, nfs	0	0	0	1	25.0	307	0	0	0	1	50.0	340	2	25.0	324	2	4.3	324
Item condition																		
Broken																		
Identifiable	0	0	0	2	50.0	475	0	0	0	1	50.0	16	3	37.5	322	19	40.4	1 251
Complete/nearly complete	1	100.0	564	2	50.0	303	1	100.0	18	1	50.0	340	5	62.5	305	28	59.6	435
Production evaluation																		
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4.3	264
Natural (unmodified)	0	0	0	3	75.0	388	1	100.0	18	1	50.0	340	5	62.5	304	34	72.3	906
Minimally modified	1	100.0	564	1	25.0	392	0	0	0	0	0	0	2	25.0	478	7	14.9	655
Well shaped	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2.1	26
Stylized	0	0	0	0	0	0	0	0	0	1	50.0	16	1	12.5	16	3	6.4	11

*No nonflaked lithic tools were recovered from Levels 1, 2, or 7 of square 70S/76E.

nfs - Not further specified.

and not of spatial differentiation within the midden. A second difficulty in comparing the assemblages from the squares excavated in 1979 with the 1980 data is that the volume of excavated material varied from level to level; as a result, quantities of artifacts in Levels 6 and 7 are probably 30 to 40 percent too low.

Although these problems prevent an analysis of spatial variability across the midden, the trash deposits still offer the best opportunity for studying temporal variability at Prince Hamlet. For example, the question of whether or not there was a change through time in lithic material preference from medium- and fine-grained material to very fine grained material can be best addressed using the midden data. In trying to compensate for the inclusion of angular debris as an analytical category for square 70S/76E but not for the other squares, this category was disregarded and percentages of material types were calculated for the whole flakes only (under the assumption that no angular debris would have been included among the whole flakes in the 1979 analysis). This yielded the figures shown in table 5.40 and provided the strongest support for this trend found so far. Subtracting the angular debris from the debitage counts in the other 2 squares and noting whether this produces a similarly strong pattern of changing preference would be interesting. Presumably, more of the angular debris is of coarser-grained materials, and since angular debris, when identified, constitutes a fairly high percentage of the debitage, its inclusion with the flakes could be masking temporal change. The reason for this change, if it is real, is unclear.

The "upper" and "lower" divisions in the third midden square show a pattern intermediate between the patterns of the other 2. In probability square 68S/84E, more artifacts of all artifact classes were recovered from the upper division of the midden; in probability square 72S/68E, a higher percentage of artifacts was yielded by the lower division (except for flaked lithic tools). Fairly equal percentages of all artifact classes were recovered from the two divisions in square 70S/76E, with slightly more nonflaked and flaked lithic items in the upper portion (62.5 percent and 53.5 percent) and slightly more ceramics and debitage (44.9 percent and 46.4 percent) in the lower portion.

MATERIAL CULTURE

Although the various artifact assemblages from Prince Hamlet are discussed in detail in the appendixes that follow this chapter, several general statements about spatial and temporal variability can be made here. Overall, there is considerable uniformity across the site (tables 5.1 through 5.10). As explained in the discussion of the surface collection, many of the differences between surface and subsurface assemblages are primarily a result of post-abandonment processes. Interareal differences are very few; the only distinct differences are the relatively high percentages of nonflaked lithic items from Area 2 and the unusually large number of bone tools found in the roof fall and on the floor of Pithouse 2. In the following sections, ceramic, lithic, and worked bone artifacts are discussed, in addition to dating samples and "miscellaneous" items.

Ceramics

Ceramics constitute 73.7 percent (by count) of the subsurface artifacts at the site (tables 5.7 through 5.10), and gray wares constitute 88.8 percent (by weight) of the ceramics (table 5.7). These percentages are quite uniform throughout the site; the important exceptions to this uniformity have been noted already. The near lack of Moccasin Gray sherds in the lowest level of the midden is used to date the earliest occupation at the site (refer to the "Site Synthesis" section and appendix 5B). Likewise, the presence of a few late sherds within the upper fill of Pithouse 1 is used to suggest the presence of and approximately date a brief, late reuse of the site. These anomalies in the ceramic distributions are minor in proportion to the general uniformity of the ceramic assemblage, but they are important to the interpretations of site chronology and history.

Table 5.40 – Percentages of flakes by grain size, square 70S/76E, Prince Hamlet*

	Level 1 N	Level 1 %	Level 2 N	Level 2 %	Level 3 N	Level 3 %	Level 4 N	Level 4 %	Level 5 N	Level 5 %	Level 6 N	Level 6 %	Level 7 N	Level 7 %
Grain size														
Medium	0	0	0	0	2	3.2	9	6.0	3	3.9	8	6.1	0	0
Fine	0	0	10	26.3	24	38.1	63	42.0	36	47.4	57	43.2	5	41.7
Very fine	3	100.0	26	68.4	35	55.5	73	48.7	35	46.1	62	47.0	7	58.3
Microscopic	0	0	2	5.3	2	3.2	5	3.3	2	2.6	5	3.8	0	0
Total	3	100.0	38	100.0	63	100.0	150	100.0	76	100.0	132	100.0	12	100.0

*Percentages given in this table exclude angular debris.

Nonflaked Lithic Tools

Nonflaked lithic tools constitute only 0.6 percent (by count) of the subsurface artifacts recovered at the site (tables 5.7 through 5.10). Of the nonflaked lithic tools recovered from roomblock fill, manos were the most common. Trough metates were the most common nonflaked lithic tool in the pitstructure fills (along with quite a number of polishing stones), and hammerstones were the most common nonflaked lithic items in the midden. Another interesting anomaly in the nonflaked lithic tool distribution is the relatively large percentage of nonflaked lithic items found in Area 2. Overall, Area 2 contained 49.0 percent of the subsurface artifacts recovered at the site (tables 5.7 through 5.10) and approximately 65.5 percent of the nonflaked lithic materials. This high percentage of nonflaked lithic tools and the preponderance of trough metates previously noted probably resulted, in part, from the use of broken and worn out metates in the masonry walls of the pitstructure. A number of metates and metate fragments in the fill of the pitstructures, however, appeared to have fallen in with the roofs, especially in Pithouse 1. Many of the polishing stones also appeared to be associated with the roof fall. Refer to appendix 5C for a comprehensive discussion of the nonflaked lithic tools recovered from Prince Hamlet.

Flaked Lithic Tools

Flaked lithic tools constitute 1.4 percent (by count) of the subsurface artifacts from Prince Hamlet (tables 5.7 through 5.10). 38.0 percent of those tools (again, by count) are utilized flakes, 24.8 percent are unifaces, 18.8 percent are cores or used cores, 9.9 percent are bifaces, and 8.4 percent are projectile points or other specialized forms (table 5.8). These seem to be fairly average proportions of tool types for an Anasazi site of this period (cf. Phagan 1981), and this, coupled with a lack of recognizable temporal and spatial variability, produces a very complacent flaked lithic tool assemblage. Although the number of cores recovered from the site was fairly small (72 cores were recovered from subsurface proveniences [table 5.8] and the number of cores from deposits of known temporal affiliation was even smaller), it was hoped that some information about core technology could be reconstructed. The data indicate that the technique involved in core preparation at Prince Hamlet was typical of Anasazi flaked lithic technology,[4] where flakes were struck randomly from the core rather than removed in a directionally consistent fashion. Although 4 cores are classified as "specialized" (that is, flake removal was not random), no "stylized" cores were recovered. Refer to appendix 5C for a comprehensive discussion of the flaked lithic tools from Prince Hamlet. Selected flaked lithic tools are shown in figures 5.44 and 5.45.

Flaked Lithic Debitage

Flaked lithic debitage constituted 24.2 percent, by count, of the subsurface artifacts (tables 5.7 through 5.10). Very little variability either spatially or temporally occurs in the attributes of mean weight, percent of flakes exhibiting cortex, or percent of whole flakes (appendix 5C). Some evidence suggests a changing preference through time for very fine grained material over fine- and medium-grained materials; the reasons for this trend, however, are unclear.

Worked Nonhuman Bone

The worked bone collection from this site is very small and commonplace in terms of taxa and morpho-use categories represented (appendix 5C). The distribution of the bone tools, however, is noteworthy; more worked bone items were in and around the roof fall stratum in Pithouse 2 than in all the levels of all three midden test squares combined. There was no evidence of trash dumping in this structure, and the virtual absence of worked bone in the roomblock argues against these items having washed into the pitstructure depression. These items might have been cached on the structure roof and were incorporated in the roof fall stratum when the roof collapsed. They were not localized in any one horizontal unit but were distributed across the structure. Selected bone artifacts from Prince Hamlet are shown in figures 5.46 and 5.47.

Ecofacts

A total of 84 pollen samples and 74 bulk soil samples was taken from fill, features, and midden deposits at Prince Hamlet; refer to appendixes 5D and 5E for the results of analysis of these samples.

Results of preliminary analysis of the unworked nonhuman bone are presented in table 5.41 and discussed in detail in appendix 5F. Although no detailed spatial or temporal conclusions can be drawn from these data (and, indeed, no detailed temporal display of midden data was attempted), some general statements are possible. First, few surprises occur in the spatial distribution of the bones. Probability square 72S/68E appears to have been located in the richest midden area, and an abundance of food bone scrap was recovered; square 70S/76E was in an area of less intensive dumping, especially early in the occupation, and a moderate amount of scrap was recovered; square 68S/84E was located in an area that was used even less for dumping, and it had a still smaller amount of bone. This same pattern appears in the artifact

[4]Thomas H. Hruby, DAP, personal communication.

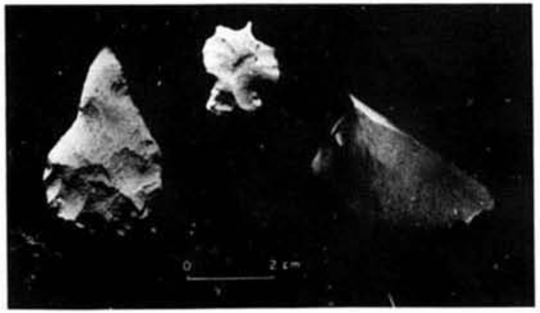

Figure 5.44 – Selected flaked lithic tools from Prince Hamlet. Left to right: drill from Pithouse 2 roof fall; perforator/graver from Pithouse 1 postabandonment fill; denticulate from Pithouse 1 postabandonment fill (DAP 135501).

Figure 5.45 – Selected projectile points from Prince Hamlet. Points recovered from (left to right): Pithouse 1 roof fall; 2- by 2-m grid 70S/76E; 2- by 2-m grid 64S/54E; 2- by 2-m grid 64S/54E; and Pithouse 1 postabandonment fill (DAP 135304).

assemblages. The artifact evidence also indicates that trash may have been dumped in the front rooms of the roomblock; Rooms 2 and 4, the only completely or largely excavated front rooms, contained nearly all of the scrap bone recovered from the roomblock.

The amount of bone scrap in the fill of the pitstructures is surprising since there was no evidence of trash dumping in either structure. Some of these bones had undoubtedly washed out of the roomblock and into the pitstructure depressions. Other bone scrap, at least in Pithouse 1, could have accumulated during the late reuse(s) of the site that is inferred on the basis of the late ceramic types recovered from pithouse fill. These occupants left their ceramic trash in the Pithouse 1 depression rather than on the old site midden, so presumably their bone scrap was treated in the same way. Another possibility, especially given the distribution of worked bone noted above, is that some unworked bone was stockpiled on the Pithouse 2 roof for use in manufacturing worked bone tools or for some other purpose, such as the extraction of bone grease, and that this bone became incorporated in the Pithouse 2 fill when the roof collapsed.

Nearly all of the species identified in the nonhuman bone assemblage either are available today in the canyon environment (e.g., mule deer and rabbit) or could be expected to have been available prehistorically (e.g., beaver and bighorn sheep). The Canada goose and mallard may have been and still are seasonal visitors to the project area, but the location of the site on the river makes their presence unremarkable. The presence of turkey bones (all recovered from the roomblock) could be a result of the keeping of domestic birds or the procurement of wild turkeys; the bones of the 2 are not differentiated in preliminary analysis.

Miscellaneous Items

Numerous items that have not previously been included in any of the DAP analyses were recovered from Prince Hamlet. Included in these materials are a variety of minerals, fossils, and fragmentary human bone (table 5.42).

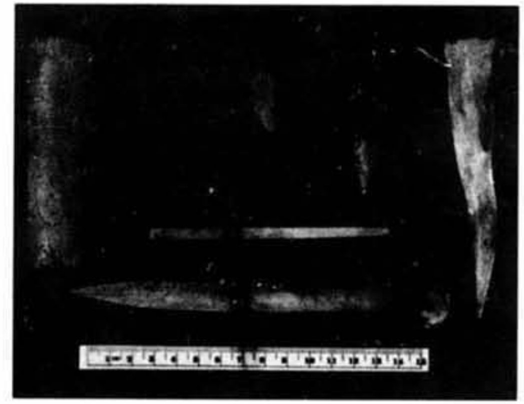

Figure 5.46 – Selected bone tools from Prince Hamlet. Top, left to right: spatula from Pithouse 1 roof fall; gouge/scraper from 2- by 2-m grid 64S/72E; awl from Pithouse 2, Floor 1; gouge/scraper from 2- by 2-m grid 72S/68E; awl from Ro— 4 roof fall. Center: awl from Pithouse 2, Floor 1. Bottom: "other" pointed tool from 2- by 2-m grid 72S/68E (DAP 127402).

Although some of these materials (e.g., the human bone) are certainly associated with the prehistoric occupation of the site, the cultural origin of other items is questionable; detailed analysis is required to determine the possible significance of the items that constitute this assemblage.

Dating Samples

Four archaeomagnetic, 28 carbon-14, and 30 tree-ring samples were taken from Prince Hamlet. The carbon-14 samples have not yet been analyzed, and unfortunately, none of the archaeomagnetic samples were datable – probably because the burned adobe from which the samples were collected had a high sand content. (Refer to Hathaway and Eighmy [1982] for a discussion of archaeomagnetic dating.) All of the tree-ring samples were fairly large and possessed a sufficient number of rings for dating, and all were ponderosa pine or juniper, which usually have enough variability in ring width to permit dating. The growth pattern of almost all the trees was too complacent, however, and only 1 sample (DAR-166), a ponderosa pine beam from Pithouse 1 roof fall, could be dated. This sample yielded a date of 862vv[a]; however, because the outside ring on the sample beam was not preserved, the cutting date for the timber is uncertain. In a study of DAP tree-ring cutting dates, Kane (n.d.) has derived a figure of 51 years (standard deviation 15.5 years) as the mean tree age for cutting of ponderosa pine. Based on this statistic, Kane suggests that the timber from which sample DAR-166 was collected was probably cut no later than A.D. 887.

[a]The DAR number, species identification, and date for this sample were provided by the Laboratory of Tree-ring Research, University of Arizona, Tucson. The symbol "vv" indicates estimating how far the outer ring is from the true outside is impossible.

SITE SYNTHESIS

Site History and Chronology

At least 2 and possibly 3 periods of use were distinguishable at Prince Hamlet. The first use of the site for which there is tangible evidence is that associated with Room 5 (Element 1). Sterile subsoil was encountered in auger tests below the floors of Rooms 7, 8, and 10, indicating that Room 5 was an isolated structure rather than part of an earlier roomblock. Other surface rooms might have existed, but if so, were not contiguous with Room 5, and they were not beneath any of the excavated rooms of the subsequent roomblock. Since Room 5 had no hearth or other floor features, it may have functioned as a storage room. This interpretation is consistent with the construction of the room; Room 5 appears to have been built with structural integrity as a major criterion.

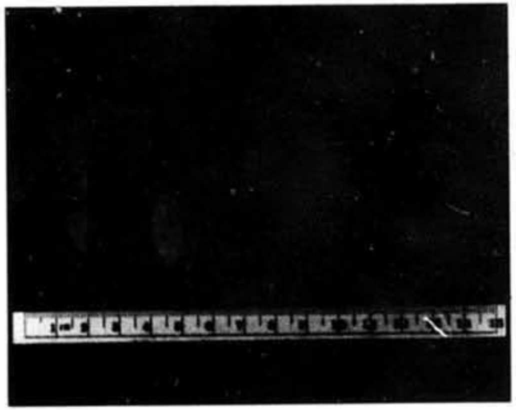

Figure 5.47 - Selected bone ornaments from Prince Hamlet. Left: pendant from Pithouse 2, Floor 1. The remaining items were recovered from 2- by 2-m grid 72S/68E; the functions of these items are not known (DAP 127503).

Noncontiguous "storage" rooms are consistent with documented spatial patterning at Anasazi habitation sites during the Tres Bobos and Sagehill Subphases of the Sagehen Phase (Kane 1981). Temporally, this suggests that the first occupation at Prince Hamlet was in the A.D. 600-800 period. An alternative hypothesis is that Room 5 might represent a field house or other seasonal occupation. Although the substantial masonry of this room seems rather beyond what would be required for a temporary shelter, the weather in the Dolores River canyon can be uncomfortably cold and wet even during midsummer, making a substantial shelter welcome. Also, some ethnographic evidence shows field houses being used on occasion for temporary or even long-term storage of newly harvested crops (Woodbury 1961:14,26; Sutton 1977:55); in such cases, a substantial structure would be a necessity.

The lowest level of trash in the site midden is also tentatively associated with this first occupation. In fact, the bottom 3 levels in the midden squares are suspected to be associated with this occupation, but the case can be made most strongly for the lowest level because it is devoid of Moccasin Gray, a ceramic type that was introduced in the project area approximately A.D. 760. Architecturally, the main roomblock should date to approximately A.D. 850.* Since the roomblock was superimposed on Room 5, the occupation associated with the pre-Moccasin Gray trash in the midden likely included Room 5. However, this apparent association of Room 5 and the lowest level of the midden weakens the original interpretation of Room 5 as a field house. Although the trash deposit is not extremely deep, its apparent wide distribution suggests it is probably more trash than would be expected for a small, seasonally occupied structure.

More importantly, the trash is located roughly 15 m away from the room; indeed, it is in the same place as the later trash midden at the site, which accumulated when there was a large pitstructure in the area to the south of Room 5. This suggests that an earlier pitstructure, located approximately where Pithouse 1 is now, was destroyed by or incorporated into the latter, and that trash dumping patterns in this part of the site were the same during the early occupation as they were during the later occupation. This would account for the volume of trash in the lower part of the midden and for the presence of worn-out metates in the masonry walls of Pithouses 1 and 2.

As noted in the discussion of the Area 3 probability sample, Abajo Red-on-orange, which was introduced in this

*Allen E. Kane, DAP, personal communication.

Table 5.41 – Taxonomic composition of the faunal assemblage, Prince Hamlet*

Taxon	Room 2		Room 3		Room 4		Room 5		Room 7		Rmblk Total		Pithse 1		Pithse 2		Square 72S/68E		Square 70S/76E		Square 68S/84E		Other prov-ience		Total site	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Pithse - Pithouse
Rmblk - Roomblock
prov - Provenience

Table 5.42 – Miscellaneous items recovered from Prince Hamlet

Provenience	Material description
General site	Malachite (green streak)
Square 74S/70E, modern ground surface*	Isolated human bone
Excavation unit 3, Level 1	Fossil Pelecypod fragments (2) (3.3 g);
	Caliche fragment (23.9 g)
Excavation unit 6, Level 1	Hematite (5.0 g)
Probability square 50S/54E, Level 2	Limestone (2)
Probability square 50S/54E, Level 3	Limonite (yellow streak)
Probability square 60S/54E, Level 4	Coal (possibly worked)
Probability square 72S/68E, Level 3	Gastropod shell (0.1 g)
Probability square 72S/68E, Level 5	Weathered rock
	Isolated human bone
Probability square 72S/68E, Level 6	Azurite
	Gastropod shell (0.3 g)
	Isolated human bone
	Dung (3.0 g)
Probability square 72S/68E, Level 7	Gastropod shell (0.2 g)
Room 4, fill	Black fur or hair
	Mudstone (5.3 g)
Room 5, Floor 1	Limonite (0.6 g)
Pithouse 1, Level 1	Fossil Pelecypod fragment (0.7 g)
	Weathered rock
Pithouse 2, Level 3	Jacal with impressions (115.1 g)
	Weathered rock
	Jacal with impressions (40.6 g)
Pithouse 2, Level 6	Mollusc shell fragment; indeterminate (0.3 g)
Pithouse 2, Level 8	Gastropod shell fragments
Pithouse 2, Stratum 6	Fossil Pelecypod (2.5 g)

*The human bone fragment recovered from modern ground surface is a portion of an extremely weathered humerus shaft (distal end), including part of the trochlea. Other human bone listed has not yet been analyzed.

(N) - Number of items.
(g) - Weight in grams.

area approximately A.D. 720, was recovered from the lowest midden level. This gives a possible beginning date for the earliest use of the site. The construction of part of the later roomblock on the abandoned and partially filled Room 5 gives an approximate ending date of A.D. 840. Therefore, the first occupation of the site can be placed within the Sagehill and Dos Casas Subphases of the Sagehen Phase.

The second occupation of Prince Hamlet (Element 2) is much easier to define both spatially and temporally. Evidence for this major occupation includes the large masonry roomblock, the 2 large, masonry-lined pitstructures, and the upper levels of the site midden. Considered as a whole, the architectural style of the rooms and pitstructures at the site and the spatial arrangement of these architectural units suggest a date range of A.D. 840-900 (Kane 1981:103-109). The only tree-ring sample that yielded a date (A.D. 862vv) for the site was taken from a secondary roof beam from Pithouse 1; Kane (n.d.) suggests a cutting date of no later than A.D. 887 for this specimen. The latest ceramic type that was found across the entire site is Cortez Black-on-white (introduced approximately A.D. 890). Since there are so few sherds of this type, the site probably was abandoned soon after Cortez Black-on-white appeared in the project area. Therefore, on the basis of architectural evidence, the main occupation probably began approximately A.D. 840-850, and on the basis of ceramic evidence, the occupation is believed to have ended approximately A.D. 880-900. Thus, this occupation began at the very end of the Dos Casas Subphase and continued into the Periman Subphase of the McPhee Phase.

The specific history of this occupation, however, is less clear. Limited excavation in the roomblock indicated that

many, if not all, of the surface rooms were built at the same time. Rooms 1, 2, 3, 4, 6, 7, 8, and 9 were built as a unit, as indicated by the north and south walls, which are continuous across the dividing walls between the rooms. The nature of wall bondings for rooms in the western half of the roomblock was not determined because of limited time and poor preservation; no obvious abutted walls were observed, however.

The pitstructures appear to be similar in terms of construction and occupation and abandonment histories. From what is known on the basis of limited excavation, the pitstructures are similar in shape, size, and orientation. Both might have been only partially subterranean, the aboveground portions of the structure being masonry. The walls of both structures suffered from a tendency to collapse due to slope pressure and had been shored up at some point by post-reinforced masonry walls. In addition, both pitstructures underwent remodeling that involved similar major changes in the wingwall-deflector-hearth complexes. Although the construction of the post reinforced walls might have been part of this remodeling, it also might have taken place during original construction or during a very late remodeling effort. This patterned and extensive remodeling of the pitstructures raises the possibility that this second occupation of the site might have consisted of 2 occupations and that the site was abandoned and then reoccupied. The only evidence of remodeling in the excavated portion of the roomblock is the wall between Rooms 4 and 8. At first this wall was overlooked in excavation; eventually it was detected as a yellow line across the floor and up the north wall. Rooms 4 and 8 originally might have been separate rooms; if so, at some point during the second occupation of the site, the wall between them was removed, leaving only a stain on the floor and wall. Alternatively, the 2 rooms originally might have been 1 room that was subsequently partitioned with a wall of such flimsy construction that it was totally destroyed as the roomblock collapsed and filled. From the appearance of the rooms and the location of the wall in question, the first of these 2 possibilities seems more plausible.

The midden discussion noted an apparent change in the midden deposit from bottom to top, the latter being darker and richer than the former. This change in trash accumulation is more likely to have been associated with the shift from the first to the second occupation of the site than with abandonment and reoccupation/remodeling **during** the second occupation. The possibility that the "second occupation" actually consisted of 2 separate occupations of the site exists but cannot be demonstrated.

Another interesting but unresolved question about this second occupation of the site concerns the relationship between the occupants of the pitstructures and the occupants of the surface apartments. That the pitstructures were actually domiciles and not primarily specialized structures is suggested by the nature of the floor artifacts and the presence of facilities such as in situ metates. But the presence of 2 distinctively different types of structures on the site raises many questions about the range and organization of the activities carried out in the 2 types of dwellings. Earlier pitstructures (pithouses) in the project area appear to have been primarily domestic in function; later pitstructures (kivas) appear to have been specialized, ceremonial, and primarily nondomestic in function. It seems highly probable, therefore, that the 2 late-ninth-century pitstructures at Prince Hamlet, being temporally intermediate between pithouses and kivas, were in some ways functionally intermediate between these two extremes as well. If these pitstructures were beginning to take on some of the specialized roles of the later kivas, they would almost certainly have had some of the social/ideological integrative functions postulated for kivas. They would, in other words, have provided a locus for ceremonial and/or social activities shared by both surface room and pitstructure dwellers.

Unfortunately, these suggestions of functional differences between the surface and subsurface dwellings must remain speculative. It is obvious that there were differences in the organization of space (and, presumably, of activities) between the two types of dwellings. The surface structure users, for example, partitioned off space more intensively, actually creating separate and probably functionally differentiated rooms, while the pitstructure users maintained a more open, fluid use of space with only the partial division of the wingwall. On the other hand, the pitstructure users constructed more permanent facilities, with features that would have structured their use of the available space very rigidly. The investigated surface structures have very few permanent facilities, leaving the sheltered space within these dwellings available for use in multiple, variously structured activities. This evidence for differences in **organization** of activities, however, does not constitute evidence for differences in **content**. No features, artifacts, or other materials found in the pitstructures were inconsistent with their definition as simple domestic structures. Kane (n.d.) suggests that the primary locus for ritual/integrative activities in Periman Subphase pitstructures is an oval or "subrectangular" pit feature situated north of the hearth. This feature usually is associated with clusters of small holes that might represent locations where prayer sticks or "pahos" were positioned during ceremonial rites. Unfortunately, time and labor constraints during the investigation at Prince Hamlet precluded thorough examination of the relevent locations. Therefore, although likely that there were functional differences between the two types of dwellings, incontrovertible evidence that the pitstructures functioned as part-time, specialized/integrative structures (protokivas) is lacking.

Evidence for the third occupation of the site (Episode 1), an apparently ephemeral, late reuse centered in and around the Pithouse 1 depression, consists of a few post-A.D. 900 sherds recovered from pithouse fill and possibly the rock alinement that may represent a temporary shelter. This rock alinement and the late ceramics possibly are associated with use of the site during the Sundial Phase. However, because the north half of Pithouse 1 was not excavated, nothing definite about the exact date or nature of this occupation can be said.

Applicability of Site Date to Dolores Archaeological Program Research Design

Three of the five problem domains discussed in the DAP research design (Kane et al. 1981) are addressed in this section: "Paleodemography," "Social Organization," and "Cultural Process." Data permitting consideration of "Economy and Adaptation" are presented in the pollen, botanical, and faunal appendixes, and data concerning "Extraregional Relationships" are presented in the ceramic appendix.

Paleodemography

Information about the architectural components associated with Element 1 are too sketchy to permit habitation-based population estimates for the first occupation at Prince Hamlet. However, the apparently contemporaneous construction, occupation, and abandonment of the roomblock and pitstructures of the second occupation make habitation-based population estimates for that period at Prince Hamlet quite feasible. This approach, which involves extrapolation from the number of domestic or dwelling units at a site, has also been adopted by other project authors (Wilshusen 1983).

From the roomblock excavations at Prince Hamlet and from analogies with other contemporaneous project area sites (Brisbin 1983; Kleidon 1983; Kuckelman 1982), Rooms 2, 8, 10, 16, and 19 are inferred to be habitation or living rooms and Rooms 1, 3, 6, 7, 9, 11, 12, 13, 15, 17, 18, and 20 are storage rooms. Rooms 4 and 14 are more problematic; they are front rooms, but excavations in Room 4 did not yield the usual complement of features and artifacts associated with living rooms. Room 14, as Room 4, has only a single associated back room. Therefore, it is suggested that during Element 2 there were 4 to 5 living rooms and 4 to 5 apartments or dwelling units. It is assumed that the pitstructures represent space shared by the roomblock populace rather than separate dwelling units.

Hill (1970), based on ethnographic work by Steward (1937), Kroeber (1917), Donaldson (1983), and Titiev (1944), among others, suggests that 6 persons per habitation unit is a reasonable population estimate at Broken K Pueblo. Rohn (1971) suggests 4 to 5 persons per household suite at Mug House. Based on this previous work, the figure of 5 to 6 persons per apartment or dwelling unit has been adopted for population estimation at Prince Hamlet. (This requires the assumption that dwelling units at Prince Hamlet, Broken K Pueblo, and Mug House are essentially equivalent in terms of population; architectural parallels among all 3 sites support this assertion.) Application of these figures yields a maximum momentary population estimate of 20 to 30 persons for Element 2 at Prince Hamlet or a median figure of 25. This does not take into account differential or temporary abandonment of some of the dwelling units or the original dwelling unit complement before possible growth.

Wilshusen (1983) suggests verifying the reasonableness of the figures arrived at with this approach by calculating the amount of roofed floor area per person. At Prince Hamlet, approximately 150 m² of roofed space in the roomblock and just over 60 m² of roofed space in the pitstructures yields a total of 210 m² for the Element 2 occupation. This yields 7 m² per person, a figure that seems excessive considering that comparable data at Broken K yielded 4.55 m² per person (Hill 1970:75-77) and at Periman Hamlet yielded 4.33 m² per person (Wilshusen 1983). Therefore, the 20 to 30 person estimate may be too low, or not all space in the pitstructures should be considered as roofed domestic space. Additional comparative work is necessary to assess the validity of these approaches.

Social Organization

Information about residential groups is available from the Prince Hamlet excavations, at least for the main occupation. Each suite of surface rooms appears to have housed a somewhat autonomous domestic group having its own storage and food-preparation facilities. Unfortunately, learning more about the relationship between pitstructure and surface structure uses was not possible. If the pitstructures did fill some sort of special integrative role – either social or ceremonial or both – the fact that there are 2 pitstructures and 5 to 6 surface apartments suggests that 2 different residential groups occupied the site. Residents of any 1 surface apartment would have been more closely tied to use of one pitstructure than to use of the other.

Kane (1981, n.d.) has developed a model of Anasazi households and space use for the prehistoric sequence at Dolores. He suggests that, before A.D. 760, a household usually consisted of a single family that used a single residence complex. During the late A.D. 700's, this simple organization was replaced by a more complex form in which households were composed of several family

[1] The population estimates and related discussion presented in this section were provided by Allen E. Kane of the DAP.

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units. In the latter form, families were based in surface room apartments and shared space in pitstructures; pitstructures were used for specialized resource processing, for meal preparation and sharing by members of the component families, and for integrative ceremonies and activities. This pattern was dominant through the A.D. 800's. Before A.D. 840-850, most architectural facilities, except for the pitstructures, were "owned" by the component families; during the late A.D. 800's, room functions appear to have become more specialized, perhaps at the household rather than the family level.

Architectural patterning at Prince Hamlet appears to correspond to the model. Excluding the single-paired rooms (Rooms 4 and 7 and Rooms 13 and 14), a maximum of 5 apartments or dwelling units are recognized (Rooms 6, 8, and 9 and Rooms 10, 11, and 12 on the east side of the site; Rooms 1, 2, and 3, Rooms 15, 16, and 17, and Rooms 18, 19, and 20 on the west side). The pitstructures are more or less centered according to this east-west bifurcation. Similar spatial patterning is observed between the east and west parts of the roomblock. If the apartment consisting of Rooms 18, 19, and 20 on the west end is disregarded, then the east and west halves each consist of 2 three-room apartments separated by a two-room unit; it has previously been suggested that Rooms 4 and 14 are not living rooms. The inference, based on Kane's model, is that there are 2 interhouseholds represented at Prince Hamlet during Element 2. The east interhousehold consists of 2 dwelling units (Rooms 6, 8, and 9 and Rooms 10, 11, and 12), Pitstructure 1, and Rooms 4 and 7; the west interhousehold consists of 3 dwelling units (Rooms 1, 2, and 3, Rooms 15, 16, and 17, and Rooms 18, 19, and 20), Pitstructure 2, and Rooms 13 and 14 (fig. 5.48).

The patterns of economic organization – of production, distribution, and consumption of material goods – seem to have been fairly constant spatially and temporally. Neither the pitstructure users nor the roomblock users appear to have had special access to any sort of material goods; inhabitants during the earlier and later occupations also appear to have had roughly similar access to goods. In general, however, questions concerning the specifics of social organization are probably better addressed at the locality and sector levels where the larger data base makes development of linking arguments somewhat more practical.

Cultural Process

Although this problem domain, even more than the others, is designed to be addressed with a project-wide data base and, therefore, is beyond the scope of any single site report, a few areas in which the Prince Hamlet data might be informative about cultural change in the project area can be suggested.

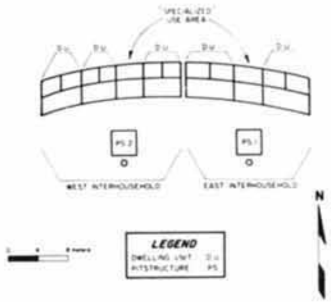

Figure 5.48 – Interhousehold unit reconstruction, Element 2, Prince Hamlet.

The transition at Prince Hamlet from field house or single family habitation, to large hamlet, to only sporadic use of the site is informative about population movements into and out of this part of the canyon. In many ways, the use pattern at this site is a microcosm of the use pattern of the locality and, indeed, of the project area as a whole: brief use, probably by a single family, as a habitation during the A.D. 700's; followed during the A.D. 800's by more intensive occupation, probably by 5 or more families for a 50- or 60-year span; followed by sporadic visitation through the A.D. 1000's. If one can begin to understand why the population influx occurred, how the people were organized and supported, and why the occupational intensity varied at individual sites such as Prince Hamlet, it eventually will be possible to address these questions on the locality and sector level and to achieve some understanding of the process of cultural change in the prehistoric Dolores area.

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APPENDIX 5A

RESULTS OF GRAIN SIZE ANALYSIS OF SEDIMENT SAMPLES FROM PRINCE HAMLET

Donald Howes

The masonry-lined pithouses at Prince Hamlet are among the unique features of this habitation site. In Pithouses 1 and 2, excavated masonry walls remain standing to a height of approximately 2 m, indicating that the complete walls stood even higher. The function of these walls is uncertain. The walls may have been at least partially free-standing during the prehistoric occupation and that downslope movement of colluvial material buried the walls upon abandonment of the site. Alternatively, it is possible that the 2 pitstructures could have been excavated into unconsolidated cultural fill (midden) that was not capable of holding a vertical wall, necessitating the construction of a masonry lining to stabilize the walls of the pithouse. Partial masonry walls that appear to serve this latter function have been located in other pitstructures in the project area. However, the inferred total (or near total) masonry wall construction of both pithouses at Prince Hamlet points to a function that is qualitatively different from that of the other known occurrences of masonry pitstructure walls.

To determine which of the 2 possible explanations is most plausible, sediment samples were taken from within and around the 2 pitstructures. It was thought that differences in the grain size parameters among the samples would provide data that would support one or the other of the 2 arguments.

Sampling Strategy and Rationale

A total of 7 samples was taken from within and around the 2 pithouses. These included samples from the fill of the 2 pithouses, from the fill south of Pithouse 1, from the midden, and from the subsoil. It was postulated that distinctions in grain size parameters could be made between those samples that were primarily colluvial in nature and the midden sample, which was assumed to be primarily an in situ deposit.

The sampling locations were as follows: sample 1 was taken from the southwest corner of Pithouse 2, at the base of the wall approximately 200 cm below modern ground surface. This sample was thought to constitute subwall sediments, but the results of analysis indicate that this sample might have been taken from a large, intentionally filled cist (not recognized in the field or assigned a feature number). Sample 2 was taken from a stratigraphic profile on the east side of Pithouse 2, at a depth of 60 cm below modern ground surface, and was comprised of pitstructure fill from above wallfall. (When the fill of both pithouses was sampled, care was taken to avoid the numerous disturbed areas that were present in an attempt to minimize contamination due to mixing of stratigraphically distinct sediments.) Sample 3 was taken from the west wall of Pithouse 2, at a depth of 90 cm below modern ground surface, and was comprised of fill from above unmodified subsoil. Sample 4 was collected from Pithouse 1, at a depth of 60 cm below modern ground surface, and was composed of fill from above wall fall. Sample 5, taken from a depth of 70 cm below modern ground surface, was from the trench that cut through the south wall of Pithouse 1; this sample was comprised of fill from the area immediately south of Pithouse 1. Sample 6 was collected from the midden, at a depth of 20 cm below modern ground surface. Sample 7 was taken from subsoil west of Pithouse 2, from a depth of 165 cm below modern ground surface.

Grain Size Analysis

The samples were analyzed by dry sieving and hydrometer techniques. After air-drying all samples at room temperature, a subsample of 100 g was obtained by splitting the field sample. Samples were pretreated with hydrogen peroxide (H_2O_2) for the removal of organic matter. After pretreatment, the samples were disaggregated and dispersed using sodium hexametaphosphate (5.5 g/ℓ) and mechanical stirring. The silt and clay fraction of the sample was then separated by wet sieving, using a 4-phi mesh screen. The sand fraction of the sample was oven dried at 50° C, then dry sieved through phi interval screens using a Rotap shaker. The silt and clay fraction was analyzed using the hydrometer technique. Corrections were made for the weight of the dispersant, the temperature of the solution, and the falling height. Cumulative weight percentages were calculated, and these data were plotted on normal probability paper using the phi scale for the plotting of particle size. The relevant percentiles were obtained from these graphs, and the mean, sorting, skewness, and kurtosis were calculated using the formulae developed by Folk and Ward (1957). This method follows the standard procedure for grain size analysis at the Geoarchaeology Laboratory at Washington State University (Hassan 1980).

While organic material had been removed from the samples by the use of hydrogen peroxide, this technique is not well suited for the calculation of the amount of organic material present in the sample, due to the numerous steps that have to be undertaken and the consequent possibility of accumulated error. Instead, the amount of organic material present was calculated by combustion. For this method, a 10-g sample obtained from the field sample was combusted in an oxidizing oven at 600° C for one hour. After the sample had cooled, it was weighed, and the difference in the weights taken before and after the combustion constituted the amount of organic material present.

The results of the grain size analysis (table 5A.1) indicate that six samples (samples 2 through 7) can be characterized as muddy sand and that one sample (sample 1) is a silty sand. All seven samples are extremely poorly sorted (table 5A.2).

Distinct groupings of samples are evident in figure 5A.1, where a ternary plot of relative proportions of sand, silt, and clay indicates three clusters. Although less distinct than these data, binary plots of other grain size statistics also indicate, in general, this same clustering (fig. 5A.2).

Interpretations

The midden sample (sample 6) could not be separated from the rest of the site sample on the basis of strict granulometric analysis. The midden sample is similar to samples 2, 4, and 5, which are, respectively, fill samples from the 2 pitstructures and the sample from the south of Pithouse 1. Since the pithouse fill samples are suspected to be colluvial in nature, this close correspondence suggests that sample characteristics probably are being strongly influenced by the large amount of culturally derived sediment that is present within them (examples of these cultural materials are adobe fragments, sherds, and fragments of flaked and nonflaked lithic material). Apparently, any grain size differences that may be present between the colluvial pithouse fill and the in situ midden deposits are masked by the considerable cultural material present in these samples. Because of this, it cannot be determined from the grain size analysis whether sample 5 (from the south of Pithouse 1) represents a culturally impacted colluvial deposit or an in situ midden deposit.

That unmodified colluvial deposits can be separated from culturally impacted deposits is shown by the separate cluster of samples 3 and 7. These samples show marked similarities in grain size characteristics. Although the fill sample (sample 3) was visually distinct from the underlying yellowish subsoil where sample 7 was taken, the amount of cultural input into this fill was probably very minimal. Characteristics of the gradient upslope from Pithouse 2 may have led to cultural material being diverted into the intermittent drainage on the west margin of the site so that such material was not incorporated in the fill of Pithouse 2. However, this explanation does not account for the obvious cultural admixture to the fill of Pithouse 2, which should also have been affected by any gradient. At present, this problem cannot be resolved.

The last of the 3 observed clusters is sample 1. This sample is markedly coarser than any of the others and has much more silt-sized material. Relative to the rest of the samples taken, this sample is the best sorted and the least skewed. The variability between sample 1 and all other samples clearly indicates a different origin for this sediment. Since sample 1 does not consist of unmodified colluvial deposits, culturally impacted colluvial deposits, or in situ cultural deposits (midden), it may consist of

Table 5A.1 – Results of granulometric analysis of sediment samples, Prince Hamlet

Sample No.	Depth (cm)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Organic matter (%)
1	200	5.52	53.90	30.16	10.42	4.4
2	60	0.89	67.07	11.86	20.18	3.3
3	90	3.59	53.43	14.25	28.73	4.9
4	60	4.73	64.26	11.36	19.65	2.8
5	70	13.16	57.87	9.74	19.23	3.8
6	20	12.59	55.99	11.77	19.65	6.3
7	165	14.55	42.48	15.09	27.88	3.3

Table 5A.2 – Grain size statistics, Prince Hamlet

Sample No.	Depth (cm)	Median phi	Folk and Ward's mean phi*	Trask's sorting coefficient†	Folk and Ward's inclusive graphic standard deviation*	Folk and Ward's inclusive graphic skewness*	Folk and Ward's graphic kurtosis*
1	200	3.4	3.95	1.74	2.82 Extremely poorly sorted	0.16 Fine	0.91 Mesokurtic
2	60	3.1	4.97	1.64	4.33 Extremely poorly sorted	0.74 Very fine	1.97 Very leptokurtic
3	90	3.7	6.10	1.93	5.44 Extremely poorly sorted	0.64 Very fine	1.17 Very leptokurtic
4	60	2.9	4.82	1.71	4.93 Extremely poorly sorted	0.64 Very fine	1.94 Very leptokurtic
5	70	2.7	4.40	1.82	5.04 Extremely poorly sorted	0.57 Very fine	2.17 Very leptokurtic
6	20	2.7	4.45	1.83	4.92 Extremely poorly sorted	0.56 Very fine	1.81 Very leptokurtic
7	165	3.55	5.32	1.96	5.41 Extremely poorly sorted	0.47 Very fine	1.22 Leptokurtic

*From Folk and Ward (1957)
†From Trask (1932)

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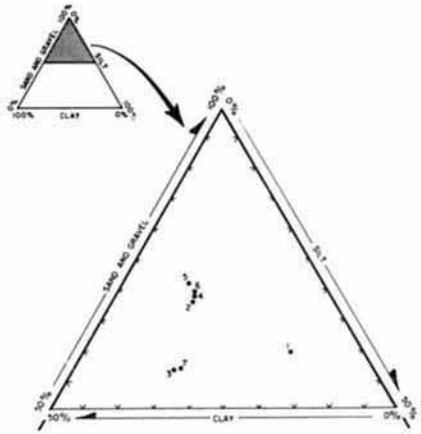

Figure 5A.1 – Ternary plot of relative proportions of sand and gravel, silt, and clay, sediment samples 1 through 7, Prince Hamlet.

intentionally sorted fill from a subfloor cist. The distinctive nature of the fill indicates that, if such a cist existed, it was filled before the abandonment of Pithouse 2 and would appear to have been associated with a floor below Floor 1.

While sample 6 (midden) cannot be separated from the rest of the samples on the basis of its grain size characteristics, the amount of organic material present within the sample is distinct. As can be seen in table 5A.1, the amount of organic material present in sample 6 is higher than that in any of the other samples. If this higher concentration of organic material can be attributed to differences in depositional history alone (i.e., in situ deposition versus colluviation), then sample 5 (south of Pithouse 1) evidently should be grouped with the colluvial samples, rather than with the midden sample. Based on this evidence, the sediments to the south of Pithouse 1 (and, by inference, Pithouse 2) are probably culturally impacted colluvial deposits, rather than in situ midden deposits. This conclusion then suggests that the southern pithouse walls might have been at least partially free standing.

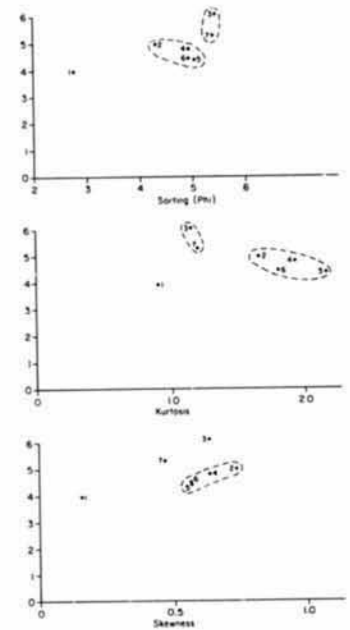

Figure 5A.2 – Binary plots showing cluster of sediment samples 1 through 7, Prince Hamlet.

APPENDIX 5B

DATING, SITE TYPE, AND EXCHANGE INFERENCES BASED ON PRINCE HAMLET CERAMICS

Eric Blinman

Three periods of occupation have been defined from the excavated materials from Prince Hamlet, Site 5MT2161. Two of these appear to represent significant use of the site and have been classified as "elements" in DAP terminology (Kane n.d.). The last use of the site (the rock alinement in the fill of Pithouse 1) was not intensive and is defined as an "episode" (Kane n.d.).

Element 1

Element 1 constitutes the earliest use of the site and is currently defined to include the lower 3 levels of the site midden. (This differs slightly from the chapter body, where only the lowest level of the midden is reported to be included in Element 1.) This element was characterized by a ceramic assemblage that is significantly different from the assemblages associated with the upper levels of the midden, the pitstructures, and the excavated surface rooms (table 5B.1). Because of its stratigraphic position, Room 5 is associated with the element also, but the collections associated with Room 5 (table 5.26) are more similar to the later assemblages. Since the excavated midden levels do not coincide with the midden strata, some later materials are included as contaminants in Element 1, but the proportion of contaminants appears to be less than 5 percent.

In the main body of this chapter, this element was dated to the A.D. 720-840 time period based on the co-occurrence of Abajo Red-on-orange and Chapin Gray in the lowest midden levels and the estimated construction date of the Element 2 roomblock. Comparison with other dated elements from the DAP suggests that this range can be narrowed considerably. The probable association of at least some neckbanded ceramics with the element and the consistent (approximately 4 percent) presence of red wares is comparable to ceramic assemblages that date to the late eighth and very early ninth centuries A.D. (table 5B.2). Although the initiation of the element might have been earlier, the majority of deposition probably occurred between A.D. 780 and 820.

Architectural details and the site layout for Element 1 are speculative. While both seasonal and permanent habitations are possible interpretations, the volume of ceramics associated with the lower trash favors the interpretation of the site as a habitation. Approximately 3400 out of the 8000 midden ceramics occur in the lower levels, and their abundance argues for an intensive occupation of the site at a level comparable to the later occupation associated with the pitstructure and roomblock. Seasonal habitations that have been completely or nearly completely excavated by the DAP (e.g., Sites 5MT2191, 5MT2203, 5MT2205) represent much less intensive occupations (averaging less than 800 sherds for the relatively large excavated samples). These contrast markedly with the large numbers of sherds from the relatively small midden sample from Element 1. Such a large collection could result from an extremely long use of a seasonal site, but there is no indication of such a duration in the ceramic type frequencies.

Potential site layout provides tacit support for the interpretation of Element 1 as a permanent habitation. Both Room 5 and the early midden coincide spatially with the sampling strata defined for their later counterparts. This suggests that any pitstructure associated with the early occupation would have coincided with the later pitstructure locations. Such a layout would be consistent with that observed for other late-eighth-century habitation sites in the project area. In addition, a long uselife is implied by the extensive remodeling of the pitstructure depressions, and their incomplete excavation does not allow earlier use of that portion of the site to be confirmed or denied. Thus, the volume of ceramics associated with Element 1 is most appropriate for a permanent habitation, and the site layout for the element could easily accommodate that interpretation.

Whether associated with a permanent or seasonal habitation, the ceramic materials from Element 1 reflect a limited amount of interaction with populations both within and without the Mesa Verde region. Clay and temper characteristics are used by the DAP to assign sherds

Table 5B.1 - Summary of ceramic materials assigned to Elements 1 and 2, Prince Hamlet

Culture category: Tract Ware Type	Element 1		Element 2	
	N	%	N	%
Mesa Verde:				
Dolores Tract				
Gray ware				
Chapin Gray	284	5.7	593	3.8
Moccasin Gray	71	1.4	1 275	8.2
Mancos Gray	7	0.1	178	1.1
EP Gray	3 951	79.7	12 219	78.3
LP Gray	0	0	1	*
Dolores Brown	1	*	4	*
White ware				
Chapin B/W	10	0.2	5	*
Piedra B/W	19	0.4	48	0.3
Cortez B/W	0	0	12	0.1
Mancos B/W	0	0	2	*
Painted white	3	0.1	18	0.1
Polished White	370	7.5	606	3.9
Slipped White	1	*	9	0.1
Red ware				
Abajo R/O	25	0.5	40	0.3
Abajo Polychrome	1	*	0	0
Bluff B/R	1	*	22	0.1
McPhee B/R	0	0	2	*
EP Red	175	3.5	506	3.2
Slipped Red	1	*	11	0.1
Sherd Red	0	0	15	0.1
Smudged ware				
Smudged	30	0.6	8	0.1
Kayenta:				
Red ware				
LP Red	0	0	1	*
Kayenta or Cibola:				
Gray ware				
Neckbanded Gray	0	0	1	*
EP Gray	5	0.1	20	0.1
White ware				
EP White	1	*	4	*
Chuska:				
Gray ware				
EP Gray	0	0	5	*
Mogollon:				
Smudged	0	0	2	*
Indeterminate:				
Gray ware				
Unclassifiable Gray	0	0	5	*
White ware				
Unclassifiable White	1	*	0	0
Total	4 957	100.0	15 612	100.0

*Less than 0.05 percent.

EP - Early Pueblo.
LP - Late Pueblo.
B/W - Black-on-white.
R/O - Red-on-orange.
B/R - Black-on-red.

Table 5B.2 – Selected dated ceramic assemblages from the Dolores River valley

Site	5MT2193		5MT4644		5MT2848		5MT4644		5MT4725		5MT0023		5MT0023	
Structure Association	Pitstr 2		Pitstr 2		Pitstr 1		Pitstr 1		Pitstr 1		Pitstr 10		Pitstr 11	
Construction Date (A.D.)	770*		776*		784*		800*		845*		867*		880s†	
Decade represented by ceramics (A.D.)	780-790		780-790		790-800		800-810		850-860		870-880		880-890	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Ceramic type														
Chapin Gray	24	3.2	7	1.9	14	4.4	62	3.9	4	0.7	73	3.7	21	4.0
Moccasin Gray	3	0.4	4	1.1	3	0.9	0	0	39	6.6	348	17.6	37	7.0
Mancos Gray	0	0	0	0	0	0	0	0	0	0	36	1.8	23	4.3
Early Pueblo Gray	684	91.8	274	74.2	294	92.2	1 155	73.0	537	91.2	1 435	72.7	377	71.3
Mesa Verde White	24	3.2	5	1.4	0	0	46	2.9	5	0.8	28	1.4	36	6.8
Mesa Verde Red	3	0.4	59	16.0	8	2.5	319	20.2	3	0.5	46	2.3	30	5.7
Other	7	0.9	20	5.4	0	0	0	0	1	0.2	9	0.5	5	0.9
Total	745	100.0	369	100.0	319	100.0	1 582	100.0	589	100.0	1 975	100.0	529	100.0

*Dated by tree-ring samples.
†Dated by stratigraphic association with tree-ring dated structure.

Pitstr - Pitstructure.

to culture categories and manufacturing tracts (Lucius 1981; Blinman 1982a:5-6), and these assignments are interpreted as representing the probable geographic origins of the sherds (Blinman 1982b). Presence of sherds from outside the local area implies interaction with adjacent or intervening populations but need not imply direct contacts with the area of origin. Quantity of nonlocal ceramics can be interpreted as a rough measure of the amount of both regional and local interaction.

The overwhelming majority of Element 1 sherds (table 5B.3) are assignable to the Mesa Verde Culture Category. Those not assigned to the Mesa Verde region are tempered with sand and may have originated from the Kayenta or Cibola regions to the southwest and south of the project area. Within the Mesa Verde region, most sherds are not demonstrably nonlocal, and nearly half of those that are nonlocal appear to originate from adjacent areas to the west, southwest, and south. Red wares attributed to the Blanding Manufacturing Tract (southeastern Utah; Lucius and Breternitz 1981:106-107) comprise the largest group of nonlocal ceramics, representing the widespread exchange of this ware during the late eighth and ninth centuries. Intraregional interaction appears to have been greater than interregional interaction, and exchange contacts with populations to the west and southwest (Cahone, Sandstone, and Blanding Manufacturing Tracts) appear to have been more consistent than those in other directions.

Element 2

The contiguous roomblock, the 2 pitstructures, the upper midden, and the postoccupational fill of the pitstructures have been defined as Element 2. These proveniences yielded some of the incongruously late sherds that have been used to define Episode 1, and these few late materials have not been separated from the Element 2 ceramic summary in table 5B.1. Element 2 is interpreted as a permanent habitation that was occupied during and spanned much of the A.D. 840-900 time period. The initiation date for the element was estimated on the basis of architectural style, spatial patterning, and assumptions of pattern change in the Dolores area; a tree-ring date of A.D. 862vv may be associated with a remodeling event during the occupation; and the presence of some ceramic types was used to estimate the terminal date for the occupation.

The basic structure of this dating interpretation is supported by comparisons with other DAP ceramic assemblages, but the initiation of Element 2 was probably earlier, and the boundary with Element 1 may actually be an arbitrary division of a continuous occupation. Chapin Gray constitutes a disproportionate amount of the Element 2 assemblage (table 5B.1) when compared with other ceramic assemblages that date to the latter half of the ninth century (table 5B.2). This unusual abundance of Chapin Gray is attributable to the upper midden and

Table 5B.3 – Presumed origins of Prince Hamlet ceramics

Culture category: Manufacturing tract	Element 1		Element 2	
	N	%	N	%
Mesa Verde:				
Dolores Tract	4 685	96.5	14 637	93.8
San Juan Tract	35	0.7	283	1.8
Cahone Tract	14	0.3	30	0.2
Sandstone Tract	13	0.3	28	0.2
Blanding Tract	103	2.1	596	3.8
Subtotal	4 850	99.9	15 574	99.8
Chuska	0	0	5	*
Kayenta	0	0	1	*
Kayenta or Cibola	6	0.1	25	0.2
Mogollon	0	0	2	*
Indeterminate	1	*	5	*
Total	4 857	100.0	15 612	100.0

*Less than 0.05 percent.

to miscellaneous deposits outside the roomblock and pitstructures (table 5B.4). These assemblages are consistent with the assemblage composition expected for the period A.D. 820 through A.D. 850, and the roomblock and pitstructure assemblages are consistent with the composition expected for the A.D. 870's and 880's. Lacking stratigraphic evidence for any occupational hiatus, Element 2 materials represent deposition spanning A.D. 820-900, with the termination date estimate of A.D. 900 based on the presence of small amounts of Cortez Black-on-white and the absence of corrugated sherds. This span abuts that inferred for Element 1, and the two elements as defined may simply be an arbitrary division of a continuous occupation.

Evidence for foreign interaction is slightly greater for Element 2 than for Element 1. Approximately 6 percent of the ceramics are demonstrably nonlocal, and there is an increase in the intensity of intraregional exchange as reflected by increases in proportions of ceramics from the San Juan and Blanding Manufacturing Tracts. A greater diversity of extraregional ceramics is present in Element 2, but this is in part due to the larger sample size. The single Kayenta Culture Category sherd is probably associated with Episode 1 rather than with Element 2. Some indication of a slight strengthening of southern interaction is measured by the presence of sherds from the San Juan Tract and from the Chuska and Mogollon Culture Categories. This increase in the proportion of sherds from southern origins is evident in late ninth century ceramic assemblages from throughout the Dolores area and appears to be a regional trend.

Episode 1

Several sherds of post-A.D. 900 pottery types and ephemeral evidence of a structure in the fill of Pithouse 1 are the bases for defining the last occupation at Prince Hamlet. Reexamination of the sherds (2 Mancos Black-on-white and 1 red ware sherd assigned to the Kayenta Culture Category) has confirmed their classification. The black-on-white sherds are from the same bowl and exhibit fine crosshatching that is characteristic of Mancos Black-on-white and is not characteristic of earlier Mesa Verde White Wares. The Kayenta sherd was classified as such because of the presence of both sherd and sand temper, a trait not found in Mesa Verde Red Wares and not characteristic of oxidized Kayenta ceramics until sometime after A.D. 1000 (Colton 1956). These sherds are significantly different from the range of variation observed in pre-A.D. 900 ceramics from the DAP, and their presence dates the occupation to within the A.D. 1000-1150 time period. The dearth of material (especially corrugated sherds) and of discrete proveniences assignable to the episode appear to indicate an extremely brief use of the site.

Table 5B.4 – Spatial subdivisions of the Element 1 ceramic assemblage, Prince Hamlet

Ceramic type	Upper roomblock		Contiguous roomblock		Pitstrs		Other		Total	
	N	%	N	%	N	%	N	%	N	%
Chapin Gray	145	4.0	20	1.3	151	2.6	277	5.9	593	3.8
Moccasin Gray	171	4.8	195	13.1	541	9.3	368	7.8	1 275	8.2
Mancos Gray	14	0.4	17	1.1	90	1.5	57	1.2	178	1.1
Early Pueblo Gray	2 873	79.9	1 063	71.6	4 476	76.9	3 807	80.8	12 219	78.3
Mesa Verde White	219	6.1	101	6.8	333	5.7	47	1.0	700	4.5
Mesa Verde Red	160	4.5	87	5.9	212	3.6	137	2.9	596	3.8
Other	13	0.4	2	0.1	18	0.3	18	0.4	51	0.3
Total	3 595	100.0	1 485	100.0	5 821	100.0	4 711	100.0	15 612	100.0

NOTE: Pitstrs - Pitstructures.

APPENDIX 5C

LITHIC AND BONE TOOL ANALYSIS RESULTS, PRINCE HAMLET

Thomas Homer Hruby

Site 5MT2161, Prince Hamlet, is a habitation site for which 2 elements and one episode have been defined. Element 1 is currently defined to include Room 5 and the 3 lowest levels of the midden;[1] this element is interpreted in the chapter text as being a seasonal or permanent habitation that dates to the Sagehill and Dos Casas Subphases. Element 2 is a large hamlet that includes the roomblock, Pithouses 1 and 2, pithouse fill, and the upper levels of the midden; this element is dated primarily to the Periman Subphase. Episode 1 is represented by a scatter of Sundial Phase ceramics; no lithic or bone tools are assigned to this brief occupation; consequently, it is not discussed in this appendix.

The Reductive Technology Group of the DAP is responsible for the analysis and interpretation of flaked lithic, nonflaked lithic, and worked bone materials. The preliminary analysis systems are primarily attribute-based systems concerned with the types and amounts of technological input into the various tool groups. The flaked lithic tool morpho-use classification is technological in orientation; a separate use-wear analysis is being conducted to establish the use of these tools. The nonflaked lithic and worked bone tool morpho-use classifications are more functional in orientation because the probable functions of these tools are more easily established. The complete analysis systems are discussed in greater detail in Phagan (1982).

Prince Hamlet was excavated during the 1979 and 1980 field seasons, and analysis of the recovered materials was completed immediately after each season. During 1980, significant changes were instituted in the FLT (flaked lithic tool), FLD (flaked lithic debitage), and NFLT (nonflaked lithic tool) analysis systems. As a result, the tables in the chapter use both 1979 and 1980 formats; this is particularly apparent in the FLD tables, where angular debris is a recognized category for the 1980 materials but not for the 1979 materials. Since the completion of the chapter text, the 1979 flaked lithic tool assemblage has been completely reanalyzed in the 1980 format. The tables in this appendix present the results of reanalysis by element. The final temporal designations for some materials have not been made, so comparative tables compiled later will probably vary slightly from those presented here.

The nonparametric Kolmogorov-Smirnov two-sample test (Siegal 1956) was used to determine if the morpho-use profiles for temporally similar assemblages are statistically similar to one another. The Kolmogorov-Smirnov test requires ordinal level data; to meet this requirement, the flaked lithic and nonflaked lithic morpho-use classifications have been ranked by the relative amount of technological input believed to have been invested in the various tool forms. The FLT morpho-use ranking is probably adequate; that for the NFLT assemblage is weak. Although statistical analysis is appropriate for measuring some differences between assemblages, a qualitative assessment of assemblage variability is also used to evaluate site differences. When the number of tools is large enough, comparisons are discussed on an assemblage basis. General functional conclusions are drawn when appropriate.

The FLT totals for Prince Hamlet are presented in table 5C.1. A number of differences in the morpho-use variable are noted between the 2 elements at Prince Hamlet. Element 1 contexts yielded a high proportion of unused cores and a low proportion of unifaces. Element 2 contexts, on the other hand, yielded a low proportion of unused cores and a high percentage of unifaces. Although the sample size for Element 1 is relatively small, these differences are probably significant. The other tool groups are relatively equally represented in both elements.

A number of interpretations can be suggested from this data. The high percentage of unused cores from Element 1 contexts suggests that a significant amount of initial lithic reduction is represented in the flaked lithic tool assemblage. The relatively low percentage of unused cores

[1]The decision to assign the 3 lowest levels of the midden to Element 1 was made subsequent to the preparation of the main body of the chapter; in the site report, only the lowest level of the midden is reported to be definitely associated with the Element 1 occupation.

Table 5C.1 – Flaked lithic tool comparisons, Prince Hamlet and selected DAP sites

	5MT2161 Element 1		5MT2161 Element 2		5MT2161 Total		5MT4479 Element 1		5MT4479 Area 1 Element 2		5MT5106 Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Total tools:	53	100.0	430	100.0	483	100.0	142	100.0	117	100.0	95	100.0
Tool morpho-use												
Indeterminate	1	1.9	4	0.9	5	1.0	3	2.1	2	1.7	14	14.7
Utilized flake	22	41.5	158	36.7	180	37.3	24	16.9	37	31.6	20	21.1
Core	10	18.9	23	5.3	33	6.8	36	25.4	14	12.0	2	2.1
Used core, cobble tool	6	11.3	57	13.3	63	13.0	31	21.8	22	18.8	25	26.3
Thick uniface	5	9.4	76	17.7	81	16.8	15	10.6	12	10.3	12	12.6
Thin uniface	1	1.9	35	8.1	36	7.5	5	3.5	4	3.4	0	0
Specialized form	1	1.9	14	3.3	15	3.1	1	0.7	1	0.9	2	2.1
Thick biface	4	7.5	33	7.7	37	7.7	16	11.3	11	9.4	13	13.7
Thin biface	2	3.8	8	1.9	10	2.1	5	3.5	8	6.8	0	0
Projectile point	1	1.9	22	5.1	23	4.8	6	4.2	6	5.1	7	7.4
Grain size												
Unidentified	0	0	0	0	0	0	1	0.7	0	0	0	0
Medium	0	0	3	0.7	3	0.6	3	2.1	1	0.9	5	5.3
Fine	15	28.3	130	30.2	145	30.0	56	39.4	8	6.8	27	28.4
Very fine	21	39.6	227	52.8	248	51.3	60	42.3	64	54.7	45	47.4
Microscopic	17	32.1	70	16.3	87	18.1	22	15.5	44	37.6	18	18.9
Dorsal face evaluation												
Indeterminate	0	0	2	0.5	2	0.4	0	0	1	0.9	3	3.2
Core	15	28.3	67	15.6	82	17.0	60	42.3	30	25.6	19	20.0
Unworked with cortex	16	30.2	195	45.3	211	43.7	27	19.0	31	26.5	48	50.5
Unworked without cortex	14	26.4	96	22.3	110	22.8	17	12.0	25	21.4	12	12.6
Thinned with cortex	4	7.5	33	7.7	37	7.7	21	14.8	12	10.3	3	3.2
Thinned without cortex	2	3.8	11	2.6	13	2.7	7	4.9	7	6.0	1	1.1
Primarily thinned	0	0	5	1.2	5	1.0	5	3.5	5	4.3	3	3.2
Secondarily thinned	1	1.9	5	1.2	6	1.2	2	1.4	2	1.7	5	5.3
Well shaped	1	1.9	14	3.3	15	3.1	2	1.4	2	1.7	1	1.1
Highly stylized	0	0	2	0.5	2	0.4	1	0.7	2	1.7	0	0

for Element 2 suggests that the early stages of flaked lithic tool manufacture might have taken place away from the site. Alternatively, some of the Element 2 tools that are coded as thick unifaces may be cores; that is, the technological input for these tools was directed toward the production of usable flakes rather than toward the production of an edge.

The Element 1 and Element 2 flaked lithic tool assemblages reflect an expedient technology that is characteristic of Anasazi sites in the Escalante Sector: dorsal face evaluations are similar for tools from both elements. However, the values recorded for the grain size variable indicate a difference in raw material selection between the 2 elements. Microscopic-grained materials are common in the Element 1 assemblage, suggesting that Burro Canyon cherts are well represented even though such cherts are not locally abundant. The Element 2 assemblage reflects the more typical Grass Mesa Locality pattern of raw material selection, in that very fine grained and fine-grained Morrison Formation orthoquartzites predominate. Morrison orthoquartzites are the locally abundant raw materials in this locality. This trend from finer- to coarser-grained materials is opposite to that reported by the author in the main body of the chapter. It is impossible to determine whether the observed trend is the result of restricted access to Burro Canyon sources, or whether there was a change in raw material preference.

The flaked lithic debitage assemblage exhibits some of the same trends as those recognized in the flaked lithic tool assemblage. Summary data from the 2 elements are presented in table 5C.2. The most notable trend in the debitage data is the decrease in microscopic-grained material through time. This trend is also apparent in the FLT raw material variable and is probably a result of decreased use of Burro Canyon cherts. The decreased use of cherts coincides with an increased use of Morrison orthoquartzites, which are the most accessible outcrops in the vicinity of Prince Hamlet. The proportions of debitage with cortex and the frequencies of whole flakes are very similar between the elements, which suggests similar acquisition and manufacturing practices. The percentage of flakes with cortex (42.1) could be used to argue against the suggested offsite manufacture of lithics for Element 2.

Several FLT profile comparisons are presented in table 5C.3. The results of the Kolmogorov-Smirnov two-sample test indicate that some differences exist between the assemblages. Site 5MT4479 and Site 5MT5106 are used here for comparison, as they are Periman Subphase habitation sites that are roughly similar in size and spatial layout to Prince Hamlet. The assemblages from these 2 sites probably are technologically different from the Element 2 assemblage from Prince Hamlet. A relatively low portion of utilized flakes and a relatively high proportion of cores and used cores/cobble tools were recovered from 5MT4479 (Element 1) as compared to Element 2 at Prince Hamlet. The large number of cores and used cores/cobble tools at 5MT4479 suggests that activities requiring heavy vertical force applications, such as stone-working and building-related activities, might have taken place. The higher proportion of utilized flakes and unifaces at Prince Hamlet indicates more generalized activities, which in turn might be interpreted as representing a longer occupation. The assemblage from 5MT5106 is similar to that from 5MT4479 and again indicates that stone working and other activities related to building are well represented. This may be indicative of a relatively short occupation for these 2 elements at these sites. A more functional interpretation (e.g., some type of site specialization) is also possible. The results of the use-wear analysis of tools assigned to elements at these sites should reveal functional differences if they are present.

Element 2 at Prince Hamlet is similar to Element 2 at Site 5MT4671. The latter is a late Dos Casas and early Periman Subphase habitation site that dates to a slightly earlier time than Element 2 at Prince Hamlet. A temporal overlap exists between the two, and the morpho-use profiles are statistically similar, although some minor differences occur in the relative proportions of various tool forms.

The nonflaked lithic tool data for Prince Hamlet are presented by element in table 5C.4. Two striking differences are noted between the 2 elements at Prince Hamlet: a lower proportion of hammmerstones and a higher proportion of metates characterize the Element 2 assemblage as opposed to the Element 1 assemblage. Other than these differences, the 2 profiles are essentially similar. The low proportion of hammerstones in Element 2 may be related to the salvaging of building materials from Element 1: if

Table 5C.2 – Flaked lithic debitage, Prince Hamlet

	Element 1			Element 2			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:									
Grian size									
Medium	38	2.8	30.8	106	2.1	21.5	144	2.2	24.0
Fine	254	18.[illegible]	13.6	1 563	30.9	12.6	1 817	28.3	12.7
Very fine	782	58.1	9.4	2 639	52.1	10.6	3 421	53.4	10.3
Microscopic	272	20.2	7.8	756	14.9	8.1	1 028	16.0	8.0
Total flakes/ flake frags	1 346	100.0	10.5	5 064	100.0	11.1	6 410	100.0	11.1
Items with cortex	501	37.2	...	2 131	42.1	...	2 632	41.1	...
Whole flakes	665	49.4	...	2 286	45.1	...	2 951	46.0	...
Nonlocal items	1	0.1	...	6	0.1	...	7	0.1	...
Angular debris	75	100.0	15.4	425	100.0	11.0	500	100.0	11.6

frags - Fragments.
... - Information not available.

Table 5C.3 – Statistical intersite comparisons of flaked lithic tool morpho-use forms, Prince Hamlet and selected DAP sites

Site (element)	p*	Remarks
5MT2161 (2) vs 5MT4479 (1)	0.001	Good evidence for differences
5MT2161 (2) vs 5MT5106 (1)	.103	Some evidence for differences
5MT2161 (2) vs 5MT4671 (2)	.627	Similar

*The probability that the 2 samples were drawn from the same population, based on the Kolmogorov-Smirnov two-sample test.

Table 5C.4 – Nonflaked lithic tool comparisons, Prince Hamlet and selected DAP sites

	5MT2161 Element 1		5MT2161 Element 2		5MT2161 Total		5MT4479 Element 1		5MT4671 Area 1 Element 2		5MT5106 Element 1	
	N	%	N	%	N	%	N	%	N	%	N	%
Total tools:	27	100.0	141	100.0	168	100.0	87	100.0	79	100.0	102	100.0
Tool morpho-use												
Indeterminate	2	7.4	10	7.1	12	7.1	5	5.7	9	11.4	8	7.8
Miscellaneous	6	22.2	33	23.4	39	23.2	30	34.5	28	35.4	35	34.3
Hammerstone	9	33.3	17	12.1	26	15.5	20	23.0	14	17.7	12	11.8
Mano fragment, nfs	0	0	1	0.7	1	0.6	3	3.4	6	7.6	4	3.9
One-hand mano	0	0	2	1.4	2	1.2	2	2.3	0	0	2	2.0
Two-hand mano	6	22.2	30	21.3	36	21.4	17	19.5	11	13.9	21	20.6
Metate fragment, nfs	0	0	1	0.7	1	0.6	1	1.1	3	3.8	0	0
Trough metate	1	3.7	36	25.5	37	22.0	3	3.4	2	2.5	12	11.8
Slab metate	0	0	1	0.7	1	0.6	0	0	1	1.3	0	0
Hafted item	1	3.7	8	5.7	9	5.4	3	3.4	0	0	0	0
Ornament	2	7.4	2	1.4	4	2.4	3	3.4	5	6.3	8	7.8
Item condition												
Indeterminate	0	0	0	0	0	0	1	1.1	1	1.3	1	1.0
Broken												
Unidentifiable	0	0	5	3.4	5	3.0	6	6.9	3	3.8	8	7.8
Identifiable	11	40.7	61	43.3	72	42.9	17	19.5	12	15.2	7	6.9
Complete/nearly complete	16	59.3	75	53.2	91	54.2	63	72.4	63	79.7	86	84.3
Production evaluation												
Indeterminate	1	3.7	9	6.4	10	6.0	5	5.7	3	3.8	4	3.9
Natural (unmodified)	20	74.1	57	40.4	77	45.8	47	54.0	41	51.9	57	55.9
Minimally modified	2	7.4	43	30.5	45	26.8	12	13.8	17	21.5	15	14.7
Well shaped	3	11.1	31	22.0	34	20.2	20	23.0	18	22.8	26	25.5
Stylized	1	3.7	1	0.7	2	1.2	3	3.4	0	0	0	0

nfs - Not further specified.

building materials were being salvaged, fewer hammerstones for the manufacture of new construction materials would have been needed. A similar explanation may be invoked for the high percentage of metates associated with Element 2: many of these metates may have been scavenged from Element 1 contexts or from nearby abandoned sites and recycled for use in Element 2 construction. As at many other sites in the DAP area, used metates had been incorporated into structure walls and other architectural units (cf. Brisbin 1980).

Another trend noted at Prince Hamlet and other DAP sites is increased technological shaping of nonflaked lithic tools through time. The increase in the percentages of Element 2 tools classified as minimally modified or well shaped is a characteristic that is noticeable at other multiple-element sites in the DAP area. Nonflaked lithic tools from McPhee Phase sites are characterized as having required more shaping (higher technological input) than nonflaked lithic tools from Sagehen Phase sites.

The NFLT profile comparisons are presented in table 5C.5. The nonflaked lithic tool assemblage for Element 1 at Prince Hamlet is too small for statistical comparison; only Element 2 could be used in the Kolmogorov-Smirnov two-sample test. Element 2 is compared to 3 other habitations that date to roughly the same time span (Periman Subphase). Test results indicate that the nonflaked lithic tool assemblages from 5MT4479 (Element 1) and from 5MT4671 (Element 2) are significantly different from the Element 2 assemblage at Prince Hamlet. The primary difference in the profiles is the lack of metates at 5MT4479 and 5MT4671, which contrasts sharply with the high proportion of metates from Element 2 contexts at Prince Hamlet. The differences may be accounted for by the recycling of metates as building materials at Prince Hamlet or the removal of abandoned metates at 5MT4479 and 5MT4671 for use at other sites; later habitation sites are located within 1 km of the latter two locations. Although the results of the Kolmogorov-Smirnov two-sample test suggest that 5MT2161 and 5MT5106 are similar, a fairly wide difference occurs in frequencies of metates for these 2 sites (25.5 percent and 11.8 percent, respectively). Except for the percentages of metates, however, tool profiles for the various elements are remarkably similar.

The worked bone data for Prince Hamlet are presented in table 5C.6. Although the total sample size appears to be fairly large, the proportion of fragments and manufacturing debris is high, especially for Element 2. For Element 1, however, approximately two-thirds of the sample could be identified to a specific tool form. The 3 tool forms present (awls, spatulates, and ornaments) occur in roughly equal proportions. Approximately 36 percent of the worked bone represents fragments or manufacturing debris (classified as "indeterminate" in terms of morpho-use form). The small number of whole tools precludes functional interpretation of the worked bone assemblage for Element 1.

The Element 2 worked bone sample size is large, but approximately 68 percent of the worked bone material is classified as "indeterminate" in terms of specific tool morpho-use form. Of the identifiable tool forms, the vast majority are awls. The other tool forms present are ornaments, spatulates, and piercing tools. Based on the relatively low frequencies of identifiable tool forms, any functional conclusions for Element 2 at Prince Hamlet would be difficult to justify. The large proportion of awls and the large number of fragments are typical of Pueblo I habitations throughout the Escalante Sector. More detailed analysis of the worked bone is required before any general conclusions can be suggested for technological trends.

Table 5C.5 - Statistical intersite comparisons of nonflaked lithic tool morpho-use forms, Prince Hamlet and selected DAP sites

Site (element)	p*	Commments
5MT2161 (2) vs 5MT4479 (1)	0.011	Good evidence for differences
5MT2161 (2) vs 5MT5106 (1)	.303	Probably similar
5MT2161 (2) vs 5MT4671 (2)	.002	Good evidence for differences

*The probability that the 2 samples were drawn from the same population, based on the Kolmogorov-Smirnov two-sample test.

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Table 5C.6 - Worked nonhuman bone, Prince Hamlet

	Element 1		Element 2		Total	
	N	%	N	%	N	%
Total tools:	14	100.0	53	100.0	67	100.0
Taxon						
Aves/Mammalia	0	0	2	3.8	2	3.0
Mammalia, medium	2	14.3	11	20.8	13	19.4
Mammalia, large	10	71.4	25	47.2	35	52.2
Artiodactyla	2	14.3	15	28.3	17	25.4
Tool morpho-use						
Indeterminate	5	35.7	36	67.9	41	61.2
Awl	3	21.4	11	20.8	14	20.9
Piercing tool	0	0	1	1.9	1	1.5
Spatulate	3	21.4	2	3.8	5	7.5
Ornament	3	21.4	3	5.7	6	9.0
Blank type						
Indeterminate	9	64.3	38	71.7	47	70.1
Broken bone	3	21.4	6	11.3	9	13.4
Split bone	2	14.3	8	15.1	10	15.0
Cut bone	0	0	1	1.9	1	1.5
Production evaluation						
Indeterminate	0	0	1	1.9	1	1.5
Some evidence	9	64.3	36	67.9	45	67.2
Minimally shaped	1	7.1	1	1.9	2	3.0
Moderately shaped	1	7.1	10	18.9	11	16.4
Well shaped	3	21.4	2	3.8	5	7.5
Completely shaped	0	0	3	5.7	3	4.5
Item completeness						
Indeterminate	0	0	3	5.7	3	4.5
Broken						
Orientation unknown	5	35.7	14	26.4	19	28.4
No orientation	2	14.3	1	1.9	3	4.5
Distal present	3	21.4	1	1.9	4	6.0
Proximal present	0	0	4	7.5	4	6.0
Medial present	0	0	13	24.5	13	19.4
Proximal & medial present	0	0	4	7.5	4	6.0
Distal & medial present	0	0	1	1.9	1	1.5
Complete	4	28.6	12	22.6	16	23.9

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APPENDIX 5D

POLLEN REPORT FOR PRINCE HAMLET

Linda J. Scott

Of the 82 pollen samples collected from Prince Hamlet, 20 were submitted for analysis (table 5D.1). Of these, 9 contained pollen in quantities large enough to serve as a basis for interpretation. Only 3 of the samples that yielded adequate amounts of pollen were from Pithouse 1: sample 45, taken next to an in situ metate; sample 53, taken as an upper control for the central hearth (Feature 19); and sample 55, taken from Stratum 2 of the central hearth. The remaining 6 samples that yielded sufficient pollen were from Pithouse 2: samples 68, 70, 71, and 73 from Strata 1, 3, 4, and 5, respectively, of the central hearth (Feature 18); sample 79 from Floor 1; and sample 39 from the bottom of Feature 20.

The upper control sample for Feature 19 (sample 53) also serves as a control for the interpretation of the other Pithouse 1 samples. One aspect of the pollen record from this sample deserves comment – the presence of a rather large (19 percent) quantity of *Cleome* pollen. The presence of *Cleome* pollen in frequencies exceeding a few percent is usually interpreted to indicate use of the plant. Possibly, the upper control sample was taken from roof fall. If so, the presence of *Cleome* pollen may be associated with activity on the roof prior to its collapse.

Sample 55 was taken from Stratum 2 of Feature 19 and contained a very large quantity of *Pinus* pollen compared to both the upper control sample and the one other sample from this pitstructure to yield pollen (sample 45). This large quantity of *Pinus* pollen may represent the use of pine as fuel. In addition, the single grain of *Opuntia* pollen that was noted in sample 55 may be the result of the cooking or preparation of pricklypear in the hearth. *Opuntia* pollen is large, heavy, and not readily transported. Therefore, its presence in samples, particularly in samples from the interiors of structures, is usually interpreted to be indicative of subsistence-related activities.

Sample 45, the only floor sample taken in association with the in situ metate (Feature 28), yielded pollen frequencies similar to those for the upper control sample, with a few exceptions. The *Artemisia* (35 percent) and low-spine Compositae (19 percent) pollen frequencies are larger in sample 45 than in sample 53, and the *Cleome* frequency (4 percent) is smaller (fig. 5D.1). Also, the only occurrences of *Geranium* and *Mitella* pollen are noted in sample 45. *Zea* pollen was observed during a scan of the sample, but was not noted during the original count. The grinding of corn on the metate would probably have introduced *Zea* pollen onto nearby areas of the floor. The presence of *Geranium* and *Mitella* pollen, however, may or may not be due to use of the metate.

Strata 1, 3, 4, and 5 in Feature 18, the hearth in Pithouse 2, also yielded pollen. Stratum 1 was roof fall; the sample from this stratum, sample 68, contains the largest quantity of Cheno-am and *Cleome* pollen at this site. In addition, a small quantity (1 percent) of *Zea* pollen was observed in this sample. The large quantities of both Cheno-am and *Cleome* pollen and the presence of *Zea* pollen within this roof fall sample suggest that the roof was probably used for the preparation of food. Sample 69 was taken from Stratum 2, a layer of ash and sand, and did not contain sufficient pollen for analysis. Sample 70 was taken from a layer of clean sand in the hearth, Stratum 3, and contained a large quantity of *Pinus* pollen. Sample 70 also contained a large quantity (11 percent) of Umbelliferae pollen, as well as 2 percent *Zea* pollen. Even though the sand was clean, the pollen assemblage from the hearth argues for the use of *Pinus* as fuel and the preparation of a member of the Umbelliferae family, as well as *Zea*, near the hearth. Sample 71, from Stratum 4 in the hearth, is unremarkable in its pollen content. Sample 72 from Stratum 5 did not contain sufficient pollen for analysis. Sample 73 (Stratum 5), the "bottom scrape" sample from the hearth, yielded a small amount of *Opuntia* pollen. Again, the presence of this pollen is probably indicative of the preparation of pricklypear in the hearth. Sample 79, taken from the floor in association with the hearth, contains a very large quantity of low-spine Compositae pollen, as does the floor sample associated with the metate in Pithouse 1. The presence of this pollen type in these samples may reflect seasonal accumulation of pollen on the floor or use of a plant represented by this pollen type inside the pitstructures. Sample 79 is the only sample from this site to contain *Cucurbita* pollen. A single grain was observed in the sample; its presence probably is indicative of the preparation or cooking of squash or pumpkin in the hearth.

The wingwall bin (Feature 20) in Pithouse 2 was also sampled for pollen. The fill sample from the bin (sample 64) did not yield sufficient pollen for analysis. However, the "bottom scrape" sample (sample 39) yielded 1 percent *Opuntia* and 1 percent *Zea* pollen, which may be indicators of food stored in the bin.

Table 5D.1 – Pollen samples, Prince Hamlet

Provenience	Comments	Sample No.	Pollen count
Pithouse 1:			
Feature 28	Floor 1; associated with in situ metate (A)	40	I
Feature 28	Floor 1, 64S/70E (T)	44	I
Feature 28	Floor 1; associated with in situ metate (B)	45	100
Feature 19	10 cm above central hearth (U)	53	100
Feature 19, Stratum 1	Central hearth, ash stratum (F)	54	I
Feature 19, Stratum 2	Central hearth, sand stratum (F)	55	100
Feature 19, Stratum 3	Central hearth; ash, charcoal, and sand stratum (F)	56	I
Feature 19, Stratum 4	Central hearth (F)	57	I
Feature 19, Stratum 5	Central hearth, sand stratum (F)	58	I
Feature 19, Stratum 5	Central hearth (S)	59	I
Feature 19	Floor 1; associated with central hearth (B)	85	I
Pithouse 2:			
Feature 18, Stratum 1	Rood fall (F)	68	100
Feature 18, Stratum 2	Central hearth, ash and sand stratum (F)	69	I
Feature 18, Stratum 3	Central hearth, clean sand stratum (F)	70	100
Feature 18, Stratum 4	Central hearth, silty sand stratum (F)	71	50
Feature 18, Stratum 5	Central hearth, sand stratum (F)	72	I
Feature 18, Stratum 5	Central hearth (S)	73	100
Feature 18	Floor 1, associated with central hearth (B)	79	100
Feature 20	Wingwall bin (F)	64	I
Feature 20	Wingwall bin (S)	39	100

A - Feature-associated sample taken from floor south of feature.
B - Feature-associated sample taken from floor west of feature.
F - Sample from feature fill.
I - Insufficient pollen for analysis.
S - Sample scraped from bottom of feature.
T - Transect sample from floor.
U - Upper control sample.

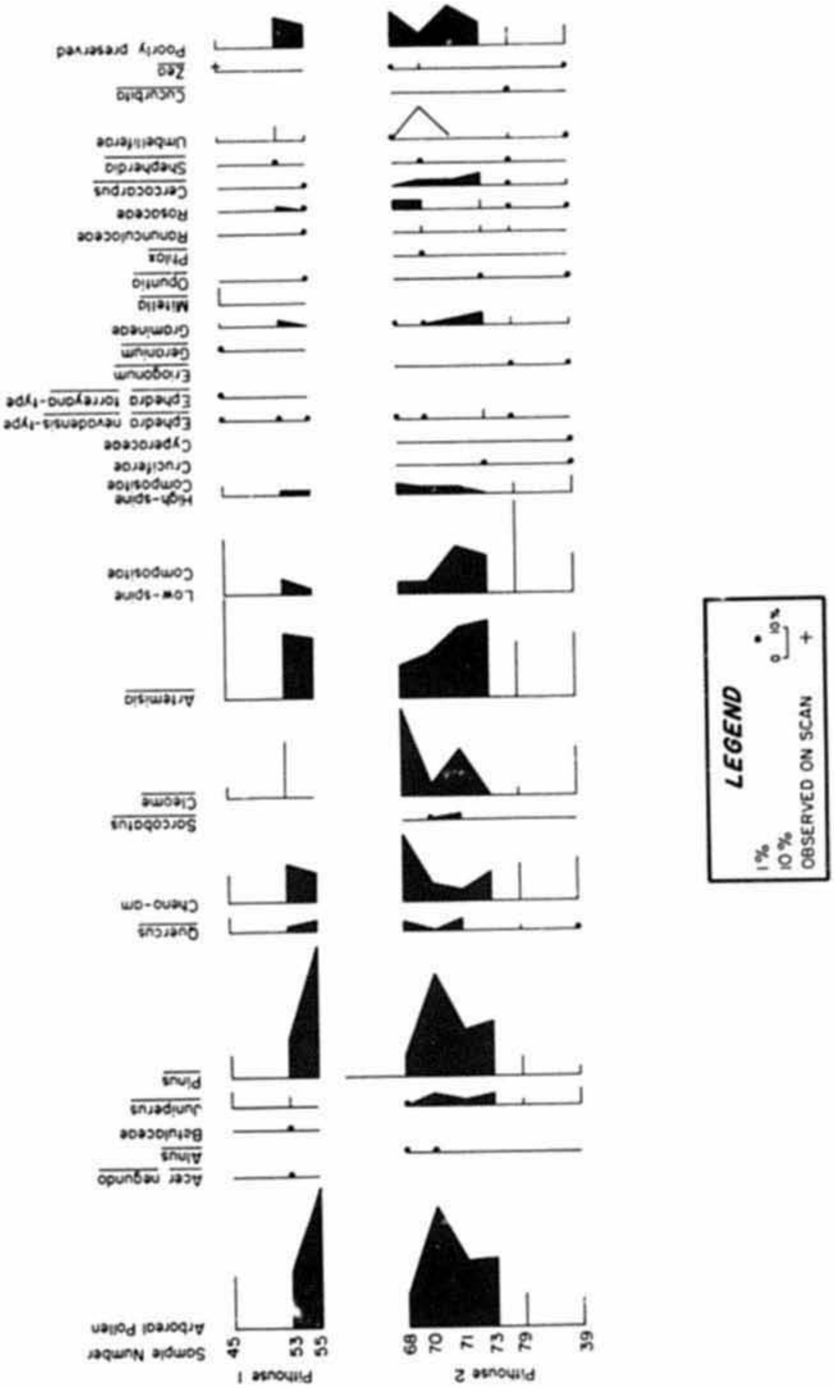

Figure 5D.1 - Pollen frequencies, Prince Hamlet.

APPENDIX 5E

THE MACROBOTANICAL ASSEMBLAGE FROM PRINCE HAMLET

Meredith H. Matthews

The macrobotanical assemblage from Site 5MT2161, Prince Hamlet, is composed of small-scale botanical materials extracted from bulk soil samples and larger botanical materials extracted from bulk soil samples and larger botanical materials (herein referred to as "vegetal remains") collected during routine excavation. Bulk soil samples were collected from features, surfaces, and midden deposits according to the standard DAP sampling design (Litzinger 1979). Preliminary analysis, following standard procedures of the DAP Botanical Studies Section (Matthews and Benz 1981), was conducted on 49 percent of the bulk soil samples collected. Vegetal remains, which consist of larger, more visible materials, such as wood and fragments of corn, were collected arbitrarily during excavation and were analyzed according to standard procedure. The main purpose in analyzing macrobotanical remains from Prince Hamlet was to provide supplementary data concerning subsistence items exploited by the prehistoric occupants of the site. This information also serves to enhance the data base concerning adaptation and resource exploitation patterns of prehistoric people in the Grass Mesa Locality.

The occupations at Prince Hamlet have been divided into 2 elements and 1 episode. During preliminary analysis, 18 plant families were recognized in the assemblages of the 2 main occupations of the site; within these families, 22 genera, some of which have been identified to species, were recognized (table 5E.1). The episode is not represented in the macrobotanical assemblage. Element 1 at Prince Hamlet (A.D. 720-840) is represented only by the use surface in Room 5 and by the lower levels of the midden deposits.[1] This occupation of the site is minimally represented in the macrobotanical assemblage by 7 bulk soil samples from 3 test pits excavated in the midden and by 2 vegetal items retrieved from the surface of Room 5. The underrepresentation of Element 1 creates a bias in interpreting the macrobotanical data base; materials from Element 1 contexts cannot be compared to materials from Element 2 contexts (A.D. 840-900) on more than a general level.

Results

The macrobotanical remains from Prince Hamlet were recovered in both charred and noncharred conditions (tables 5E.2 through 5E.6). Due to evidence of various pedoturbative processes and the generally poor preservation potential of open-air sites in the project area, the noncharred remains are considered possible contaminants. Nevertheless, in evaluating the integrity of noncharred remains recovered from cultural deposits at the site, 3 factors are considered: (1) the overall condition of the noncharred item (e.g., green, fleshy leaves are obviously modern); (2) the provenience from which the item was recovered; and (3) the condition of the associated remains. For instance, if a noncharred item were recovered from a primary deposit in a pyrogenic feature that contained predominately charred remains, the noncharred item would be considered a contaminant.

The integrity of charred botanical remains must also be evaluated. Following the standard sampling design, bulk soil samples at Prince Hamlet were collected from fills above and below cultural surfaces (e.g., table 5E.3, samples 62 and 98). In general, if botanical remains recovered from control samples are similar to remains recovered from the feature fill or surface samples, then a secure association between a particular taxon and the feature/surface from which it was collected cannot be inferred.

Table 5E.1 illustrates that a greater diversity of taxa was yielded by Element 2 contexts than by Element 1 contexts. The identification of 14 additional genera from Element 2 proveniences has resulted in a 42 percent increase in the taxa represented in the macrobotanical assemblage for this element. The difference in diversity between the 2 assemblages is in part due to the smaller number of samples collected from Element 1 deposits and in part to the inclusion of probable modern contaminants, identified during preliminary analysis, in the upper levels of the Element 2 midden deposits. Considering the postabandonment colluvial processes recorded for the site and

[1]Only the lowest level of the midden was assigned to Element 1 in the main body of the chapter. A more generous approach was used in the preparation of the appendixes.

Table 5E.1 - Taxa represented in the macrobotanical assemblage, Prince Hamlet

Taxon	Element 1	Element 2
Amaranthaceae		
Amaranthus sp.		X
Anacardiaceae		
Rhus aromatica		X
Cactaceae		
Opuntia sp.	X	
Chenopodiaceae		
Chenopodium sp.	X	X
"Cheno-am"		X
Compositae		X
Chrysothamnus sp.		X
Helianthus sp.		X
Cornaceae		
Cornus sp.		X
Cupressaceae		
Juniperus sp.	X	X
J. osteosperma	X	X
J. scopulorum	X	X
Cyperaceae	X	
Fagaceae		
Quercus gambelii	X	X
Gramineae		X
Zea mays	X	X
Leguminosae		X
Melilotus sp.		X
Trifolium sp.		X
Pinaceae		
Pinus sp.	X	X
P. edulis	X	X
P. ponderosa		X
Polygonaceae		
Polygonum sp.		X
Portulacaceae		
Portulaca sp.	X	X
Rosaceae	X	
Amelanchier sp.		X
Cercocarpus montanus	X	X
Peraphyllum sp.		X
Salicaceae	X	X
Populus sp.	X	X
Scrophulariaceae		
Penstemon sp.	X	
Solanaceae		X
Nicotiana attenuata		X
Physalis sp.		X
Dicotyledoneae*	X	X
Gymnospermae*	X	X

*Class designations.

X - Present.

Table 5E.2 - Bulk soil sample results, midden samples, Prince Hamlet

Taxon	Element 1			Element 2
Family / Genus species / plant part	2x2 68S/84E Stratum 3 Level 5 BS 6	2x2 68S/84E Stratum 3 Level 6 BS 7	2x2 72S/68E Stratum 3 Level 5 BS 15	2x2 72S/68E Stratum 3 Level 6 BS 16
Amaranthaceae				
Amaranthus sp.				
pyxis				
Chenopodiaceae				
Chenopodium sp.				
fruit		1/C		
Compositae				
fruit				
Chrysothamnus sp.				
leaf				
twig				
Cupressaceae				
Juniperus sp.				
scale				
bark				
wood			<1g/C	
J. osteosperma				
seed		6/N	6/N	
scale				
J. scopulorum				
seed				
fruit				6/C
scale				
Cyperaceae				
fruit				1/C
Fagaceae				
Quercus gambelii				
cupule				
fruit				
leaf	8g/N		1/N	
twig				
wood	<1g/C			<1g/C
Gramineae				
fruit				
Zea mays				
fruit			<0.1g/C	<<1g/C
cupule	8g/C		6/C	8/C
cob				
Leguminosae				
Melilotus sp.				
fruit				
Trifolium sp.				
leaf				
Pinaceae				
Pinus sp.				
bark	<1g/C		<1g/C	<1g/C
wood	<1g/C	<1g/C		
P. edulis				
cone scale				
needle				<1g/C
wood				
P. ponderosa				
needle				
wood				
Polygonaceae				
Polygonum sp.				
fruit				
Portulacaceae				
Portulaca sp.				
seed				1/C
Rosaceae				
wood				<1g/C
Cercocarpus montanus				
wood				<1g/C
Salicaceae				
wood				
Populus sp.				
wood		<1g/C		
Scrophulariaceae				
Penstemon sp.				
seed				1/C
Solanaceae				
seed				
Dicotyledoneae				
anther			1/C	
seed				
bud				
leaf				
twig		<1g/C	<1g/C	
wood				
gall				
Gymnospermae				
wood				

Table 5E.2 - Bulk soil sample results, midden samples, Prince Hamlet - Continued

Taxon	Element 1			Element 2
Family / Genus species / plant part	2x2 72S/68E Stratum 3 Level 7 BS 18	2x2 70S/76E Stratum 5 Level 6 BS 38	2x2 70S/76E Stratum 5 Level 7 BS 39	2x2 68S/84E Stratum 2 Level 2 BS 1
Amaranthaceae				
Amaranthus sp.				
pyxis				1/N
Chenopodiaceae				
Chenopodium sp.				
fruit				
Compositae				
fruit				
Chrysothamnus sp.				
leaf				
twig				
Cupressaceae				
Juniperus sp.				
scale				
bark				6/N
wood				
J. osteosperma				
seed				
scale				1/N
J. scopulorum				
seed				
fruit				
scale				
Cyperaceae				
fruit				
Fagaceae				
Quercus gambelii				
cupule			6/C	X/N
fruit				X/N
leaf				2/N
twig				
wood			<1g/C	
Gramineae				
fruit				
Zea mays				
fruit	<0.1g/C			
cupule	6/C	100g/C		
cob		20g/C		
Leguminosae				
Melilotus sp.				
fruit				
Trifolium sp.				
leaf				
Pinaceae				
Pinus sp.				
bark		<1g/C	<1g/C	
wood		1.0g/C		
P. edulis				
cone scale				
needle		X/C		
wood	<1g/C		<1g/C	
P. ponderosa				
needle				
wood				
Polygonaceae				
Polygonum sp.				
fruit				
Portulacaceae				
Portulaca sp.				
seed				1/C
Rosaceae				
wood		<1g/C		
Cercocarpus montanus				
wood				
Salicaceae				
wood		<1g/C		
Populus sp.				
wood				
Scrophulariaceae				
Penstemon sp.				
seed				
Solanaceae				
seed				1/C
Dicotyledoneae				
anther				
seed		1/C	1/C	
bud				1/N
leaf				
twig				
wood	<1g/C	<1g/C		<1g/C
gall				<1g/C
Gymnospermae				
wood			<1g/C	

Table 5E.2 – Bulk soil sample results, midden samples, Prince Hamlet – Continued

Taxon	Element 2			
Family Genus species plant part	2x2 645/848 Stratum 2 Level 3 BS 2	2x2 645/848 Stratum 2 Level 4 BS 5	2x2 725/848 Stratum 2 Level 1 BS 8	2x2 725/848 Stratum 2 Level 2 BS 9
Amaranthaceae				
Amaranthus sp.				
pyxis				
Chenopodiaceae				
Chenopodium sp.				
fruit				
Compositae				
fruit				
Chrysothamnus sp.				
leaf				1/N
twig			<1g/N	
Cupressaceae				
Juniperus sp.				
scale	6/N			
bark		<1g/C		
wood				
J. osteosperma				
seed				
scale		6/N		6/N
J. scopulorum				
seed			3/N	
fruit			2/N	
scale			12/N	
Cyperaceae				
fruit				
Fagaceae				
Quercus gambelii				
cupule			3/N	1/N
fruit			3/N	
leaf	X/N		X/N	2/N
twig			1g/N	
wood	<1g/C			
Gramineae				
fruit				
Zea mays				
fruit				
cupule				
cob				
Leguminosae				
Melilotus sp.				
fruit			1/N	
Trifolium sp.				
leaf			2/N	
Pinaceae				
Pinus sp.				
bark	<1g/C			
wood	<1g/C			
P. edulis				
cone scale				
needle				
wood				
P. ponderosa				
needle			2/N	
wood		<1g/C		
Polygonaceae				
Polygonum sp.				
fruit				1/N
Portulacaceae				
Portulaca sp.				
seed				
Rosaceae				
wood				
Cercocarpus montanus				
wood				
Salicaceae				
wood				
Populus sp.				
wood				
Scrophulariaceae				
Penstemon sp.				
seed				
Liliaceae				
seed				
Dicotyledoneae				
anther			8/N	
seed				
bud	1/N			
leaf				
twig				
wood			<1g/C	
gall				
Gymnospermae				
wood				<1g/C

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Table 5E.2 – Bulk soil sample results, midden samples, Prince Hamlet – Continued

Taxon	Element 2				
Family Genus species plant part	2x2 725/848 Stratum 2 Level 3 BS 10	2x2 725/848 Stratum 2 Level 4 BS 14	2x2 705/768 Stratum 2 Level 2 BS 21	2x2 705/768 Stratum 2 Level 3 BS 22	2x2 705/768 Stratum 2 Level 4 BS 20
Amaranthaceae					
Amaranthus sp.					
pyxis					
Chenopodiaceae					
Chenopodium sp.					
fruit					
Compositae					
fruit		1/N			
Chrysothamnus sp.					
leaf					
twig					
Cupressaceae					
Juniperus sp.					
scale				6/N	1/C
bark					
wood					1g/C
J. osteosperma					
seed					
scale					
J. scopulorum					
seed					
fruit					
scale	6/N		6/N		
Cyperaceae					
fruit					
Fagaceae					
Quercus gambelii					
cupule			fg/N	fg/N	
fruit					
leaf					
twig					
wood		<1g/C	<1g/C		
Gramineae					
fruit					1/C
Zea mays					
fruit					<0.1g/C
cupule		fg/C	2/C	1/C	8/C
cob					
Leguminosae					
Melilotus sp.					
fruit					
Trifolium sp.					
leaf					
Pinaceae					
Pinus sp.					
bark		<1g/C	<1g/C	<1g/C	<1g/C
wood				<1g/C	
P. edulis					
cone scale	fg/N				
needle					
wood					<1g/C
P. ponderosa					
needle					
wood			<1g/C		<1g/C
Polygonaceae					
Polygonum sp.					
fruit		fg/N			
Portulacaceae					
Portulaca sp.					
seed					
Rosaceae					
wood					
Cercocarpus montanus					
wood					
Salicaceae					
wood			<1g/C		
Populus sp.					
wood					
Scrophulariaceae					
Penstemon sp.					
seed					
Solanaceae					
seed					
Dicotyledoneae					
anther					1/C
seed				1/N	
bud					
leaf		X/N			
twig					
wood		<1g/C			<1g/C
gall					
Gymnospermae					
wood	<1g/C	<1g/C			<1g/C

Key for table 5E.2

#/ – Number present
g/ – Weight in grams
X/ – Seed fragments present; no count possible
/N – Noncharred
/C – Charred
fg – Fragment
BS – Bulk soil sample

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Table 5E.3 – Bulk soil sample results, pithouse samples, Prince Hamlet

Taxon	Pithouse 1			
Family / Genus species / plant part	Upper control BS 62	F19 (hearth) Stratum 1 BS 63	F19 (hearth) Stratum 2 BS 64	F19 (hearth) Stratum 3 BS 65
Anacardiaceae				
Rhus aromatica				
wood			<1g/C	
Chenopodiaceae				
Chenopodium sp.				
fruit	1/C			
"Cheno-am"				
fruit				
Cornaceae				
Cornus sp.				
twig				
Cupressaceae				
Juniperus sp.				
scale				
wood				<1g/C
J. osteosperma				
scale				
Fagaceae				
Quercus gambelii				
wood	<1g/C, <1g/N		<1g/C	<1g/C
Gramineae				
Zea mays				
fruit				
cupule			7/C	11/C
cob			20g/C	
Leguminosae				
seed	1/C			
Pinaceae				
Pinus sp.				
fascicle				1/C
bark	<1g/C	<1g/C	<1g/C	<1g/C
wood		<1g/C		
P. edulis				
needle	X/C			
fascicle		1/C		
wood	<1g/C			<1g/C
P. ponderosa				
needle				
wood			1.8g/C	<1.9g/C
Portulacaceae				
Portulaca sp.				
seed				
Rosaceae				
Amelanchier sp.				
wood	<1g/C			
Cercocarpus montanus				
wood	<1g/C		<1g/C	
Peraphyllum sp.				
wood			<1g/C	<1g/C
Salicaceae				
Populus sp.				
wood				
Solanaceae				
Nicotiana attenuata				
seed				
Physalis sp.				
seed				
Dicotyledoneae				
seed	1/C			
fruit				
wood	<1g/C			<1g/C
Gymnospermae				
wood		<1g/C		

#/ - Number present.
g/ - Weight in grams.
X/ - Seed fragments present, no count possible.
/N - Noncharred.
/C - Charred.
fg - Fragment.
BS - Bulk soil sample.
F - Feature.

Table 5E.3 – Bulk soil sample results, pithouse samples, Prince Hamlet – Continued

Taxon	Element 2			
	Pithouse 1			Pithouse 2
Family / Genus species / plant part	F19 (hearth) Stratum 4 BS 66	F19 (hearth) Stratum 5 BS 67	Lower control BS 98	F20 (bin) fill BS 90
Anacardiaceae				
Rhus aromatica				
wood				
Chenopodiaceae				
Chenopodium sp.				
fruit				4/C
"Cheno-am"				
fruit			1/C	
Cornaceae				
Cornus sp.				
twig				<1g/C
Cupressaceae				
Juniperus sp.				
scale				
wood				
J. osteosperma				
scale				12/C
Fagaceae				
Quercus gambelii				
wood	<1g/C	<1g/C	<1g/C	<1g/C
Gramineae				
Zea mays				
fruit				<0.1g/C
cupule	4/C		1/C	3/C
cob	1fg/C			
Leguminosae				
seed				
Pinaceae				
inus sp.				
fascicle				
bark	1.2g/C		<1g/C	
wood				<1g/C
P. edulis				
needle				X/C
fascicle				1/C
wood	<1g/C		<1g/C	<1g/C
P. ponderosa				
needle				1/C
wood			<1g/C	1.9g/C
Portulacaceae				
Portulaca sp.				
seed	3/C			
Rosaceae				
Amelanchier sp.				
wood				
Cercocarpus montanus				
wood				
Peraphyllum sp.				
wood				
Solanaceae				
Nicotiana attenuata				
seed				
Physalis sp.				
seed	2/C			1/C
Dicotyledoneae				
seed				
fruit				1/C
wood	<1g/C	<1g/C		
Gymnospermae				
wood				

Table 5E.3 – Bulk soil sample results, pithouse samples, Prince Hamlet – Continued

Taxon	Element 2			
	Pithouse 2			
Family Genus species plant part	F20 (bsn) bottom BS 70	F18 (hearth) Stratum 2 BS 83	F18 (hearth) Stratum 3 BS 84	F18 (hearth) Stratum 4 BS 85
Anacardiaceae				
Rhus aromatica				
wood			<1g/C	
Chenopodiaceae				
Chenopodium sp.				
fruit				1/C
"Cheno-am"				
fruit				
Cornaceae				
Cornus sp.				
twig				
Cupressaceae				
Juniperus sp.				
scale	6/C, 6/N			
wood	<1g/C			
J. osteosperma				
scale				
Fagaceae				
Quercus gambelii				
wood	<1g/C			<1g/C
Gramineae				
Zea mays				
fruit				
cupule	3/C			2/C
cob				
Leguminosae				
seed				
Pinaceae				
Pinus sp.				
fascicle				
bark	<1g/C	<1g/C	<1g/C	<1g/C
wood				
P. edulis				
needle	1/C			
fascicle			1/C	
wood	<1g/C		<1g/C	
P. ponderosa				
needle	X/C			
wood	<1g/C		<1/C	
Portulacaceae				
Portulaca sp.				
seed				
Rosaceae				
Amelanchier sp.				
wood	<1g/C			
Cercocarpus montanus				
wood	<1g/C			
Peraphyllum sp.				
wood				
Solanaceae				
Nicotiana attenuata				
seed			1/C	
Physalis sp.				
seed				
Dicotyledoneae				
seed			1/C	1/C
fruit	1/C			
wood		<1g/C		
Gymnospermae				
wood		<1g/C	<1g/C	<1g/C

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Table 5E.3 – Bulk soil sample results, pithouse samples, Prince Hamlet – Continued

Taxon	Element 2		
	Pithouse 2		
Family Genus species plant part	F18 (hearth) Stratum 5 BS 87	Lower control BS 92	Upper control BS 89
Anacardiaceae			
Rhus aromatica			
wood			
Chenopodiaceae			
Chenopodium sp.			
fruit	1/C		1/C
"Cheno-am"			
fruit			
Cornaceae			
Cornus sp.			
twig			
Cupressaceae			
Juniperus sp.			
scale			
wood			
J. osteosperma			
scale			
Fagaceae			
Quercus gambelii			
wood		<1g/C	
Gramineae			
Zea mays			
fruit			
cupule			
cob			
Leguminosae			
seed			
Pinaceae			
Pinus sp.			
fascicle			
bark			<1g/C
wood			
P. edulis			
needle			
fascicle			
wood	<1g/C		
P. ponderosa			
needle			
wood			
Portulacaceae			
Portulaca sp.			
seed			
Rosaceae			
Amelanchier sp.			
wood			
Cercocarpus montanus			
wood			
Peraphyllum sp.			
wood			
Solanaceae			
Nicotiana attenuata			
seed			
Physalis sp.			
seed			
Dicotyledoneae			
seed			
fruit			
wood			<1g/C
Gymnospermae			
wood		<1g/C	<1g/C

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Table 5E.4 - Vegetal remains recovered from Pithouses 1 and 2, Prince Hamlet

Taxon	Element 2			
Family Genus species plant part	Pithouse 1 Level 4 fill	Pithouse 2 Level 3 fill	Pithouse 2 Floor 1	Pithouse 2 Feature 25 (posthole)
Fagaceae				
Quercus gambelii				
cupule	1frg/C			
Gramineae				
Zea mays				
fruit		<0.1g/C		
Pinaceae				
Pinus sp.				
wood		2.4g/P,39.5g/N		
P. edulis				
cone	1frg/C			
wood	13.5g/C		3.9g/P	17.7g/P
P. ponderosa				
wood			328.7g/C	
Salicaceae				
Populus sp.				
wood	<1g/C			
Dicotyledoneae				
wood	1g/C			

#/ - Number present.
g/ - Weight in grams.
/N - Noncharred.
/C - Charred.
/P - Partially charred.
frg - Fragment.

the proclivity of rodents and insects for disturbing trash deposits, the predominance of noncharred remains in these upper levels is not surprising (table 5E.2: samples 1, 2, 5, 8, 9, 10, and 14). Because of these disturbance factors, any noncharred material from within the midden deposits is considered to be a contaminant.

A major purpose in sampling the midden was to examine the botanical assemblages from each element for evidence of change or consistency in biotic resources exploited through time. After excluding from consideration those botanical remains that are considered to be contaminants, very few differences are noted between the trash recovered from the 2 elements (table 5E.2). The major differences are the recovery of a *Chenopodium* sp. fruit (sample 7), a *Penstemon* sp. seed (sample 16), and a small amount of Rosaceae and *Cercocarpus* sp. wood (samples 16 and 58) from Element 1 contexts and the recovery of one Gramineae fruit (sample 28) and one Solanaceae seed (sample 1) from Element 2 contexts. Other anomalies in taxa representation between Element 1 and 2 deposits probably reflect the level of specificity or identification rather than an actual difference in representation. In other words, *Populus* sp. wood was identified from Element 1 (sample 7), while the wood from Element 2 (sample 21) could only be categorized to the Salicaceae family; this leaves open the possibility that *Populus* sp. is represented in Element 2 deposits but could not be accurately identified.

The botanical remains from the midden do not reflect a wide range of edible subsistence items from either occupation; nor do the remains reflect any major changes in exploited botanical resources. However, botanical remains from the midden do indicate a consistency in wood resources exploited and in the use of *Zea mays*. The occurrence of *Z. mays* in trash deposits is expected because the inhabitants of Prince Hamlet during both major occupations are believed to have been subsistence agriculturists. The consistency in wood charcoal remains

Table 5E.5 - Bulk soil sample results, room samples, Prince Hamlet

Taxon	Element 2			
Family Genus species plant part	Room 2 F5 (bin) Floor 1 BS 20	Room 3 upper control BS 26	Room 3 lower control BS 32	Room 3 F6 (cist) Floor 1 BS 17
Chenopodiaceae				
Chenopodium sp.				
fruit	11/C			
Compositae				
fruit				1/N
Helianthus sp.				
fruit	1/C			
Cupressaceae				
Juniperus osteosperma				
scale		4/N		
J. scopulorum				
seed		2/N		
fruit	1/C			
Fagaceae				
Quercus gambelii				
wood			<1g/C	
Gramineae				
Zea mays				
fruit	<1g/C	<0.1g/C		1g/C
cupule	7/C			16/C
Pinaceae				
Pinus sp.				
stamen	frg/C			
bark	<1g/C			
wood	<1g/C		<1g/C	
P. edulis				
needle	X/C			
P. ponderosa				
needle	X/C	X/C		
fascicle	2/C			
wood	<1g/C	<1g/C		
Salicaceae				
Populus sp.				
wood				<1g/C
Dicotyledoneae				
bark	<1g/C			
wood	1g/C			
Gymnospermae				
wood				<1g/C

#/ - Number present.
g/ - Weight in grams.
X/ - Seed fragments present, no count possible.
F - Feature.
/N - Noncharred.
/C - Charred.
frg - Fragment.
BS - Bulk soil sample.
F - Feature.

Table 5E.6 – Vegetal remains recovered from surface rooms, Prince Hamlet

Taxon	Element 1	Element 2					
Family Genus species plant part	Room 5 Floor 1	E unit 1 Stratum 1 fill	Room 1 Feature 12 (posthole)	Room 2 Feature 7 (pit)	Room 2 Feature 5 (bin)	Room 2 fill	Room 3 fill
Cactaceae							
Opuntia sp.							
pad	3g/N						
Cupressaceae							
Juniperus osteosperma							
seed				1/N			
Fagaceae							
Quercus gambelii							
wood				<1g/C	<1g/C		
Gramineae							
Zea mays							
fruit		<1g/C		2g/C	1g/C	4g/C	
cupule		4X/C		3/C	1/C		
cob		2/C			1frg/C	1frg/C	
Pinaceae							
Pinus sp.							
bud	1/C						9.3g/N
wood			<1g/N				
P. edulis							
seed				1frg/N			
fruit					3frg/C		
wood					5.4g/C		
P. ponderosa							
wood					4g/C		
Rosaceae							
wood					<1g/C		
Cercocarpus montanus							
wood					<1g/C		
Salicaceae							
Populus sp.							
wood					1.5g/C		
Dicotyledoneae							
wood					1g/C		
Gymnospermae							
wood				<1g/C			

#/ - Number present.
g/ - Weight in grams.
/X - Seed fragments present; no count possible.
/N - Noncharred.
/C - Charred.
frg - Fragment.
BS - Bulk soil sample.
E unit - Excavation unit.

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indicates exploitation of similar vegetation zones through time. It may also reflect a continuity in cultural preference for these resources.

The taxa of macrobotanical remains from Pithouses 1 and 2 (tables 5E.3 and 5E.4) are slightly more diverse than those recovered from the midden deposits, although, again, the diversity may reflect only specificity of identification. Both of these structures are described as having been cleaned out, leisurely abandoned, and burned not long after abandonment. This type of abandonment mode is not conducive to exceptional preservation of biotic remains; this is illustrated in tables 5E.3 and 5E.4 by the paucity of nonwood remains retrieved from these structures. The samples selected for preliminary analysis were recovered from features with cultural, de facto, or mixed postoccupational cultural fills to allow a maximum return of interpretable remains.

Evidence for the exploitation of *Rhus aromatica*, *Cornus* sp., *Juniperus* sp., *J. osteosperma*, *Quercus gambelii*, *Pinus edulis*, *P. ponderosa*, *Amelanchier* sp., *Cercocarpus* sp., *Peraphyllum* sp., and *Populus* sp. for fuel and construction is yielded by the contents of the two hearths (Features 18 and 19), a bin (Feature 20), a posthole (Feature 25), and from the contents of the upper control bulk soil samples collected from the roof fall strata overlying the pithouse floors (tables 5E.3 and 5E.4). The hearth in Pithouse 1 (Feature 19) contained a greater variety of wood charcoal than the hearth in Pithouse 2, with *Juniperus* sp., *Amelanchier* sp., *Cercocarpus montanus*, *Peraphyllum* sp., and *Populus* sp. particular to the former. This contrast is not considered to signify different economic or functional practices between the occupants of Pithouses 1 and 2. Because the wood charcoal remains in the bulk soil samples taken from the hearths are quite fragmentary, the absence of some taxa in Feature 18 may be due to sampling bias or to problems with identification.

Other economic plant taxa present in the pithouse hearth samples include *Zea mays*, *Portulaca* sp., *Physalis* sp., *Chenopodium* sp., and *Nicotiana attenuata*. The recovery of the seeds and fruits of the ruderal plants does not necessarily mean that these were the plant parts being used (Dennel 1976). These plants are multipurpose items, ethnographically documented as being exploited for greens, seeds, fruits, dried leaves, and, in the case of *Zea mays*, the cobs as well (Elmore 1944; Pennington 1963; Robbins et al. 1916; Stevenson 1915; Whiting 1939). Therefore, the single occurrence of a seed may be more indicative of the exploitation of a particular genera of plant than it is of that particular plant part having been used.

The occurrence of *Chenopodium* sp. fruits in upper control samples (samples 62 and 89) decreases the associational integrity of this genus in the fill of Feature 18. Since *Chenopodium* sp. is a disturbance plant, it may have been naturally incorporated into the cultural deposits and charred when the structures burned. The interpretation that Feature 20 (samples 70 and 90) is a storage bin cannot be substantiated by the botanical remains. The predominance of wood charcoal from the bulk soil samples suggests that the macrobotanical remains are a mixture of trash and roof fall material, which is associated with the occupation of the structure but not necessarily with the use of the feature.

Only 4 bulk soil samples from surface rooms were analyzed (table 5E.5). The heavy pedoturbative disturbance common in surface rooms at this site precluded taking many samples from these contexts, and, of those taken, only a few were given priority status. This disturbance, as well as the leisurely abandonment mode of the structures, resulted in minimal preservation and is responsible, in part, for the exiguous return of botanical remains (tables 5E.5 and 5E.6). The macrobotanical remains from the rooms do not differ from those recovered elsewhere on the site except that a narrower range of taxa is present.

The remains from Feature 5, a storage bin in Room 2, are indicative of a mixture of potential foodstuff and roof fall material. The feature had burned at some point; the botanical remains may not have been associated with the feature, but possibly are a mixture of trash, ruderal plants, and wood charcoal incorporated into the feature after abandonment of Room 2. The same type of situation may apply to Features 6 and 7 as well; that is, some of the remains may be functionally associated with the feature and other material may have been introduced after abandonment. This interpretation is reinforced by the congruence of remains recovered from the upper control bulk soil sample (sample 26), the vegetal remains from the fill above the room surfaces, and the macrobotanical remains recovered from the features within the rooms.

Discussion

Three factors affect interpretations of the subsistence practices at Prince Hamlet. The first is the preservation potential, which was minimal due to pedoturbative processes and the leisurely abandonment of the site. The second factor is the underrepresentation of Element 1 in the macrobotanical assemblage due to the limited manifestation of this occupation in the archaeological record. The third factor is the lack of comparability between the Element 1 and 2 samples. Element 1 is represented by seven bulk soil samples collected from the midden, whereas Element 2 is represented by fill samples from hearths, storage features, and the midden, all of which are proveniences expected to yield remains associated with subsistence items. The underrepresentation of Element 1 and the lack of samples from domicile activity areas associated with this earlier occupation may have hindered the

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recognition of differences in subsistence patterns between the 2 elements.

However, results of analysis of the macrobotanical remains suggest that very few or no differences in subsistence remains exist between the two occupations. Table 5E.1 is misleading because it appears that the taxa exploited diversified significantly during Element 2. However, most of the new taxa proved to be modern contaminants. When the contaminants are disregarded, the similarity in macrobotanical remains from both occupations is apparent. The differences between the 2 elements are minimal, such as one *Penstemon* sp. seed from Element 1 contexts or the single occurrence of *Nicotiana attenuata* in an Element 2 context, and these singly occurring items cannot be considered indicative of different resource exploitation patterns. These minor differences are more likely byproducts of differential preservation, sampling, or degree of identification.

Functional interpretations of macrobotanical remains are derived from the ethnobotanical literature (cf. Elmore 1944; Pennington 1963; Robbins et al. 1916; Stevenson 1915; Whiting 1939) in conjunction with the provenience of the recovered remains. The ruderal plant remains such as *Chenopodium* sp., *Portulaca* sp., *Physalis* sp., *Penstemon* sp., and *Nicotiana attenuata* may have been used as food resources, although the latter two genera are more commonly documented as having been used for medicinal/ceremonial purposes (Whiting 1939; Robbins et al. 1916). These ruderal plants thrive in disturbed habitats, such as former habitation areas. Therefore, their occurrence in cultural deposits could be the result of accidental inclusion during occupation or through natural incorporation after abandonment but prior to the burning of the structures, which would account for their charred condition.

The only evidence of cultigens consists of fragmentary remains of *Zea mays*. Since the inhabitants of Prince Hamlet are considered to have been agriculturists, one would expect to find remains of *Cucurbita* sp. and *Phaseolus* sp. also. Recovery of squash and beans, like other subsistence remains, is dependent upon accidents during processing or optimal preservation conditions (e.g., dry sites or conflagration) because of the susceptibility of these remains to decay (Gasser and Adams 1981). The absence of these 2 domesticates is not unusual for macrobotanical assemblages from DAP sites and their absence in this assemblage does not necessarily mean they were not being propagated or used; indeed, the results of pollen analysis (appendix 5D) suggest that at least *Cucurbita* was present.

The remains of woody plants, which predominate in the macrobotanical assemblage, are believed to have been exploited for fuel and construction, although many of the genera present also produce other economic resources, such as fruits, seeds, pitch, and bark. As discussed in the main body of the chapter, Prince Hamlet is located in a well-diversified vegetation area that would be conducive to the purviance of a generalized procurement strategy by the prehistoric occupants. The remains of wood charcoal lend insight into the various vegetation zones that might have been used by the site occupants. The natural vegetation zones defined by Petersen (1983) closely resemble the actual vegetation zones established by Bye (1982) for the area surrounding Prince Hamlet. These vegetation zones, which are named for the predominant or characteristic genera, are not pure stands. There is interfingering of the components from several zones; e.g., the pinyon-juniper woodland zone also contains *Quercus gambelii*, as well as scattered occurrences of Rosaceae trees/shrubs, which are in themselves the predominant genera of other vegetation zones. Therefore, the ubiquitous occurrence of species within the genera of *Juniperus* spp. and *Pinus* spp., as well as *Quercus gambelii*, points to a reliance on the products of the pinyon-juniper woodland and the ponderosa pine-oak forest zones. The riparian woodland is minimally represented with the occurrence of *Populus* sp. and *Cornus* sp., and the Rosaceae woods may indicate exploitation of the mountain shrubland zone. The genera of plants represented by the small-scale remains all grow within these vegetation zones, most of them favoring the pinyon-juniper woodland zone.

To date, the only other site in Grass Mesa Locality to undergo comparable macrobotanical analysis is Site 5MT2151, LeMoc Shelter (chapter 4, appendix 4F). Both sites are located in similar vegetation resource zones and both are believed to have been inhabited at several different times by subsistence agriculturalists. Furthermore, both sites exemplify the typical DAP habitation pattern of an early occupation by a single family unit followed by a later occupation by a larger, multifamily social group. Finally, Prince Hamlet and LeMoc Shelter have temporally overlapping occupation sequences, with the 2 elements at Prince Hamlet subsuming the 3 earliest elements at LeMoc Shelter.

Table 5E.7 illustrates the similarity in the taxa represented in the macrobotanical assemblages from the contemporaneous elements at the 2 sites. Due to differences in sampling, preservation potential, and quantity of remains, the sites are compared only on the general level presented in table 5E.7. This table indicates a general consistency in taxa of remains recovered from deposits dated to A.D. 720-900. Based on this information, it is postulated that the occupants of Prince Hamlet and LeMoc Shelter were exploiting similar or identical vegetation resource zones. They probably were also practicing a similar subsistence strategy involving natural, encouraged, and propagated botanical resources. Given

Table 5E.7 - Taxa represented in the macrobotanical assemblages, Prince Hamlet and LeMoc Shelter

Taxon	Prince Hamlet (5MT2161)		LeMoc Shelter (5MT2151)		
Family Genus species	Element 1 (A.D. 720-840)	Element 2 (A.D. 840-900)	Element 1 (A.D. 750-780)	Element 2 (A.D. 840-860)	Element 3 (A.D. 875-890)
Amaranthaceae					
Amaranthus sp.		Z		F	
Anacardiaceae					
Rhus aromatica		H	H		
Cactaceae					
Opuntia sp.	F			F	
Chenopodiaceae					
Chenopodium sp.	M	H,B,M	H	F	
Compositae					
Chrysothamnus sp.		Z			
Helianthus sp.		B			
Cruciferae					
Descurainia sp.			H		
Cupressaceae					
Juniperus spp.	M	H,B,M	H,F,		
J. osteosperma	M	M	H		
J. scopulorum	M	B,M	H		
Cyperaceae					
Indeterminate	M				
Cornaceae					
Cornus sp.		B			
Fagaceae					
Quercus gambelii	M	H,B,M	H,F,W	H,C,F	Q
Gramineae					
Phragmites sp.				C	
Zea mays	M	H,B,M,Q	H,F,Q	H,C,S,F	H,F
Leguminosae					
Indeterminate		Q		H	
Melilotus sp.		Z			
Trifolium sp.		Z			
Pinaceae					
Pinus spp.	F,M	H,M,Q	H,F,Q	H,A,F	H,F,Q
P. edulis	M	H,B,P,M,Q	H,F	C,S,F	F,Q
P. ponderosa		H,M,Q	H,Q	H,A,F	Q
Pseudotsuga menziesii			H	Q	
Polygonaceae					
Polygonum sp.		Z			
Portulacaceae					
Portulaca sp.	M	H,M		C	
Rosaceae					
Indeterminate	M		H,W,F	H,P	Q
Amelanchier sp.		B,Q			
Cercocarpus spp.	M	H,B,Q		C,A,Q	
Peraphyllum ramosissimum		H			
Salicaceae					
Indeterminate	M		H,F	H,F	
Populus sp.	M	H,B,F,Q		H,C,P,F	
Scrophulariaceae					
Penstemon spp.	M				
Solanaceae					
Nicotiana attenuata		H	F		
Physalis sp.		H,B			

A - Ashpit. B - Bin. C - Cist. F - Floor. H - Hearth. M - Midden. P - Posthole. Q - Fill. S - Sipapu. W - Warming pit. Z - Contaminant.

the location of the sites and their comparable habitation patterns and occupation sequences, the similarity between these 2 macrobotanical assemblages was expected.

Summary

The macrobotanical assemblage from Prince Hamlet consists of a mixture of ruderal plant remains, numerous genera of woody plants, and one domesticate, *Zea mays*. The assemblage does not differ significantly between the two major occupations, which may indicate stability in subsistence strategies. It is believed that the minimal preservation potential of the site, in conjunction with extensive pedoturbative activities, precluded a large and diversified return of macrobotanical remains. Thus, the assemblage does not represent the full range of botanical resources prehistorically available and probably used. The remains that were recovered support the idea that the occupants of Prince Hamlet were agriculturists who supplemented their agriculture economy through exploitation of the diverse vegetation zones surrounding the site.

APPENDIX 5F

FAUNAL REMAINS FROM PRINCE HAMLET

Sarah W. Neusius

Introduction[1]

The faunal assemblage from Prince Hamlet (Site 5MT2161) consists of 1401 pieces of NHB (nonhuman bone). Approximately 41 percent of the faunal materials were recovered from proveniences assigned to Element 1, the earliest of 3 occupations recognized at the site; the remainder (approximately 59 percent) represents Element 2, the second major occupation. None of the recovered NHB is associated with the final, brief episode of occupation. These data provide insights concerning subsistence activities at large Anasazi hamlets within the Escalante Sector.

This appendix presents a more thorough review of the faunal remains from Prince Hamlet than is contained in the main body of the chapter. However, only preliminary analysis of the assemblage has been completed. In this appendix, the recovery and analytic procedures are outlined, and the taxonomic composition of the assemblage is described. In the discussion section, possible implications for habitat utilization and for the occupational history of Prince Hamlet are considered, and the faunal assemblage from Prince Hamlet is compared with that from LeMoc Shelter, another site in Grass Mesa Locality. In this manner, a baseline for more intensive, synthetic studies is provided.

[1]The assistance of Donna Fesselmeyer in preparing the tables for this appendix and in sorting out several perplexing aspects of the Prince Hamlet faunal assemblage is gratefully acknowledged.

Recovery and Analytic Procedures

All of the NHB described in this appendix was recovered during routine excavation; no special sampling procedures were employed. Although bone fragments were recovered in bulk soil samples, analysis of these materials has not been undertaken as part of preliminary analysis. Furthermore, fish remains and microtine rodent remains were forwarded to a specialist, and the results of these special identifications are not yet available for study. Therefore, an unknown bias against the smallest faunal remains exists in this assemblage. However, because almost 70 percent of the NHB from Prince Hamlet was collected by dry screening through one-quarter-inch (6.4 mm) or one-eighth-inch (3.2 mm) mesh (table 5F.1), the macrofaunal remains preserved at Prince Hamlet are probably represented adequately in the assemblage described in this appendix.

Preliminary analysis has been completed for most of the macrofaunal remains recovered (17 "miscellaneous" bags remain unanalyzed). The identification of the Prince Hamlet faunal assemblage was undertaken under the direction of Steven D. Emslie of the Center for Western Studies. All macrofaunal remains were washed or dry-brushed and cataloged. A preliminary sort was made and

Table 5F.1 – Collection modes for nonhuman bone, Prince Hamlet

Collection mode	N	%
Intensive surface collection	35	2.5
Heavy equipment	2	0.1
Shovel	21	1.5
Trowel	168	12.0
Shovel and trowel	203	14.5
Dry screen (⅛" mesh)	3	0.2
Dry screen (¼" mesh)	969	69.2
Total	1 401	100.0

these results were provided to the excavation crew chief. Following this, final identifications were made using comparative skeletons belonging to either the Anasazi Heritage Center or the Center for Western Studies. In some instances, other collections were consulted as well.

Following the reorganization of the Environmental Studies Group into the Environmental Archaeology Group, new procedures were instituted under the direction of S. Neusius (Petersen et al. 1982). These changes did not seriously affect the assemblage from Prince Hamlet, as the identification was complete. However, editing and reorganization of the computer file has resulted in some minor changes in the data record.

Because the goal of this appendix is to describe the Prince Hamlet faunal assemblage, only the topic of taxonomic composition has been addressed, and even this topic has been examined in the simplest fashion. Relative abundance has been assessed only in terms of NISP (Number of Individual Specimens) (Payne 1975). Critiques of this measure of abundance have pointed out that it bears only minimal relationship to the number of individual animals (White 1953) present and that it need have no relationship to the caloric or nutrient yield (cf. White 1953; Grayson 1979; Wing and Brown 1979). Nevertheless, it does provide a simple means of assessing occurrence.

Ubiquity or the extent of a taxon within the site, has been used to check indications of relative importance based on abundance. It also may serve as a means of separating commonly used taxa from those used only for special purposes on rare occasions. A simple measure of the percent of total contexts in which each taxon occurs has been used in this appendix. More sophisticated measures could have been used (e.g., Styles 1981:43-44), but this measure suffices for this descriptive appendix.

The analysis of the Prince Hamlet faunal assemblage can be carried further. Data on body part representation, breakage, nonhuman modification, and butchering marks are not presented in this appendix. These topics will be considered along with more sophisticated indicators of taxonomic composition in intensive analyses to be undertaken in conjunction with synthetic studies of DAP data.

Description of the Faunal Assemblage

The faunal assemblage from Prince Hamlet can be subdivided into 2 assemblages on the basis of element assignment: 577 of the fragments were recovered from contexts assigned to Element 1, and 824 of the fragments were recovered from contexts assigned to Element 2. Taxonomic composition and ubiquity of taxa are described separately for each of these subassemblages in this appendix.

Element 1

According to the chapter text, Element 1 (A.D. 720-840) represents an occupation of Prince Hamlet during the Sagehill and Dos Casas Subphases. The construction and use of a single surface structure, Room 5, is believed to be associated with this occupation. Because of the reoccupation of the site, only materials on the floor of this room and the materials from the lower levels of the midden are assigned to this element.[2]

As shown in table 5F.2, the majority of the NHB fragments recovered from Element 1 were not identifiable to order, family, genus, or species. Only 25.7 percent of the assemblage could be identified, although only one of the bone fragments recovered from Room 5 was identifiable. This percentage may seem small; however, it is normal for archaeological faunal assemblages to consist primarily of indeterminate fragments (Payne 1975).

A comparison of class proportions between the indeterminate and the identifiable assemblages is contained in table 5F.2. Birds comprise an extremely small percentage of the total Element 1 assemblage. However, more bird fragments are among the identifiable remains than among the indeterminate remains. Of this assemblage, 96.5 percent is mammal. Large mammal is slightly more common than medium mammal, while small mammal represents approximately one-fifth of the assemblage and indeterminate mammal is virtually insignificant.

As tends to be the case in DAP faunal assemblages, the proportions of mammals differ between the indeterminate and the identifiable components of the assemblage. Small mammals contribute almost half of the identifiable assemblage but only one-tenth of the indeterminate assemblage. On the other hand, the proportions of large and medium mammals are smaller among the identifiable remains than among the indeterminate remains. These differences appear to be largely attributable to the high diagnosticity of rabbits and squirrels, which are the principal small mammal species represented. However, differential processing of large and medium mammals, as opposed to small mammals, may be a factor as well.

Table 5F.3 contains a breakdown of the identifiable remains from Element 1. A single mule deer (*Odocoileus hemionus*) bone fragment was recovered from Room 5. All other identifiable NHB from Element 1 was recovered from the midden.

Most of the bird remains (85.7 percent) are from the grouse family (Tetraonidae). Three species of grouse may have occurred within the project area prehistorically: blue

[2]This differs from the main body of the chapter in which only the lowest midden level is assigned to the Element 1 occupation.

Table 5F.2 - Composition of the total faunal assemblages Element 1, Prince Hamlet

	Room 5								
	Indeterminate			Identifiable*			Total		
	N	% class	% total	N	% class	% total	N	% class	% total
Bird	0	0	0	0	0	0	0	0	0
Bird/mammal	0	0	0	0	0	0	0	0	0
Indeterminate mammal	0	0	0	0	0	0	0	0	0
Small mammal	1	9.1	9.1	0	0	0	1	8.3	8.3
Medium mammal	2	18.2	18.2	0	0	0	2	16.6	16.6
Large mammal	8	72.7	72.7	1	100.0	100.0	9	75.0	75.0
Total	11		100.0	1		100.0	12		100.0

	Midden								
	Indeterminate			Identifiable*			Total		
	N	% class	% total	N	% class	% total	N	% class	% total
Bird	5	100.0	1.2	14	100.0	9.5	19	100.0	3.4
Bird/mammal	1	100.0	0.2	0	0	0	1	100.0	0.2
Indeterminate mammal	0	0	0	2	1.5	1.4	2	0.4	0.4
Small mammal	46	11.2	11.0	73	54.9	49.7	119	21.8	21.0
Medium mammal	183	44.4	43.8	26	19.5	17.7	209	38.3	37.0
Large mammal	183	44.4	43.8	32	24.1	21.8	215	39.4	38.0
Total	418		100.0	147		100.0	565		100.0

	Element 1 Total								
	Indeterminate			Identifiable*			Total		
	N	% class	% total	N	% class	% total	N	% class	% total
Bird	5	100.0	1.2	14	100.0	9.5	19	100.0	3.3
Bird/mammal	1	100.0	0.2	0	0	0	1	100.0	0.2
Indeterminate mammal	0	0	0	2	1.5	1.4	2	0.4	0.4
Small mammal	47	11.1	11.0	73	54.5	49.3	120	21.5	20.8
Medium mammal	185	43.7	43.1	26	19.4	17.6	211	37.9	36.6
Large mammal	191	44.9	44.5	33	24.6	22.3	224	40.2	38.8
Total	429		100.0	148		100.0	577		100.0

* Assignable to order, family, genus, or species.

Table 5F.3 - Composition of the identifiable faunal assemblage, Element 1, Prince Hamlet

Taxon	Room 5 N	Room 5 % class	Room 5 % total	Midden N	Midden % class	Midden % total	Total N	Total % class	Total % total
Birds:									
Tetraonidae grouse	0	0	0	12	85.7	8.2	12	85.7	8.1
Colaptes auratus common flicker	0	0	0	2	14.3	1.4	2	14.3	1.4
Total birds	0	0	0	14	100.0	9.6	14	100.0	9.5
Mammals:									
c.f. *Microsorex hoyi* pygmy shrew	0	0	0	7	5.3	4.8	7	5.2	4.7
Sylvilagus spp. cottontail rabbit	0	0	0	23	17.3	15.6	23	17.2	15.5
Lepus townsendii white-tailed jackrabbit	0	0	0	2	1.5	1.4	2	1.5	1.4
Lepus californicus black-tailed jackrabbit	0	0	0	15	11.3	10.2	15	11.2	10.1
Rodentia rodent	0	0	0	1	0.8	0.7	1	0.7	0.7
Sciuridae squirrel	0	0	0	4	3.0	2.7	4	3.0	2.7
Marmota flaviventris yellow bellied marmot	0	0	0	4	3.0	2.7	4	3.0	2.7
Spermophilus lateralis golden-mantled ground squirrel	0	0	0	1	0.8	0.7	1	0.7	0.7
Spermophilus variegatus			0						
rock squirrel	0	0		9	6.8	6.1	9	6.7	6.1
Cynomys gunnisoni Gunnison's prairie dog	0	0	0	1	0.8	0.7	1	0.7	0.7
Geomyidae pocket gopher	0	0	0	1	0.8	0.7	1	0.7	0.7
Thomomys sp. pocket gopher	0	0	0	1	0.8	0.7	1	0.7	0.7
Neotoma cinerea bushy-tailed wood rat	0		0	1	0.8	0.7	1	0.7	0.7
c.f. *Neotoma cinerea*		0							
bushy-tailed wood rat	2	1.5	1.4	1	1.5	1.4	2	1.5	1.4
Erethizon dorsatum porcupine	0	0	0	3	2.3	2.0	3	2.2	2.0
Canis spp.									
c.f. *Canis familiaris*	0	0	0	?	1.5	1.4	2	1.5	1.4
domestic dog	0	0	0	20	15.0	13.6	20	15.0	13.5
Bassariscus astutus ringtail	0	0	0	1	0.8	0.7	1	0.7	0.7
Taxidea taxus badger	0	0	0	3	2.3	2.0	3	2.2	2.0
Artiodactyla even-toed ungulates	0	0	0	16	12.0	10.9	16	11.9	10.8
Cervus elaphus American elk	0	0	0	1	0.8	0.7	1	0.7	0.7
Odocoileus hemionus mule deer	1	100.0	100.0	15	11.3	10.2	16	11.9	10.8
Total mammals	1	100.0	100.0	133	100.0	90.6	134	100.0	90.7
Total assemblage	1		100.0	147		100.0	148		100.0

c.f. - compares favorably.

grouse (*Dendragapus obscurus*), sage grouse (*Centrocercus urophasianus*), and sharp-tailed grouse (*Pedioecetes phasianellus*). The white-tailed ptarmigan (*Lagopus leucurus*) also is found today at the alpine-tundra transition in southwestern Colorado.

The mammalian assemblage is diverse. No single taxon contributes more than 18 percent. Lagomorpha is the most common group (29.9 percent). Cottontail (*Sylvilagus* spp.) contributes 17.2 percent. Two species of cottontail are present in the Dolores area today: desert cottontail (*Sylvilagus audubonii*) and Nuttall's cottontail (*Sylvilagus nuttallii*). Black-tailed jackrabbit (*Lepus californicus*) also occurs in the assemblage in appreciable numbers (11.2 percent), and 2 bone fragments compare favorably with white-tailed jackrabbit (cf., *Lepus townsendii*).

Artiodactyla (24.5 percent) are almost as common as Lagomorpha. Almost all these fragments are either mule deer (11.9 percent) or indeterminate Artiodactyla (11.9 percent), but American elk (*Cervus elaphus*) is present as well (0.7 percent).

Several other taxa also may be of significance. Canids (*Canis* spp. and c.f. *Canis familiaris*) contribute 16.5 percent of the assemblage. The squirrel family (Sciuridae), including rock squirrel (*Spermophilus variegatus*), golden-mantled ground squirrel (*Spermophilus lateralis*), yellow bellied marmot (*Marmota flaviventris*) and Gunnison's prairie dog (*Cynomys gunnisoni*), represented 14.1 percent of the assemblage. The presence of 7 bones (5.2 percent) that compare favorably with pygmy shrew (c.f. *Microsorex hoyi*) may be significant. This shrew prefers boreal habitats and is not found in southwestern Colorado today.

A few of the taxa listed in table 5F.3 may be intrusive to the site. These include burrowing animals such as Gunnison's prairie dog, pocket gopher (*Thomomys* spp.) and ground squirrel. The wood rat and marmot remains also may be suspect. However, these species are known to have been used by historic Pueblo Indians (Gnabasik 1981).

Additional perspective on the taxonomic composition of faunal assemblages can be gained by considering ubiquity. For purposes of this appendix, a simple determination of the proportion of total contexts in which each taxon occurs is made. Taxa that are very ubiquitous can be considered to have been common sources of food and raw materials; taxa that are restricted to a few proveniences may have been used for special purposes only.

Because the number of contexts assigned to Element 1 is small, assessing ubiquity is difficult in the Element 1 faunal assemblage. Only 4 contexts have been recognized. These include the floor of Room 5 and the 3 grid squares in the midden, the lower levels of which apparently contained Element 1 trash. When the extent of each taxon identified is calculated, the figures given in table 5F.4 are obtained.

No taxon is present in all units, but cottontail, c.f. domestic dog, Artiodactyla, and deer occur in 75 percent of the contexts. Grouse, common flicker (*Colaptes auratus*), black-tailed jackrabbit, and bushy-tailed wood rat (c.f. *Neotoma cinerea*) occur in half of the contexts.

The ubiquity estimates presented in table 5F.4 lead to conclusions consistent with those that can be drawn from the abundance calculations. The faunal assemblage from Element 1 is dominated by mammals, but within this class, a variety of species are present. Lagomorpha and Artiodactyla apparently were the most important sources of food and raw materials, but numerous other mammals were procurred as well.

Element 2

The remainder of the faunal remains from Prince Hamlet have been assigned to Element 2 (A.D. 840-900). Element 2 is the major occupation of the site and has been assigned to the Periman Subphase. The construction and use of the roomblock and Pithouses 1 and 2 apparently occurred during this occupation. An earlier pitstructure associated with Element 1 may have been destroyed by the construction of Pithouses 1 and 2, and a short-term episode of occupation may have followed Element 2. However, no faunal remains can be assigned to either of these events.

Table 5F.5 provides a summary of the faunal assemblage from Element 2 by class and study unit type; 33.9 percent of the assemblage is identifiable to order, family, genus, or species. This is a slightly higher proportion than was obtained from Element 1 contexts and may indicate either better preservation or different processing and disposal practices.

Most of the NHB fragments were recovered from the pitstructures or the midden. A few were in the surface rooms, but even more were recovered from other contexts that were not easily assigned to one of these categories. Included in this "other" category are 21 fragments from a recently disturbed area. Although these fragments are no longer in their original context, they are included because they probably represent refuse from the second occupation of Prince Hamlet.

Nonhuman bone fragments from Area 4 are included under the "other" heading as well. Area 4 is the portion of the site east of the arroyo that is described in the chapter as having a surface scatter of lithics. No subsurface

Table 5F.4 - Ubiquity of taxa, Element 1, Prince Hamlet

Taxon	Number of occurrences	Percent*
Birds:		
Tetraonidae		
grouse	2	50
Colaptes auratus		
common flicker	2	50
Mammals:		
c.f. *Microsorex hoyi*		
pygmy shrew	1	25
Sylvilagus spp.		
cottontail rabbit	3	75
Lepus townsendii		
white-tailed jackrabbit	1	25
Lepus californicus		
black-tailed jackrabbit	2	50
Rodentia		
rodent	1	25
Sciuridae		
squirrel	1	25
Marmota flaviventris		
yellow bellied marmot	1	25
Spermophilus lateralis		
golden-mantled ground squirrel	1	25
Spermophilus variegatus		
rock squirrel	1	25
Cynomys gunnisoni		
Gunnison's prairie dog	1	25
Geomyidae		
pocket gopher	1	25
Thomomys spp.		
pocket gopher	1	25
Neotoma cinerea		
bushy-tailed wood rat	1	25
c.f. *Neotoma cinerea*		
bushy-tailed wood rat	2	50
Erethizon dorsatum		
porcupine	1	25
Canis spp.	1	25
c.f. *Canis familiaris*		
domestic dog	3	75
Bassariscus astutus		
ringtail	1	25
Taxidea taxus		
badger	1	25
Artiodactyla		
even-toed ungulates	3	75
Cervus elaphus		
American elk	1	25
Odocoileus hemionus		
mule deer	3	75

*Percent of contexts in which taxon was found.

c.f. - Compares favorably.

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Table 5F.5 - Composition of the total faunal assemblage, Element 2, Prince Hamlet

	Pithouses									Surface rooms									Midden					
	Indeterminate			Identifiable*			Total			Indeterminate			Identifiable*			Total			Indeterminate			Identifiable*		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Bird	3	100.0	1.1	4	100.0	4.5	7	100.0	2.0	0	0	0	2	100.0	9.1	2	100.0	3.9	0	0	0	3	100.0	2.9
Bird/mammal	5	100.0	1.9	0	0	0	5	100.0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate mammal	0	0	0	0	0	0	0	0	0	0	0	0	1	5.0	4.5	1	2.0	2.0	0	0	0	0	0	0
Small mammal	32	12.3	11.9	48	57.1	54.5	80	23.2	22.4	0	0	0	13	65.0	59.1	13	26.5	25.5	16	11.9	11.9	18	17.9	17.3
Medium mammal	63	24.1	23.4	2	2.4	2.3	65	18.9	18.2	12	41.4	41.4	0	0	0	12	24.5	23.5	46	34.3	34.3	7	6.9	6.7
Large mammal	166	63.6	61.7	34	40.5	38.6	200	58.0	56.0	17	58.6	58.6	6	30.0	27.3	23	46.9	45.1	72	53.7	53.7	76	75.2	73.1
Total	269		100.0	88		100.0	357		100.0	29		100.0	22		100.0	51		100.0	134		100.0	104		100.0

*Identifiable to order, family, genus, or species.

Table 5F.5 - Composition of the total faunal assemblage, Element 2, Prince Hamlet - Continued

	Midden			Other									Total								
	Total			Indeterminate			Identifiable*			Total			Indeterminate			Identifiable*			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Bird	3	100.0	1.3	0	0	0	5	100.0	7.7	5	100.0	2.8	3	100.0	0.6	14	100.0	5.0	17	100.0	2.1
Bird/mammal	0	0	0	0	0	0	0	0	0	0	0	0	5	100.0	0.9	0	0	0	5	100.0	0.6
Indeterminate mammal	0	0	0	0	0	0	25	41.7	38.5	25	14.5	14.0	0	0	0	26	9.8	9.3	26	3.2	3.2
Small mammal	34	14.5	14.3	8	7.0	7.0	18	30.0	27.7	26	15.0	14.6	56	10.4	10.3	97	36.6	34.8	153	19.1	18.6
Medium mammal	53	22.6	22.3	41	36.3	36.3	2	3.3	3.1	43	24.9	24.2	162	30.2	29.7	11	4.2	3.9	173	21.5	20.9
Large mammal	148	62.9	62.2	64	56.6	56.6	15	25.0	23.1	79	45.7	44.4	319	59.4	58.5	131	49.4	47.0	455	56.1	54.6
Total	238		100.0	113		100.0	65		100.0	178		100.0	545		100.0	279		100.0	824		100.0

excavations were undertaken here. This area was originally given a separate site number (5MT2169)[1], but now the area appears to represent part of the second occupation of Prince Hamlet. Two nonhuman bones listed in the faunal file as belonging to Site 5MT2169 have been added to the Element 2 assemblage in this appendix.

Mammals represent 97.4 percent of the assemblage and are most common in all the study unit types. Large mammal bones occur most frequently followed by medium mammal, small mammal, and finally, indeterminate mammal. Small mammal remains are somewhat more common in the pitstructures and surface rooms than elsewhere. This may have resulted from differential disposal practices for small versus large and medium mammals. Small mammals also make up a greater proportion of the identifiable assemblages than of the indeterminate assemblages. The proportion of large mammal remains generally is smaller among the identifiable remains than among the indeterminate remains. However, the percentage actually increases in the midden.

A breakdown of the identifiable remains from Element 2 is provided in table 5F.6. Grouse still is the most common bird, but waterfowl (*Branta canadensis*, *Anas platyrhynchos*), turkey (*Meleagris gallopavo*), common crow (*Corvus brachyrhynchos*), great horned owl (*Bubo virginianus*), and hawk (*Buteo* spp.) are represented as well.

The mammalian assemblage from Element 2 contexts includes a variety of taxa, as did the mammalian assemblage from Element 1 contexts. However, in this assemblage, mule deer (39.2 percent) and other Artiodactyla (6.8 percent) are more common than Lagomorpha. Bighorn (*Ovis canadensis*) (2.6 percent), American elk (0.8 percent), and mule deer are present. The relative proportions of these groups vary among study unit types. In the midden assemblage, mule deer account for 69.3 percent of the mammals and other Artiodactyla contribute 6.0 percent. However, among the pitstructure remains, Artiodactyla and Lagomorpha contribute equal proportions (40.5 percent). In the surface room and other assemblages, Lagomorpha remains are more common than Artiodactyla remains.

[1]At the time that this appendix was written there was some confusion about the possibility that Area 4 of Site 5MT2161 might have been coterminous with the area recorded as Site 5MT2169. When the confusion arose there was no way to check the locations in the field, as the area had been disturbed by reservoir construction activity. Although Site 5MT2169 is considered to be Area 4 of Prince Hamlet in this appendix, further review of the documentation for both of these site clearly indicates they are separate locations and they are treated as such in DAP records. Chapters 2 and 3 discuss the investigations at Site 5MT2169 and were written before the question of confusion with Area 4 of Prince Hamlet arose.

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Table 5F.6 – Composition of the identifiable faunal assemblage, Element 2, Prince Hamlet

Taxon	Pithouses N	Pithouses % class	Pithouses % total	Surface rooms N	Surface rooms % class	Surface rooms % total	Midden N	Midden % class	Midden % total
Birds									
Branta canadensis Canada goose	0	0	0	0	0	0	1	33.3	1.0
Anas platyrhynchos mallard	0	0	0	1	50.0	4.5	0	0	0
Buteo spp. hawk	0	0	0	0	0	0	0	0	0
Tetraonidae grouse	2	50.0	2.3	1	50.0	4.5	2	66.7	1.9
Meleagris gallopavo turkey	0	0	0	0	0	0	0	0	0
c.f. *Meleagris gallopavo* turkey	0	0	0	0	0	0	0	0	0
Bubo virginianus great horned owl	1	25.0	1.1	0	0	0	0	0	0
Corvus brachyrhynchos common crow	1	25.0	1.1	0	0	0	0	0	0
Total birds	4	100.0	4.5	2	100.0	[illegible]	3	100.0	2.8
Mammals									
Sylvilagus spp. cottontail rabbit	13	15.5	14.8	3	15.0	13.6	8	7.9	7.7
Lepus californicus black-tailed jackrabbit	21	25.0	23.9	5	25.0	22.7	2	2.0	1.9
Rodentia rodent	4	4.8	4.5	0	0	0	0	0	0
Sciuridae squirrel	0	0	0	0	0	0	1	1.0	1.0
Marmota flaviventris yellow bellied marmot	1	1.2	1.1	0	0	0	4	4.0	3.8
Spermophilus variegatus rock squirrel	1	1.2	1.1	3	15.0	13.6	1	1.0	1.0
Cynomys gunnisoni Gunnidson's prairie dog	2	2.4	2.3	0	0	0	0	0	0
Thomomys spp. pocket gopher	0	0	0	0	0	0	0	0	0
Castor canadensis beaver	0	0	0	0	0	0	1	1.0	1.0
Cricetidae New World rats and mice	4	4.8	4.5	0	0	0	0	0	0
Neotoma spp. wood rat	2	2.4	2.3	2	10.0	9.1	2	2.0	1.9
Erethizon dorsatum porcupine	0	0	0	0	0	0	2	2.0	1.9
Canis spp.	0	0	0	1	5.0	4.5	0	0	0
c.f. *Canis familiaris* domestic dog	2	2.4	2.3	0	0	0	4	4.0	3.8
Artiodactyla even-toed ungulates	10	11.9	11.4	0	0	0	3	3.0	2.8
Cervidae deer	1	1.2	1.1	0	0	0	1	1.0	1.0
Cervus elaphus American elk	1	1.2	1.1	0	0	0	1	1.0	1.0
Odocoileus hemionus mule deer	18	21.4	20.5	5	25.0	22.7	70	69.3	67.3
Ovis canadensis bighorn	4	4.8	4.5	1	5.0	4.5	1	1.0	1.0
Total mammals	84	100.0	95.4	20	100.0	90.7	101	100.0	97.1
Total assemblage	88		100.0	22		100.0	104		100.0

c.f. - Compares favorable.

Table 5F.6 – Composition of the identifiable faunal assemblage, Element 2, Prince Hamlet – Continued

Taxon	Other N	Other % class	Other % total	Total N	Total % class	Total % total
Birds						
Branta canadensis Canada goose	0	0	0	1	7.1	0.4
Anas platyrhynchos mallard	0	0	0	1	7.1	0.4
Buteo sp. hawk	1	20.0	1.5	1	7.1	0.4
Tetraonidae grouse	0	0	0	5	35.8	1.8
Meleagris gallopavo turkey	2	40.0	3.1	2	14.2	0.7
c.f. *Meleagris gallopavo* turkey	1	20.0	1.5	1	7.1	0.4
Bubo virginianus great horned owl	1	20.0	1.5	2	14.2	0.7
Corvus brachyrhynchos common crow	0	0	0	1	7.1	0.4
Total birds	5	100.0	7.7	14	100.0	5.0
Mammals						
Sylvilagus spp. cottontail rabbit	5	8.3	7.7	29	11.0	10.4
Lepus californicus black-tailed jackrabbit	11	18.3	16.9	39	14.7	14.0
Rodentia rodent	0	0	0	4	1.5	1.4
Sciuridae squirrel	0	0	0	1	0.4	0.4
Marmota flaviventris yellow bellied marmot	1	1.7	1.5	6	2.3	2.2
Spermophilus variegatus rock squirrel	0	0	0	5	1.9	1.8
Cynomys gunnisoni Gunnison's prairie dog	0	0	0	2	0.8	0.7
Thomomys sp. pocket gopher	1	1.7	1.5	1	0.4	0.4
Castor canadensis beaver	0	0	0	1	0.4	0.4
Cricetidae New World rats and mice	0	0	0	4	1.5	1.4
Neotoma spp. wood rat	0	0	0	6	2.3	2.2
Erethizon dorsatum porcupine	1	1.7	1.5	3	1.1	1.1
Canis spp.	25	41.7	38.5	26	9.8	9.3
c.f. *Canis familiaris* domestic dog	1	1.7	1.5	7	2.6	2.5
Artiodactyla even-toed ungulates	3	5.0	4.6	16	6.0	5.7
Cervidae deer	0	0	0	2	0.8	0.7
Cervus elaphus American elk	0	0	0	2	0.8	0.7
Odocoileus hemionus mule deer	11	18.3	16.9	104	39.2	37.2
Ovis canadensis bighorn	1	1.7	1.5	7	2.6	2.5
Total mammals	60	100.0	92.1	265	100.0	95.0
Total assemblage	65		100.0	279		100.0

This assemblage also differs from the Element 1 assemblage because jackrabbit (14.7 percent) rather than cottontail (11.0 percent) is the predominant lagomorph. Black-tailed jackrabbit is the only species of jackrabbit present, but either or both desert and Nuttall's cottontail are represented (remains of the latter two could not be distinguished in the assemblage). In the pitstructures and surface rooms, jackrabbit (25.0 percent) is even more common. However, in the midden, cottontail (7.9 percent) occurs most frequently.

Canid bones are particularly common in the "other" proveniences. One reason for this is the presence of a partial canid skeleton in the surface collection from Area 4. Twenty-five NHB fragments from a very large canid were recovered in 3 adjacent grid squares (58S/102E, 62S/102E, 66S/102E). Although not recognized as a partial skeleton in the field or during preliminary analysis, examination during preparation of this appendix indicated they probably came from a single individual. Their location on the surface and the adherence of traces of flesh or hide indicate they are of recent origin.

A few of the taxa listed in table 5F.6 may be intrusive to the site. These include burrowing animals such as prairie dog and pocket gopher. The rock squirrel, wood rat, and marmot also may be intrusive. However, there are accounts of historic Pueblo Indians procuring these animals (Gnabasik 1981).

A greater number of contexts can be used to assess ubiquity for the Element 2 faunal assemblage than could be used for the Element 1 assemblage. These include the fill and floors of the 2 pitstructures, the fill and floors of the surface rooms, the midden squares, and the "other" contexts. Since the "other" contexts are of unknown cultural significance, this should be regarded as a preliminary assessment of ubiquity.

Ubiquity calculations for the Element 2 assemblage support the interpretation that Artiodactyla constitute the most important subsistence resource (table 5F.7). Mule deer is found in 58.6 percent of the contexts, and indeterminate Artiodactyla are present in 27.6 percent of the contexts. Both cottontail and jackrabbit occur in 34.5 percent of the contexts. Other taxa of lesser importance include yellow bellied marmot (*Marmota flaviventris*), rock squirrel, bushy-tailed wood rat, *Canis* spp., and big-horn. None of the taxa present were recovered from all contexts. In fact, the ubiquity of taxa in Element 2 is low. However, this is due, at least partially, to the small sample size compared to the number of contexts.

In summary, the faunal assemblage from Element 2 is dominated by mammals, as was the assemblage from Element 1. A variety of mammals are present, but Artiodactyla rather than Lagomorpha are the most abundant and ubiquitous. Most of the bone comes from the pitstructures and the midden.

Discussion

Although the faunal assemblage from Prince Hamlet is not large and only preliminary analysis of this material has been undertaken, several important implications regarding habitat utilization and the occupational history of Prince Hamlet may be gleaned from the data. In addition, analysis of the Prince Hamlet faunal assemblage has provided a basis for comparison between this assemblage and that from another Grass Mesa Locality site, LeMoc Shelter (Site 5MT2151).

Habitat Utilization

The taxonomic composition of the Prince Hamlet faunal assemblage can provide perspective on the habitats used by the occupants of the site. Although most of the modern faunal resources in the Dolores area can be found in several habitats, comparison of modern faunal resource distributions with the presumed distributions of taxa present in the Prince Hamlet assemblage is informative. Figures 5F.1 and 5F.2 provide such a comparison for Elements 1 and 2, respectively.

In these figures, the "expected" distributions represent estimates of the proportions of modern species known to frequent each vegetation type. This species list was developed by consulting a variety of sources (e.g., Anderson 1961; Armstrong 1972; Stebbins 1966; Koster 1957; Peterson 1961; Holden and Stalnaker 1975). The distributions are based on the Colorado Division of Wildlife Latilong Studies (Bissell 1978; Hammerson and Langlois 1981; Kingery and Graul 1978). These Latilong studies are based on the reliable observations of species and may be incomplete. The agricultural category may be particularly inaccurate due to the poor quality of observations of fauna in this zone. Modern fields also may differ significantly from Anasazi fields with respect to cover and food sources.

The distribution of the taxa present in the Prince Hamlet assemblage is assessed in 2 ways. First, the proportion of the species recovered that might represent each zone has been calculated ("observed" in figs. 5F.1 and 5F.2). Second, this has been weighted by NISP; in figures 5F.1 and 5F.2, this "weighted" line represents the number of individual specimens (rather than the number of species types) that potentially come from each habitat. Both the mammalian assemblage and the total assemblage have been considered.

In both of the elements, the habitats represented differ more from the expected for all species than from the expected for mammals alone. This is because mammals

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Table 5F.7 - Ubiquity of taxa, Element 2, Prince Hamlet

Taxon	No. of occurrences	Percent*
Birds:		
Branta canadensis Canada goose	1	3.5
Anas platyrhynchos mallard	1	3.5
Buteo spp. hawk	1	3.5
Tetraonidae grouse	3	10.4
Meleagris gallopavo turkey	1	3.5
c.f. *Meleagris gallopavo* turkey	1	3.5
Bubo virginianus great horned owl	2	6.9
Corvus brachyrhynchos common crow	1	3.5
Mammals:		
Sylvilagus spp. cottontail rabbit	10	34.5
Lepus californicus black-tailed jackrabbit	10	34.5
Rodentia rodent	2	6.9
Sciuridae squirrel	1	3.5
Marmota flaviventris yellow bellied marmot	4	13.8
Spermophilus variegatus rock squirrel	3	10.4
Cynomys gunnisoni Gunnison's prairie dog	2	6.9
Thomomys sp. pocket gopher	1	3.5
Castor canadensis beaver	1	3.5
Cricetidae New World rats and mice	1	3.5
Neotoma spp. wood rat	3	10.4
Erethizon dorsatum porcupine	2	6.9
Canis spp.	4	13.8
c.f. *Canis familiaris* domestic dog	2	6.9
Artiodactyla even-toed ungulates	8	27.6
Cervidae deer	2	6.9
Cervus elaphus American elk	2	6.9
Odocoileus hemionus mule deer	17	58.6
Ovis canadensis bighorn	4	13.8

*Percent of contexts in which taxon was found.

c.f. - Compares favorably.

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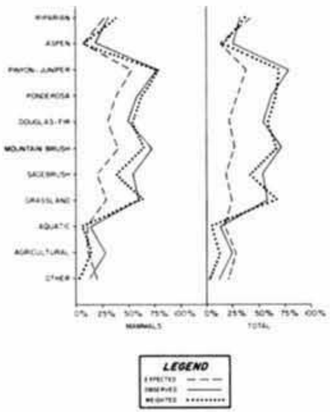

Figure 5F.1 – Habitat representation in the faunal assemblage from Element 1 contexts, Prince Hamlet.

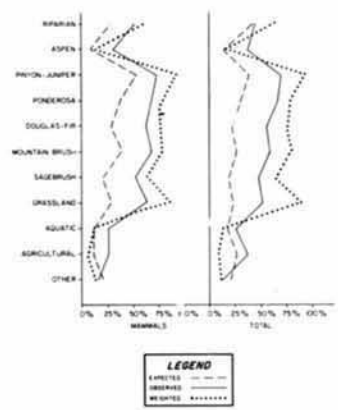

Figure 5F.2 – Habitat representation in the faunal assemblage from Element 2 contexts, Prince Hamlet.

make up the bulk of the archaeological assemblages but less than one-third of the species present in the Dolores area. For this reason, it is predicted that the aquatic and riparian zones would be poorly represented.

In Element 1, the habitats that are best represented by the faunal assemblage are pinyon-juniper woodland, mountain brush, and grassland. Ponderosa pine, Douglas-fir, and sagebrush are less well represented, but the proportions of taxa representative of aquatic, agricultural, aspen woodland, riparian woodland, and miscellaneous zones tends to be particularly small. Although the predicted proportions of pinyon-juniper, mountain brush, and grassland are lower than those indicated by the archaeological faunal assemblages, these do tend to be the best represented zones among mammals.

In Element 2, a greater difference exists between the observed and the weighted proportions. Pinyon-juniper woodland and grassland are the best represented zones. Mountain brush is less well represented along with ponderosa pine, Douglas-fir, and sagebrush. The riparian woodland and aquatic zones also are better represented in this element. The agricultural zone may be slightly more important as well.

Two tentative conclusions can be drawn from this analysis. First, the occupants of Prince Hamlet were using a variety of habitat types, but most of these probably were found in the immediate vicinity of the site. The emphasis on mammals suggests that the riparian and aquatic zones were used less than the terrestrial, hillslope, and upland zones. The composition of the Element 2 assemblage may indicate greater use of the riparian, aquatic, and agricultural zones.

Second, since the habitat types represented in the faunal assemblage are similar to those found in the area today, little climatic difference between the prehistoric and modern environments can be inferred. The presence of pygmy shrew bones in the Element 1 assemblage is perplexing. Today, this animal is found in Colorado only in Larimer and Grand Counties near the Wyoming border (Armstrong 1972). It is also found in boreal habitats in the northern part of the United States and in Canada. However, because the rest of the assemblage does not indicate boreal habitat utilization, this identification will need to be verified before it can be accepted.

Occupational History

At least 2 occupations of Prince Hamlet took place. Several points should be made with respect to these occupations.

The faunal assemblage from Element 1 is consistent with expectations for opportunistic procurement strategies at

large Anasazi hamlets. A variety of animals were procured. Although almost all of these were mammals, few were procured in large numbers. Most could have been taken in the vicinity of the site.

However, given the small number of contexts assignable to this element, the density of NHB seems surprising. Many more contexts are assigned to Element 2 than Element 1, yet less than twice as many bone fragments were recovered from the former. In the midden, the mean number of bones per level is 62.7 percent (Element 1) versus 23.8 percent (Element 2). This may mean that the Element 1 occupation of Prince Hamlet was as large or larger than the Element 2 occupation even though the architectural evidence appears to be lacking. Conversely, it may mean that the element assignments need revision, that the geomorphic processes changed between the 2 elements, or that Anasazi disposal practices changed. Further study is needed to sort out these potential causes.

The faunal assemblage from Element 2 is also significant in terms of assessing economic strategies. Procurement during this occupation appears to have been only slightly less opportunistic. Mule deer procurement appears to have been more important, but the assemblage is still diverse. Habitat utilization still involved broad exploitation of habitat zones in the vicinity of Prince Hamlet.

The greatest number of bones from this element was recovered from the pitstructures rather than from the midden. Many of these bones were retrieved from the fill of these structures, but Floor 1 of Pithouse 2 yielded 70 bones. This is a much greater amount of faunal material than is usually recovered from pitstructure floors. Whether this indicates that floor definition was imprecise or that the pitstructure was used as a refuse dump at some time is unclear. If Pithouse 2 was used as a refuse dump, it may have been abandoned prior to the end of the Element 2 occupation.

The only other site in the Grass Mesa Locality for which the faunal assemblage has been described in any detail is LeMoc Shelter, Site 5MT2151 (chapter 4, appendix 4E). Elements 1 and 2 at LeMoc Shelter represent year-round occupations of the shelter. Most of Element 1 has been tentatively assigned to the late Sagehill Subphase, between A.D. 750 and 780. Element 2 has been tentatively assigned to the late Dos Casas and early Periman Subphases, between A.D. 840 and 860. Element 3 at LeMoc originally was interpreted as a field house; it dates to sometime between A.D. 875 and 900 and has been assigned to the late Periman Subphase. However, both the diversity and composition of the Element 3 assemblage indicated that subsistence activities during this element were more similar to those carried out during Elements 1 and 2 than this interpretation indicates (Neusius 1983). Because of the proximity in location, the overlap in dates, and the similarity in site type, comparisons between the assemblages from these sites are fruitful.

All of the assemblages were dominated by mammals, and the diversity of mammalian taxa is high at both sites. The evidence for habitat utilization also is similar: pinyon-juniper woodland, mountain brush, and grassland are the most commonly represented habitats in all cases. All the assemblages suggest generalized use of the terrestrial habitats adjacent to the site. A few boreal taxa are present in the LeMoc assemblages (e.g., *Lepus americanus*).

Figure 5F.3 provides a comparison of the proportions of small, medium, and large mammal in the assemblages from LeMoc Shelter and Prince Hamlet. There is a remarkable similarity in the proportions from Element 1 at Prince Hamlet and Element 2 at LeMoc, and in the proportions from Element 2 at Prince Hamlet and Element 3 at LeMoc. This may mean that the importance

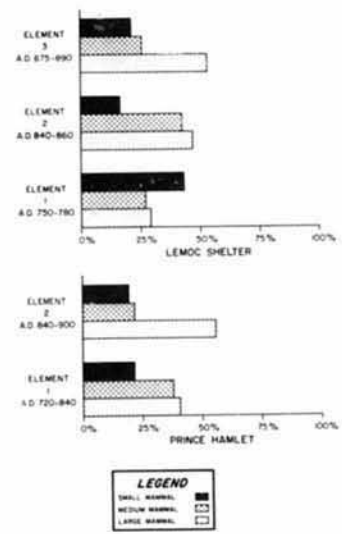

Figure 5F.3 – Mammalian class composition at Prince Hamlet and LeMoc Shelter (Site 5MT2151).

of small mammal procurement decreased while the importance of large mammal procurement increased between A.D. 800 and 900 in the Grass Mesa Locality.

Figure 5F.4 provides a comparison of these 5 elements in terms of 4 key taxa: cottontail rabbit, jackrabbit, mule deer, and all other Artiodactyla. Although the proportions of these taxa do not correspond as closely as the proportions of small, medium, and large mammals at the 2 sites, there is a decrease in Lagomorpha and an increase in Artiodactyla at both Prince Hamlet and LeMoc. In addition, *Lepus* spp. is more common than *Sylvilagus* spp. in the last element at both sites. This supports th trend noticed in the mammalian assemblage as a wh le and may reflect a new trend in use of Lagomorpha.

The significance of these apparent trends will remain unclear until further work with ADP faunal assemblages is undertaken. Such work should indicate whether the patterns are evident at other sites and whether they are restricted to the Grass Mesa Locality. Studies of faunal body part representation may determine whether these changes in taxonomic composition represent specialized procurement at these small hamlets. If this is the case, the purpose may be exchange of commodities such as hides. However, alternative explanations also may be found.

Summary

The faunal assemblage from Prince Hamlet consists of 1401 fragments of NHB belonging to two cultural elements. A wide variety of taxa representing small and large mammals from habitats occurring in the vicinity of the site have been recovered. Even the preliminary analysis of this assemblage indicates that is provides important perspectives on the occupational history of Prince Hamlet. In addition, the similarities in mammal utilization between Prince Hamlet and LeMoc Shelter may indicate decreased usage of small mammals by the Anasazi inhabitants of the area during the A.D. 800's.

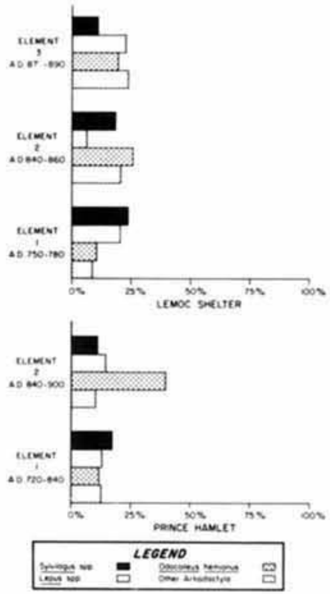

Figure 5F.4 - Proportions of Lagomorpha and Artiodactyla at Prince Hamlet and LeMoc Shelter (Site 5MT2151)

Chapter 6

EXCAVATIONS AT HAMLET DE LA OLLA (SITE 5MT2181), A MULTIPLE-OCCUPATION ANASAZI SITE

ABSTRACT

Site 5MT2181 (Hamlet de la Olla), a Pueblo I habitation site located 7.6 km northwest of Dolores, Colorado, was test excavated during the 1980 field season of the Dolores Archaeological Program. Also excavated was a small field house located within sufficient proximity to warrant its investigation during testing operations. The hamlet dates to A.D. 780-800/810, which corresponds to the Dos Casas Subphase of the Sagehen Phase according to program temporal systematics. The exact temporal affiliation of the field house is not known; however, it is speculated that it postdates the hamlet by at least 40 to 50 years. The prehistoric inhabitants of the hamlet probably were agriculturalists who also practiced hunting and gathering to complete their subsistence base. Less is known about the group or groups responsible for the construction of the field house, but it is assumed that they, too, were primarily agriculturalists.

Chapter 6

EXCAVATIONS AT HAMLET DE LA OLLA (SITE 5MT2181), A MULTIPLE-OCCUPATION ANASAZI SITE

Mary C. Etzkorn

INTRODUCTION

Hamlet de la Olla (Site 5MT2181) is a Pueblo I multiple-occupation site located 7.6 km northwest of the town of Dolores, Colorado, on a broad alluvial fan overlooking the Dolores River and flood plain to the east. Included within the general site limits are a hamlet and a small field house that are not temporally associated.

Site 5MT2181 is located at an elevation of 2066 m (fig. 6.1), in the pool area of the proposed McPhee Reservoir. Test excavations were conducted as part of the mitigation efforts of the DAP (Dolores Archaeological Program) under the auspices of the University of Colorado, Boulder. A University of Colorado field crew, supervised by Nancy J. Hewitt, conducted excavations over the six-week period from 1 October to 7 November 1980. A total of approximately 108 person-days was expended testing the site.

Site Setting

Site 5MT2181 is located in the Four Corners area in extreme southwestern Colorado. According to the USGS (U.S. Geological Survey) 1965 7.5' Trimble Point Quadrangle, the site is located in the NE 1/4 of the SE 1/4 of sec. 19, T38N, R15W. The Universal Transverse Mercator grid coordinates for the site are 4,157,140 mN, 717,360 mE, zone 12.

In terms of the spatial systematics employed by the Dolores Archaeological Program (Kane 1981a:44-57), Hamlet de la Olla is located in the Periman Locality of the Escalante Sector. In terms of DAP temporal systematics (Kane 1981a:77-90), the hamlet is believed, on the basis of ceramic typology, tree-ring dating, and architectural style, to represent the Dos Casas Subphase (A.D. 760-850) of the Sagehen Phase (A.D. 600-850) within the broad confines of the Anasazi Tradition. Diagnostic evidence that would permit the positive identification of the phase or subphase to which the field house belongs is lacking; however, based on architectural style, it represents a somewhat later phase within the Anasazi Tradition, probably the McPhee Phase. The McPhee Phase is tentatively dated to A.D. 850-975 (Kane 1981a).

During initial survey (Breternitz and Martin 1973), Hamlet de la Olla was defined on the basis of scattered cultural debris to include a large area stretching across the entire length and width of the alluvial fan. The site was resurveyed several years later (Dykeman et al. 1981) and the

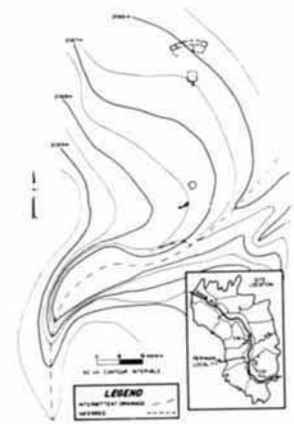

Figure 6.1 - Topographic map showing spatial relationships of major cultural units, Hamlet de la Olla.

area originally designated Site 5MT2181 was subdivided into several smaller sites: 5MT2181, 5MT4777, and 5MT4779. Under the revised definition, Site 5MT2181 consists only of the northernmost tip of the originally defined site area. During initial survey the site was tentatively identified as a Basketmaker III/Pueblo I occupation according to the Pecos system of classification. No architectural remains were observed.

The alluvial fan upon which Hamlet de la Olla is located was formed primarily by the deposition of water-borne sediments from a large, unnamed intermittent drainage that originates in the uplands west of the site, runs in a southwest-northeast direction along the southern edge of the site, and eventually empties into the Dolores River (fig. 6.1). Water runs in this deeply cut drainage primarily during the spring; at other times of the year it is usually dry. Thus, the Dolores River, located 0.04 km east of the site is the nearest perennial water source for the site and immediate vicinity today. In addition to alluvial deposition, which has played the greatest role in the formation of the fan, colluvial processes, the result of soil and rock displacement from higher up on the canyon slope, have also contributed to the geomorphologic history of the immediate site area. Refer to Leonhardy and Clay (1981) for a discussion of the geology of the project area.

Site 5MT2181 is situated entirely within the limits of the Otero fine sandy loam soil series.[1] This soil is described by Leonhardy and Clay (1981) as an Entisol, a coarse loamy, deep, and well-drained soil with an A-C horizon sequence that develops in sandy deposits on alluvial and colluvial slopes such as that which characterizes the fan upon which Hamlet de la Olla is located. Otero soils are not particularly well suited for agriculture because they tend to be rocky and on slopes too steep for effective modern crop production; at best, they could be used for only very limited agricultural purposes (Leonhardy and Glaser 1979). However, one of the best soils for agriculture in the area, Witt loam, occurs 0.5 km south and west of the site on the high canyon rim overlooking the Dolores River (Leonhardy and Clay 1981).

The climate of the project area is semiarid with a bimodal precipitation pattern in which July, August, and October are the wettest months of the year, and May, June, and November are the driest (Kane 1981b:9). Regional weather data indicate that the frost-free period for this area is 120 to 125 days and the average annual precipitation is 460.5 mm (Kane 1981b:14-15).

Vegetation observed on the site includes many species common to the pinyon-juniper woodland and scrub oak woodland zones: pinyon pine (*Pinus edulis*), Utah juniper (*Juniperus osteosperma*), Gambel oak (*Quercus gambelii*), serviceberry (*Amelanchier utahensis*), tapertip onion (*Allium acuminatum*), and squawbush (*Rhus aromatica*). Also observed were big sagebrush (*Artemisia tridentata*), rabbitbrush (*Chrysothamnus nauseosus*), snakeweed (*Xanthocephalum sarothrae*), brittle pricklypear (*Opuntia fragilis*), and various grasses. Of these, the grasses were the most abundant and afforded the densest ground cover over the major portion of the site. Sagebrush was sparsely scattered throughout the area, and the larger species such as pinyon, juniper, and oak were concentrated along the site periphery. Riparian environments were located within 0.1 km east of the site along the Dolores River. A discussion of the vegetation in the project area is presented in Bye (1981).

Several small animals, including cottontail rabbit (*Sylvilagus* spp.), mouse (*Peromyscus* spp.), and porcupine (*Erethizon dorsatum*), were observed at the site during fieldwork operations. Tracks believed to be those of mule deer (*Odocoileus hemionus*) were also observed, although the deer themselves were not. Avifauna observed in the immediate site area included turkey vulture (*Cathartes aura*), black-billed magpie (*Pica pica*), and common flicker (*Colaptes auratus*). These species and others present in the project area are discussed in greater detail by Emslie (1981).

Two nearby sites that appear to have been roughly contemporaneous with the hamlet at Site 5MT2181 have been excavated to date. Area 4 at Periman Hamlet (Site 5MT4671), located 0.9 km northeast of Site 5MT2181, dates to approximately A.D. 780-800. The 2 earliest elements defined for Area 1 at Rio Vista Village (Site 5MT2182), located 0.4 km east of Site 5MT2181, also date to this time period. In terms of the spatial systematics employed by the DAP, the specified areas of these sites belong to the Lucero Community Cluster; the inhabitants of this cluster are inferred to have shared some common resources (refer to the "Site Synthesis" section).

If the field house at Hamlet de la Olla does belong to the McPhee Phase, then excavated habitation sites with components that might be contemporaneous include Rio Vista Village, McPhee Pueblo (5MT4475), Weasel Pueblo (5MT5106), Pueblo de las Golondrinas (5MT5107), and Golondrinas Oriental (5MT5108). The latter 4 sites are located approximately 2.5 km southwest of Hamlet de la Olla and belong to the McPhee Community Cluster. Given the distance that separates the McPhee Community sites from Hamlet de la Olla, an affiliation with the field house does not seem as likely as an affiliation with sites that are closer, such as Rio Vista Village.

Use of the site area during historic times appears to have been minimal. A homestead patent was issued to William

[1] Richard H. Glaser, DAP, personal communication.

C. Kuhlman in 1890 for a 160-acre tract of land located immediately north of Hamlet de la Olla, and 2 years later a similar patent was issued to Edward C. Porter for a 40-acre tract located 0.4 km southeast of the site.[2] While the quarter-quarter section in which Hamlet de la Olla is located was never actually homesteaded, its proximity to known homesteads suggests its potential for incidental usage such as stock grazing and wood collecting by historic settlers. A large, concrete slab jutting out of the eroding river bank slightly south and east of the site is the remnant of an irrigation canal watergate. Several recent footpaths were also observed in the vicinity of the site.

Investigative Strategy

Research Objectives

The primary research objectives behind the investigation of Hamlet de la Olla were to identify the number of discrete cultural units present at the site, to ascertain the spatial and temporal relationships between those units, and to identify the possible functions or range of activities represented by the artifact assemblage recovered from each unit. On the basis of a projectile point recovered during survey operations, it was speculated that an Archaic component was represented at the site, and that test excavation would hopefully confirm or refute that hypothesis. However, analysis of the point indicated that it probably does not date to the Archaic period.

Concomitant with these objectives was the need to establish a data base that would allow Hamlet de la Olla and other sites in the vicinity to be compared in terms of possible spatial, temporal, and functional relationships.

To achieve these goals, testing was conducted at the "track 2" level of investigation as defined in the DAP Mitigation Design (Knudson et al. 1981:42). Investigative efforts were confined to a partial surface collection, followed by test excavation. The latter was based on a judgment sample designed to retrieve a maximum amount of information in the limited time allotted for investigation.

Investigative Methods

To facilitate the investigation and interpretation of the site, the total expanse was divided into 2 areas: Area 1 consists of the field house and a nearby wall; Area 2 consists of the pithouse and associated rooms that constitute the hamlet proper. The original site limits were based on a cursory examination in the field. This initial reconnaissance failed to yield any evidence of cultural remains on the modern ground surface in the vicinity of what was later to be designated Area 2; it eventually became apparent that dense vegetation had obscured the remains that were present in this area. Since this discovery was not made until well into the allotted investigation time, Area 2 was not subjected to the same standard testing procedure as Area 1.

The first step in testing involved the intensive surface collection of Area 1 only. The area, generously defined to include all visible rock alinements and the estimated artifact scatter, was gridded into twenty-four 8- by 8-m units. All cultural and suspected cultural material within each unit was collected and bagged separately. Time constraints precluded the clearing of vegetation from the site, and ground cover considerably reduced visibility; therefore, few artifacts were collected (refer to the "Material Culture" section for Area 1).

A formal surface collection in Area 2 was not conducted owing to the time constraints that dictated the speedy investigation of this portion of the site. A cursory examination of Area 2 at the beginning of the testing program failed to reveal any evidence of surface artifacts, although this was almost certainly due to the thick grass cover that obscured visibility. The only surface evidence of architectural remains in Area 2 consisted of several rocks that appeared to form separate, isolated alinements in the vicinity of what was later to be defined as the roomblock. No depression indicating the presence of the pithouse was observed.

The second step in testing involved the excavation of selected "high potential" areas of the site. In Area 1 this entailed the excavation of a series of 2- by 2-m grid units near the various rock alinements observed on modern ground surface in an attempt to more completely delineate them. Once the wall lines of the field house (Room 1) were clearly defined, excavation of the 2- by 2-m units was abandoned in favor of the excavation of the structure as a cultural unit. However, 2 arbitrarily selected 2- by 2-m grid squares on the outside of the structure were excavated in an effort to define associated surfaces and occupation areas. The search for surfaces associated with the isolated wall located southwest of Room 1 was carried out within the confines of selected 2- by 2-m grid squares because this wall was a linear rather than a bound architectural unit. A third rock alinement was investigated in the same manner as outlined above. Although this rock arrangement might have been a cultural feature at one time, it was no longer recognizable as such and therefore the investigation of this alinement was not continued.

In Area 2, once it became clear that the rocks on modern ground surface did indeed form alinements, test excavation was carried out on several levels. Initially, a series of 2- by 2-m grid squares was shovel scraped in an effort

[2] Deborah A. Duranceau, DAP, personal communication.

to delineate wall lines. When shovel scraping proved inadequate in some of these units, shovel and trowel excavation to greater depths was employed in order to ascertain the presence or absence of walls. Once the roomblock was tentatively defined, 2 back rooms (Rooms 2 and 3) were completely excavated, while 2 front rooms (Rooms 8 and 9) were tested with a series of trenches. A bin and a posthole associated with the roomblock were also excavated. With the exception of these 2 features, the selection of particular units for complete or partial excavation was dictated entirely by necessity, for it was in these units that the tops of ceramic vessels were uncovered just centimeters below modern ground surface during the course of shovel scraping.

Based on the location and orientation of the roomblock, 2 roughly perpendicular backhoe trenches were excavated in the general vicinity of where a pitstructure was anticipated. After the pitstructure (Pithouse 1) was located, the southwest quarter was excavated to the floor using a combination of backhoe, shovel, and trowel techniques. Figure 6.2 illustrates the overall site sampling plan.

In general, both areas of the site were hand excavated (i.e., shovel and trowel), the exception being the backhoe trenches mentioned previously. In circumstances where somewhat greater control was required than is afforded by shovel excavation, as in the vicinity of the human burial and in the surface structures containing whole ceramic vessels, fill was removed by trowel only. Fill inside and surrounding the whole vessels was screened through one-quarter-inch mesh; otherwise, screening was not employed as a standard procedure. Whenever possible, units were excavated according to natural or cultural strata. FS (field specimen) numbers were assigned to all excavated units, and field notes and maps were maintained for each assignment. When possible, PL (point location) numbers were assigned to individual artifacts lying directly on use surfaces; these artifacts were mapped and recovered separately from fill artifacts. Pollen, bulk soil, tree-ring, and archaeomagnetic samples were taken when deemed necessary, desirable, and possible. Photographs were taken at appropriate stages of excavation.

EXCAVATIONS

Area 1

Area 1 test excavations centered around the investigation of the 3 separate rock alinements visible on modern ground surface. The investigation of one of these was terminated when it became apparent that it was not of cultural significance, or at least was no longer recognizable as being of cultural significance. The remaining 2 alinements were eventually defined as 1 wall of the field house (Room 1) and as an isolated wall. The field house was completely excavated; the isolated wall was partially exposed in a series of 2- by 2-m test squares excavated to the base of the rocks forming the wall. In addition to the investigation of the room and the wall, a small area adjacent to the room was excavated to prehistoric ground surface and defined as Occupation Area 1. A general view of Area 1 prior to excavation is shown in figure 6.3. Detailed descriptions of each of the excavated cultural units in Area 1 are presented in the following discussion.

Room 1

Dimensions:

North wall	
length:	1.85 m
thickness:	0.30 m
average height:	0.25 m
South wall	
length:	1.90 m
thickness:	0.30 m
average height:	0.23 m
East wall	
length:	2.10 m
thickness:	0.35 m
average height:	0.21 m
West wall	
length:	2.10 m
thickness:	0.25 m
average height:	0.27 m
Floor area:	3.72 m
Average depth (modern ground surface to Surface 2):	0.30 m

Room 1 is a coursed masonry structure, rectangular in plan, with the main axis oriented 7.5° W of magnetic north (fig. 6.4). Walls are single flagged (i.e., the rocks that make up the walls are stacked so that the inside provides a flat, even face, while the outside presents a jagged, uneven appearance) and abutted. Part of the north wall has 4 remaining courses; the other walls have only 3. An abundance of wall fall (rocks from the collapsed walls of the structure) was encountered during excavation, indicating that the walls were probably entirely of masonry construction. Because the earliest surface defined in the structure (Surface 2) was encountered at approximately the same depth as the occupation surface defined on the outside of the structure (Surface 1 of Occupation Area 1), the walls are believed to have been built directly on prehistoric ground surface without a foundation having been excavated. The walls consist of shaped and unshaped sandstone rocks, coursed vertically with earth used as mortar (fig. 6.5).

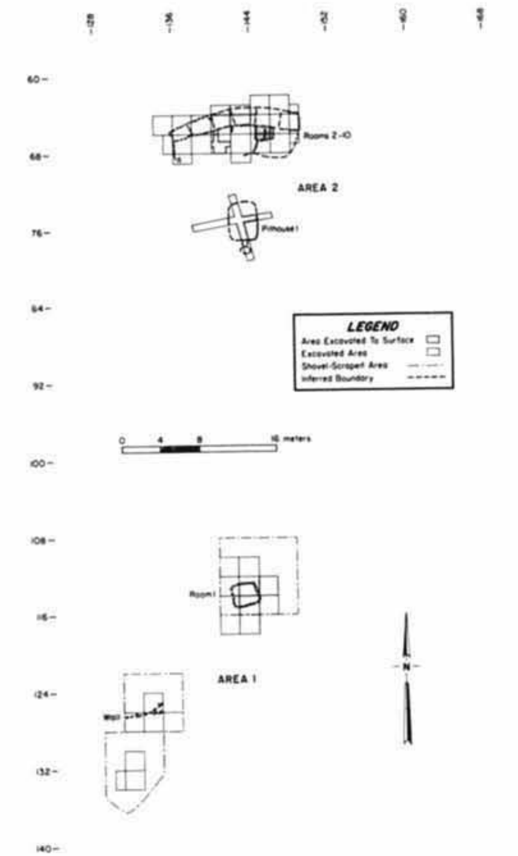

Figure 6.2 - Site sampling plan, Hamlet de la Olla.

Figure 6.3 – View of Area 1 prior to excavation, Hamlet de la Olla (looking southeast) (DAP 066319).

Figure 6.4 – Room 1, Surface 2, upon completion of excavation, Hamlet de la Olla (DAP 066332).

Figure 6.5 – Detail of north wall, Room 1, Hamlet de la Olla (DAP 066330).

The absence of roofing materials in the fill suggests that the roof disintegrated gradually without leaving any physical remnants. No evidence of burning was encountered. No posts or postholes were found, leading to the inference that the roof rested directly on top of the walls without auxiliary supports. No evidence for a doorway was found.

Two surfaces were tentatively defined in Room 1. A fragmentary human burial (Feature 1) was found in the fill overlying the most recent surface.

Stratigraphy. – Because time considerations precluded the excavation of the structure by halves, a stratigraphic profile was not obtained. However, the fill sequence can be reconstructed from descriptions of the different strata and surfaces encountered during excavation.

Surface 2, the earliest surface identified in Room 1, was defined as the interface between sterile soil and overlying fill at an average depth of 30 cm below modern ground surface; it coincided with the base of the first (deepest) wall course. Immediately on top of Surface 2 was a thin (1 to 8 cm) layer of tightly compacted silty clay loam, flecked throughout with caliche. This zone may reflect a period of natural deposition of sediments during a time when the structure was not in use, or it may represent the deliberate preparation for construction of Surface 1. Surface 1 was defined at an average depth of 25 cm below modern ground surface as the interface between the caliche layer and the overlying postabandonment deposit. The latter continued to modern ground surface and consisted of a loosely compacted, light brown silt loam; it was approximately 25 cm thick. Abundant wall fall and the human burial were found in this uppermost stratum.

Surfaces. – Two surfaces were identified in Room 1. Definition was tentative because it was based primarily on the rather ambiguous point of contact between strata and only partially on the basis of artifact placement. Surface 1 was the uppermost or most recent surface; Surface 2 was the lowermost or oldest surface.

Surface 1. Surface 1 was defined as the interface between the uppermost stratum of loosely compacted, light brown silt loam and the underlying stratum of tightly compacted silty clay loam with caliche inclusions that may reflect an attempt at floor construction or preparation. The overlying soil was easily separated from the horizontal plane defined as Surface 1. Four flaked lithic items (PL's 1 through 4) and one gray ware jar sherd (PL 5) were found in direct association with Surface 1. Two of the flaked lithic items (PL's 2 and 3) are classified as angular debris and possibly were produced by natural rather than cultural forces (see the "Material Culture" section for Area 1). Table 6.1 provides general descriptions of the Surface 1 artifacts. The tip of a large, unshaped sandstone slab (the base of which was later found to be resting on Surface 2) protruded through Surface 1, creating an irregular floor surface and therefore casting some doubt as to the cultural reality of this surface. Figure 6.6 presents a plan view of Surface 1, Room 1.

Surface 2. Surface 2 was separated from Surface 1 by an average of 5 cm of fill and was defined as the interface between sterile soil and overlying fill. Ten gray ware sherds, grouped into three PL clusters (PL's 1 through 3), were recovered from this surface (table 6.2), as was one additional sherd that was not mapped or assigned a PL number. Eight unshaped sandstone slabs and rocks resting directly on or near Surface 2 were clustered in the center of the room. While they may have been deliberately placed in the structure, they did not form a pattern, nor did they appear to be associated with any cultural features; their function remains unknown. Figure 6.7 presents a plan view of Room 1, Surface 2. Figure 6.8 presents 2 cross sections of Room 1 at the Surface 2 depth. Surface 2 is believed to have been the floor of the room.

Human burial (Feature 1). – Feature 1, which consisted of the fragmentary remains of a human burial, was discovered in postabandonment fill approximately 2 to 3 cm above Surface 1 in the northeast corner of Room 1 (fig.

Table 6.1 – Artifacts recovered from Surface 1, Room 1, Hamlet de la Olla

PL No.	Material class	Item description
1	Flaked lithic	Debitage
2	Flaked lithic	Angular debris*
3	Flaked lithic	Angular debris
4	Flaked lithic	Debitage
5	Ceramic	Dolores manufacturing tract Early Pueblo Gray jar sherd

* Refer to the "Material Culture" section for Area 1 for a discussion of angular debris.
Refer to figure 6.6 for artifact locations.

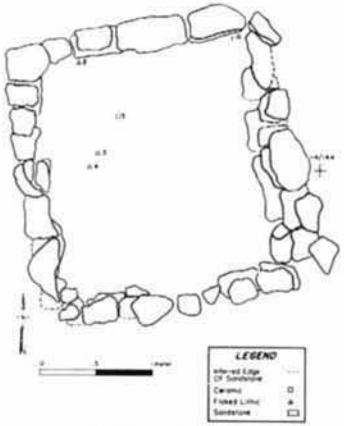

Figure 6.6 – Map of Surface 1, Room 1, Hamlet de la Olla

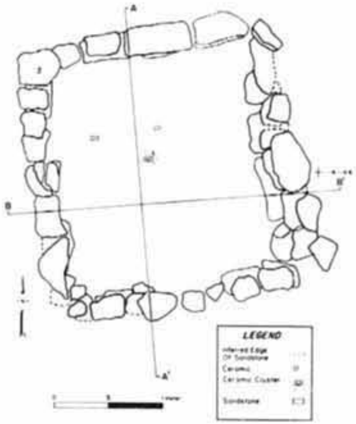

Figure 6.7 – Map of Surface 2, Room 1, Hamlet de la Olla. AA' and BB' correspond to AA' and BB' in figure 6.8.

Table 6.2 – Artifacts recovered from Surface 2, Room 1, Hamlet de la Olla

PL No.	Material class	Item description
1	Ceramic	San Juan Manufacturing Tract Early Pueblo Gray jar sherd
2	Ceramic	Dolores Manufacturing Tract Early Pueblo Gray jar sherds (3)
3	Ceramic	San Juan Manufacturing Tract Early Pueblo Gray jar sherds (6)
–	Ceramic	San Juan Manufacturing Tract Early Pueblo Gray jar sherd

Refer to figure 6.7 for artifact locations.
(N) – Number of items.

6.9). This burial was designated as Burial 24 in the project-wide numbering system. The burial consisted of poorly preserved leg, arm, and hand bone fragments from a single immature individual, aged approximately 15 to 19 years; sex is unknown. Refer to the "Material Culture" section for Area 1 for a more detailed inventory of the skeletal remains. The leg bones and the arm bones were articulated, and although most of the skeleton was missing, the careful placement of the bones that were present argues for a primary inhumation. The agent responsible for the disappearance of the remainder of the skeletal material is unknown, although erosion or animal disturbance could be wholly or partly responsible.

No evidence of a burial pit or pile was observed. No grave goods were found in association with the burial. Although the individual clearly had been interred in Room 1 subsequent to the last use of the structure, no evidence was available that would permit the positive identification of the cultural period with which the burial was associated.

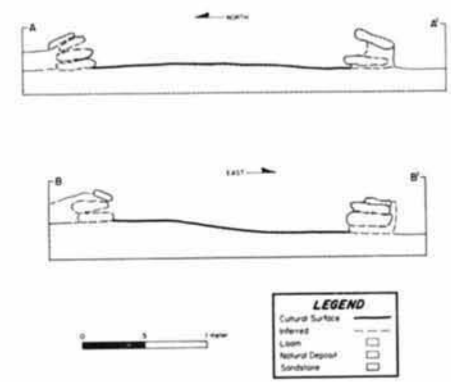

Figure 6.8 – Architectural cross sections of Room 1, Hamlet de la Olla. AA' and BB' correspond to AA' and BB' in figure 6.7.

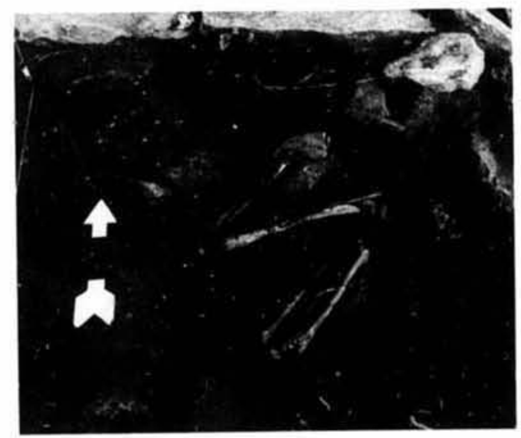

Figure 6.9 – Burial 24 (Feature 1) in Room 1, Hamlet de la Olla (DAP 066324).

Table 6.3 - Artifacts recovered from Surface 1, Occupation Area 1, Hamlet de la Olla

PL No.	Material class	Item description
1	Flaked lithic	Debitage
2	Flaked lithic	Angular debris*
3	Flaked lithic	Angular debris
4	Nonflaked lithic	Lapstone
5	Nonflaked lithic	Trough metate (fits together with PL 6)
6	Nonflaked lithic	Trough metate (fits together with PL 5)
7	Nonflaked lithic	Unmodified item
8	Nonflaked lithic	Unmodified item
9	Flaked lithic	Debitage
10	Flaked lithic	Unused core

* Refer to the "Material Culture" section for Area 1 for discussion of angular debris.
Refer to figure 6.10 for artifact locations.

Figure 6.11 - Isolated wall, Area 1, Hamlet de la Olla (looking south) (DAP 066333).

abandoned "casually" and purposely. This interpretation is supported by the fact that, with one exception (PL 3 in Room 8), all of the ceramic vessels found in the excavated rooms were empty, and by the fact that the excavated quarter of the pithouse had a very "cleaned up" appearance and very few artifacts were recovered from this structure. This evidence could be the result of 1 of 2 types of casual abandonment. One type would be the permanent abandonment of the hamlet with no intent to return. The other would be a temporary type of abandonment with intent to return. Because of the presence of serviceable, whole (at the time of abandonment) ceramic vessels, the latter type of abandonment seems to be indicated.

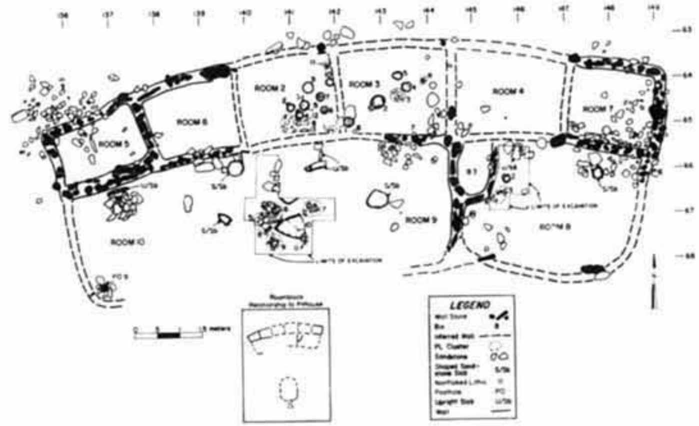

Figure 6.12 - Map of roomblock (Rooms 2 through 10), Hamlet de la Olla. Refer to figures 6.17, 6.20, 6.22, and 6.23 for details of Rooms 2, 3, 8, and 9, respectively.

After abandonment at least a portion of the complex burned. The presence of roof fall lying directly on the living surfaces of the pithouse and excavated rooms suggests very little time elapsed between abandonment and the collapse of the roofs. The front row of structures showed signs of more intense burning than the back row. Detailed descriptions of Pithouse 1 and Rooms 2 through 10 are included in this section.

Pithouse 1

Dimensions:*

North wall length:	2.95 m
South wall length:	2.75 m
East wall length:	3.80 m
West wall length:	3.65 m
Floor area:	12.10 m²
Depth (modern ground surface to floor):	1.58 m

*All measurements except depth are inferred.

Two trenches, one oriented northwest-southeast and the other oriented approximately east-west, were excavated by backhoe to the top of roof fall to locate the pithouse walls, which, in this case, were badly burned and easy to recognize. Once the walls were defined, the southeast quarter of the pithouse was excavated to the floor. Figure 6.13 shows the southeast quarter of Pithouse 1 upon completion of excavation. The remaining portion of the pithouse was not investigated. The pithouse dimensions given were inferred on the basis of the location of the structure walls in the 2 trenches and in the excavated southeast quarter. Pithouse 1 is shown in plan in figure 6.14.

Pithouse 1 is rectangular with slightly rounded corners. The structure is oriented almost perfectly north-south, with the main axis lying only 1.5° W of magnetic north. The walls were not plastered but had burned hard by the fire that destroyed the structure. The walls join the floor at a slightly acute angle (i.e., the walls slant outward from top to bottom). A bench was not observed.

The floor of Pithouse 1 was use compacted and had been deliberately prepared by spreading a thin layer of fine sand over the surface. The fire that destroyed the pithouse burned the floor and made it very hard. A hearth is located near the center of the structure. An adobe and sandstone slab deflector is situated approximately 6 cm south of the hearth; together, the wingwall and the deflector divide the pithouse into 2 rooms; the smaller room

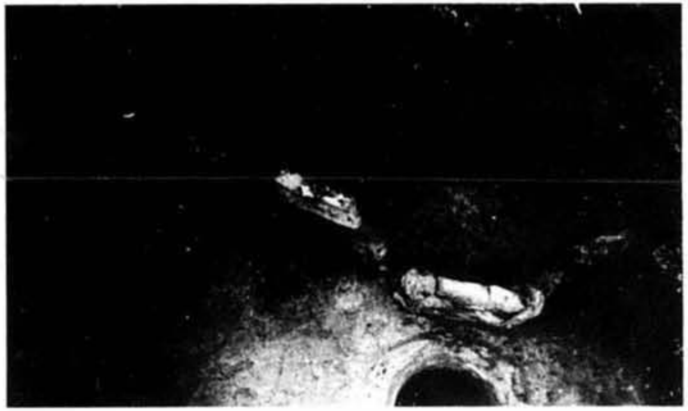

Figure 6.13 – Southeast quarter of Pithouse 1 upon completion of excavation, Hamlet de la Olla. North is down (DAP 066034)

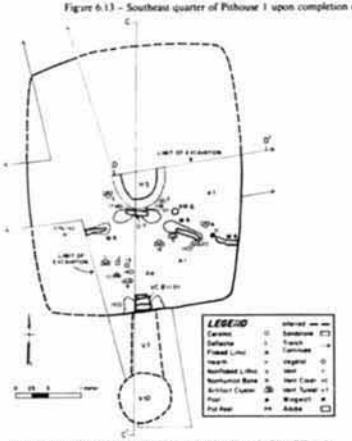

Figure 6.14 – Map of Surface 1, Pithouse 1, Hamlet de la Olla. CC' and DD' correspond to CC' and DD' in figures 6.15 and 6.16, respectively.

is at the southern end. A small depression located east of the deflector is believed to have functioned as a pot rest. A ventilation system (Feature 10) consisting of a horizontal tunnel and a vertical shaft is inferred on the basis of a tunnel opening, which was covered by a sandstone slab. This ventilation system was largely destroyed during the backhoe excavation of the north-south trench.

On the basis of a single small post incorporated into the east wingwall, it is inferred that the pithouse roof was supported by 4 main support posts, 1 in each half of the wingwall and 1 apiece in the northeast and northwest corners of the structure. This is one of several standard roof support patterns recorded in the Southwest (cf. Bullard 1962). Horizontal beams connecting the tops of these 4 main support posts would have completed the basic skeletal framework over and against which smaller poles would have been placed to form the actual roof (Wormington 1947). Given the absence of a bench, leaner poles slanting downward from smaller poles would have been placed to form the actual roof (Wormington 1947). Given the absence of a bench, leaner poles slanting downward from the main horizontal beams most likely rested on the prehistoric ground surface around the periphery of the pithouse. Based on the characteristics of the roof fall, which was found lying directly on the floor of the pithouse, small twigs, branches, and other vegetal materials were laid upon the large poles and beams with a

cementing layer of mud being plastered over all to complete the structure. An architectural cross section of Pithouse 1 is shown in figure 6.15.

Stratigraphy. – A stratigraphic profile was drawn of the eastern half of the north wall of the east-west trench (fig. 6.16). Four discrete strata were identified on the basis of gross morphological differences in the soil. These strata are discussed in sequential order starting with the lowest stratum.

Stratum 4: Stratum 4, the roof fall zone, consists of charred log fragments, other burned vegetal material, and fire-reddened and fire-hardened adobe. These roof materials are embedded in a brown, silt loam matrix. This stratum rests directly on top of the floor of the pithouse and varies from 20 to 40 cm in thickness, reflecting the uneven collapse of the roof.

Strata 3 and 2: These strata reflect a fairly lengthy period of postabandonment deposition of sediments in the depression left by the collapsed pithouse roof. Stratum 2, which varies in thickness from 75 to 110 cm, consists of a moderately compact, light gray-brown silt loam, throughout which are scattered flecks of charcoal and many thin (less than 1 cm) pieces of sandstone. Towards the base of this stratum were 2 large sandstone slabs and a river cobble fragment; these may represent an episode of delayed slump in which pithouse-associated materials collapsed into the depression.

Stratum 1: This uppermost stratum consists of a loosely compacted, light brown silt loam. No cultural material or gravel was observed. Again, this stratum reflects the workings of natural depositional forces in the filling of the pithouse depression.

Floor (Surface 1). – The floor of Pithouse 1 was encountered at an average depth of 1.58 m below modern ground surface. This floor is a very compact, fire-hardened and fire-blackened surface over which is spread a thin veneer of fine, light brown sand.

Twenty-seven sherds, 13 pieces of flaked lithic debitage, 3 flaked lithic tools, 1 nonflaked lithic tool, a small amount of burned corn, and 3 nonhuman bone fragments were found lying directly on the floor and were recovered as PL's 1 through 20 (fig. 6.14). The ventilator tunnel cover was assigned PL number 21 (also designated Feature 8), but it was not removed from the pithouse. A

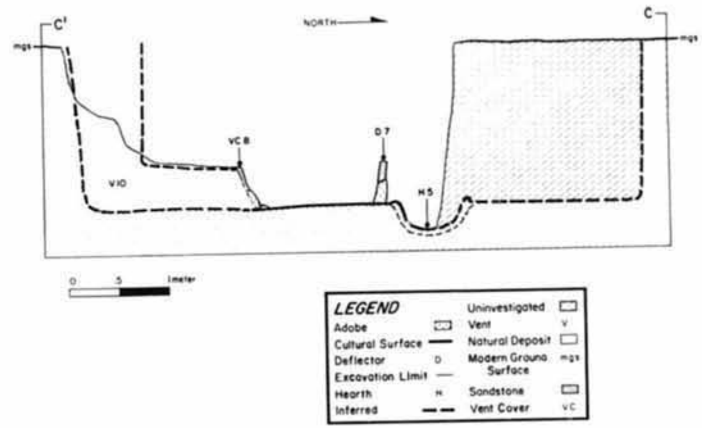

Figure 6.15 – Architectural cross section of Pithouse 1, Hamlet de la Olla. CC' corresponds to CC' in figure 6.14

Stratum 3 consists of a light gray, mixed ash and sand lens, throughout which flecks of charcoal are thinly scattered. This stratum appears to represent a fire-extinguishing episode.

Stratum 2 is defined on the basis of a thick layer of light brown sand that appears to have been placed over the ash-sand lens, perhaps to construct a new hearth base in preparation for a subsequent episode of burning.

Stratum 1, the uppermost stratum, is essentially the same as Stratum 3, i.e., a mixed ash and sand lens that appears to be the result of a fire-extinguishing episode. However, this interpretation is problematical because no evidence exists of a fire having been built between Stratum 1 and the underlying sand layer (Stratum 2). Roof fall immediately overlies Stratum 1.

Pot rest (Feature 6)

Dimensions:

Length:	17 cm
Width:	15 cm
Depth:	1 cm

Feature 6 is a small, shallow, oval depression in the pithouse floor. The depression, located about 20 cm east of the deflector, was filled with the same light brown sand as was found on the floor. A slight buildup of the surface around the edges of the depression forms a barely discernible collar that could have served as a support. Based on comparison with other features described in the literature as having similar morphological characteristics (cf. Bullard 1962:172), Feature 6 is inferred to have functioned as a pot rest.

Deflector (Feature 7)

Dimensions:

Length:	69 cm
Width:	6 cm
Height:	42 cm

The deflector is located 6 cm south of the hearth, approximately midway between the 2 halves of the wingwall. Deflector construction was similar to that of the wingwall: a single unshaped sandstone slab was set approximately 11 cm below the floor and then partially plastered with a supportive adobe collar that extends completely around the base of the north face of the slab and part way around the south face. The collar had been carefully smoothed and rounded. The deflector does not make contact with the wingwall but stands as a physically discrete architectural entity.

Ventilator tunnel cover (Feature 8)

Dimensions:

Length:	40 cm
Width:	4 cm
Height:	42 cm

The ventilator tunnel cover consists of a rectangular, shaped sandstone slab. This slab was found leaning against the ventilator tunnel opening. A ridge of adobe extends partway up the sides of the tunnel opening, serving as a frame or brace to hold the sandstone slab in place. On the floor in front of the tunnel cover was a small, flat, sandstone rock. This rock might have been used to brace the base of the slab. In addition to being designated a feature, this slab was also assigned a PL number (PL 21); however, it was not recovered.

Room 2

Dimensions:*

North wall length:	2.10 m
South wall length:	2.00 m
East wall length:	1.75 m
West wall length:	1.70 m
Floor area:	3.76 m
Depth (modern ground surface to floor):	0.15 m

*All dimensions except depth are inferred.

The walls of Room 2 are, for the most part, missing; however, if the wall locations have been inferred correctly, Room 2 is a rectangular structure (fig. 6.17). The room appears to have been dug into sterile soil. The presence of a few scattered rocks along the north wall line suggests that sandstone rocks may have been used as a footing or support for at least this one wall. The paucity of rock rubble and the presence of adobe in the fill indicate that the walls were probably primarily of jacal or a similar type of construction.

The presence of roof fall (probably mixed with collapsed wall materials) resting directly on the floor is sufficient evidence for the existence of a roof; however, the nature of the roof support system is not known because of the lack of direct evidence in the form of actual posts or post holes. If the post holes were overlooked in the course of excavation, the roof may have been supported by posts; otherwise, the roof must have rested on top of the struc-

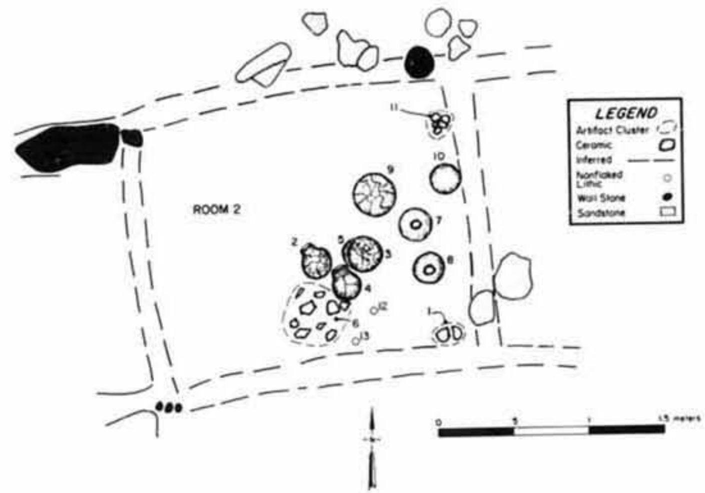

Figure 6.17 – Map of Surface 1, Room 2, Hamlet de la Olla.

ture walls without auxiliary support. In either case, on the basis of the vegetal material observed in the fill, the roof is inferred to have consisted of branches and twigs and a sealing layer of mud.

Stratigraphy. – Because time limitations necessitated the speedy excavation of the room as a single cultural unit from modern ground surface to the floor, a stratigraphic profile was not obtained. It is possible, however, to reconstruct the postabandonment depositional history through consideration of the different strata encountered horizontally as the room was excavated.

Surface 1 (the floor), located at an average depth of only 15 cm below modern ground surface, immediately overlay sterile soil. This surface is not a zone or a stratum, but rather, is defined as the plane upon which several ceramic vessels and other artifacts were resting. Lying directly on top of Surface 1, were burned vegetal materials and adobe in a brown, silt loam matrix. These materials are believed to be the remains of the roof and jacal walls. These materials were not found in abundance, suggesting that perhaps only part of the structure actually burned. Overlying this stratum of roof fall and continuing to modern ground surface was a layer of light brown silt loam with adobe and occasional small sandstone inclusions. This stratum was a postabandonment deposit.

Perhaps the most remarkable aspect of the structure fill was the relative shallowness of the postabandonment deposits. In some areas of the room, the floor lay a mere 10 cm below modern ground surface; at its lowest point, the floor was only about 16 cm below the modern ground surface. The tops of several of the ceramic vessels that rested upon the floor were first uncovered only 1 to 2 cm below modern ground surface. This suggests that at the same time alluvial and colluvial forces were depositing sediments over the site, certain erosional forces were also at work, holding the net accumulation of sediments to a minimum. While the prehistoric ground surface was never identified during excavation, the shallowness of the deposits indicates that such a surface, if not completely eroded, is very close to modern ground surface in the vicinity of the roomblock.

Floor (Surface 1). – Surface 1, the floor of the room, was defined on the basis of artifact placement; at this level numerous whole or nearly whole ceramic vessels and assorted other artifacts were found. As the surface itself was not noticeably more compact or different in color than overlying fill in most areas of the room, it was difficult to recognize on the basis of actual morphological characteristics. No surface-associated features were identified in Room 2.

Ten reconstructable ceramic vessels, a number of isolated sherds, 8 pieces of flaked lithic debitage, 7 flaked lithic items classified as angular debris, 2 flaked lithic tools, 2 nonflaked lithic tools, a small amount of charred corn, and 1 nonhuman bone were recovered from the floor of Room 2 (fig. 6.17, table 6.5). Most, but not all, of these materials were mapped and assigned PL numbers.

Ceramic materials were by far the most frequently encountered artifacts. Red, white, and gray wares are present in the assemblage, as are jar, seed jar, and bowl forms. The reconstructable vessels consist of Chapin Gray, Moccasin Gray, Bluff Black-on-red, and Abajo Red-on-orange types; several less specific types are recognized among the isolated sherds.[1] Three vessels (vessels 5, 6, and 7) were whole and unbroken; the remainder had been pressure-fractured and had to be recovered in pieces, although an attempt was made to retain the integrity of individual vessels during recovery. Three vessels (vessels 2, 16, and 17) were found nested and flipped upside-down on the floor. Two isolated Chapin Gray jar sherds and 5 isolated Early Pueblo Gray jar sherds (not assigned PL numbers) were identified in the laboratory as belonging to 3 pressure-fractured but reconstructable Chapin Gray jars (vessels 9, 11, and 12) in Room 3. Two possible explanations for this circumstance are offered: the inferred common wall between Rooms 2 and 3 never really existed, and the 2 rooms are actually 1; or, ceramic materials from Room 3 were inadvertently mixed with Room 2 materials in the field, prior to the recognition of two separate rooms. The latter is regarded as the most plausible explanation. Figures 6.18 and 6.19 show several of the ceramic vessels in situ.

The majority of the vessels found in Room 2 are jars, a form believed to have been used for cooking and/or storage (Lucius 1981a). Their presence in a room without a hearth leads to the inference that this room was probably used as a storage area; however, the vessels were empty when recovered, which precludes a determination of the nature of the stored materials. The vessels themselves were probably being stored; however, the presence of a small amount of charred corn on the floor suggests that food might have been stored as well.

A small area near the center of the room yielded all of the flaked lithic tool and debitage items (these items were not mapped or assigned PL numbers due to the time factor involved). This cluster of tools and debitage appears to be the result of lithic tool manufacturing activities. PL 12, a hammerstone, is most likely the result of these activities as well.

Room 3

Dimensions*:

North wall length:	2.40 m
South wall length:	2.20 m
East wall length:	1.90 m
West wall length:	1.75 m
Floor area:	4.35 m^2
Depth (modern ground surface to floor 1):	0.16 m

*All dimensions except depth are inferred.

The room dimensions given above are based on the inferred wall locations. Note that the east wall inference was made in retrospect after the completion of the field season, and as a result, the east wall as defined does not exactly correspond to the east wall as excavated, the latter stopping approximately 30 cm short of the former. Thus, while discussion and interpretation of Room 3 is based upon complete excavation of the room, a narrow strip along the east edge was not actually excavated to the floor.

Assuming that the locations of the walls were inferred correctly, Room 3 can be described as a rectangular structure, which had been excavated into sterile soil (fig. 6.20). Based on the general paucity of wall rubble and on the presence of burned adobe in fill, it is inferred that the walls were of jacal construction, with perhaps a few sandstone rocks being used for support. As in Room 2, roof fall (probably mixed with collapsed wall materials) lying on the floor in Room 3 is evidence for the existence of a roof; however, given the absence of post holes or posts, it is difficult to ascertain the nature of the roof support system.

[1]During preliminary ceramic analysis, only diagnostic rim sherds and body sherds that exhibit surface treatment or manipulation are assigned to specific types (e.g., Moccasin Gray, Bluff Black-on-red); plain gray, red, and white ware body sherds are classified as Early or Late Pueblo Gray, Red, or White wares, depending upon their temper. Because most of the body sherds associated with Surface 1 of Room 2 were recovered as parts of reconstructable vessels, care should be exercised in interpreting table 6.6. Through the assignment of an identifying vessel number, many of the sherds listed as Early Pueblo Gray or Early Pueblo Red in the table may be linked with diagnostic sherds from the same vessel, and therefore can be identified to a more specific type.

Table 6.5 – Artifacts recovered from Surface 1, Room 2, Hamlet de la Olla

PL No.	Material class	Item description
1	Ceramic	BL Bluff Black-on-red bowl sherds (2)
2	Ceramic	DL Chapin Gray jar sherds (6); vessel 14
2	Ceramic	DL EP Gray jar sherds (51); vessel 14
2	Ceramic	DL Moccasin Gray jar sherds (3); vessel 15
2	Ceramic	DL Chapin Gray seed jar sherd
2	Ceramic	DL EP Gray jar sherds (2)
3	Ceramic	BL Bluff Black-on-red bowl sherds (12); vessel 2
4	Ceramic	DL Moccasin Gray jar sherds (8); vessel 15
4	Ceramic	DL EP Gray jar sherds (79); vessel 15
5	Ceramic	DL Chapin Gray jar sherds (4); vessel 16
5	Ceramic	DL EP Gray jar sherds (89); vessel 16
5	Ceramic	BL Bluff Black-on-red jar sherds (3); vessel 17
5	Ceramic	BL EP Red jar sherds (16); vessel 17
6	Ceramic	DL Chapin Gray jar sherds (4); vessel 18
6	Ceramic	DL EP Gray jar sherds (98); vessel 18
7	Ceramic	DL Chapin Gray jar (whole); vessel 7
8	Ceramic	DL Chapin Gray jar (whole); vessel 6
9	Ceramic	BL Abajo Red-on-orange bowl sherds (14); vessel 3
10	Ceramic	BL Bluff Black-on-red bowl (whole); vessel 5
11	Ceramic	DL Chapin Gray jar sherds (2)
11	Ceramic	DL EP Gray jar sherds (5)
11	Ceramic	DL Polished White bowl sherd
12	Nonflaked lithic	Hammerstone
13	Nonflaked lithic	Trough metate fragment (one end closed)
-	Ceramic	DL Chapin Gray jar sherd (belongs to vessel 12, PL 4, Room 3)†
-	Ceramic	DL Chapin Gray jar sherd (belongs to vessel 9, PL 5, Room 3)†
-	Ceramic	DL EP Gray jar sherds (5) (belongs to vessel 11, PL 2, Room 3)†
-	Ceramic	DL EP Gray jar sherds (14)†
-	Ceramic	Indeterminate gray jar sherds (3)†
-	Flaked lithic	Used core†
-	Flaked lithic	Utilized flake†
-	Flaked lithic	Debitage (8)†
-	Flaked lithic	Angular debris* (7)†
-	Vegetal	Charred corn†
-	Nonhuman bone	Bird skull†

* Refer to the "Material Culture" section for Area 1 for discussion of angular debris.
† Not mapped.
Refer to figure 6.17 for artifact locations.
DL – Dolores Manufacturing Tract.
BL – Blanding Manufacturing Tract.
EP – Early Pueblo.
(N) – Number of items.

Figure 6.18 – In situ ceramic vessels, Rooms 2 and 3, Hamlet de la Olla (DAP 066005).

Figure 6.19 – In situ ceramic vessels, Room 2, Hamlet de la Olla. Top, PL 2; lower left, PL 4; lower right, PL 3. PL 5 is nested under PL 3 (DAP 066014).

Stratigraphy. – The depositional history of Room 3, as reflected in the fill sequence, is identical to that described for Room 2.

Floor (Surface 1). – Surface 1, the floor in Room 3, immediately overlies sterile soil at an average depth of approximately 16 cm below the modern ground surface. The floor was defined solely on the basis of artifact placement, i.e., the plane upon which a variety of artifacts, including several ceramic vessels, were resting. Like the floor in Room 2, this surface was not noticeably different from the overlying fill in terms of color or compaction. No features were found in Room 3.

Five reconstructable ceramic vessels, 7 isolated sherds, and 2 nonflaked lithic tools were recovered from the floor and were assigned PL numbers 1 through 8 (fig. 6.20 and table 6.6). All of the vessels are Chapin Gray jars that were found in situ (fig. 6.21). Despite the fact that all of the vessels had been pressure fractured from the weight of the collapsed structure and subsequent postabandonment deposits, their integrity as individual vessels was retained during the recovery process (i.e., each vessel was assigned its own PL number).

Based on the presence of the vessels it is inferred that Room 3 was used as a storage area. However, it is not known if the vessels were being stored or if something was being stored in the vessels; they were empty when found.

Room 4

A comparison of the roomblock at Hamlet de la Olla with other hamlets in the Dolores Project area indicates that the back row of rooms probably consisted of several contiguous rooms. Rooms 7 and 3 had been defined on the basis of actual wall lines and on the presence of ceramic vessels. Therefore, the space between these two rooms was believed to be another room.

A series of 2- by 2-m units was excavated where Room 4 was presumed to be in an attempt to delineate intact wall segments. When this effort failed to yield discernible wall lines, structure limits were inferred entirely on the basis of where walls would be expected given the average size of the back rooms with known limits (fig. 6.12). The structure was not excavated to the floor. Since it is not possible to determine whether the limits of the room have been inferred correctly (it is even possible that Room 4 is a continuation of Room 3 rather than a separate architectural unit), no attempt has been made to state dimensions or to provide any other descriptive information.

Room 5

Dimensions:

North wall	
length:	1.90 m
thickness:	0.40 m
South wall	
length:	2.00 m
thickness:	0.30 m
East wall	
length:	1.30 m
thickness:	0.50 m
West wall	
length:	1.10 m
thickness:	0.45 m

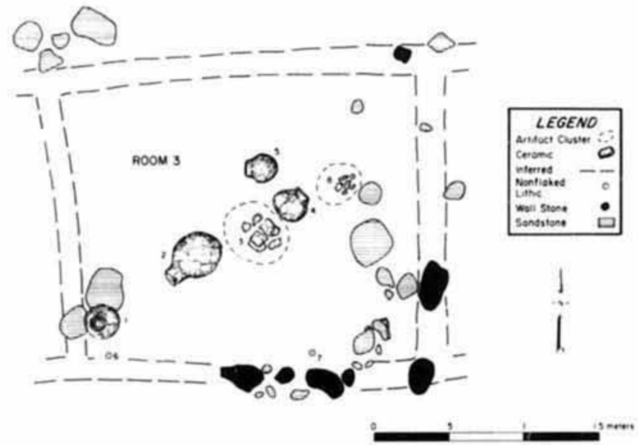

Figure 6.20 – Map of Surface 1, Room 3, Hamlet de la Olla

Table 6.6 – Artifacts recovered from Surface 1, Room 3, Hamlet de la Olla

PL No.	Material class	Item description
1	Ceramic	[illegible] Gray jar sherds (6): vessel 10
1	Ceramic	DL EP Gray [illegible] (43): vessel 10
2	Ceramic	DL Chapin Gray jar sherds (7): vessel 11
2	Ceramic	DL EP Gray jar sherds (136): vessel 11*
3	Ceramic	DL Chapin Gray jar sherds (7): vessel 13
3	Ceramic	DL EP Gray jar sherds (56): vessel 13
3	Ceramic	DL EP Gray jar sherd
4	Ceramic	DL Chapin Gray jar sherds (7): vessel 12
4	Ceramic	DL EP Gray jar sherds (84): vessel 12*
5	Ceramic	DL Chapin Gray jar sherds (3): vessel 9
5	Ceramic	DL EP Gray jar sherds (52): vessel 9
6	Nonflaked lithic	Anvil stone
7	Nonflaked lithic	Indeterminate
8	Ceramic	DL EP Gray jar sherds (6)

* Portions of these vessels were found in Room 2, refer to table 6.5.
Refer to figure 6.20 for artifact locations.
DL – Dolores Manufacturing Tract.
EP – Early Pueblo.
(N) – Number of items.

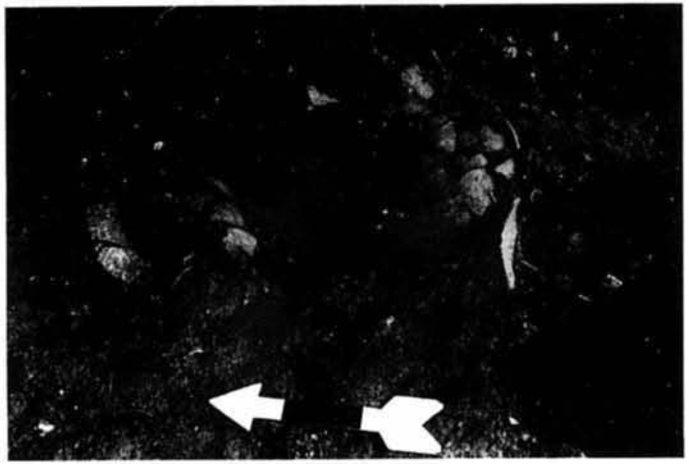

Figure 6.21 – In situ ceramic vessels, Room 3, Hamlet de la Olla. Left to right: PL 5, PL 4, PL 3 (DAP 066019).

The area surrounding Room 5 was shovel scraped only to the extent necessary to delineate wall lines; no prehistoric surfaces were exposed. Room 5 is the only room in the entire roomblock with four intact wall lines (fig. 6.12). The north, east, and west walls consist of single rows of unshaped sandstone rocks; only one course was observed. The south wall consists of an irregular double row of rocks; again, only a single course appears to be present. It is inferred from the scarcity of associated wall rubble that these sandstone rocks served as a basal course which supported upper walls of jacal construction.

As with Room 4, Room 5 was not excavated to the floor, thus precluding any discussion of stratigraphy or surface characteristics. A series of sandstone rocks arranged in a very irregular north-south alinement extends into the room from the north wall of the structure (fig. 6.12) and may indicate the presence of a partition, although without having completely excavated the room, it is impossible to confirm or refute this proposition.

Room 6

Dimensions:

North wall	
length:	2.05 m
thickness:	0.25 m
South wall	
length:	1.75 m
thickness:	0.35 m
East wall	
length (inferred):	1.60 m
thickness (inferred):	0.25 m
West wall	
length:	1.50 m
thickness:	0.20 m

Like Room 5, Room 6 was investigated only to the extent necessary to determine the presence or absence of walls (fig. 6.12). The north, south, and west wall lines are still intact; the east wall, which would be a common wall with Room 2, is missing. The north wall consists of a combination of horizontal and vertical unshaped sandstone slabs and rocks set in a single row; only 1 course was observed. The south and west walls consist of single rows of unshaped sandstone rocks oriented in a horizontal position; again, only a single course is present. Based on the absence of associated wall rubble, it is presumed that the observed rocks are a basal course that originally supported walls of jacal construction.

Room 7

Dimensions:

North wall	
length:	2.00 m
thickness:	0.25 m
South wall	
length:	1.90 m
thickness:	0.35 m
East wall	
length:	1.70 m
thickness:	0.30 m
West wall	
length (inferred):	1.55 m
thickness (inferred):	0.40 m

Room 7, the easternmost unit in the back row of the roomblock, was shovel scraped only to the extent necessary to determine the presence or absence of walls; time considerations precluded the excavation of the room to the floor. The north, south, and east wall lines are intact; the location of the west wall was inferred (fig. 6.12). The north and south walls consist of single rows of unshaped sandstone rocks; the east wall consists of a double row of unshaped sandstone rocks. All 3 walls are only one course high and all rocks are oriented horizontally. Room 7 is rectangular in plan. Because the room was not excavated to the floor, no assessment of stratigraphy or surface characteristics can be made.

Room 8

The limits of Room 8 are largely inferred; this, coupled with the fact that only a very small portion of the room was actually excavated to the floor, renders it difficult to state room dimensions with any degree of confidence. Figure 6.22 presents Room 8 in plan. The structure appears to span 2 back rooms (Rooms 4 and 7) in the 1:2 ratio commonly observed in the project area (Kane 1981c:68). Room dimensions may be estimated from the map.

A series of 2- by 2-m grid squares was excavated to an average depth of 7 cm below modern ground surface in an effort to determine whether or not wall remnants were present. That portion of the north wall that is a common wall with Room 7 is the most readily discernible wall line. A series of upright slabs extending part way down the west side of the room and several rocks in a row along the east side are the only other intact segments. The remaining walls were inferred on the basis of occasional upright sandstone slabs located where wall lines were anticipated. The scarcity of associated wall rubble suggests that, similar to the other rooms in the roomblock, the walls of Room 8 were primarily of jacal construction. On the basis of the information yielded by the excavation of a small test trench, it appears that the room had been dug into sterile soil. While the presence of roof fall overlying the floor of the room is sufficient evidence for the existence of a roof, more extensive excavation than was possible would be required to determine the nature of the roof support system.

A single test trench was excavated in the northwest quarter of the room to retrieve several ceramic vessels that were exposed just centimeters below modern ground surface during the course of shovel scraping and to identify the surface upon which these vessels were resting (fig. 6.22). Feature 3, a bin located in the northwest corner of the room, was detected during shovel scraping and was completely excavated. The remainder of Room 8 was not excavated to surface.

Stratigraphy. – In the absence of a profile map, the depositional history of Room 8 can be reconstructed through consideration of the different strata encountered during excavation. The floor (Surface 2) of Room 8 immediately overlies sterile soil at an average depth of 18 cm below modern ground surface. A roof fall zone (probably mixed with collapsed wall materials) of variable thickness rests directly on top of this surface. The top of roof fall was designated a separate surface (Surface 1) because the top of the roof appeared to have functioned as a use surface prior to the collapse of the structure; numerous artifacts were found on or near the top of roof fall during excavation. Overlying roof fall and continuing to modern ground surface was a silt loam deposit with many charcoal and burnt adobe inclusions.

Surfaces. – Surface 1 of Room 8 is the top of the roof fall zone. Although this surface was recognized as being a surface because of the artifacts found in association with it, time considerations precluded its excavation as a separate cultural entity; as a result, this surface and the artifacts associated with it were included in the general fill.

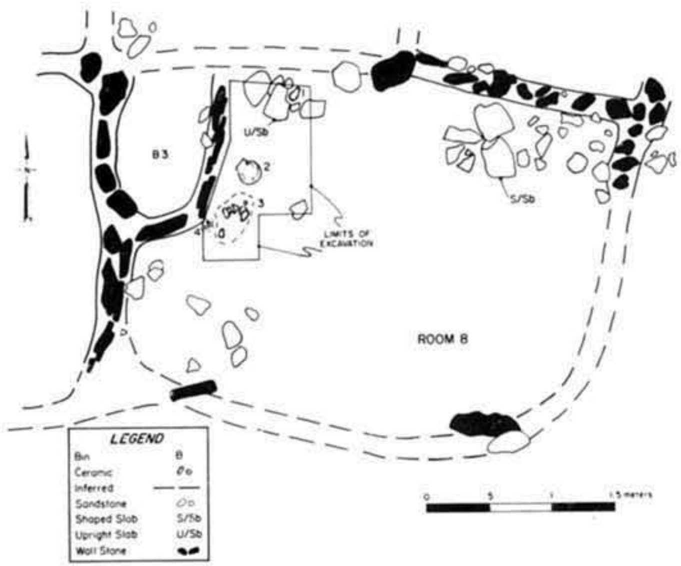

Figure 6.22 – Map of Room 8, Hamlet de la Olla. Note bin (Feature 3) and limits of excavation.

These artifacts were not assigned point location designations or distinguished in any way from nonsurface artifacts recovered from fill.

Surface 2, encountered at an average depth of 18 cm below modern ground surface, is the floor of Room 8. It was defined solely on the basis of artifact placement, i.e., the level at which 3 ceramic vessels were resting (fig. 6.22, table 6.7). These 3 vessels were assigned PL numbers 1 through 3; a cluster of sherds that did not comprise a whole vessel was designated PL 4. In addition, a handful of *Rhus aromatica* seeds and a bulk soil sample were collected (refer to "Material Culture" section for Area 2). The seeds were found among the shattered fragments of PL 3; it is thought that perhaps they originally were stored inside this vessel.

Features. – One verified and 2 possible features were identified in Room 8 (fig. 6.22). Feature 3, the bin in the northwest corner of the room, was completely excavated; the 2 possible features were not. An irregular circle of sandstone rocks in the southwest corner of the room possibly indicates the presence of a feature, although it was neither excavated nor assigned a feature number. A cluster of 6 unshaped sandstone rocks, several of them fairly large, was encountered in the northwest corner of the structure; while the significance of this rock pile is not known, it does not appear to be a random arrangement and therefore is considered a possible feature. One curious aspect regarding this rock concentration is the presence of similar possible features in the other 2 front rooms of the roomblock. In both Room 9 and Room 10, rock piles or upright slabs were observed along the north walls

Table 6.7 – Artifacts recovered from Surface 1, Room 8, Hamlet de la Olla

PL No.	Material class	Item description
1	Ceramic	DL Chapin Gray miniature jar (whole): vessel 8
2	Ceramic	DL Chapin Gray jar sherds (8): vessel 1
2	Ceramic	DL EP Gray jar sherds (45): vessel 1
3	Ceramic	DL Chapin Gray jar sherds (4): vessel 21
3	Ceramic	DL EP Gray jar sherds (50): vessel 21
4	Ceramic	DL Chapin Black-on-white bowl sherds (3)

Refer to figure 6.22 for artifact locations.
DL – Dolores Manufacturing Tract.
EP – Early Pueblo.
(N) – Number of items.

in approximately the same position relative to the associated back rooms. Wilshusen (1980) describes similar features in front rooms at Area 1 of Periman Hamlet.

Bin (Feature 3)

Dimensions:

Length:	1.37 m
Width:	1.00 m
Depth:	0.16 m

Feature 3 is a large, D-shaped bin in the northwest corner of Room 8 (fig. 6.22). The west wall of the bin is a common wall with the west wall of the room; the north wall is missing but is presumed to coincide with the inferred north wall of the room. Except for the inferred northern boundary, feature limits were defined on the basis of a curved alinement of upright sandstone slabs that form the sides of the bin; 1 river cobble with a flat, sheared-off face was also used. The bottom of the bin was encountered at the same depth as the floor of the room. Since the upright sandstone slabs that define the feature extend several centimeters below the floor, trenches must have been dug into sterile soil to accommodate the slabs. The east wall of the bin slants in from top to bottom and the west wall slants out, resulting in a slightly rhomboidal east-west cross section.

Feature fill consisted of 2 fairly distinct soil zones. The west half of the feature was filled with roof fall. The east half consisted of a light brown silt loam with charcoal inclusions, which appeared to be the result of postabandonment depositional forces. The fact that roof fall was found in only half of the feature might indicate that the collapsed roof was deposited unevenly on the surface below or that the materials were subsequently pushed to one side. The roof fall was lying directly on the bottom of the feature and no artifacts were found resting on the bottom of the feature, suggesting that the bin had been cleaned out prior to the collapse of the roof. Feature 3 is inferred to have been used for storage, although it is not known what sorts of items were stored.

Most of the artifacts recovered from the bin were found lying in or on roof fall, suggesting that the top of the roof had functioned as a use surface. This surface was not formally identified during excavation and no PL numbers were assigned. Recovered artifacts included 19 gray ware sherds (3 Chapin Gray rims, 16 Early Pueblo Gray body sherds), 10 flaked lithic debitage items (including angular debris), 1 indeterminate flaked lithic tool, 1 shaped stone slab, 1 two-hand mano, and 2 notched axes. The mano and both axes were broken.

Room 9

Room 9 is a large structure that occupies the central position in the front row of the roomblock (fig. 6.12). Similar to the other front rooms, very little remains of the original walls of this particular structure (fig. 6.23). While it is possible that Room 9 spans 2 back rooms (Rooms 2 and 3), conclusive physical evidence is lacking. With the exception of the alinement of upright sandstone slabs that forms a common wall with Room 8 to the east, and several rocks in an alinement that may form part of the north wall, excavation of a series of 2- by 2-m units failed to uncover any definite wall remnants. The exact size and shape of Room 9 therefore remain unknown. The structure may have been a room with 4 walls or merely a roofed area such as an open-air ramada; Rooms 9 and 10 may have been a single structure. However, comparison with other similar hamlets suggests that this is not the case. Identifying construction materials and techniques with certainty is also impossible, although the absence of associated rock rubble suggests that, if walls existed, they were probably of jacal construction. A roof is inferred on the basis of burned vegetal material and adobe found on the floor of the room; the exact characteristics of the roof support system, however, remain unknown.

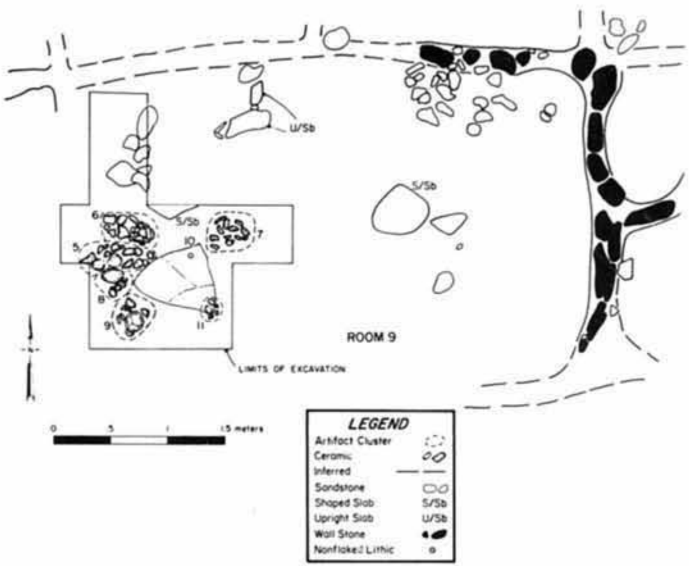

Figure 6.23 – Map of Room 9, Hamlet de la Olla. Note limits of excavation.

A small portion of the room was excavated by trowel to retrieve several ceramic vessels that were first exposed during the course of shovel scraping and to identify the surface upon which these vessels were resting (fig. 6.23).

A metate was also exposed during the excavation. The remainder of the room was not excavated beyond the point necessary to ascertain the presence or absence of walls.

Stratigraphy. – The stratigraphic fill sequence of Room 9 is similar to that already described for other rooms in the roomblock. Surface 2, the living surface or floor of the room, immediately overlies sterile soil at approximately 30 cm below modern ground surface. This surface was recognized on the basis of a slight difference in compaction between it and overlying fill, Surface 2 being more tightly compacted. Lying directly on top of the floor is roof fall, which varies in thickness from 10 to 15 cm. This stratum may include collapsed wall materials as well.

Roof fall itself war designated Surface 1 beccuse, based on the artifacts lying on or near the top of it, the roof is inferred to have functioned as a use surface prior to its collapse. Overlying roof fall and continuing to modern ground surface was the usual postabandonment fill consisting of silt loam with charcoal and burnt clay inclusions.

Surfaces. – As noted in the preceding section, Surface 1 consists of the roof fall zone. It was encountered 15 to 20 cm below modern ground surface and recognized as a surface on the basis of the artifacts found lying on and within it (table 6.8). Among the items recovered from the surface were a Moccasin Gray jar and a Chapin Gray jar. The Chapin Gray rim sherds and the Early Pueblo Gray sherds designated PL 8 are from a single vessel and therefore represent a second Chapin Gray jar. Other vessels are apparently represented by the numerous sherds that are part of PL 7. Five Chapin Gray jar sherds, 78

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Table 6.8 – Artifacts recovered from Surface 1, Room 9, Hamlet de la Olla

PL No.*	Material class	Item description
5	Ceramic	DL Chapin Gray jar sherd
5	Ceramic	DL Chapin Gray jar sherds (2): vessel 19
5	Ceramic	DL EP Gray jar sherds (28): vessel 19
6	Ceramic	DL Chapin Gray jar sherds (2): vessel 19
6	Ceramic	DL EP Gray jar sherds (53): vessel 19
7	Ceramic	DL Chapin Gray jar sherds (7): vessel 19
7	Ceramic	DL Chapin Gray jar sherds (4)
7	Ceramic	DL EP Gray jar sherds (23)
8	Ceramic	DL Chapin Gray jar sherd (1)
8	Ceramic	DL EP Gray jar sherds (44)
9	Ceramic	DL Moccasin Gray jar sherds (14): vessel 20
9	Ceramic	DL EP Gray jar sherds (35): vessel 20
10	Nonflaked lithic	Trough metate (broken)
11	Ceramic	DL EP Gray jar sherds (11)

* PL numbers are continued from Room 8 sequence.
Refer to figure 6.23 for artifact locations.
DL – Dolores Manufacturing Tract.
EP – Early Pueblo.
(N) – Number of items.

Early Pueblo Gray jar sherds and a trough metate were also recovered from Surface 1.

The presence of the ceramic vessels, apparently en, y at the time of abandonment, suggests the possibility of storage or food preparation; the presence of the metate indicate. that resource processing took place. The roof of Room 9 is therefore believed to have been used for domestic or economic activities.

Surface 2, believed to be the floor of Room 9, was defined on the basis of a slight difference in compaction between this surface and overlying roof fall. The surface appears to be use-compacted but not deliberately prepared. No artifacts were recovered from this surface. The fact that roof fall was lying in direct contact with the floor suggests that the roof collapsed very soon after abandonment of the structure.

Features. – Two possible features, neither of which were excavated or assigned feature numbers, were tentatively identified in Room 9 during the course of shovel scraping (fig. 6.23). A shaped sandstone slab was partially exposed slightly east of the center of the room. This slab may have been resting on the roof when it collapsed, or it may extend down to the depth of the floor, in which case it possibly indicates the presence of a floor-associated feature (e.g., a subfloor cist or hearth). Another possible feature, consisting of 2 upright sandstone slabs oriented at a slightly obtuse angle to one another, was identified along the inferred north wall of the structure. This slab arrangement might represent a bin or some other feature associated with the floor. Refer to the feature section in the Room 8 discussion for a description of the similarities between this slab arrangement and other features located in Rooms 8 and 10.

Room 10

The exact limits of Room 10, the westernmost structure in the front row of the roomblock, are unknown. Several 2- by 2-m units in the vicinity of Room 10 were excavated in an unsuccessful attempt to locate the south, east, and west walls. The north wall of Room 10 is also the south wall of Rooms 5 and 6. Whether Room 10 was an enclosed room with walls, or an open-air, roofed ramada is not known. Room 10 is shown in plan view in figure 6.12.

Based on the absence of wall rubble associated with Room 10, if walls existed, they were likely of jacal construction. Excavation of this room was terminated at the point at which the presence or absence of walls could be determined. However, a posthole consisting of a circle of sandstone rocks was observed protruding through the fill in the southwest corner of the room. These rocks probably helped support a post at floor level. Therefore, it is postulated that the floor lay within a few centimeters of the excavated depth. The posthole is large enough to have accommodated a main roof support post. Roof fall was observed throughout the room during shovel scraping and limited excavation.

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Features. – Although Room 10 was not excavated to the floor, it was excavated close enough to the floor to permit the recognition of not only the previously mentioned posthole but the tentative identification of 2 other possible features as well. A round, shaped sandstone slab was partially exposed along the north wall of the structure; like the slab found in Room 9, this slab extends below the excavated depth and possibly indicates the presence of a feature associated with the floor. Also recognized as a possible feature is a cluster of several unshaped sandstone rocks plus one upright slab near the north wall of the structure. The significance and function of this rock pile is not known, but it certainly is not a haphazard or fortuitous arrangement. Refer to the feature discussion under Room 8 for a comparison between this rock pile and others found in Rooms 8 and 9. Neither of the possible features identified in Room 10 was excavated.

Posthole (Feature 9)

Dimensions:

Length:	17 cm
Width:	13 cm
Depth (From shoveled surface to feature base):	16 cm

Feature 9 is a cylindrical posthole believed to be associated with the floor of Room 10 (fig. 6.12). The posthole is presumed to have accommodated the southwest corner main support post for the roof. Seven sandstone rocks were arranged in a circular fashion around the posthole opening; these rocks probably served as post supports. Excavated fill consisted of postabandonment deposits with occasional charcoal inclusions. No artifacts were recovered from the fill.

MATERIAL CULTURE

Area 1

Flaked Lithic Artifacts

Flaked lithic materials may be divided into 2 broad categories: tools and debitage (waste materials). Refer to Phagan (1981) for a discussion of the DAP flaked lithic analysis system. A total of 11 flaked lithic tools were recovered from Area 1 (table 6.9). Of these, 6 were recovered from the modern ground surface; the remainder were from subsurface excavated units. Of those recovered from excavated units, only 1 (an unused core) was found in association with a prehistoric cultural surface (Surface 1 of Occupation Area 1). Due to the small total number of items available for analysis, surface and subsurface materials will be discussed together, with the realization that combining materials from proveniences of widely varying cultural contexts will necessarily reduce the significance and interpretability of the results.

Five morpho-use categories are represented in the flaked lithic tool assemblage from Area 1. Unused cores and utilized flakes are the most common tool forms encountered, followed by thin and thick unifacially worked items. Identification of the possible functions of these items awaits the results of intensive functional analysis.

The raw material types represented in the flaked lithic tool collection from Area 1 have been identified as locally available materials. The most frequently encountered materials are Burro Canyon chert, Burro Canyon quartzite, and assorted river cobbles and gravels. Morrison chert and an unidentified chert are each represented by a single item. The Burro Canyon and Morrison materials are readily available at two quarry sites, Site 5MT2180 and Site 5MT4777, located 322 m northwest and 180 m southwest of Site 5MT2181, respectively.[1] River cobbles and gravels are available from the nearby Dolores River.

The 5 raw material types identified in the tool assemblage fall into 3 different grain size categories. Grain size evaluation is intended to reflect the relative ease with which a given lithic material flakes during the manufacturing process: finer-grained materials flake more easily than coarser-grained materials. Slightly over one-half of the Area 1 tools are of materials classified as very fine in terms of grain size; less than one-third are of materials classified as microscopic grained; and the remainder are of materials of fine grain size. Thus, relatively easily flaked materials appear to have been selected for tool manufacture.

The type and degree of dorsal facial thinning is indicative of the level of energy input during tool manufacture; in table 6.9 the different thinning stages are arranged from low input to high input. As can be seen from the data presented in the table, the majority of the Area 1 tools can be classified as relatively low energy input items; that is, none appear to have been extensively thinned or refined as a part of the manufacturing process.

A total of 104 pieces of flaked lithic debitage was recovered from Area 1 (table 6.10). Seventy-four of the items are flakes or pieces of flakes. Thirty are classified as angular debris, that is, specimens that exhibit fracture surfaces but do not appear to be actual flakes or flake fragments; thus, they may or may not be of cultural origin or significance. The present discussion excludes angular

[1]Edward R. Maloney, DAP, personal communication.

Table 6.9 – Flaked lithic tools, Area 1, Hamlet de la Olla

	Modern ground surface (N = 6)			Occupation Area 1 Surface 1 (N = 1)			Other excavated units (N = 4)			Area 1 total (N = 11)		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	6	100.0	154	1	100.0	682	4	100.0	64	11	100.0	169
Morpho-use form												
Indeterminate	1	16.7	2							1	9.1	2
Unused core	1	16.7	880	1	100.0	682	1	25.0	150	3	27.3	571
Utilized flake	3	50.0	13							3	27.3	13
Thin uniface	1	16.7	6				1	25.0	17	2	18.2	11
Thick uniface							2	50.0	45	2	18.2	45
Lithic raw material												
Burro Canyon chert	2	33.3	4				1	25.0	150	3	27.3	53
Burro Canyon quartzite	2	33.3	19				1	25.0	17	3	27.3	18
Local cobble-gravel	1	16.7	880	1	100.0	682	1	25.0	41	3	27.3	534
Morrison chert							1	25.0	48	1	9.1	48
Local chert, unidentifiable	1	16.7	2							1	9.1	2
Grain Size												
Fine	1	16.7	880	1	100.0	682				2	18.2	781
Very Fine	3	50.0	14				3	75.0	35	6	54.5	25
Microscopic	2	33.3	3				1	25.0	150	3	27.3	52
Dorsal face evaluation												
Indeterminate	1	16.7	2							1	9.1	2
Core, without faces	1	16.7	880	1	100.0	682	1	25.0	150	3	27.3	571
Unworked, with cortex	1	16.7	3							1	9.1	3
Unworked, without cortex	3	50.0	14				3	75.0	35	6	54.5	25
Item condition												
Broken, unidentifiable	1	16.7	2							1	9.1	2
Complete	5	83.3	185	1	100.0	682	4	100.0	64	10	90.9	186

debris, focusing instead on those items determined to be actual flakes. Forty-seven of the 74 flakes were recovered from modern ground surface; 27 were recovered from excavated units. Of the latter, only 4 were found in direct association with prehistoric cultural surfaces. Due to the small sample size, modern ground surface and excavated materials will be considered jointly.

Analysis of flaked lithic debitage focused on 3 major attributes: grain size, presence/absence of cortex, and whole versus broken flakes. Twenty of the flakes were classified as fine grained, 41 were classified as very fine grained, and 13 were classified as microscopic grained. Slightly over one-half of all the flakes had cortex and slightly less than one-third were whole. All flakes were of materials that could have been procured locally.

In the debitage profile for Area 1 of Hamlet de la Olla, a slight emphasis on the selection of easily flaked materials, which mirrors that observed for flaked lithic tools, is noted. The moderately high percentage of items with cortex suggests the possibility of at least some primary tool reduction or shaping. The relatively low percentage of whole flakes may be a function of the fracture properties of the raw materials being used, the manufacturing technique employed, or postproduction breakage. These cautious statements are conjectural, however, for they are based on a very small sample composed primarily of

Table 6.10 - Flaked lithic debitage, Area 1, Hamlet de la Olla

	Modern ground surface (N = 57)			Room 1 Surface 1 (N = 4)			Occupation Area 1 Surface 1 (N = 4)			Other excavated units (N = 39)			Area 1 total (N = 104)		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	#	%	Mean wt(g)
Flakes/flake frags:															
Grain size															
Fine	7	12.3	18	0	0	0	2	50.0	57	11	28.2	27	20	19.2	27
Very fine	30	52.6	8	1	25.0	1	0	0	0	10	25.6	15	41	39.4	9
Microscopic	10	17.5	5	1	25.0	1	0	0	0	2	5.1	3	13	12.5	4
Total flakes/ flake frags	47	82.4	...	2	50.0	...	2	50.0	...	23	59.0	...	74	71.1	...
Items with cortex		53.2			50.0			0			56.5			51.4	
Whole flakes		14.9			50.0			100.0			47.8			27.0	
Angular debris	10	17.5	7	2	50.0	8	2	50.0	2	16	41.0	3	30	28.8	5

frags - Fragments.
... - Information not available.

items recovered from units of questionable or unknown cultural context.

Nonflaked Lithic Artifacts

A discussion of the DAP nonflaked lithic analysis system is presented in Phagan (1981). The nonflaked lithic assemblage from Area 1 of Hamlet de la Olla consists of 7 tools, 3 of which were recovered from modern ground surface, the remainder are from excavated units. Only 2 tools were found lying directly on prehistoric cultural surfaces. Table 6.11 summarizes the nonflaked lithic tool data for Area 1. A breakdown of materials from modern ground surface and from excavated units is presented in the table, but the 2 will be considered together in the following discussion.

The nonflaked lithic tools were classified according to morpho-use type, raw material type, blank type, production stage, and item condition. Three trough metate fragments were recovered. One fragment was found in the fill overlying the Occupation Area 1 surface along with numerous rocks from a collapsed wall and may itself have been used in wall construction. The other 2 fragments were recovered from the surface of Occupation Area 1 and fit together to form part of a second metate (these 2 fragments are counted as a single item in table 6.11). Though the small sample precludes the positive identification of the range of activities that may have been conducted in Area 1, the presence of grinding implements, especially the presence of the metate on a use surface, suggests that at least some resource processing might have occurred.

The materials used for the 7 tools fall into 2 different categories. By far the most common lithic resource encountered in the tool assemblage is a sedimentary, medium-well cemented sandstone/quartzite. The manos and metates are among the items made of this material. Two tools, a hammerstone and a lapstone, were of igneous materials.

Blank type refers to the rock form that was selected for subsequent modification and use. The lapstone and all of the hand-held tools such as hammerstones and manos were classified as either modified or unmodified cobbles in terms of blank type. The metates were classified as shaped thin slabs. Three of the tools, 1 lapstone and 2 hammerstones, were used without modification of their natural forms. Three other tools, a one-hand mano and 2 metates, were minimally modified by pecking, flaking, or battering prior to use; and a single item, a mano, was too fragmentary to assess its production stage.

Ceramics

The ceramic assemblage recovered from Area 1 is small (table 6.12), providing little information useful in interpreting this portion of the site. Forty-two sherds, weighing a total of 146.5 g, were recovered from this area. Of these, 21 sherds were found on modern ground surface; the

Table 6.11 - Nonflaked lithic tools, Area 1, Hamlet de la Olla

	Modern ground surface (N = 3)			Occupation Area 1 fill (N = 1)			Occupation Area 1 Surface 1 (N = 2)			Other excavated units (N = 1)			Area 1 total (N = 7)		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	3	100.0	765	1	100.0	6200	2	100.0	7825	1	100.0	126	7	100.0	3467
Tool morpho-use															
Lapstone	0	0	0	0	0	0	1	50.0	5850	0	0	0	1	14.3	5850
Hammerstone	2	66.7	744	0	0	0	0	0	0	0	0	0	2	28.6	744
One-hand mano	1	33.3	808	0	0	0	0	0	0	0	0	0	1	14.3	808
Mano fragment	0	0	0	0	0	0	0	0	0	1	100.0	126	1	14.3	126
Trough metate	0	0	0	1	100.0	6200	1	50.0	9800	0	0	0	2	28.6	8000
Lithic raw material															
Igneous	1	33.3	542	0	0	0	1	50.0	5850	0	0	0	2	28.6	2196
Sedimentary	2	66.7	877	1	100.0	6200	1	50.0	9800	1	100.0	126	5	71.4	3576
Blank type															
Unmodified cobble	2	66.7	744	0	0	0	1	50.0	5850	1	100.0	126	4	57.1	1866
Modified cobble	1	33.3	808	0	0	0	0	0	0	0	0	0	1	14.3	808
Shaped thin slab	0	0	0	1	100.0	6200	1	50.0	9800	0	0	0	2	28.6	8000
Item condition															
Broken															
Unidentifiable	0	0	0	0	0	0	0	0	0	1	100.0	126	1	14.3	126
Identifiable	1	33.3	946	1	100.0	6200	1	50.0	9800	0	0	0	3	42.8	5649
Complete/nearly complete	2	66.7	675	0	0	0	1	50.0	5850	0	0	0	3	42.8	2400
Production evaluation															
Indeterminate	0	0	0	0	0	0	0	0	0	1	100.0	126	1	14.3	126
Natural (unmodified)	2	66.7	744	0	0	0	1	50.0	5850	0	0	0	3	42.8	2446
Minimally modified	1	33.3	808	1	100.0	6200	1	50.0	9800	0	0	0	3	42.8	5603

remaining 21 sherds were recovered from subsurface excavated units. Of the latter, only 12 sherds were found in direct association with prehistoric cultural surfaces. All of the recovered sherds are jar fragments. Because of the small amount of material present, surface and subsurface materials will be considered jointly in the following discussion.

All of the Area 1 sherds are classified as belonging to the Mesa Verde Culture Category as defined by Lucius (1981a). Several manufacturing tracts, defined on the basis of temper type and believed to correspond to geographic areas or divisions within the region, are recognized within the Mesa Verde Culture Category. These manufacturing tracts and their geographical correlates are tentatively defined as follows (Lucius 1981b):

- Dolores Tract - Dolores Project area and immediate vicinity.
- San Juan Tract - South of the Dolores Tract, extending into northwestern New Mexico.
- Blanding Tract - Southeastern Utah.
- Cahone Tract - Immediately west of the Dolores Project area.
- Animas Tract - Northern La Plata and Animas drainages (east of the project area).
- Sandstone Tract - Unknown.

Table 6.12 – Ceramic summary, Area 1, Hamlet de la Olla

	Modern ground Surface (N = 21)			Room 1 Surface 1 (N = 1)			Room 1 Surface 2 (N = 11)			Other excavated units (N = 9)			Area 1 total (N = 42)		
	N	%wt	wt(g)	N	%wt	wt(g)	N	%wt	wt(g)	N	%wt	wt(g)	N	%wt	wt(g)
Total:	21	100.0	77.3	1	100.0	1.6	11	100.0	27.7	9	100.0	39.9	42	100.0	146.5
Traditional type:															
DL Early Pueblo Gray	19	87.7	67.8	1	100.0	1.6	3	8.7	2.4	8	90.7	36.2	31	73.7	108.0
SJ Early Pueblo Gray	2	12.3	9.5	0	0	0	8	91.3	25.3	0	0	0	10	23.7	34.8
SS Early Pueblo Gray	0	0	0	0	0	0	0	0	0	1	9.3	[illegible]	1	2.5	3.7
Vessel form:															
Jar	21	100.0	77.3	1	100.0	1.6	11	100.0	27.7	9	100.0	39.9	42	100.0	146.5
Bowl	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Temper:															
Dolores crushed igneous rock	19	87.7	67.8	1	100.0	1.6	3	8.7	2.4	7	62.1	24.8	30	65.9	96.6
San Juan crushed igneous rock	2	12.3	9.5	0	0	0	8	91.3	25.3	0	0	0	10	23.7	34.8
Dark crushed river cobble	0	0	0	0	0	0	0	0	0	1	28.6	11.4	1	7.8	11.4
Dakota sandstone	0	0	0	0	0	0	0	0	0	1	9.3	3.7	1	2.5	3.7

DL – Dolores Manufacturing Tract.
SJ – San Juan Manufacturing Tract.
SS – Sandstone Manufacturing Tract.

Nearly 75 percent (by weight) of the Area 1 ceramic assemblage is classified as belonging to the Dolores Manufacturing Tract on the basis of the Dolores crushed igneous rock temper observed in the individual sherds. The remaining assemblage falls into the San Juan and Sandstone Manufacturing Tracts, based on the San Juan crushed igneous rock and Dakota Sandstone temper. All of these sherds are plain gray body sherds without diagnostic surface manipulation (e.g., coils, fillets, corrugation); therefore, they could only be identified as Early Pueblo Gray. The presence of several sherds from manufacturing tracts other than the Dolores indicates some contact with areas somewhat removed from the immediate project area.

All of the ceramic materials recovered from Area 1 are jar fragments. Gray ware jars are generally believed to have served as everyday utilitarian storage and cooking vessels, and they are ubiquitous in Anasazi sites. None of the sherds recovered from prehistoric surfaces in Area 1 were found in use association, preventing the precise identification of the function or range of functions that they might represent.

Human Bone

Human skeletal remains from Area 1 consist of a fragmentary, poorly preserved burial (Burial 24, Feature 1) recovered from the postabandonment fill of Room 1. The remains consist of the leg, arm, and hand bone fragments of a single individual, 15 to 19 years of age, sex unknown. No pathological problems or anomalies were observed. A complete inventory of the skeletal remains is listed in table 6.13. The burial was not found in association with a surface or with any grave goods; therefore, its cultural affiliation is not known.

Dating Samples

No tree-ring, carbon-14, or archaeomagnetic samples were taken from Area 1 because the appropriate remains (wood, organic materials, burned earth) were not encountered during excavation.

Inferences

Inferences based on the material culture remains recovered from Area 1 are necessarily very limited in scope.

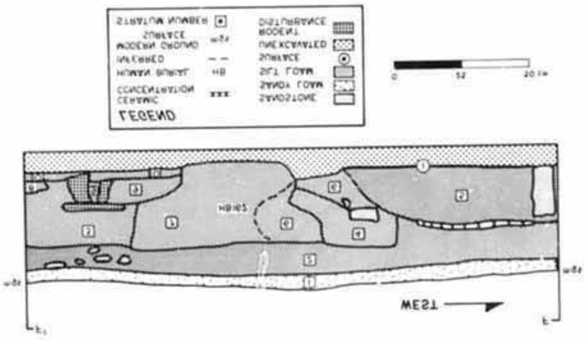

Figure 7.35 - Stratigraphic profile, Room 13, Area 1, Kin Tl'ish. Refer to figure 7.34 for profile location.

Stratigraphy. – The floor in Room 13 was excavated into native earth. Deposits above the floor (Strata 3, 5, and 9 in fig. 7.35, table 7.22) are interpreted as collapsed structural materials, primarily wall fall, based on color and texture, absence of inclusions, and decreasing thickness away from the standing walls.

Burial 30 (Feature 162) intrudes from the top of the collapsed structural units. Fill immediately surrounding the skeleton (Stratum 7) was redeposited native earth. Stratum 7 exhibited a gradual boundary with the contiguous deposit to the west (Stratum 6). Stratum 6 was bifurcated by Stratum 4. Based on this sequence, it is likely that the original burial pit was excavated larger than was required and then was back filled (with Strata 4 and 6).

The east edge of the burial pit (the edge of Stratum 4) appears to have been truncated and may form a low wall for an ephemeral surface immediately to the west. This surface was defined by a ceramic concentration. This concentration may define a later occupation or a use surface. Scattered human bone was recovered only above this depth (i.e., from Stratum 2). This situation is similar to Feature 2 in Rooms 1 and 7, and possibly in Room 5, where human remains were recovered only from above an ephemeral surface.

Surface 1. – The Room 13 floor (Surface 1) is excavated into native earth. The southwest portion of the floor is 5 to 7 cm lower than elsewhere, and may represent an earlier surface, possibly associated with an earlier extent of Room 3. Supporting the possibility that Room 13 was built over an earlier surface is the presence under the southwest corner of Room 13 of a slab-lined pit (Feature 148) assigned to Room 3. The lower area of the Room 13 floor cannot be distinguished stratigraphically from the rest of the floor, and the presumption is that after the construction of Room 13, both the lower and the higher parts of the floor were in use at the same time.

Only 6 artifacts were recovered from the surface; the 4 sherds (table 7.23) indicate that Room 13 was probably occupied between A.D. 910 and 1100, and possibly during the Cline Subphase (A.D. 900-975) of the McPhee Phase (A.D. 850-975). Because very little of Surface 1 was cleared, inferences about the architecture, the relationships of features to room use, and temporal classification would be highly tenuous.

Posthole (Feature 147). The only posthole identified on Surface 1 (table 7.24) is located in the sunken, southwest corner of the room, near the wall. The pit was filled with strong brown silt loam containing charcoal flecks and an Early Pueblo Gray jar sherd. Rotted fragments of gymnosperm (Gymnospermae) wood were recovered from the fill. Despite the presence of rotted wood, the fill was identified as a postoccupational deposit, based on its similarity to deposits covering the floor near this feature.

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Table 7.22 - Stratigraphic description, Room 13, Area 1, Kin Tl'ish

Stratum No.	Sediment description	Color (Munsell notation)	Inclusions	Comments/interpretations
1	Sandy loam; loose		Common large sandstone slabs (not in profile)	Postabandonment deposit; sandstone slabs may be part of Burial 30 cover as well as wall collapse
2	Silt loam	Dark brown (7.5YR 3/4, dry)	Common large sandstone slabs (not in profile), and ceramics and lithic artifacts (not collected); some fragments of human bone collected as Burial 31	Postoccupational deposit; sandstone slabs may be part of Burial 30 cover as well as wall collapse
3	Silt loam	Dark yellowish brown (10YR 4/4, dry)	Common sandstone slabs (not in profile); few ceramic and ceramic artifacts (not collected); and few large mottles of strong brown silt loam	Postoccupational deposit of secondary refuse and structural units, especially the east walls
4	Silt loam	Dark brown (7.5YR 4/4, dry)	Charcoal and few mottles of brown silt loam	Mixed postoccupational deposit; possibly backfill of Burial 30
5	Silt loam; fine	Strong brown (7.5YR 4/6, moist)	Dark brown silt loam and charcoal flecks	Collapsed structural unit or redeposited native earth for construction of (unidentified) later surface
6	Silt loam	Strong brown (7.5YR 5/6, dry)	Dark brown silt loam and charcoal flecks	Mixed postoccupational deposit; probably backfill of Burial 30
7	Silt loam	Dark yellowish brown (10YR 4/4, moist)	Brownish yellow silt loam	Construction fill for Burial 30
8	Silt loam	Dark brown (7.5YR 3/2, moist)	Common organic material	Wall or roof collapse; burned
9	Silt loam	Yellowish red (5YR 5/6, moist)		Native earth
10	Silt loam; very fine	Strong brown (7.5YR 4/6)		
11	Silt loam	Dark brown (10YR 3/2, dry)	Common charcoal and burned adobe	Postoccupational fill, probably including wall collapse or roofing materials for the cist

Table 7.23 - Point-located artifacts, Surface 1, Room 13, Area 1, Kin Tl'iish

PL No.	Material class	Item description
1	Flaked lithic	Debitage
2	Flaked lithic	Thick uniface
3	Ceramic	DL Early Pueblo Gray jar sherds (2) DL Mancos Corrugated jar sherd
4	Ceramic	DL Early Pueblo Gray jar sherd

Refer to figure 7.34 for artifact locations.
(N) - Number of items.
DL - Dolores Manufacturing Tract.

Table 7.24 - Feature summary, Surface 1, Room 13, Area 1, Kin Tl'iish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
147	Posthole	Round	Cylindrical	17	17	15
192	Unburned pit	Oval	-	19	12	-
193	Unburned pit	Oval	-	74	69	-

Refer to figure 7.34 for feature locations.
- Information not available.

Unburned pits (Features 192 and 193). - This small pit (Feature 192) is located near the west wall of Room 13. No function is inferred.

Feature 193 is a large pit near the north wall. It was partially truncated by the pit for Burial 30 (Feature 162). The pit was not investigated.

Other cultural surfaces. - A burial intrudes from above Surface 1 in Room 13. Although no occupation or use surface was identified, it is probable that one existed.

Burial 30 (Feature 162)

Dimensions:

North-south axis	1.60 cm
East-west axis	unknown
Depth	35 cm

A primary burial (fig. 7.36) was excavated in the upper fill of Room 13. Sandstone slabs covered the burial and partially lined the pit. No grave goods were present; however, a few artifacts and botanical remains were recovered from the burial matrix. Presumably, most of these artifacts came from the west edge of the burial in what appeared to be backfill. These artifacts included 19 sherds, an abrading stone, and a single indeterminate seed. Backfill may have been used to reduce the size of the burial pit. Fill immediately around the bones was clean. The procurement of clean fill may have been considerably more difficult than procurement of mixed trash and earth, and backfilling might have been considered expedient. Bulk soil samples were collected from the clean fill around the bones. Remains from a sample taken near the stomach region of the skeleton are probably indicative of materials deposited around the body; wood as well as edible seeds are present in the sample.

The individual was interred in a supine position with arms extended along her sides and her legs extended. Rodent disturbance was evident at the east edge of the burial pit; rodent activity is believed to account for the absence of foot bones and most hand bones. Some bones possibly went unnoticed since the pit fill was not screened.

Interpretations. - Part of the west wall of Room 13 was well defined. Two other walls, if correctly identified, were obscured by wall fall. Only in the apparent northwest quadrant of the room was the floor cleared, and walls were not exposed to floor level except along the west edge

Figure 7.36 - Feature 162 (Burial 30), Room 13, Area 1, Kin Tl'iish (DAP 123412)

of the room. Where the floor was cleared, a plethora of pits was identified. Not all of these were necessarily used during the occupation of Room 13.

This room not only truncates the earlier Room 3 to the west, but also truncates an underlying structure identified by the shallow depression into which a posthole (Feature 147) intrudes. However, the room does not represent the last occupation at the site. The few ceramics on the floor are consistent with a Cline Subphase or possibly Sundial Phase occupation. Also, the burial is intrusive from above and probably predates an additional ephemeral surface visible in the east-west stratigraphic profile (fig. 7.35).

The function of the room is not known. Room 13 is stratigraphically later than adjacent masonry rooms and it need not have been used for the same purpose (domestic and economic) as other rooms in the same relative location (i.e. at the "front" of the roomblock unit).

Nonstructural Unit 1

Nonstructural Unit 1 is located north of Roomblock Unit 1, near the west end of the roomblock. It is defined by the presence of Feature 1, a large pit (fig. 7.37). The boundaries of the occupation surface are not known; documentation was limited to a single hand-dug trench and two 2- by 2-m units (fig. 7.3). Nonstructural Unit 1 may be continuous with Nonstructural Unit 5 to the east.

Surface 1

The surface of Nonstructural Unit 1 is defined as the contact between cultural and natural deposits; the surface does not appear to have been prepared, although disturbance caused by rodent activity and slope wash (the ground surface dips to the north in this area) may have obscured evidence of preparation. The surface and associated features were discovered in test excavations north of the roomblock; no artifacts were collected from this surface. Three features are present in the investigated portion of Nonstructural Unit 1 (table 7.25).

Unburned pit (Feature 1). - Feature 1 is a large, partially rock lined pit. The lining extends along the east and south edges, and across the base of the feature. More than 80 rocks were present; these sandstone fragments and river cobbles range between 3 and 15 cm in diameter. The feature fill is a strong brown silt loam with inclusions of charcoal, rocks, artifacts, and adobe. The artifacts are primarily Early Pueblo Gray jar sherds, flaked lithic debitage, and burned animal bone. No direct evidence of burning showed in the pit, although at least some of the animal bone and all vegetal materials are charred. The

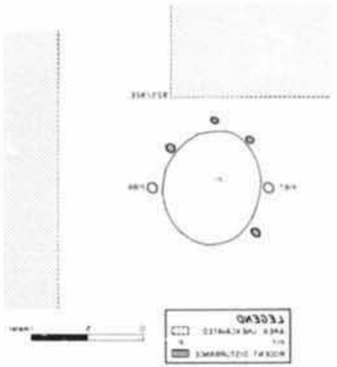

Figure 7.37 - Map of Surface 1, Nonstructural Unit 1, Area 1, Kin Tl'iish

Table 7.25 – Feature summary, Surface 1, Nonstructural Unit 1, Area 1, Kin Tl'iish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
1	Unburned pit	Oval	Basin	97	84	27
186	Unburned pit	Round	Cylindrical	12	9	14
187	Unburned pit	Round	Triangular	11	8	1

Refer to figure 7.37 for feature locations.

only Mancos Black-on-white sherd came from the upper part of fill and that the only Mancos Gray jar sherd might have come from lower cultural fill; both sherds are small (2.7 g and 9 g, respectively).

Feature 1 was disturbed as a result of rodent activity, and the Nonstructural Unit 1 surface north of the feature appears to be eroded. Several small holes are located around the perimeter of the pit. At least 2 of these are cultural (Features 186 and 187). Four others may be rodent burrows or pits heavily disturbed by rodent activity (fig. 7.37).

Rodent disturbance in the area is sufficient to have moved sherds or other small artifacts; however, the feature could have been filling or even could have been in use during the final occupation of the site, thus accounting for the presence of late ceramics. Presumably, based on the quantity and diversity of artifacts and their unburned matrix, the final use of the pit was as a trash repository. The original function of the pit might have been for processing or storage. The first possibility accounts for the feature location, north of the roomblock in a little-used area. The second possibility, its function as a roofed storage cist, could account for the small pits around its perimeter; the rocks in fill, and the lack of burning in the pit, since a storage pit would be expected to have been covered.

Unburned pits (Features 186 and 187). – Features 186 and 187 are small pits. Feature 186 is less than 6 cm east of Feature 1 and Feature 187 is to the west. The fill of both pits was a brown loam with flecks of charcoal. Based on their size, shape, and proximity to Feature 1, these features may have functioned as postholes.

Interpretations

Nonstructural Unit 1 is defined only in the vicinity of Feature 1. Two smaller pits (Features 186 and 187) were identified adjacent to the large pit. The boundaries of Nonstructural Unit 1 are not known; it may be continuous with Nonstructural Unit 5.

Artifacts were collected only from Feature 1. These artifacts may be compared with collections from probability square 868N/90E, 2 to 4 m north of Feature 1. Artifacts from both the feature and the probability square were collected by screening, so ratios of artifact types (aside from perishable materials) should be similar if both locations had been used only for the same sorts of activities (i.e., undifferentiated trash disposal) and had been affected by the same natural factors (i.e., the deposition of sediments from slope wash). They are not similar. Feature 1 has a higher ceramic to flaked lithic artifact ratio. The difference may indicate that artifacts near Feature 1 are functionally associated to its use. Date estimates for both the probability square deposits and Feature 1 are based on the ceramic types present, and deposition at the 2 locations could be contemporaneous. Most of the ceramics in Feature 1 could have been deposited during the A.D. 860 to 910 time period, just a single Mancos Black-on-white from the post-A.D. 980 occupation of the site is present. Although the small sample size from the probability square limits dating precision, most of these sherds were deposited sometime in the A.D. 825 to 910 period, and a single Mancos Black-on-white sherd from this unit indicates some post-A.D. 980 deposition here as well.

Nonstructural Unit 1, and adjacent areas northwest of Roomblock Unit 1, appear to have been used for trash disposal and processing or storage activities during the Pueblo I occupation and possibly during the Pueblo II occupation.

Nonstructural Unit 4

Nonstructural Unit 4 is the plaza area southwest of Roomblock Unit 1. The extent of the plaza was not determined; the occupation surface was identified only in the area immediately south of Room 3. Investigation of the plaza area consisted primarily of the excavation of several backhoe trenches and hand excavation; these excavations revealed 5 pits (1 pit was not numbered) and a posthole. These features are probably associated with Roomblock Unit 1.

Modern agricultural disturbance was apparent in the long trench running south from the roomblock (fig. 7.38) and in trenches further south, north of Pitstructure 1. As a result, only deep features are expected to remain in the plaza area. All 5 of the features identified are relatively deep and, thus, may be presenting more of an economic focus for the plaza area than is justifiable.

Stratigraphy

Three pits in Nonstructural Unit 4 were investigated in a backhoe trench profile (fig. 7.39, table 7.26). From that profile it is apparent that Feature 16 cut into Feature 17. The stratigraphic relationship of Feature 96 to the rest of Nonstructural Unit 4 was not investigated.

Feature 17 was cut into native earth; sometime later burned silt loam (Stratum 8) containing charcoal and artifacts was deposited in the pit, possibly as a result of use (fig. 7.39). During the deposition of Stratum 8, water washed into the pit, evidenced by internal laminae (Stratum 9). Sometime later, Strata 8 and 9 appear to have been reexcavated near what had been the approximate center of the pit, and large pieces of adobe associated with Stratum 8 formed what might have been a partial lining for the small pit that was created by the reexcavation. The small pit and the earlier deposits were subsequently covered by a mixed, natural and cultural deposit (Stratum 6).

At this point, or possibly after continued filling of the depression, the northern three-quarters of Feature 17 was truncated by a large pit (Feature 16). The lowest fill in Feature 16 (Stratum 17) represents either primary refuse from pit use or a brief episode in which secondary refuse was deposited. This is overlain by a primary deposit (Stratum 10) composed almost entirely of charcoal. The irregular northern edge of the pit may indicate the imminent collapse of that part of the pit (Stratum 11), which was forestalled by the presence of secondary refuse (Stratum 15, possibly with Strata 13, 18, 19, 20, 21, and 22) that was deposited in the feature. Stratum 13, a refuse deposit with abundant artifacts and charcoal, probably filled most of the remaining depression. A lens of natural deposit (Stratum 14) was also included within this refuse. The southern portions of Strata 6, 13, and 15 were subsequently truncated by an unnumbered pit, and materials described as Strata 3b, 3c, and 4 were deposited. Most of this deposit is secondary refuse. Whether these units are associated with a burned loam and charcoal deposit (Stratum 3a) to the south is not apparent.

By this time, Feature 20 had been excavated. Feature 20, the unnumbered intrusive pit, and the area between these

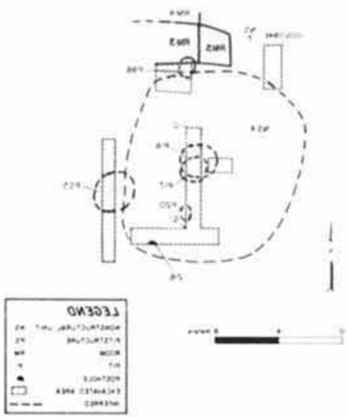

Figure 7.38 – Map of Surface 1, Nonstructural Unit 4, Area 1, Kin Tl'iish

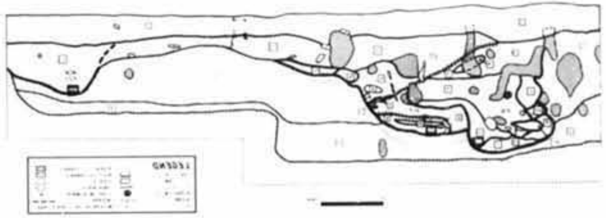

Figure 7.16 – Stratigraphic profile, Nonstructural Unit 4, Area 1, Kin Tl'iish. Refer to Figure 7.14 for profile location.

2 features were covered with a deposit (Strata 2a, 2b, and 2c) at least part of which was cultural in origin. These upper deposits, including native earth in some areas, were cut and mixed as a result of modern plowing or disking.

In summary, the profile shows a sequence in which Feature 17 was cut, partially filled, and reused before Feature 16 was excavated into it. Feature 16 was filled with refuse, including burned debris and artifacts; then a shallower (unmonitored) pit was cut into its fill. At least 3 burned deposits (Strata 8, 10, and 3a) are associated with this sequence. These deposits may be directly associated with the use of the 3 pits (that is, Stratum 8 may be associated with the initial use of Feature 17, Stratum 10 may be associated with the use of Feature 16, and Stratum 3a may be associated with the use of the upper, unmonitored pit). Based on the ceramics recovered from Nonstructural Unit 4, the entire cut and fill sequence is associated with the occupation of Roomblock Unit 1. Although Feature 17 may have initially been a borrow pit, the primary use of these pits appears to have been for refuse disposal and perhaps roasting activities.

Surface 1

The probable use surface was identified only immediately south of Room 3, where it is a contact with native earth. The 5 features associated with Nonstructural Unit 4 (Table 7.27) had been excavated into native earth.

Posthole (Feature 216) – Feature 216 was noted in an east-west backhoe trench in the southern portion of Nonstructural Unit 4. The feature is recorded as a posthole, but since no excavation was conducted, a positive identification could not be made.

Unburned pit (Feature 16) – This large basin truncates Feature 17, an earlier pit. Feature 16 may be roughly circular, but it was only observed from a backhoe trench. The trench revealed stratified fill that contained many burned artifacts, although no evidence of burning was noted on pit walls. Not all cultural materials identified from Feature 16 were collected. Feature fill exhibited multiple episodes of pit use and subsequent filling with secondary refuse.

Although the function of the pit was not determined, the feature was likely involved in either storage or roasting activities because of its relatively large size. The feature walls had not been lined with adobe or burned in order to protect its contents from rodents (Dick and Dick 1980); neither does it appear to have been roofed. The feature might have served as a roasting pit. Elsewhere, roasting pits have been used in such a manner that the edges of the features did not burn. On the Columbia Plateau, food was layered between plant leaves within a pit, a fire was built at the top of the pit, and water was poured down the edges of the pit to produce the steam for cooking (Smith 1983:251-252). If Feature 16 was used for food preparation, it might have been in the manner described above. Pollen samples from this feature include numerous fragments of charred wood and leaves and various charred fruits and seeds. These may represent use of the feature for trash disposal as well as for its primary function.

Unburned pit (Feature 17) – This large basin predates Feature 16 and was truncated by it. It also contains stratified fill, which was truncated on at least one occasion prior to the construction of Feature 16; this might have

Table 7.26 – Stratigraphic description, Nonstructural Unit 4, Area 1, Kin Tl'iish

Stratum No.	Sediment description	Color (Munsell notation)	Inclusions	Comments/interpretations
1	Silt loam	Brown to dark brown (7.5YR 4/4, dry)	Cultural materials (not in profile) granular structure with numerous roots	Clear wavy boundary underlies Strata 2 or 11. Plow zone
2a	Silt loam	Dark brown (7.5YR 3.5/2, dry)	Charcoal flecks, adobe sandstone spalls, lithic and ceramic artifacts, fine mottles of brown silt loam	Clear wavy boundary to Stratum 3a or Stratum 11. Postoccupational deposit (partially), cultural origin based on mounded distribution of sandstone spalls. Probably sheet trash
2b	Silt loam	Dark brown (7.5YR 3.5/2, dry)	Same as 2a, except charcoal inclusions are as great as 2 cm	Upper postoccupational fill of Features 16 and 17, based on position
2c	Silt loam	Dark brown (7.5YR 3/2, dry)	Adobe, common charcoal flecks, ceramic sherds, sandstone spalls and mottles of brown silt loam	Postoccupational fill of Feature 20 (unburned pit). Probably deposited by same agent as Stratum 2a, distinguished from Stratum 2a by more common charcoal – possibly a remnant reflecting feature use. Possible cultural fill
3a	Silt loam	Dark reddish brown (5YR 3/3, dry)	Flecks of charcoal and adobe, as large as 10 mm	Primary burned deposit
3b	Silt loam	Reddish brown (5YR 4/3, dry)		Adobe; part of Stratum 3c refuse deposit

(617)

Table 7.26 - Stratigraphic description, Nonstructural Unit 4, Area 1, Kin Tl'iish - Continued

Stratum No.	Sediment description	Color (Munsell notation)	Inclusions	Comments/interpretations
3c	Silt loam	Reddish brown (5YR 4/3, dry)	Charcoal and adobe as large as 1 cm, single gray ware sherd, sandstone	Refuse, in part
4		Brown (7.5YR 5/4, dry)	Within Stratum 3c; contains flecks of charcoal and adobe	Part of Stratum 3c depositional event
5	Lens	Dark brown (7.5YR 3/2, dry)	Common charcoal inclusions and some flecks of adobe	Part of Stratum 6 depositional event
6	Silt loam	Reddish brown (5YR 5/3, dry)	Charcoal and adobe inclusions	Mixed natural and cultural deposit
7	Silt loam	Reddish brown (5YR 5/3, dry)	Charcoal and adobe	As Stratum 6, but harder and with more charcoal
8	Silt loam	Yellowish red (5YR 5/6, dry)	Flecks of charcoal and large fragments of charcoal	Cultural fill, Feature 17
9	Laminae	Yellowish red (5YR 5/6, dry)	Charcoal and adobe	Based on laminae, probably water-deposited from Stratum 8
10	Silt loam	Dark brown (7.5YR 3/2, dry)	Very common charcoal, some adobe and a few sherds. Upper part is gray to black with charcoal; lower part has larger silt loam deposits	Primary deposit, washed into pit naturally
11	Silt loam	Yellowish red (5YR 5/6, dry)		Native earth

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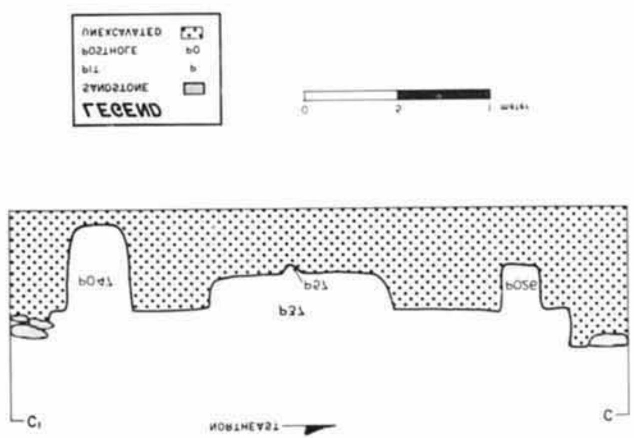

Figure 7.26 - Architectural profile, Room 5, Area 1, Kin Tl'ish. Refer to figure 7.24 for profile location.

Table 7.16 - Point-located artifacts, Surface 2, Room 5, Area 1, Kin Tl'ish

PL No.	Material class	Item description
3	Nonflaked lithic	Abrading stone
4	Flaked lithic	Debitage
5	Ceramic	Dolores Manufacturing Tract Early Pueblo Gray jar sherd
6	Flaked lithic	Angular debris (2)
7	Flaked lithic	Debitage
8	Flaked lithic	Angular debris
*353	Human bone	Tarsal: cuneiform (not mapped)
*354	Human bone	Metatarsals (2) (not mapped)
*355	Human bone	Ribs (2) (not mapped)
*356	Human bone	Cervical vertebra (not mapped)

*These artifacts were recovered from room fill above Surface 2 and are not mapped.
Refer to figure 7.24 for artifact locations.
(N) - Number of items.

The features assigned to Surface 2 (table 7.17) include 2 very shallow pits (Features 78 and 79) on the east side of the room where the floor cuts most deeply into native earth. These 2 features may be more correctly associated with the underlying Nonstructural Unit 7. Features 48 and 57, 2 pits that were truncated by the construction of Feature 37, also might have been associated with the earlier use surface.

Postholes (Features 26, 31, 32, and 47). One posthole is located near each corner of the room. Construction of these 4 features appears very similar: a base stone rests

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Table 7.17 - Feature summary, Surface 2, Room 5, Area 1, Kin Tl'ish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
26	Posthole	Round	Cylindrical	27	22	27
27	Unburned pit	Oval	Cylindrical	16	9	13
30	Unburned pit	Oval	Basin	15	12	10
31	Posthole	Round	Cylindrical	31	27	37
32	Posthole	Round	Cylindrical	30	30	32
37	Burned pit	Round	Basin	96	81	18
47	Posthole	Round	Cylindrical	34	26	50
48	Unburned pit	Round	Cylindrical	32	18	18
57	Unburned pit	Complex	Complex	19	13	10
58	Unburned pit	Round	Cylindrical	10	9	7
59	Unburned pit	Oval	Basin	13	7	7
78	Unburned pit	Oval	Basin	36	19	6
79	Unburned pit	Oval	Basin	8	5	4
80	Unburned pit	Round	Basin	12	9	5
81	Unburned pit	Round	Cylindrical	7	6	3
83	Unburned pit	Round	Basin	16	13	9
84	Unburned pit	Round	Basin	12	11	2
85	Unburned pit	Oval	Basin	7	6	4

Refer to figure 7.24 for feature locations.

on or near sterile sediment at the base of each pit, an upright would have been placed on the base stone, and small gravels in a silt loam matrix were used as packing around the posts. Gravels and base stones would be expected to modify posthole depth and drainage characteristics.

Both postholes at the north end of the room (Features 26 and 31) have 2 base stones. In Feature 26, 1 of these was a hammerstone. Part of a ponderosa pine post was recovered from that feature, as well. The 2 base stones in Feature 31 (unmodified river cobbles) are separated by 5 cm of small gravel. Small items used as packing above the upper base stone included a Early Pueblo Gray jar sherd. Charcoal recovered from that upper fill might be post remains.

Both postholes (Features 32 and 47) in the south end of the room had a single base stone. The base stone in Feature 47 was a ground stone artifact. Five lithic debitage flakes were included in the gravels above the base stone. The base stone rested on other gravels. In Feature 32, the base stone was an unmodified river cobble and no artifacts were present in the gravel packing.

Ponderosa pine from Feature 26 is the only material positively identified as a post remnant. Based on the absence of wood in Features 32 and 47 and on gravel packing have collapsed in on the base stones, posts from those features were probably scavenged.

Burned pit (Feature 37). This large, centrally located feature has nearly vertical walls and a relatively flat floor. Oxidation was noted along the northwest rim of the feature. The construction of Feature 37 truncated Features 48 and 57 (unburned pits) and possibly a small pit (Feature 80) located at the southwest edge of Feature 37. The pit was modified on at least 1 occasion; fill was packed against its south wall, creating a more regular plan and slightly reducing the size of the feature. This construction fill is slightly hard (when dry), brown silt loam containing adobe, charcoal, sandstone fragments, and 8 fragments of flaked lithic debitage. This fill and a large, unshaped sandstone slab covered Feature 80. A later pit (Feature 30) was excavated into the construction fill of the pit near Feature 80. Lower feature fill is brown silt loam, with large inclusions of brown to dark brown ashy silt loam, flecks of charcoal, larger chunks of burned wood, and artifacts. The presence of sherds and unburned bone fragments in addition to charcoal and ash indicate that this fill is probably secondary refuse. The upper fill was silt loam with abundant charcoal and with inclusions of many small sandstone slabs (fig. 7.27), some of which extended up through or lay upon Surface 1.

The function of Feature 37 is problematic. Its central location, evidence of burning on a portion of the rim,

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Figure 7.[illegible] Sandstone slabs in Feature 57 beneath Surface 2, Room 5.

and inclusions of patches of charcoal and ash in the lower fill suggest that it may have functioned as a hearth. The numerous slabs in its fill might have been used for heat retention during some type of cooking activities, although as sandstone, they could not have been directly used in stone boiling. An alternative interpretation is that Feature 57 is the remains of a storage cist that had a beehivelike structure of mud and slabs. Bolstering this interpretation is the occurrence of numerous small pits (Features 27, 80, 58, 59, 81, 84, and 85) that were found close to Feature 57. Although rodent disturbance is common in Room 5, these features differed from most rodent holes by having fairly regular plans and profiles and heterogeneous fill that included charcoal, as well as being dug into hard sediments. These features may have functioned to hold small poles that comprised part of a superstructure for Feature 57. The fact that some of the slabs associated with this feature lay atop Surface 1 also supports this interpretation. These slabs could have been derived from part of a superstructure still intact enough to extend above Surface 1 at the time it was formed, probably as a result of a temporary halt in the filling of the room. A roofed storage structure inside a room would be a rarity in Pueblo I context, though it is argued that Room 5 may not have had full-height walls and may actually have been a ramada or ramadalike structure.

Cobblestone(?) Feature 85. Feature 85 is a small round pit at the north end of the room. Stratified, uncompacted, strong brown silt loam lined the pit; a slightly compacted brown loam containing charcoal, adobe flecks, and 1 piece of flaked lithic debitage filled the pit depression. These strata were capped with brown to dark brown loam, compacted to a platy structure and flecked with charcoal. The upper capping may be intentional or it may be from the use of Surface 2 after the pit was filled.

Columnal pits (Features 45, 57, 75, and 76). Features 45 and 57 may predate Surface 2 because they are truncated by Feature 57. Feature 45 has a sandstone slab near its base and, therefore, was probably a posthole used some time prior to the construction of Feature 57. Feature 75, a bilobate pit, has two distinct lobes, one in either half of the pit. Except for its similarity to Feature 87 in Pueblo Unit 1, this pit probably would be dismissed as the base of a rodent burrow that was not recognized in the overlying fill of Feature 57. Instead, it is tentatively identified as cultural, although its function is not known. Features 75 and 76 are very shallow; originally they could have been deeper and might have been truncated by Surface 2. The basin-shaped profile of Feature 76 may be the result of rodent disturbance; probably the white-footed mouse, recorded in one of the areas of disturbance noted in the room floor. Feature 76 may have been a small storage cist with a depth of up to 16 cm, based on the east edge of Room 5 cutting 16 cm into native earth. Feature 76 is a true cist form. No function was identified for either Feature 75 or 76.

Miscellaneous small pits (Features 57, 81, 82, 84, and 85). These small pits were located near the perimeter of Feature 57 (fig. 7.24). Most of the pits slanted toward the hearth. The exceptions are Feature 84, which is very shallow and had vertical walls, and Feature 85, which angled away from the hearth. All but Features 75 and 81 contained charcoal. The irregular shapes and orientation of these pits may suggest that they are indeed the result of rodent activity. Another possibility is that some of these pits housed posts for a superstructure over Feature 57. Features 84 and 85 may actually be associated with Nonstructural Unit 7.

Interpretations. — Room 5 is a small end room with 4 substantial corner posts and a large central hearth. The other feature (Feature 85) is definitely associated with Room 5. Additional pits (Features 45, 57, 75, and 76) may be associated with an earlier surface truncated by the Room 5 floor.

The masonry walls of Room 5 are very insubstantial. The rocks and adobe in the vicinity of the room do not provide enough construction materials to account for the upper walls. Rocks from the walls of Room 5 may have been used during later construction, perhaps of Room 14 to the east. Alternatively, given the substantial corner posts, Room 5 may have been similar to a ramada where the roof rested on posts rather than walls and covered an open-air structure with low walls.

Room 5 is not a typical front room. Like end rooms in many Pueblo I roomblocks it is smaller than most front rooms and lacks storage rooms to the rear (refer to Brew 1946:152a, 191-193; Hayes and Lancaster 1975:80-81). It might have been used for domestic activities, such as food or raw materials processing or for storage. The location of Room 5 at the extreme west end of the roomblock indicates that it might have been a later addition.

Room fill contained some collapsed structural materials; it also contained intentional fill, evidenced by the presence of human bone (Feature 2), as found in other rooms within the same time range as other roomblock construction.

Based on ceramic dates for Surface 2 and feature fill related to structure use, construction and occupation of Room 5 probably occurred between A.D. 800 and 860. Architecture consisting of mud and rubble walls and a use-compacted floor is consistent with this date range and suggests architectural contemporaneity with adjacent Rooms 3 and 4.

Room 7

Dimensions

North wall	
length (excavated)	2.61 m
length (inferred)	2.61 m
thickness	0.22 m
height (remaining)	0.54 m
South wall	
length (inferred)	2.85 m
thickness	0.15 m
height (remaining)	0.37 m
East wall	
length (excavated)	2.00 m
length (inferred)	2.00 m
thickness	0.26 m
height (remaining)	0.39 m
West wall	
length (inferred)	2.00 m
thickness	unknown
height (remaining)	0.43 m
Total floor area	5.50 m

Room 7 (fig. 7.28) is a subrectangular, masonry back room at the northeast end of Roomblock Unit 1. Only part of the floor was cleared. Based on these excavations, Room 7 appears to be part of a planned roomsuite. The east and west walls abut the back (north) wall, and possibly the front wall, and they appear to have been constructed after the main back wall was in place. The north wall is continuous with the north wall of Room 8 (fig. 7.3). Rooms 7 and 8 are inferred to have been constructed during a single building episode, which probably included a front room.

The lower walls of Room 7 are substantial, single-coursed masonry (fig. 7.29). The north and south walls are set on the edge of a shallow depression that forms the floor of the room. They are coursed masonry, set on top of cobbles or rubble. The east wall is set into a shallow trench slightly deeper than a single course of masonry. The interior wall faces are covered with mud plaster.

Room 7 has 1 floor, which was constructed, in part, on top of native earth. However, ephemeral surfaces above and beneath this floor indicate that this area was used prior to the construction of the room and after its occupation. Burial 29 (Feature 19) from a later occupation cuts into the floor.

Stratigraphy. — The floor in Room 7 is set in a shallow pit excavated into native earth. Three to five centimeters of redeposited native earth (Stratum 11) formed the foundation of the floor (fig. 7.30, table 7.18). At least 1 pit (Feature 190) underlies this floor fill, indicating the presence of a possible occupation surface that predates Room 7. Surface 1 of Room 7 is indicated by slight compaction and its abrupt boundary with overlying deposits. The floor is not burned, and sediments directly overlying the floor near the walls (Strata 3, 4, 9, and 10) appeared to be collapsed structural materials. In the center of the room, where stratigraphic deposits had not been disturbed by later occupational features, fill which overlies the floor was a mixture of wall fall and postoccupational fill (Stratum 8). There was no stratigraphic evidence for the roof of Room 7.

In the south half of the room the deposits were disturbed by an intrusive burial pit — Feature 19 (Strata 5, 6, and 7) associated with Nonstructural Unit 6 — that was excavated from approximately the same depth as the base of Stratum 1 in the southeast corner of Room 7. Stratum 2 appeared to be postoccupational fill which predates the burial. All deposits in Room 7 were overlain by a thin stratum of loose earth containing numerous artifacts — the postabandonment deposit covering all of the site.

Surface 1. — The floor in Room 7 had been excavated into native earth. Along the north, east, and south edges, a mud plaster forms a coping that is continuous with the wall plaster. It has been heavily disturbed by rodents and tree roots.

Four Early Pueblo Gray jar sherds (PL 1) were the only artifacts recovered in direct contact with the floor. Artifacts within 5 cm of the floor are provenienced as floor fill; however, they probably do not relate to the use of the structure, since they are within postoccupational cultural deposits or wall fall (fig. 7.30).

The features identified within the cleared area of Room 7 are listed in table 7.19. Only Feature 138 was fully excavated.

Posthole (Feature 138). The northeast corner support post was set in Feature 138. A sandstone slab was set at

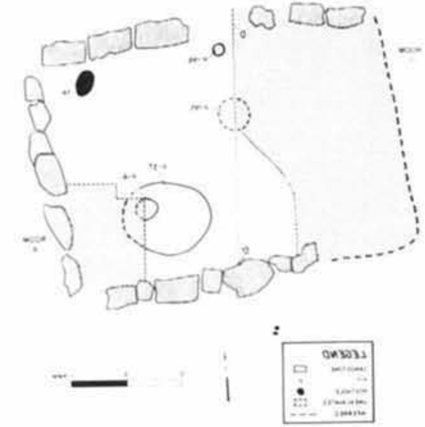

Figure 7.28 - Feature locations, Surface 1, Room 7, Area 1, Kin Tl'ish.

Figure 7.29 - Room 7 wall construction, Area 1, Kin Tl'ish (DAP 129433).

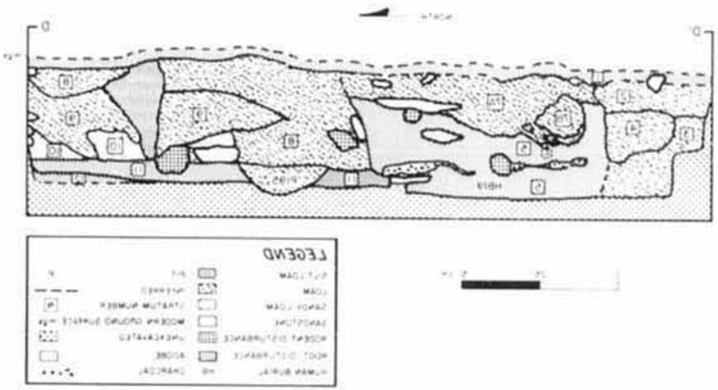

Figure 7.30 - Stratigraphic profile, Room 7, Area 1, Kin Tl'ish. Refer to Figure 7.28 for profile location.

the base and 3 shims or chinking stones (a small river cobble and 2 sandstone fragments) were set in the west edge of the feature. Two small charcoal fragments may be remains of the post. The rest of the posthole fill was strong brown silt loam with no inclusions.

Unburned pit (Feature 137). Feature 137 was tested by cutting a trench near the middle of the feature. The trench removed only about 30 percent of the fill, so the total number of artifacts actually contained in the feature is probably greater than actually recovered. Pit fill was probably a postoccupational deposit. It was a strong brown silt loam, with mottled dark brown silt loam and has had a discontinuous lens of dark brown silt loam at the base of the feature. The fill was less compact than the surrounding earth and contained flecks of charcoal, 4 pieces of flaked lithic debitage, 1 unifacе, and 2 small sandstone spalls. The similarity of feature fill to native earth suggests that the feature was intentionally filled or that structural materials collapsed into the feature. Feature 137 is truncated by Feature 19 from Nonstructural Unit 6. The function of the pit was not determined, but presumably it was for storage, since the pit is in a back room where storage units are expected, it is not burned, and it is relatively large.

Unburned pit (Feature 195). Feature 195 was identified in profile. The fill was a dark yellowish-brown silt loam, mottled with large amounts of strong brown silt loam. This is very similar to the native earth beneath Room 7, hence the pit may have been intentionally filled. Its function, however, is not known.

Unburned pit (Feature 141). A small, round pit observed from Surface 1 was not excavated. Constructed in the fill of Feature 137, its function is unknown.

Unburned pit (Feature 196). This small pit at the north edge of the room is capped with approximately 7 cm of Room 7 floor construction materials. Its function is unknown.

Interpretations. -- Room 7 is part of an apparently planned roomsuite. It is contiguous with other back rooms in Roomblock Unit 1, and, like them, may also have been used for storage. Room 7 shares its substantial east wall with Room 8 and its north wall is continuous with that of Room 8. The roof support system may have been shared by the 2 rooms since Room 8 does not have a northwest corner posthole. For similar rooms in southeastern Utah, Brew (1946) suggested that some roof uprights and primary beams might have been shared.

Room 7 may not have been the first construction in the northeast end of the site. The floor overlies, and may have truncated, Feature 196 and, possibly, Feature 137. Whether Feature 137 was capped with Room 7 floor fill is uncertain, because it was truncated by the later excavation of a burial pit (Feature 19). More than 25 cm of

Table 7.18 – Stratigraphic description, Room 7, Area 1, Kin Tl'ish

Stratum No.	Sediment description	Color (Munsell notation)	Inclusions	Comments/interpretations
1	Silt loam; single grain, 100 sc (dry)	Brown to dark brown (10YR 4/3, dry)	Common roots, few artifacts	Abrupt, smooth boundary to Stratum 2. Postabandonment wind-blown or historically disturbed material
2	Loam; medium granular, friable (dry)	Brown to dark brown (7.5YR 4/4, dry)	Few roots, pores, charcoal fragments, and artifacts	Postoccupational room fill – based on position
3	Loam; medium granular, friable (dry)	Yellowish red (5YR 4/6, dry)	Brown (7.5YR 5/2, dry) loam and few charcoal flecks	Possible wall melt, from upper walls at south end of room – based on location, color, and texture
4	Loam; mediu granular, friable (dry)	Brown (7.5YR 5/4, dry)	Few charcoal flecks	Collapsed structural unit
5	Silt loam; medium granular, friable (dry)	Strong brown (7.5YR 5/6, dry)	Common charcoal and several sandstone slabs	Construction fill for Feature 19 (Burial 29) Nonstructural Unit 6
6	Silt loam; fine granular, slightly hard (dry)	Brown (7.5YR 4/4, dry)		Construction fill for Feature 19 (Burial 29) Nonstructural Unit 6
7	Loam; fine granular, slightly hard (dry)	Brown to dark brown (7.5YR 4/4, dry)	Strong brown (7.5YR 5/6, dry) loam or silt loam, with common fragments of human bone and few artifacts	Construction fill for Feature 19 (Burial 29) Nonstructural Unit 6
8	Loam; fine granular, soft (dry)	Brown to dark brown (7.5YR 4/4, dry)	Common charcoal, some artifacts	Mixed postoccupational trash and collapsed structural materials
9	Loam	Brown (7.5YR 4/4, dry)	Large irregular mottles of strong brown (7.5YR 4/6, dry) loam, granular, slightly hard (dry) with flecks of charcoal	Collapsed structural materials
10	Sandy loam; very small subangular blocky structure, soft (dry)	Brown to dark brown (7.5YR 4/4, dry)		Abrupt smooth boundary to Stratum 11. Collapsed structural materials
11	Silt loam	Strong brown (7.5YR 4/6, moist)	Large mottles of dark yellowish brown (10YR 3/6, moist) silt loam, nonplastic (moist)	Abrupt smooth boundary to Stratum 12. Redeposited native earth. Possibly intentional fill for Room 7 floor
12	Silt loam	Dark yellowish brown (10YR 3/6, moist)	Mottles of strong brown silt loam	Native earth

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Table 7.19 - Feature summary, Surface 1, Room 7, Area 1, Kin Tliish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/ height (cm)
137	Unburned pit	n.o.	Basin	...	61	25
138	Posthole	Oval	Cylindrical	21	14	23
141	Unburned pit	Round	...	18	18	...
195	Unburned pit	n.o.	Basin	*29	...	*9
196	Unburned pit	n.o.	...	10	10	...

Refer to figure 7.28 for feature locations.
*Existing dimensions.
. . . - Information not available.
n.o. - Observation could not be made.

postoccupational fill had been deposited in Room 7 by the time Feature 19 was emplaced.

Room 7 appears to have been abandoned in a leisurely manner; there is no evidence of burning, and based on the absence of roof fall in the fill, roof timbers may have been reused. Collapsed room walls produced more sediment than is evident in other room depressions, possibly indicating greater wall height than was present in other Roomblock Unit 1 structures.

Based on datable ceramics recovered from the floor and the fill immediately above the floor, Room 7 was occupied during the Pueblo I period. The architectural style is indicative of a slightly later date for the construction of Room 7 than that of other masonry rooms in Roomblock 1. In particular, the masonry walls appear to be more substantial and possess wall footings, and the subfloor foundation to Surface 1 is unique to this room.

Room 8

Dimensions:

North wall
thickness: 0.26 m
height (remaining): 0.45 m

South wall
length (inferred): 2.00 m

West wall
length (inferred): 1.91 m
thickness: 0.23 m
height (remaining): 0.48 m

Total floor area (inferred): 3.82 m²

Room 8 (fig. 7.31) is a rectangular masonry room. Only a small area in the northwest corner of the room, part of the probability sample, was investigated. Based on excavations in probability square 98S/106E, Rooms 7 and 8 were constructed at the same time. Inferentially, it might have been constructed at the same time as Room 12, if Room 12 is part of the same unit. The wall shared with Room 7 was constructed after the long north wall. Each of those walls is single-coursed masonry set in a footing trench (refer to the description for Room 7). The floor is use-compacted native earth. A one-hand mano (Pl. 1) and a used core (Pl. 2) are the only two artifacts located directly on the floor in the investigated area (these artifacts were not mapped). The core is of the same grain size as most of the flaked lithic debitage recovered directly above the floor. All of these artifacts may be related to postabandonment activities rather than to room use, since there was no evidence of stratigraphic units sealing the floor in the small area investigated.

Interpretations – No features are present in the excavated area. Since no posthole was encountered, it is inferred that the roof was supported by the wall or indirectly by the northeast corner post (Feature 138) in Room 7. Based only on its position in line with the other back rooms of Roomblock Unit 1, Room 8 is inferred to have functioned primarily as a storage unit. However, the front room that would complete the roomsuite, if present, was not identified.

Room 11

Dimensions

North wall
length (inferred): 2.30 m
height (remaining): 0.31 m

South wall
length (inferred): 1.85 m
thickness: 0.24 m
height (remaining): 0.31 m

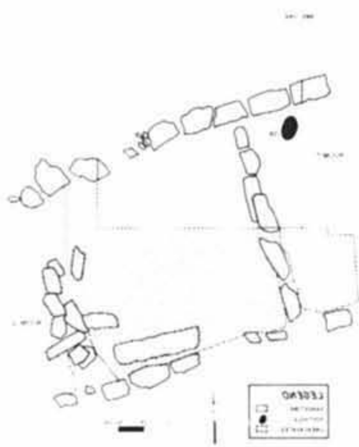

Figure 7.31 - Map of Surface 1, Room 8, Area 1, Kin Tliish

East wall
length (inferred): 2.10 m

West wall
length (excavated): 1.90 m
length (inferred): 1.90 m
thickness: 0.27 m
height (remaining): 0.29 m

Total floor area (estimate): 4.15 m

Room 11 (fig. 7.32) is a subrectangular mud and masonry back room, part of a roomsuite that also includes Rooms 1 and 2. Only the west half of Room 11 was excavated, but wall lines visible from the modern ground surface indicate it is probably contiguous with Room 7 to the east. These wall lines are the basis upon which the room dimensions were calculated.

The floor of Room 11 is a shallow basin excavated into sterile earth. The upper edges of the basin extend above the lower course of masonry in the south wall (that wall shared with Room 1), making the wall much thicker near its base (fig. 7.33). No features were encountered in the investigated area.

Stratigraphy – The floor of Room 11 cuts into native earth (Stratum 3). Stratum 3 (table 7.20) was very similar to the overlying fill (Stratum 2), except that it was more compact or hard and contained artifacts. Based on the similarity and the low artifact density in Stratum 2, the upper stratum is interpreted as wall fall mixed with postoccupational debris. At the top of the wall stubs, Stratum 2 was overlain by Stratum 1, which covered the whole site and had no direct association with Room 11.

Surface 1 – The floor of Room 11 is unprepared, except for its excavation into native earth. Eight artifacts lay directly on the surface (table 7.21), but because the surface was not sealed against overlying postabandonment deposits and because the entire fill of the room appears to have been the result of the same depositional processes, no substantial evidence suggests that these artifacts are associated with use of the room either during its formal occupation or immediately following abandonment.

Interpretations – Room 11 is a small back room. Based only on its position in the roomsuite and the presence of substantial walls, it is presumed to have been roofed (courtyards and grinding rooms seem to be limited to the front areas of roomblocks). However, no roofing materials were identified in room fill. The inferred roof may have been supported entirely by the walls or by posts that formed part of the walls and were set above the presently remaining wall stubs, as recorded at a Pueblo I site near Ignacio, Colorado (Lister et al. 1970).

Room 11 is probably a storage room because it has substantial walls, is a back room, is small (half the size of Room 13), and has no features, characteristics normally associated with Anasazi storage rooms (e.g., Brew 1946; McKenna 1981; Rohn 1965).

Room 11 exhibits evidence of a simple uselife. The room was constructed on native earth, where there is no evidence of older, underlying cultural remains. The room shows no evidence of remodeling and no evidence of reuse of the immediate area after the room was abandoned and its walls collapsed.

Room 11 is probably contemporary with Rooms 1 and 2 because it appears to complete the roomsuite. Stratigraphic evidence is consistent with that association, and the ceramic assemblage could date anywhere within the A.D. 825-910 range.

Room 13

Dimensions:

North-south axis	1.50 m
East-west axis	2.45 m
Total floor area	3.80 m

Room 13 (fig. 7.34) may be a subrectangular front room. Investigation was limited to defining wall lines on 3 sides of the rom and clearing a small patch of floor on the west end of the room. The excavation was directed at establishing the relationship of an intrusive burial pit (Feature 162, Burial 30) to the occupation of the room.

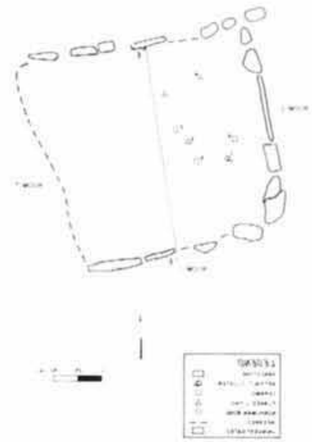

Figure 7.32 - Point-located artifacts, Surface 1, Room 11, Area 1, Kin Tl'iish.

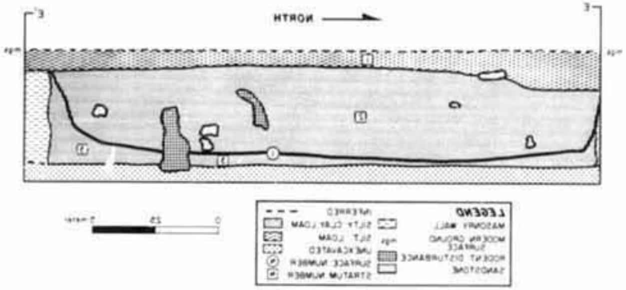

Figure 7.33 - Stratigraphic profile, Room 11, Area 1, Kin Tl'iish. Refer to figure 7.32 for profile location.

Table 7.20 - Stratigraphic description, Room 11, Area 1, Kin Tl'iish

Stratum No.	Sediment description	Color (Munsell notation)	Inclusions	Comments/interpretations
1	Silt loam with common rootlets	Brown to dark brown (7.5YR 4/4, dry)	Tabular sandstone, ceramic sherds, and lithic flakes	Postoccupational fill - based on continuous distribution across Rooms 11 and 12
2	Silty clay loam	Yellowish red (5YR 5/6*)	Sandstone, charcoal and artifacts, and krotovina	Postabandonment deposit mixed with collapsed structural units (walls). Inference of presence of postabandonment materials is based on the lack of stratigraphic seal; the inference of presence of collapsed walls is based on color and texture similarities to native earth (Stratum 3)
3	Silty clay loam, hard (dry)	Yellowish red (5YR 4/6*)		Culturally sterile soil

*Moisture content not observed

Table 7.21 - Point-located artifacts, Surface 1, Room 11, Area 1, Kin Tl'iish

PL No.	Material class	Item description
1	Flaked lithic	Debitage
2	Nonhuman bone	Mammalia, medium or large
3	Flaked lithic	Debitage
4	Flaked lithic	Debitage
5	Ceramic	DL Early Pueblo Gray jar sherd
6	Ceramic	DL Early Pueblo Gray jar sherd
7	Flaked lithic	Debitage (2)

Refer to figure 7.32 for artifact locations.
(N) - Number of items.
DL - Dolores Manufacturing Tract.

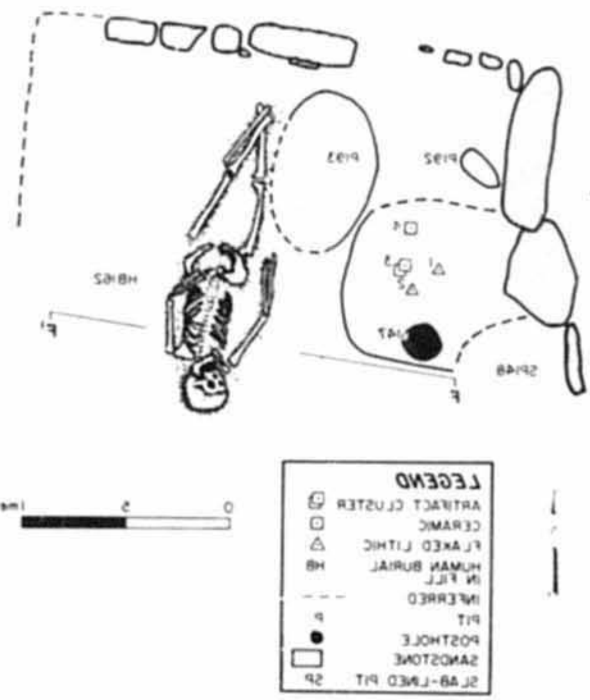

Figure 7.34 - Feature locations and point-located artifacts, Surface 1, Room 13, Area 1, Kin Tl'iish. Feature 148 is associated with Room 3.

Room 13 appears to be a later structure than some of the nearby rooms. It partially truncates Room 3 and probably directly overlies another, unnumbered room.

Three walls (north, west, and east) have been identified. The west wall, which truncates Room 3, is known only from its base of upright slabs; this wall ends short of abutting the north wall of Room 3. The north wall is almost 1 m south of the southern wall of Room 15. Room 13, therefore, has a much shorter north-south axis than other front rooms at Kin Tl'iish. The base of the north wall forms the edge of a shallow pit that is overlain by rocks and mud. The wall is assumed to have been masonry. The upper portion of the east wall resembles the north wall, except that it has fewer and less massive rocks (not mapped).

South wall
length: 1.93 m
thickness: 0.25 m
height (remaining): 0.27 m

East wall
length: 1.95 m
thickness: 0.27 m
height (remaining): 0.25 m

West wall
length: 2.00 m
height (remaining): 0.26 m

Total floor area: 3.80 m²

Room 2 (figs. 7.18 and 7.19) is a small back room with a prepared floor and masonry walls. The east and south walls are much more substantial than most structure walls at Kin Tl'ish. The east wall and parts of the north wall are constructed of 3 courses of sandstone slabs or of 1 upright slab; the north wall also incorporates a feature that predates room construction. All that remains of the west wall are 2 courses of small sandstone spalls set in mud mortar and resting on earth. The south wall has 2 to 3 courses of sandstone blocks on a base row of cobbles. In this wall, upper rows of sandstone blocks are commonly double coursed. This wall is shared with Room 1, and based on the substantial amount of wall fall in the west half of Room 1 appears to have had many courses of masonry. Rubble mapped within Room 2 indicates that at least the north and west walls probably had 6 or more courses of masonry. The upper portions of the walls and most of the east wall are presumed to have been mud, and all walls appear to have been plastered with mud on the interior surface. Floor preparation essentially created a 6- to 7-cm foundation for the walls. No further evidence of prepared foundations was encountered. The roof is presumed to have been supported by 4 corner posts – postholes were found in all 4 corners of the room.

Stratigraphy. – Room 2 is excavated into native earth. The lowest stratum is the mud foundation to Surface 1. Overlying fill was a mixed, postoccupational deposit. Charcoal and some sooted rocks were recovered 5 to 10 cm above the room floor and may represent collapsed roofing material.

Surface 1. – Surface 1 was excavated into native earth, truncating at least 1 feature (Feature 41) related to an earlier occupation surface (Nonstructural Unit 5). The floor was prepared by applying several layers of mud plaster to this excavated surface. Each layer was about 1 cm thick; the plaster reached a total thickness of 6 to 7 cm. The plaster was a brown silt loam containing charcoal, adobe, and sandstone flecks. Wall plaster abuts the top of the floor plaster.

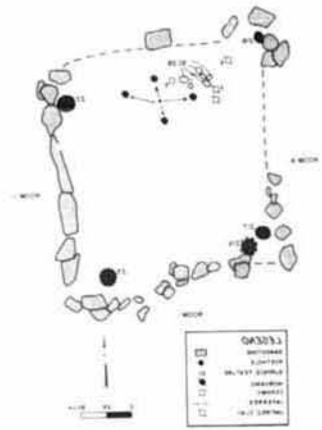

Figure 7.18 – Feature locations and point-located artifacts, Surface 1, Room 2, Area 1, Kin Tl'ish

Surface 1 is devoid of cultural materials except a mound of crushed rock tempering material for ceramic manufacture in a silt loam matrix (Pl. 4) and an Early Pueblo Gray jar sherd (Pl. 5) (fig. 7.18). Numerous pieces of clay had been mashed into the floor in the north half of the room. Three balls of unfired clay (Pl.'s 1, 2, and 3), weighing 30.5, 119.0, and 235.0 g, respectively) were recovered from above the floor northwest of the temper and probably are associated with structure use. Other materials in fill directly above the floor (appendix 7A) cannot be dismissed as wholly postoccupational deposits as it contains additional granules of unfired clay. Little spatial differentiation exists in the artifact assemblage in the 5 cm of fill above the floor; much unfired clay was recovered from the south half of the room as from the north half, and lithic material and fired ceramics were equally distributed.

Raw materials for ceramic manufacture were found adjacent to a set of shallow depressions (Feature 28). Five postholes are the only other cultural features in the room (table 7.12).

Postholes (Features 22 and 23). The northeast corner posthole, Feature 22, does not have a base stone, but 11 sandstone spalls, including a metate fragment, are wedged

Figure 7.19 – Surface 1, Room 2, Area 1, Kin Tl'ish (DAP 123909)

Table 7.12 – Feature summary, Surface 1, Room 2, Area 1, Kin Tl'ish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
22	Posthole	Round	Cylindrical	17	17	48
23	Posthole	Round	Cylindrical	16	16	55
28	Surface feature	Complex	Complex	32	25	-1
217	Posthole	Round	....	12	11	26
218	Posthole	Round	....	6	5	20
219	Posthole	Round	....	....	....	....

Refer to figure 7.18 for feature locations.
.... - Information not available.

into its southern perimeter – presumably as shims. The feature was filled with a strong brown loose silt loam, with a few inclusions of carbonate nodules and a single sherd. The southeast corner posthole, Feature 23, contained no base stone, but several rocks, including a nearly complete, flat-surface abrading stone, were placed around the upper perimeter of the pit, apparently stabilizing the post. Remains of the pinyon pine (*Pinus edulis*) post are only 6 cm in diameter. The fill was strong brown loam with inclusions of organic material and bits of adobe; part of the fill had been disturbed by rodent activity.

Postholes (Features 217, 218, and 219). Much of the west half of the floor, and parts of the east half, were disturbed by krotovina, all of which were excavated. Features 217, 218, and 219 all had characteristics of krotovina – e.g., soft fill, small burrows connecting from the sides, no base stones or shims as would be common in postholes. On the other hand, these features also had posthole characteristics – vertical orientation, great depth in relation to diameter, approximately cylindrical shape, and location in the corners of the room. On balance, it seemed most reasonable to interpret them as postholes.

altered by rodent activity. Feature 218 probably functioned as the northwest corner posthole. Features 217 and 219 are located close together in the southwest corner of the room. Either might have held a support post, either with one auxiliary to the other, or with one replacing the other as a result of remodeling.

Surface feature (Feature 28). Several irregular, shallow depressions (fig. 7.18) immediately west of the deposit of ceramic temper may be a cultural feature. These depressions contained numerous granules of unfired clay in a silt loam matrix. Based on the proximity of this cluster of small depressions to the tempering material and to the balls of unfired clay (PL's 1, 2, and 3), Feature 28 is presumed to have been part of a ceramic manufacturing area.

Interpretations. — Room 2 is a small, sturdy structure that served as 1 of 2 back rooms for Room 1. Evidence for only a single occupation and no remodeling was recovered from Room 2. No individual storage features are present, but since the room walls and floor are plastered, the entire room might have served as a storage facility. It also may have served as a work area, based on the presence of raw materials necessary for ceramic manufacture. The temper (PL 4) was in the central portion of the floor rather than along the edges or in corners where storage of such material would be expected.

The use history of Room 2 is much simpler than that of the adjacent front room. Based on the separation of the west end of the south wall of Room 2 from the north wall of Room 1, Room 2 might not have been built at exactly the same time as Room 1. However, the occupation of Room 2 corresponds to the use of Surface 1 in Room 1. The ceramic inventory is limited to a few early wares and would be consistent with an occupation between A.D. 825 and 910.

Room 3

Dimensions

North wall	
length (excavated)	2.90 m
length (inferred)	2.90 m
thickness	0.30 m
height (remaining)	0.30 m
South wall	
length (excavated)	2.90 m
length (inferred)	3.00 m
thickness	not known
height (remaining)	0.00 m
East wall	
length (excavated)	3.25 m
length (inferred)	3.40 m
thickness	not known
height (remaining)	0.20 m
West wall	
length (excavated)	2.90 m
length (inferred)	2.90 m
thickness	0.30 m
height (remaining)	0.20 m
Total floor area	11.20 m

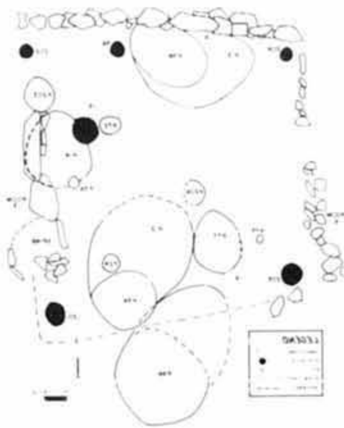

Figure 7.20 - Feature locations, Surface 1, Room 3, Area 1, Kin Tl'ish.

Room 3 (fig. 7.20) is a subrectangular surface room near the west end of Roomblock Unit 1. The room is superimposed on an earlier occupation surface (Nonstructural Unit 7); as a result, some confusion resulted in assigning features to the 2 cultural units.

The Room 3 floor appears to rest directly on a prehistoric ground surface, and the walls were built on that surface, without foundations. The north and west walls have 1 or 2 base rows of cobbles; apparently the upper walls were mud. Very little of the east wall remains (a large portion of the wall was destroyed during the construction of Room 13), but it might have been made entirely of mud. The south "wall" was mud, although it might have been only a low partition. Four corner posts supported the

roof; other postholes within the room may have held auxiliary roof support posts. Although a front room, no obvious hearth served as a focus of domestic or economic activities.

Stratigraphy. — A test unit was excavated in Room 3 to a depth of 88 cm below the modern ground surface to observe the stratigraphy in the room (fig. 7.21; table 7.13). The 2 lowest strata (Strata 7 and 8) appeared to be natural sediments and were differentiated only by the degree of carbonate accumulation. Stratum 7 was overlain by Stratum 3, which included some cultural material. The depth of the boundary between Stratum 3 and Stratum 7 seems shallow for a pitstructure but deep for a room; a flake noted in the profile was probably actually within a feature. The fill in this unrecorded feature was redeposited native earth mixed with a small amount of cultural sediment and was indistinguishable from the sediments in Stratum 3.

Stratum 3 was overlain by Surface 1 of Room 3 and its features associated with Room 3 or Nonstructural Unit 7 (Strata 5a, 5b, and 6). Stratum 6 was the fill of Feature 13 (an unburned pit). Strata 5a and 5b were the fill of Feature 77, a pit in Room 3. Stratum 4 is a roof mold.

The floor of Room 3 could not be differentiated from the overlying sediments; it was identified by the presence of features. Overlying sediments (Strata 2 and 1) are very thin and only possibly are related to the occupation or construction of the room. Human bone provenienced as part of a scattered, multiple burial (Feature 2) was present in this upper fill in the south half of the room.

Surface 1. — The floor of Room 3 appears to have been set directly on the prehistoric ground surface, except in areas where it overlies features associated with the earlier Nonstructural Unit 7 surface. Artifacts associated with Surface 1 (appendix 7A) come from a 5-cm-deep zone that may not be directly associated with the use of the structure, but this assemblage does provide the basis for dating the use of the room. All of the ceramics are early types; the assemblage includes Moccasin Gray and Mancos Gray sherds. Charred wood remains recovered from the floor zone include small fragments of juniper (*Juniperus* sp.), pine (*Pinus* sp.), rose family (Rosaceae), and cottonwood/aspen (*Populus* sp.). The vegetal material may be from feature fill rather than room construction materials. Because of the difficulty in defining Surface 1, it was sometimes hard to distinguish between feature fill and the material overlying it.

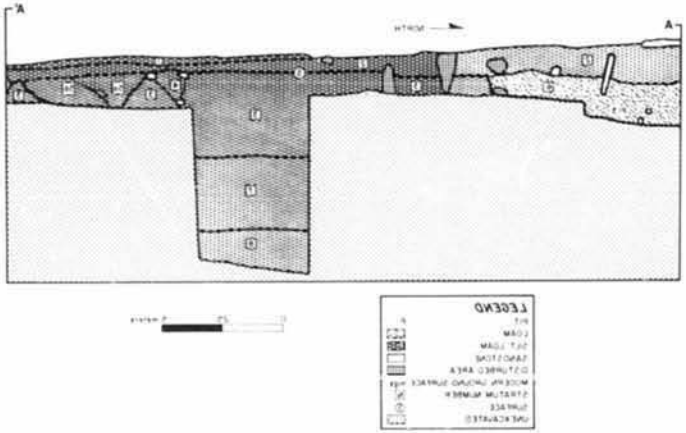

Figure 7.21 - Stratigraphic profile, Room 3, Area 1, Kin Tl'ish. Refer to figure 7.20 for profile location.

Table 7.13 - Stratigraphic description, Room 3, Area 1, Kin Tl'ish

Stratum No.	Sediment description	Color (Munsell notation)	Inclusions	Comments/interpretations
1	Silt loam; loose, friable (dry)	Brown (7.5YR 4/4, dry)	Abundant roots, cultural material	Abrupt wavy boundary to Stratum 2. Topsoil
2	Silt loam; loose, friable (dry)	Brown (7.5YR 4/4, dry)	Charcoal (1 to 5 mm), adobe (1 to 3 mm)	Abrupt smooth boundary to floor of Room 3 and associated features (Strata 5 and 6) and to Stratum 3. Topsoil
3	Silt loam; firm to extremely firm (dry)	Strong brown (7.5YR 4/6, dry)	Cultural materials, especially charcoal (1 to 10 mm) and adobe (1 to 5 mm)	Sediments below Surface 1; may include cultural fill
4	Silt loam	Strong brown (7.5YR 4/6, dry)	Charcoal (1 to 5 mm)	Root
5a	Silt loam; firm (dry)	Brown (7.5YR 4/4, dry)	Charcoal and adobe flecks, and common roots	Feature 77, fill
5b	Silt loam; firm (dry)	Brown (7.5YR 4/4, dry)	Charcoal and adobe flecks, and common roots	Feature 77, fill
6	Loam, with lenses of charcoal	Brown to dark brown (7.5YR 4/4, dry)	Common inclusions of adobe and artifacts	Feature 13, fill
7	Silt loam; very hard (dry)	Yellowish red (5YR 4/6, dry)	Few roots, carbonates apparent at 58 cm below modern ground surface and lower	Culturally sterile sediment
8	Silt loam; very hard	Yellowish red (5YR 4/6, dry)	Few roots, carbonates present as small nodules (1 to 3 mm)	Culturally sterile sediment

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Features associated with Surface 1 are listed in table 7.14. Features 14, 24, and 38 might actually have been associated with Nonstructural Unit 7. The functions of features in the room, except for the postholes and a storage cist, are unclear.

Postholes (Features 201, 202, 204, and 205). These postholes are located near each corner of Room 3, one in each corner. None of the postholes contained a post or a base stone, and only Feature 201 contained apparent shims.

Posthole (Feature 15). This adobe-lined posthole with a base stone set in fill is located near the east wall of the room and truncates Feature 14, an unburned pit. A triangular depression was noted at the base of the feature. The lower fill was a dark brown loam with flecks of charcoal and was partially capped with an adobe collar. A hammerstone rested on this lower fill, 20 cm beneath the room floor. The upper fill was also dark brown loam with flecks of charcoal. The hammerstone base stone was the only artifact present.

Posthole (Feature 56). Another posthole (Feature 56) is located midway along the north wall. Its fill was stratified and contained artifacts. The lower fill was a brown to dark brown, fine sandy loam, with flecks of charcoal. The upper 8 cm of fill was a strong brown sandy loam.

Burned pits (Features 12 and 34). This large, shallow basin is located at the southern portion of Room 3. Its trash fill was mounded slightly above the floor at the center of the pit. Excavation revealed the association of Feature 12 with 2 other pits (Features 24 and 34). Feature 12 was constructed later than Feature 24, but its chronological association with Feature 34 is uncertain. Artifacts from the fill of Features 12 and 34 were not differentiated in the field. The upper fill of Feature 12 was homogeneous. Adobe, in fill, near the south end of the pit was found, later, to correspond to the boundary of Feature 34 in native earth. Possibly, the final function of both pits was as a trash repository, and that this final function blurred the boundaries between the pits and has obscured the sequence of construction. The fill assemblages from Features 12 and 34 contained ceramics consistent with a Pueblo I occupation. Many of the artifacts were complete or nearly complete. Based on the quantity of nearly complete artifacts, a tentative inference can be drawn that the Feature 12 was filled just prior to abandonment.

Feature 34 is a circular, burned basin that comprises the south end of Feature 12. Artifacts from Features 12 and 34 were not separated, although field personnel noted that ceramics in the south end of Feature 12 (now Feature 34) are burned and more than 40 rocks with diameters greater than 5 cm were present in the same area. Feature 34 is the only possible hearth in Room 3. It could have been in use at the same time as Feature 12, in which case Feature 12 would most likely have served as an ash pit, and the upper fill would represent a postoccupational trash deposit. This pair of features is similar to another pair (Features 13 and 38) in the same room.

Table 7.14 – Feature summary, Surface 1, Room 3, Area 1, Kin Tl'ish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
12	Burned pit	Oval	Basin	142	80	32
13	Unburned pit	Oval	Basin	133	100	17
14	Unburned pit	Oval	Rectangular	90	90	14
15	Posthole	Round	Cylindrical	25	20	30
24	Unburned pit	Round	Cylindrical	20	18	35
34	Burned pit	Round	Basin	64	59	23
36	Unburned pit	Round	Cylindrical	12	12	10
38	Unburned pit	Round	Basin	72	63	33
56	Posthole	Round	Cylindrical	18	17	16
72	Unburned pit	Oval	Basin	25	23	10
75	Unburned pit	Oval	Basin	9	8	11
77	Unburned pit	D-shaped	Basin	70	41	17
148	Slab-lined pit	Round	Basin	75	65	25
201	Posthole	Oval	Cylindrical	24	19	29
202	Posthole	Round	Cylindrical	15	14	11
203	Unburned pit	Round	. . .	36	33	. . .
204	Posthole	Oval	Cylindrical	17	14	9
205	Posthole	Oval	Cylindrical	23	19	24
206	Unburned pit	Oval	Basin	32	*12	*5

*Existing dimension, complete dimensions not available.
Refer to figure 7.20 for feature locations.
. . . - Information not available.

Unburned pit (Feature 13). This pit, located at the north end of Room 3, extends at least slightly under the north wall. It has stratified fill and a partial slab lining. A later or contemporary feature (Feature 38) truncates the east half of the pit. Feature 13 is associated with Room 3 despite its continuation under the north wall of the room because its fill and partial slab lining (fig. 7.21) protrude above the floor of the room, indicating contemporaneous use of the floor and the feature. Numerous artifacts were recovered from Feature 13. The assemblage contained a Mancos Gray sherd, common later than most ceramics recovered from floors and features of other masonry rooms in Roomblock Unit 1. The base of the pit was defined by a 2-cm lens of charcoal in brown to dark brown dirt. This was overlain by fill of the same description, which had a slightly larger grain size and fewer, but larger, charcoal inclusions. The upper stratum contained relatively few artifacts. The matrix surrounding Feature 13 was yellowish-red silt loam, with no inclusions. Based on the presence of the charcoal and artifacts, the pit served, at least during its final use, as a repository for secondary refuse from a hearth or heating pit.

Unburned pit (Feature 38). Feature 38 extends at least slightly under the north wall of the room. Since it truncates Feature 13, which has been assigned to Room 3, Feature 38 has been designated a Room 3 feature also. Small sandstone slabs rest near the base of the pit and form a partial rock lining. Additional unmodified stones are present in the feature fill; some of these are heat cracked or sooted. The feature was filled with brown to dark brown silt mottled with yellowish-brown adobe, fragments of charcoal, and a few artifacts. This contrasted to the bounding fill of Feature 13, a yellowish-red silt loam with small charcoal flecks, which was relatively harder and exhibited a greater artifact density. The matrix near the base of the feature was clearly noncultural – a yellowish-red silt loam without inclusions. The matrix near the top of the pit contained some charcoal, but because it was heavily disturbed by rodents, this also may be noncultural. Although no burning was apparent along the edges of the pit, the presence of sooted or burned slabs and the large fragments of charcoal indicate that some burning in the pit was likely. The function of this feature was not determined.

Unburned pit (Feature 14). This large, shallow pit at the edge of Room 3 was truncated by the construction of Features 15 and 56 (posthole and unburned pit) and the west wall of Room 13. Only the western portion of this mud-lined pit was excavated. The fill was brown to dark brown silt loam mottled with yellowish-red silt loam and large pieces of adobe; it contained small rocks, charcoal, and artifacts. The function of the pit is unknown; the fill was apparently secondary refuse.

Unburned pit (Feature 24). A small pit (Feature 24) is located in the southeast corner of the room. The feature fill was soft, very dark brown sediment that contained flecks of charcoal and a piece of lithic debitage. Feature 24 was truncated by Feature 12 (burned pit). Prior to the construction of Feature 12, Feature 24 would have been about 35 cm deep and, based on its size, could have functioned as a posthole.

Unburned pit (Feature 36). This adobe-lined, unburned pit is located at the east edge of Room 3. It truncates Feature 14, another unburned pit. Feature 36 contains a grayish-brown fill with flecks of charcoal but no artifacts.

Unburned pit (Feature 72). A shallow, oval pit (Feature 72) in the northeast quadrant of the room contains numerous large fragments of charcoal and exhibits a charcoal lens along one edge. Six fragments of flaked lithic debitage were also represented in the fill. The function of the pit is undetermined. Feature 72 was dug into cultural fill, which was not investigated.

Unburned pit (Feature 75). This small, oval pit in the southwest quadrant of Room 3 was excavated into fill. The feature fill was stratified, yellowish-red sandy loam over strong brown sandy loam. The fill contained flecks of charcoal and one piece of fine-grained flaked lithic debitage.

Unburned pit (Feature 77). Feature 77, in the southwest portion of the room, appears to have been a D-shaped basin; the pit is heavily disturbed by rodents. The fill was stratified and contained Mexican Gray and Chapin Gray sherds and an artiodactyl foot bone. The upper fill was dark brown silt loam with fine roots and small, irregular mottles of brown silt loam and artifacts. The lower fill was brown silt loam.

Slab-lined pit (Feature 148). Feature 148 was partially exposed in a trench excavated through Feature 162 (Burial 30) in Room 13. The pit is constructed of nearly vertical sandstone slabs set into native earth with redeposited native earth packed against the slabs. It is interpreted as a storage feature.

Unburned pits (Features 203 and 206). Feature 203 was noted along the east wall of the room, but it was not investigated. Feature 206 is located northeast of Feature 77, partly underlying Feature 12. Probably oval in plan, it was identified in profile but was not further investigated. The function of either feature is not known.

Interpretations. – Room 3 is located above an earlier occupation surface (Nonstructural Unit 7), as evidenced by the continuation of Features 13 and 38 under the north wall and by cultural fill under part of Surface 1, at least in the southwest quadrant of the room. Based on the remodeling and the superposition of features, it is inferred that Room 3 was remodeled on several occasions. Features 15 and 36 intruded into the earlier Feature 14, and Feature 12 truncated Features 24 and 206 and possibly Feature 34.

Although Room 3 is a front room, it is not a typical Pueblo I living room. It had 4 corner roof support posts and 2 possible auxiliary posts. Most of the possible activities indicated by features took place on the east side of the room, leaving the west side and northeast corner of the room as the most likely sleeping and work areas. Because the functions of many of the features are unclear, the variety of associated activities is also unknown. A complex of features, including 2 burned pits (Features 12 and 34), may have served as a hearth and an ash or trash pit, or as a processing area; the complex is located in the south end of the room nearly touching an apparently similar feature or complex of features (Feature 96) in Nonstructural Unit 4. Features 12 and 34 may have been equivalent to Feature 96, but they were used in a more protected, roofed area. Features 12 and 34 are nearly identical to Features 13 and 38 at the north end of Room 3. Features 13 and 38 appear to have continued in use during the occupation of Room 3, and their use would support an inference that Room 3 was used primarily for economic activities.

The Room 3 area continued to be used by Kin Tl'ish inhabitants following the abandonment of the structure. The west wall of Room 13 cuts into the east half of Room 3. Some human bone associated with Feature 2 was recovered from within Room 3 boundaries, indicating the intentional filling of Room 3 and the possibility of (late) features being assigned mistakenly to Room 3. Any of the Room 3 features could actually belong to later occupations, but pits truncating earlier features (i.e., Features 15, 36, and 12) show the greatest potential for misassignment. If Room 3 had a standing south wall, Feature 96 construction (in Nonstructural Unit 4) must have followed room abandonment also.

Room 4

Dimensions

North wall	
length (excavated)	0.84 m
length (inferred)	2.00 m
thickness	0.30 m
height (remaining)	0.27 m
South wall	
length (excavated)	0.78 m
length (inferred)	1.90 m
thickness	0.25 m
height (remaining)	0.18 m
East wall	
length (excavated)	0.00 m
length (inferred)	2.00 m
thickness	unknown
height (remaining)	unknown
West wall	
length (excavated)	1.90 m
length (inferred)	1.90 m
thickness	0.30 m
height (remaining)	0.19 m
Total floor area	3.80 m

Room 4 (fig. 7.22) is a subrectangular room located north of Room 3. It has an excavated floor with as many as 4

Figure 7.22 - Feature locations and point-located artifacts, Surface 1, Room 4, Area 1, Kin Tl'ish

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courses of simple masonry set above the depression along the north and south edges. The upper walls are not preserved, but based on the small amount of sandstone slabs in room fill, they must have been mostly made of mud. More building stones were found near the south wall than elsewhere; thus, it seems likely that the south wall was more substantial, and perhaps higher, than the other walls. Only the west half of the room was cleared; a single floor and 2 features were revealed.

Stratigraphy. – Excavations were taken to more than 40 cm below the floor of Room 4 (fig. 7.23, table 7.15), into culturally sterile soil (Strata 8 and 9).

The floor of Room 4 is set in a shallow depression. The prehistoric excavation of that depression truncated the Nonstructural Unit 7 surface. Features associated with Nonstructural Unit 7 appear to have been filled specifically for Room 4 construction; upper fill in both features associated with Nonstructural Unit 7 appeared to be redeposited native earth.

The floor in Room 4 is a discontinuous and abrupt stratigraphic boundary (fig. 7.23). No occupational fill was associated with the use of the room. Only the lower fill of Feature 49 (unburned pit) may indicate the function of Room 4. This fill (Stratum 7) contained burned earth, which may indicate use of the room for domestic or economic activities in addition to storage, which is suggested by its position in the back row of rooms.

Fill above the floor (Stratum 5) was deposited after the structure was abandoned. Roof fall (Strata 3 and 4) overlay Stratum 5. Although the roof appears to have been burned, the stratigraphic location of the roof fall indicated that the superstructure did not collapse until sometime after the room was abandoned.

Thick postoccupational fill (Strata 1 and 2) overlay the roof fall. Based on the absence of human bone in the upper fill (bone was common in other cultural units), the Room 4 area was not used in the late reoccupation of Kin Tl'ish.

Surface 1. – The floor is a very thin, use-compacted surface. Excavated slightly into natural deposits, it curves up at the edges to become the lower walls of the room. No remodeling is evident.

Only 1 artifact, a Moccasin Gray jar sherd (PL 1) was located directly on the floor. Other artifacts were recovered from near the surface (appendix 7A); the assemblage almost certainly contains items from Feature 49.

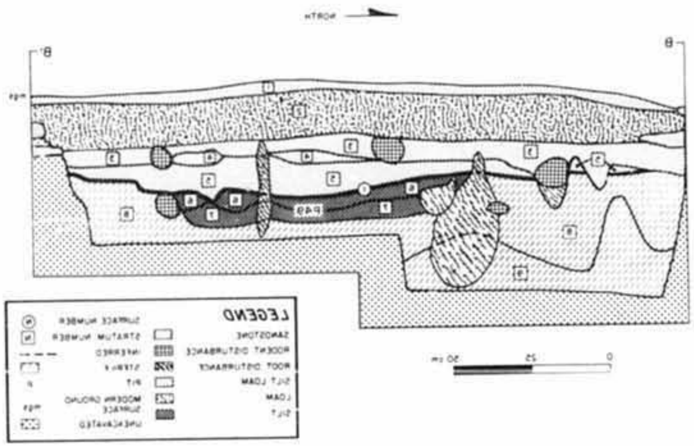

Figure 7.23 - Stratigraphic profile, Room 4, Area 1, Kin Tl'ish. Refer to figure 7.22 for profile location

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Table 7.15 - Stratigraphic description, Room 4, Area 1, Kin Tl'iish

Stratum No	Sediment description	Color (Munsell notation)	Inclusions	Comments/interpretations
1	Silt loam; loose	Brown to dark brown (10YR 4/3, dry)	Roots and few artifacts	Abrupt smooth boundary to Stratum 2
2	Loam; medium granular friable (dry)	Dark brown (10YR 3/3, dry)	Common roots and small and large sandstone fragments. Few sherds and flaked lithic items	Abrupt smooth boundary to Stratum 3. Postoccupational deposit - based on position above structural units and homogeneous mixture of temporally different ceramic types
3	Silt loam; medium granular, friable (dry)	Very dark gray brown (10YR 3/2, dry)	Common charcoal fragments, few artifacts, some unburned and burned adobe	Abrupt wavy boundary to Strata 4 and 5. Roof collapse - based on presence of charcoal fragments and adobe
4	Discontinuous lenses: Silt clay loam Silt loam; ashy	Very dark gray (10YR 3/1, dry) Brown (10YR 5/3, dry)	Burned and unburned adobe and common ceramic sherds	Roof collapse - based on association with Stratum 3 and on presence of ashy lenses and adobe inclusions
5	Silt loam; granular	Brown (10YR 4/3, dry)	Burned adobe, common charcoal flecks and very fine pores, few artifacts	Abrupt smooth boundary to Stratum 8 or clear irregular boundary to Feature 149 fill (Stratum 6). Postoccupational floor fill - based on its location covering culturally sterile deposits and Feature 49 fill and based on presence of some probable structural materials
6	Silt, medium granular, coarse, friable (dry)	Strong brown (10YR 4/6, dry)	Common flecks of charcoal and few flecks of adobe	Clear wavy boundary to Stratum 7. Feature 49 fill; probably a mixture of Strata 5 and 7 - based on the similarities in the descriptions and on the haziness and irregularity of its boundaries
7	Silt; medium granular, friable (dry)	Brown (7.5YR 4/4, dry)	Irregular mottles of strong brown (10YR 4/6, dry) coarse silt loam. Few large sections of burned wood, some lithic artifacts	Abrupt smooth boundary to Stratum 8. Feature 49 fill; possibly related to use of feature - based on position
8	Silt; large granular, slightly hard (dry)	Brown (7.5YR 5/4, dry)	Many rootlets and pores of all sizes	Clear wavy boundary to Stratum 9 Culturally sterile sediment
9	Silt; large granular, slightly hard (dry)	Brown (7.5YR 5/4, dry)	Many rootlets and pores of all sizes, with common small to medium very irregular mottles of lime	Culturally sterile sediment

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One piece of flaked lithic debitage (PL 2) was recovered from within the pit.

The 2 features identified in Room 4 are a posthole (Feature 97) and the large pit (Feature 49).

Posthole (Feature 97). – The southwest corner post was set partially into the south wall of Room 4. The posthole (Feature 97) is relatively round with vertical walls. It is 33 by 40 cm and 15 cm deep. No fire stones, shims, or artifacts were recovered from the fill. The posthole was heavily disturbed by rodents; wood fragments recovered from the rodent holes may represent the associated post. Other fill in the posthole was a strong brown loam that may have derived the high chroma and value from rotting wood.

Unburned pit (Feature 49). – This round to subrectangular pit is located in the center of the room. The pit has near vertical walls and a flat base. At Surface 1, the pit measures 70 by 75 cm, and it is 14 cm deep. No evidence of burning shows on the feature walls. The feature fill was comprised of multiple lenses of sediment and it was divided into two strata, both contained adobe and charcoal. Unburned juniper (*Juniperus* sp.) wood, charred fragments of pinyon pine (*Pinus edulis*), true mountain mahogany (*Cercocarpus montanus*), and cottonwood/aspen (*Populus* sp.) wood, and a corn (*Zea mays*) cupule and inflorescence were recovered. The only other artifact associated with the feature is a fragment of fine-grained lithic debitage (PL 2). The burned material in the fill may be a result of the apparent burning of the entire roof; burned vegetal remains could have dropped into a previously empty storage pit.

Interpretations. – Room 4 was in use during the same period as the other masonry rooms in Roomblock Unit 1. Based on the minimal compaction and discoloration of the floor, Room 4 was probably either briefly or infrequently used. The latter possibility is consistent with a storage function, but the room may have been used for processing activities, as well. The room was abandoned and, at some later date, burned. There is no apparent reuse of the immediate Room 4 area.

Room 5

Dimensions

North wall	
length (observed)	1.80 m
length (inferred)	1.80 m
thickness	0.34 m
height (remaining)	0.16 m
South wall	
length (observed)	1.60 m
length (inferred)	1.60 m
thickness	0.24 m
height (remaining)	0.22 m
East wall	
length (observed)	2.40 m
length (inferred)	2.40 m
thickness	0.25 m
height (remaining)	0.30 m
West wall	
length (observed)	2.30 m
length (inferred)	2.30 m
thickness	0.30 m
height (remaining)	0.17 m
Total floor area	4.50 m²

Room 5 (figs. 7.24 and 7.25) is a subrectangular room at the extreme west end of Roomblock Unit 1. The floor (Surface 2) is set in a shallow depression (fig. 7.26). Remaining walls have from 1 to 4 single or double courses of river cobbles and sandstone blocks set on the edges of the depression; upper walls, if present, were mostly mud. Four corner posts supported the roof.

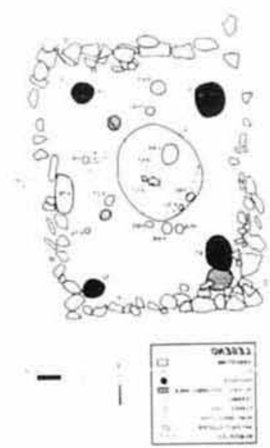

Figure 7.24 - Feature locations and point-located artifacts, Surface 2, Room 5, Area 1, Kin Tl'iish.

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Figure 7.25 - Surface 2, Room 5, Area 1, Kin Tl'iish (DAP 12304)

A possible occupational/use surface (Surface 1) is present 10 to 15 cm above the original floor. Although that stratigraphic unit is confined to Room 5, it could not have been a roofed area because corner postholes are not present above Surface 2.

Stratigraphy. – The depression for the Room 5 floor truncates an earlier cultural surface (Nonstructural Unit 7), which is recognized in Room 5 by the presence of a cist (Feature 121, provenienced with Nonstructural Unit 7) under the west wall of the room.

The floor in Room 5 overlies native earth except where it intersects an earlier pit. The floor is a very thin, use-compacted zone with occasional embedded flecks of charcoal.

In the center of the room, this floor was overlain by 12 to 13 cm of soft (dry), dark yellowish-brown loam, which contains charred fragments of wood and was mottled with yellowish-brown loam. Near the edges of the room, the fill was as much as 17 cm thick and became a brown to strong brown sandy loam with inclusions of charcoal.

This deposit probably contained collapsed, burned construction material, particularly from the roof, based on its dark color and charcoal inclusions. Since it also included several human bones (refer to Feature 2), the origin of this fill was probably partly postoccupational and was related to intentional filling of the rooms during a later occupation of the site.

Ceramics from the fill above Surface 2 (14 Early Pueblo Gray jar sherds, 2 Moccasin Gray jar sherds, and 1 Corrugated Body Sherd) are predominantly early. The single corrugated sherd could be intrusive, but it is probably related to the late deposit from which the human bone fragments in Feature 2 were recovered.

The top of this deposit was labeled Surface 1 during excavation, because numerous pebbles and cobbles and a few artifacts appeared to be resting on it, and because a large slab feature was in the center of the room that also appeared to be associated with it. It was later determined that the slabs were part of Feature 37, a large central pit feature associated with the underlying Surface 2. Although Surface 1 does not appear to be cultural (it has no thickness, is not compacted, and contains no artifacts), it exhibits the same sort of sedimentary deposition, including the presence of scattered human bone in the underlying fill, as the upper surface described for Room 1, a front room 10 m to the east. Surface 1 in Room 5 is overlain by Stratum 1.

Stratum 1 was composed of 13 to 15 cm of brown loam that contained a few sherds (3 Corrugated Body Sherds, 1 Mancos Corrugated jar sherd, and 1 Early Pueblo Red bowl sherd), charcoal, and additional fragments of human bone provenienced with Feature 2. Stratum 1 is interpreted as late, postoccupational fill, deposited primarily by natural means.

A 5- to 10-cm-thick layer of loose brown sand with artifact inclusions overlay Stratum 1 and also covered most of the wall stubs (no collections were made from this stratum).

Surface 2. – Surface 2 (fig. 7.24) was excavated and leveled during the primary construction of Room 5. It is a use-compacted surface, excavated into native earth in the eastern portion of the room and truncating some features associated with the earlier, Nonstructural Unit 7 surface (along the west edge of the room).

Six artifacts (table 7.16 and fig. 7.24) had direct contact with the floor. Based on the postoccupational assignment of the fill directly above the floor, these artifacts may not be related to use of the structure. Six human bones (PL's 353, 354, 355, and 356) were recovered from the fill less than 10 cm above the surface.

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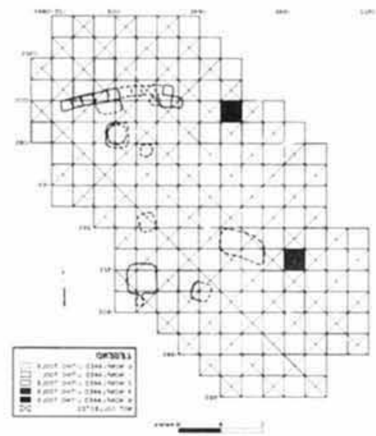

Figure 7.10 – Surface distribution of nonflaked lithic tools.

Figure 7.11 – Subsurface magnetic field, Kin Tl'iish (DAP 151525). Anomaly I3a is mapped at 28N/25E, but its coordinates (18N/25E) suggest it is located 10 m to the south.

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Table 7.2 – Magnetic anomalies with possible archaeological affiliations at Kin Tl'iish

Anomaly & priority*	Location of center†	Possible source	Statistics§	Comments
P1a	44N/39E	Pitstructure	A = 70 xA = 9	Moderate to strong burning**
P3a	16N/36E	Pitstructure	A = 75 xA = 9	Moderate to strong burning**
F3a	50N/40E	Hearth	A = 10	Burned feature
S3a	46N/31E	Structure	A = 20 xA = 4	Burning, perhaps associated activity area
I3a	18N/25E††	Unknown	A = 20 xA = 2	May be burned area in room rubble

*Each anomaly is assigned a letter designation that indicates the possible source (P = pitstructure, S = structure, F = feature, I = area of interest) and a probability/priority number between 1 and 5 (1 indicates the highest probability of encountering a cultural feature and 5 indicates that the anomaly is ambiguous and has a much lower probability of representing a cultural source). Anomalies with the same letter and probability/priority designation are distinguished by lowercase letters (e.g., a, b).
†Coordinates apply to magnetometer grid only (see figures 7.3 and 7.9 for locations of anomalies).
§A = magnitude (gamma/4 units); xA = area inside half-width contour (m²).
**Additional description of this anomaly can be found in the magnetometer report (Huggins 1983).
††The location of center does not match the mapped location of this anomaly which is 10 m to the north of its provenience.

Data in this table were provided by Spectrum Geophysics, Fort Worth, Texas.

Table 7.3 – Auger test locations and observations, Kin Tl'iish

Grid coordinates	Comments
111S/087E	Sterile
113S/087E	Sterile
103S/087E	Sterile
109S/087E	Sterile
104S/099E	Cultural; rocks at 30 cm
105S/099E	Cultural to deeper than 80 cm
108S/099E	Cultural to deeper than 100 cm, in Pitstructure 4
110S/099E	Cultural to deeper than 55 cm, in Pitstructure 4
112S/099E	Sterile below 30 cm to deeper than 75 cm
113S/099E	Sterile below 75 cm; $CaCO_3$ deposits below
114S/099E	Sterile below 30 cm
116S/099E	Sterile below 30 cm
116S/092E	Sterile

and with ceramic dates for the fills in adjacent structures. In particular, all but one sherd from the astructural probability squares in Area 2 predate the Pueblo II period. In Area 1, this is true only for probability square 6 at the extreme edge of the site (fig. 7.3). Apparently the late inhabitants limited their occupation and trash disposal to the top of the river terrace, the central part of Area 1.

Individual probability squares are not described in this chapter. Probability squares in which features and structures were encountered are described only as part of the appropriate study units.

Of the 13 probability squares excavated at Kin Tl'iish, 6 are in Area 1, and 7 are in Area 2 (table 7.4). Most of

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Table 7.4 - Probability sample summary

Probability square	Area	Grid coordinate	Maximum depth of sediments with cultural materials* (cm)	Total artifacts recovered†	Cultural units intersected	Feature intersected (N)	Feature type	Percent of feature intersected
1	1	865/90E	7	3				
2	1	945/98E	45	40	Nonstructural Unit 5	42	Hearth	40.0
					Nonstructural Unit 5	110	Borrow pit	5.0
					Nonstructural Unit 5	188	Unburned pit	100.0
					Nonstructural Unit 5	190	Unburned pit	100.0
					Nonstructural Unit 5	191	Unburned pit	100.0
3	1	1185/100E	40	281				
4	1	985/76E	20	565				
5	1	985/106E	45	649	Room 7	138	Posthole	100.0
					Room 8			
					Nonstructural Unit 6	184	Posthole	100.0
					Nonstructural Unit 6	185	Posthole	100.0
					Nonstructural Unit 6	212	Slab-lined pit	100.0
6	1	1045/70E	27	568				
7	2	1305/94E	188	1 603	Pitstructure 1	3	Bench	15.0
					Pitstructure 1	55	Unburned pit	100.0
					Pitstructure 1	60	Unburned pit	100.0
					Pitstructure 1	61	Unburned pit	100.0
					Pitstructure 1	62	Unburned pit	100.0
					Pitstructure 1	63	Unburned pit	100.0
8	2	1505/70E	20	78				
9	2	1485/62E	8	47				
10	2	1405/80E	27	162				
11	2	1365/84E	116	683	Pitstructure 3	29	Unburned pit	100.0
12	2	1065/66E	13	181				
13	2	1305/64E	22	114				

*Maximum depth of excavations excludes depths of features. Also, in all cases, except where probability squares intersect Pitstructures 1 and 3, excavations continued into native earth, but that additional depth is not reflected in this table.
†Includes only ceramic and lithic artifacts.

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Table 7.5 – Screened probability squares without structures, Kin Tl'iish

Probability square No.	Grid unit	Total artifacts	Density (artifacts per m³)	Ceramics/ flaked lithics	Nonhuman bone
1	88S/90E	7	41	0.5	0
3	118S/100E	281	701	0.11	0
4	98S/74E	565	2 825	0.74	0
6	104S/70E	568	2 104	0.12	0
8	150S/70E	78	390	1.40	0
9	148S/62E	47	588	0.76	2
10	140S/80E	102	600	0.41	0
12	108S/94E	181	1 192	0.81	2
13	130S/64E	114	518	0.45	0

these probability squares were located in shallow trash deposits. In Area 1, two probability squares intersected cultural surfaces (2 extramural occupation surfaces and 2 rooms) and 4 were located in the trash deposits. In Area 2, 2 probability squares intersected pitstructures and the remaining 5 were located in trash deposits. The types of cultural surfaces and the relative lack of formal structures encountered in the probability excavations contribute to the overall impression that most activity at Kin Tl'iish took place out-of-doors and away from formal occupation areas.

INTENSIVE EXCAVATIONS – AREA 1

Intensive excavations in Area 1 were initially focused on excavation of the probability sample and definition of Roomblock Unit 1 through excavation of the loose sediment above the roomblock area and of the long, north-south trench through the center of the roomblock. Subsequent excavations were to be directed at the investigation of a single household cluster. As the temporal complexity of the Roomblock Unit 1 area became apparent in the long north-south trench (excavation unit 1) correlates for individual episodes in the stratified and mixed deposit were searched for elsewhere in the roomblock. Room numbers were assigned by sequence of discovery; since Areas 1 and 2 were excavated simultaneously, some room numbers do not occur in the Area 1 descriptions. Located in Area 1 are Rooms 1, 2, 3, 4, 5, 7, 8, 11, and 13; Nonstructural Units 1, 4, 5, 6, 7, an unnumbered deposit in the upper fill of Pitstructure 4; and Pitstructures 2, 4, and 5. Rooms 6, 12, and 15 were identified, but not excavated; they are briefly described at the end of the Area 1 discussion. Within Area 1, at least 3 phases of surface unit construction and 2 phases of pitstructure construction exist. The earliest occupation within the roomblock area is not well defined and neither are the surface units associated with the final occupation. Most of the visible surface rooms probably represent the second period of occupation.

The earliest occupation in the vicinity of Roomblock Unit 1 was identified in Nonstructural Units 5 and 7 (table 7.6). Remains from this occupation probably extend beneath all parts of the masonry roomblock and may include some surface rooms with flimsy mud walls which are presently identified only by a few postholes. As no pitstructures in Area 1 are associated with this occupation, the possible rooms and occupation surfaces may be associated with a pitstructure in Area 2.

The second period of occupation is represented by most of the masonry surface rooms in Roomblock Unit 1 (fig. 7.12) and by Pitstructure 2, a small subrectangular structure. The masonry roomblock appears to have 10 back rooms, and may contain as many as 6 or possibly 7 front rooms, although only 3 rooms (Rooms 5, 3, and 1) have been verified (fig. 7.3). The roomblock is approximately 5.5 m north-south by 28.0 m east-west. Of the investigated front rooms, the larger 2 (Rooms 1 and 3) are each approximately twice the size of any of the back rooms (table 7.7).

The third occupation period is represented by occupation areas overlying the roomblock, particularly Nonstructural Unit 6, and 2 small, circular pitstructures (Pitstructures 4 and 5). Nonstructural Unit 6 may represent an ephemeral structure, such as a ramada. A final ephemeral occupation is inferred from late Black-on-white sherds in modern surface deposits and the upper fill of Pitstructure 4.

Roomblock Unit 1

Room 1

Dimensions:

North wall

length (excavated)	4.55 m
length (inferred)	4.55 m
thickness	0.25 m
height	0.43 m

Table 7.6 – Summary of nonstructural unit locations, Area 1, Kin Tl'iish

Nonstr No.	Cardinal orientation to Roomblock 1	Chronological relation to Roomblock 1
1	North of Roomblock 1, west end	Unknown
4	South of Roomblock 1, west end	Contemporaneous and possibly later
5	Central part of Roomblock 1 and north of Roomblock 1	Predates; probably also contemporaneous and partially later
6	East end of Roomblock 1 and north of Roomblock 1	Later than masonry rooms
7	West end of Roomblock 1 and west of Roomblock 1	Predates; may be partially contemporaneous or later

Nonstr - Nonstructural unit.

Figure 7.12 – Area 1 roomblock rubble mound, Kin Tl'iish (DAP [illegible])

South wall

length (excavated)	4.70 m
length (inferred)	5.28 m
thickness	0.18 m
height	0.36 m

East wall

length (excavated)	2.35 m
length (inferred)	2.35 m
height	0.42 m

West wall

length (excavated)	2.85 m
length (inferred)	2.85 m
height	0.40 m

Total floor area	13.1 m²

Room 1 is the front room of a roomsuite that includes 2 back units (Rooms 2 and 11); it is approximately twice the size of either of the back rooms. The roomsuite is slightly east of the center of the roomblock. Although contiguous front rooms are expected on either side of Room 1, their presence was not verified.

Room 1 is subrectangular; its lower walls are a mixture of rubble, slabs, and adobe. The north wall, which is partly contiguous with the smaller back rooms, is the most substantial and is the only wall that includes upright slabs. One set of upright slabs borders Room 2 and the other set borders Room 11.

Room 1 was constructed over an earlier occupation surface (Nonstructural Unit 5), and some features associated with the room are confused with features from the earlier occupation (fig. 7.13). Two surfaces were identified within the room; the earlier surface (Surface 1) is associated with the room walls, the later surface (Surface 2) might have been in use after room walls had collapsed.

Excavation procedure. – The investigation of Room 1 was begun as an exploratory excavation in the Area 1 roomblock, and it was completed in the attempt to describe one full roomsuite (Rooms 1, 2, and 11). Initial excavations in Room 1 were part of a trench excavated through the center of the room to identify the depth of the floor and the location of the south wall. Only fill from 0 to 5 cm above the contact with the room floor within the trench was screened.

Remains of a disarticulated burial (Feature 2) were identified in the upper fill. The bones may be present as a result of procuring fill from the original burial context to construct an upper surface. When first encountered, the bones were treated as a disturbed burial or as a burial in the walls, which subsequently collapsed, accounting for the large amount of rubble associated with the bones. At this depth, above the contact of fill with native earth, Features 25 and 150 were recognized, but because excavators could not follow the associated surface (Surface 2), the features were noted only as a postoccupational

Table 7.7 - Summary of masonry rooms, Roomblock Unit 1, Area 1, Kin Tl'ish

Room No.	Location (front/back)	Percent excavated	Maximum dimensions North-south (m)	Maximum dimensions East-west (m)
1	Front	100	2.85	4.50
2	Back	100	2.00	1.91
3	Front	100	3.25	2.90
4	Back	50	2.00	2.00
5	Front*	100	2.40	1.80
†6	Back	0	...	...
7	Back	50	2.00	2.85
8	Back	25	1.91	2.00
11	Back	50	2.10	2.30
†12	Back	0	...	...
13	Front	unknown	1.50	2.45
†15	Back	0	...	...

*Probably an end room, without corresponding front/back room.
†Unexcavated.
... - Information not available.

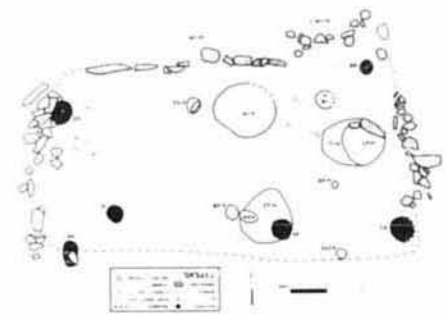

Figure 7.13 - Feature locations and point-located artifacts, Surface 1, Room 1, Area 1, Kin Tl'ish

use of the room, involving a small area, and being of an ephemeral nature. Since no surface above the original floor of Room 1 (Surface 1) was identified in profile, and since the primary objective was to relate the original use of the room to the roomsuite, the rest of the room fill (outside the trench) was shovel excavated to 5 to 10 cm above Surface 1 in preparation for exposing the room floor. Other human bone was removed in this process but not collected. During this cleaning process, features were encountered above Surface 1 in the west half of the room, and a new attempt was made to follow Surface 2. An effort was made to locate any features extant within the room walls; however, not all features on either Surface 1 or Surface 2 were completely cleared due to time constraints.

Features were assigned to Surface 2 if they were initially identified above Surface 1, and sometimes, if they trun-

cated a Surface 1 feature (e.g., Feature 213, which truncated Feature 119). Features were assigned to an occupation predating Room 1 (Nonstructural Unit 5) if they undercut room walls. If the features met neither criteria for Surface 2 nor the criteria for the earlier occupation, they were assigned to Surface 1. Some features that are assigned to Surface 1 may more correctly be associated with either Nonstructural Unit 5 or Surface 2. Features truncated by later construction in Surface 1 may belong to Nonstructural Unit 5. Features containing dark brown fill, which would not have been differentiated easily from the fill above Surface 1 in the west half of the room, might have been constructed in conjunction with Surface 2, particularly where features are shallower than expected for the feature type (e.g., Feature 118).

Stratigraphy. – Five cultural strata were recognized in Room 1. The earliest deposits were part of Nonstructural Unit 5, which underlay at least Rooms 1 and 2. The Nonstructural Unit 5 surface was truncated by Surface 1 of Room 1. Fill above Surface 1 included massive wall fall and trash (sherds, lithic artifacts, and nonhuman bone) or was comprised of sediment resembling native earth. This fill was overlain by Surface 2, a thin, poorly defined stratum identified by the presence of several features. Surface 2 was overlain by secondary deposits, characterized by the presence of numerous human bones (Feature 2). The uppermost stratum was a thin, natural deposit that blanketed the entire roomblock.

A brown silt loam with no inclusions overlay the naturally deposited sediments of Room 1. The Nonstructural Unit 5 surface, presumably a contact between cultural and natural deposits, was truncated by the Room 1 floor and was identified only by the presence of a pit (Feature 124) and a borrow pit (Feature 170), which extend beneath the Room 1 walls. The fill in Features 124 and 170 contained at least some postoccupational sediment, which has the same appearance as the fill above Surface 1.

Surface 1 is a strong brown sediment containing charcoal flecks and bits of unburned wood. Its greatest depth is at the north edge of Room 1, where the floor is 41 cm below the modern ground surface. The deposit that forms Surface 1 is as much as 1 cm thick, but it is not continuous across the room. The surface commonly was identified only by contact with native earth.

The fill above Surface 1 was variable. In the northeast part of the room, it was brown silt loam. In the northwest quadrant of the room, fill above Surface 1 was massive sandstone rubble in brown to very dark grayish-brown silt loam (fig. 7.14) with inclusions of sherds, lithic artifacts, charcoal, and adobe fragments. In the southwest quadrant, the fill above the floor was similar to native earth except that it contained lenses (apparently) of water-laid sediment, and it was not as heavily compacted as the

Figure 7.14 - Fill above Surface 1, Room 1, Area 1, Kin Tl'ish (DAP 126411)

native soil. Fill above Surface 1 was 2 to 7 cm thick and was overlain by Surface 2 in the southwest portion of the room and elsewhere by the deposit that overlay Surface 2.

Surface 2 was an undulating, discontinuous, indistinct boundary between strata, identified as a surface only by the presence of features. It was approximately 16 to 17 cm below the modern ground surface in the southwest corner of the room where it was identified.

Fill above Surface 2 was brown to dark brown loam mixed with sandstone rubble, artifacts, charcoal, and numerous human bones and human bone fragments (part of Feature 2). The deposit was from 12 to 17 cm thick and was overlain by a natural deposit of brown or dark brown silt loam with artifact inclusions. Although no cultural surface was identified above Surface 2, an upper surface is inferred to have existed, and was similar to or continuous with Nonstructural Unit 6.

Surface 1. – The lower floor of Room 1 is defined by the contact of room fill with native earth. Surface 1 slopes up to meet and become the lower portion of the south wall. Other walls were built on top of the surface or have slabs set slightly into the surface. Along the north wall, Surface 1 is 41 cm below the modern ground surface. The prehistoric excavation for the floor met, or truncated, an unknown portion of an earlier occupation surface (Nonstructural Unit 5) in at least the north half of Room 1. Thus, some features provenienced with Room 1 may actually predate its construction.

Artifacts were recovered from the floor and the fill above the floor; point location numbers were assigned to the items that lay directly on Surface 1 (table 7.8). The fill above this surface contained apparent refuse; thus, the association of artifacts to room use is questionable. However, most ceramics were recovered from the northwest quadrant of the room; the north wall is partly shared with Room 2, from which ceramic manufacturing materials were recovered. The ceramic assemblage from this portion of Room 1 included a small, unfired Chapin Gray pinch pot (PL 1) (fig. 7.15). A small polishing stone (PL 2) also came from this area.

Sixteen features were provenienced with Surface 1 (table 7.9). The functions of several of these features (unburned pits) were never determined.

Hearth (Feature 117). A large, shallow hearth is located near the west edge of Room 1. The feature is oval and probably had a basin-shaped profile, which was altered by the later construction of a pit (Feature 152). The feature fill was a dark brown silt loam mixed with charcoal and fecal flecks and a few artifacts. Three Early Pueblo Gray jar sherds and a fragment of nonhuman bone were recovered from the fill. Unfired gray clay was present behind slabs lining the intrusive pit; this clay may be construction fill for the later feature.

Hearth (Feature 153). This feature is large and circular with a flat base. Slight oxidation was noted near the rim

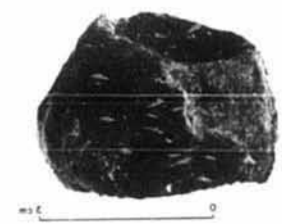

Figure 7.15 - Vessel 1, a miniature Chapin Gray pinch jar from Room 1, Area 1, Kin Tl'iish (DAP 14401)

Table 7.8 - Point-located artifacts, Surface 1, Room 1, Area 1, Kin Tl'iish

PL No.	Material class	Item description
1	Ceramic	DL Chapin Gray miniature vessel, vessel 1
2	Nonflaked lithic	Polished/polishing stone
3	Ceramic	KA Early Pueblo white bowl sherd
		DL Moccasin Gray jar sherd
		DL Early Pueblo Gray jar sherds (2)
4	Flaked lithic	Debitage
5	Flaked lithic	Debitage
6	Flaked lithic	Debitage
7	Flaked lithic	Debitage
8	Ceramic	DL Early Pueblo Gray jar sherd
9	Ceramic	BL Early Pueblo Red bowl sherd

Refer to figure 7.13 for artifact locations.
(N) - Number of items.
DL - Dolores Manufacturing Tract.
KA - Kayenta Culture Category.
BL - Blanding Manufacturing Tract.

Table 7.9 - Feature summary, Surface 1, Room 1, Area 1, Kin Tl'iish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
117	Hearth	Oval	Basin	83	59	15
118	Unburned pit	Round	Basin	18	16	6
119	Unburned pit	Oval	Basin	80	75	21
120	Posthole	Oval	Irregular	38	31	15
125	Unburned pit	Oval	Basin	22	20	7
151	Posthole	Round	Cylindrical	24	24	15
152	Unburned pit	Oval	Basin	63	43	22
153	Hearth	Round	Basin	74	66	10
154	Unburned pit	Oval	Basin	22	17	18
155	Posthole	Oval	Basin	34	22	12
156	Posthole	Round	Cylindrical	28	27	34
157	Posthole	Round	Triangular	36	34	30
158	Unburned pit	Oval	Basin	22	18	8
159	Unburned pit	Round	Triangular	11	11	18
198	Posthole	Round	...	19	18	...
200	Unburned pit	Round	Basin	14	14	8

Refer to figure 7.13 for feature location
... - Information not available.

of the hearth. The fill of Feature 153 was a mixture of brown silt loam with charcoal and charred wood of several species, flecks of adobe, large sandstone spalls, river cobbles, and some artifacts. These included 1 charred *Phaseolus* cotyledon, 12 pieces of lithic debitage, 1 core, 1 abrading stone, and 5 sherds. Near the base of the pit were large inclusions of brown silt loam that were slightly finer than the overlying deposit and contained fewer artifacts and less charcoal. This feature probably functioned as the central hearth during some period of occupation. Whether it was constructed at the same time as the walls of the room is not known, because it truncates earlier features and its fill is identifiable slightly above Surface 1. Feature 153 truncated a pit (Feature 154) and a posthole (Feature 156), both of which appear to have been capped with rocks, and although Feature 156 only has a partial sandstone spall covering, fill above the spalls was the fill of Feature 153. The oxidation on the walls of the hearth is present only as high as Surface 1; however, since the fill was apparent at the elevation of Surface 2 (8 cm above Surface 1) it is likely that the hearth was reused in association with Surface 2. After Surface 1 fell into disuse, and possibly after Surface 2 was in use or abandoned, the hearth was truncated by the construction of Feature 25 (a burned pit) assigned to Surface 2.

Posthole (Feature 120). Feature 120, the northeast corner posthole, is irregularly shaped and set partially into the east wall of the room. Rocks line the back wall of the posthole and form part of the east wall of the room above the feature. No rock lining is present below Surface 1; however, the posthole contains a single base stone. Sandstone rocks, possibly from wall fall are present in the upper silt loam fill, which also contains charcoal and adobe. Lower fill is sandy loam and a few small artifacts.

Posthole (Feature 157). This slab-lined posthole is located in the southeast quadrant of the room. Upright sandstone slabs, which rest on a horizontally placed slab, line the north and west sides and protrude above Surface 1. A mano resting on the horizontal slab forms the actual base stone. The fill contained ash, charcoal, and a few sherds. It was slightly disturbed by rodent activity and is interpreted as postoccupational fill. This feature might have held a roof support post during some use of the structure area.

Posthole (Feature 155). The southeast corner posthole, Feature 155, intrudes into the south wall. It has a partial slab lining and exhibits evidence of probable remodeling. A two-hand mano and a small sandstone slab are set vertically on a river cobble in the north half of the pit. Presumably, the river cobble served as a base stone and the vertically placed stones acted as shims for the post. The fill was heavily disturbed by rodents, but undisturbed fill was a strong brown loam containing charcoal; it is interpreted as a postoccupational deposit because of the high degree of disturbance.

Posthole (Feature 156). This posthole was truncated by Feature 153 (hearth). It had a slightly rounded base in which a river cobble rested. The feature was sealed at the base of the overlying hearth with sandstone spalls that extended part of the way up the west wall of the overlying feature. Feature 156 fill was loose brown silt loam, which contained 4 sherds, 2 items of lithic debris, 1 utilized flake, 2 bones, and charred wood; fill above the spalls was the same as the fill in the overlying hearth. This feature might have held an auxiliary roof support post, but not during the same occupation as the room hearth.

Posthole (Feature 157). Sandstone spalls set in a circular pattern in the upper fill of this southwest, corner posthole appear to be shims. The feature fill was a homogeneous dark brown silt loam with mottles of strong brown silt loam and sandstone fragments in the area where the larger sandstone spalls are present. Almost no charcoal and only 2 sherds were noted in the fill; one of the sherds is the only Mancos Gray sherd associated with Surface 1.

Posthole (Feature 198). An irregular, dark brown stain above Surface 1 identified the location of this northwest corner posthole. The presence of the stain above the level of Surface 1 may indicate that the feature was used again after the abandonment of the lower surface or that the post rotted in place. The feature contained a grayish-brown fill. Small, upright-slab shims and other rocks in the feature may have been used to pack the post into the north half of the hole. This feature was not fully excavated.

Unburned pit (Feature 158). This shallow, oval basin is located immediately east of the central hearth (Feature 153). Its fill was a strong brown silt loam containing fragments of charcoal and mottles of redeposited native earth; this fill is interpreted as a postoccupational deposit. The function of the pit is unknown, although based on its shape and its location next to the hearth, Feature 158 may have served as a pot rest.

Unburned pit (Feature 118). This small pit is located in the west half of the room. A sandstone slab was wedged into the base of the pit. Fill above the slab was a strong brown silt loam flecked with charcoal; a single kernel of corn (not collected) was noted in the fill. The function of the pit is not known.

Unburned pit (Feature 119). Feature 119, a large unburned pit, is located midway along the north wall of the room. It truncates an earlier pit (Feature 124) associated with Nonstructural Unit 5, and a small, slab-lined posthole (Feature 213) cuts into its fill. The fill was loose, dark brown silt loam with mottles of lighter silt loam, charcoal flecks, adobe, sandstone (at the base of the pit), gravel, and artifacts (8 sherds, 9 lithic artifacts, 1 *Phaseolus* seed, and 0.1 g of *Zea mays* fruit). Considerable rodent disturbance had occurred at the base of the pit. The function of the pit is not known.

Unburned pit (Feature 125). This small pit contained 2 sandstone slabs, a two-hand mano lay horizontally at the depth of Surface 1, and another two-hand mano protruded vertically from the west side of the pit. The fill was a brown silt loam containing a few charcoal flecks and tiny sandstone fragments. Feature 125 was identifiable above Surface 1 by the presence of the upright mano, but the pit fill was not distinguishable from the fill above Surface 1; the mano appeared to be a rock in fill above the floor. Therefore, Feature 125 may be evidence for the continuation of Surface 2 into the northeast quadrant of the room. The function of the pit is unknown; of course, like any small pit it might have held an auxiliary roof support post.

Unburned pit (Feature 152). This unburned pit, located at the west end of Room 1, cuts into Feature 117. Feature 152 has a partial rock lining of 2 upright sandstone slabs set against the north edge of the pit. The slabs are braced with unburned gray clay, and small blocks of red clay provide construction fill where the presence of the sandstone slabs creates an irregularity in the curvature of the feature. The pit fill was stratified, and the lower fill may have been entirely a construction element. The lowest fill was uncompacted, dark brown silt loam with flecks of charcoal, jacal, and gray clay. This was overlain by clay loam and a thin lens of dark brown silt which contained artifacts and small balls of red clay. The upper fill was removed during the subsequent construction of Feature 140 (Surface 2).

Unburned pit (Feature 154). Feature 154 underlies Feature 153 (a hearth). It is a small, oval basin, which was filled with brown silt loam with large irregular patches of very dark, grayish-brown silt loam, fragments of charcoal, and a few pieces of flaked lithic debitage. A sandstone slab partially separates this fill from the overlying fill of Feature 153. The function of the pit is not known.

Unburned pit (Feature 159). Feature 159 is a small, circular pit with a pointed base and a fill of brown silt loam. This fill is interpreted as redeposited native earth. The function of the pit was not determined.

Unburned pit (Feature 200). This small, round basin is set against the south wall of Room 1. Its brown fill contained one burned bone fragment. The function of the pit is not known.

<u>Surface 2</u>. - Surface 2 is a discontinuous, undulating surface in room fill that slopes up toward the south edge of Room 1. Surface 2 was identified only in the southwest quadrant of the room on the basis of several pits. However, based on the composition of room fill, Surface 2 probably overlies at least the west half of Room 1. In the southwest corner of the room, Surface 2 had a greater elevation than the remaining west and south walls of Room 1 and, presumably, extended beyond the west and south walls, although no attempt was made to clear Surface 2 outside the room boundaries (fig. 7.16).

Several artifacts were recovered from Surface 2 but, since fill above (and below) Surface 2 contained numerous artifacts and collapsed building material, these items may relate to postoccupational events rather than to use of the surface. Only artifacts lying directly on Surface 2 were point located (table 7.10).

Seven features have been assigned to Surface 2 (table 7.11). Based on 2 postholes (Features 150 and 213), the area defined as Surface 2 was probably roofed. Two other support posts may have been located at the edge of Surface 2 outside the west end of the room. Two burned pits were identified. One of these, Feature 143, was truncated by Feature 146 (unburned pit), indicating sufficient time for minor remodeling of Surface 2.

Posthole (Feature 150). This is a slab-lined posthole along the south wall of the room. The north and east edges of the hole are lined with vertical slabs and a two-hand mano rests on the bottom of the feature. The fill was dark brown silt loam containing chunks of adobe, charcoal, and oxidized earth.

Posthole (Feature 213). This small slab-lined posthole cuts into Feature 119 (unburned pit) on Surface 1 (fig. 7.17). Feature 213 has been assigned to Surface 2 even though it was not recognizable above Surface 1. It was not excavated.

Burned Pit (Feature 25). The pit is a circular to oval basin with adobe coping around at least its southern edge. The fill was a very dark silt loam mixed with charcoal and artifacts (6 sherds, 12 fragments of lithic debris). The pit truncates the Surface 1 central hearth (Feature 153). Some artifacts from that earlier feature are inferred to be mixed in with the fill of Feature 25. No function was identified for this pit.

Burned pit (Feature 143). This small, round to oval basin near the south edge of Room 1 was truncated by Feature 146. Only the east half of the pit was cleared. The pit was excavated into native earth and water-laid deposits. The water-laid deposits are likely part of the fill above Surface 1. The feature fill was a brown silt loam with two sherds and a lithic debitage fragment. Based on a lens of burned adobe at the south edge of the pit, the feature may be a hearth.

Unburned pit (Feature 146). This small, oval basin is centered over two earlier pits (Features 117 and 152) associated with Surface 1. The walls of the pit show no evidence of burning, although the fill was dark brown and contains large amounts of ash and charcoal. The fill was horizontally stratified. One stratum, at the north edge of the feature, was distinguished by flecks of jacal and small artifacts in a brown loam matrix. The loam was separated from the ash deposit stratum by a flat-surface abrading stone (PL 4).

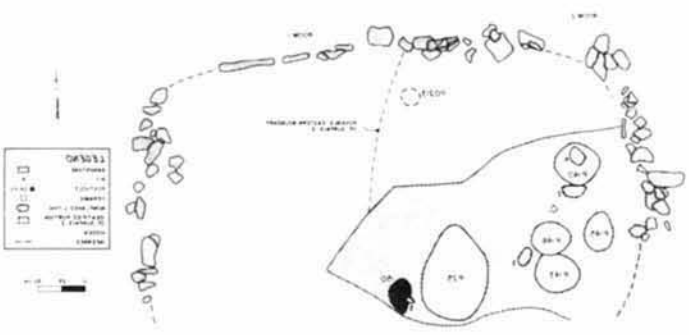

Figure 7.16 - Feature locations and point-located artifacts, Surface 2, Room 1, Area 1, Kin Tl'ish

Table 7.10 – Point-located artifacts, Surface 2, Room 1, Area 1, Kin Tl'iish

PL No.	Material class	Item description
1	Ceramic	Dolores Manufacturing Tract Piedra Black-on-white bowl sherd
2	Nonflaked lithic	Minimally altered item
3	Nonflaked lithic	Two-hand mano
4	Nonflaked lithic	Abrading stone
5	Nonflaked lithic	Minimally altered item

Refer to figure 7.16 for artifact locations.

Table 7.11 – Feature summary, Surface 2, Room 1, Area 1, Kin Tl'iish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
25	Burned pit	Complex	Complex	*80	*54	*15
140	Unburned pit	Oval	Basin	51	51	14
143	Burned pit	Round	Basin	56	*46	*32
145	Unburned pit	Round	Basin	31	31	15
146	Unburned pit	Round	Basin	41	33	19
150	Posthole	D-shaped	Basin	29	20	20
213	Posthole	Round	. . .	. . .	. . .	. . .

*Existing dimensions; complete dimensions not available.
Refer to figure 7.16 for feature locations.
. . . - Information not available.

Figure 7.17 – Feature 213 (posthole) in fill of Feature 119 (pit), Room 1, Area 1, Kin Tl'iish (DAP (27331))

The function of the pit was not identified. It probably served as an ash pit, based on the charred contents, although it does not have a good association with a hearth. The pit appears to be newer than Feature 143 (a possible hearth) and is relatively far from Feature 25 (a burned pit).

Unburned pit (Feature 145). Feature 145 is a round, unburned basin in the southwest corner of Room 1. A sandstone slab is set vertically against the south wall of the feature, and another slab is set horizontally in the fill. The fill was a dark brown silt loam which exhibited some internal lensing and contained one jar sherd. The function of this feature is unknown. Although the placement of the stone slabs is similar to that in other postholes, the diameter of the pit is quite large relative to other slab-lined postholes at Kin Tl'iish.

Unburned pit (Feature 146). This small feature truncates Feature 143 (burned pit). It is round with a flat to basin-shaped floor. The fill was dark brown with many small sandstone slabs, five sherds, and a few *Thomomys* sp. (gopher) and *Cynomys gunnisoni* (prairie dog) bones. A rodent burrow in the base of the feature probably accounts for the presence of the nonhuman bones. Based on shape and the presence of the numerous sandstone slabs, Feature 146 may be a posthole with sandstone shims. The sherds may represent a small amount of postoccupational fill.

Interpretations – Room 1 is a front room in the middle of Roomblock Unit 1. Excavations identified three surfaces within the boundaries of the room. The earliest surface actually predates room construction; it is described with Nonstructural Unit 5. The next surface, Surface 1, represents the original occupation of the room. The uppermost surface (Surface 2) may postdate the abandonment of Room 1.

Features associated with these 3 surfaces are confused in some areas. Although room boundaries are well defined, some features within the boundaries may not be related to the occupation of the room. The clearest separation of the features is in the southwest quarter of the room, where fill between Surface 1 and Surface 2 is thickest and where there is no clear evidence of features predating room construction. Features were provenienced with Nonstructural Unit 5 only if they undercut walls. Therefore, features were not assigned to Nonstructural Unit 5 in the 2 cases in which 3 discrete episodes of feature construction (Features 140, 152, and 117, and Features 25, 153, 156, and 154) were noted, although the earliest features in those sets may have been constructed during the use of Nonstructural Unit 5. Those features were provenienced with Room 1 because they show the potential of remodeling and remodeling must be considered for Surface 1.

Ceramic types associated with Surface 1 are compatible with an occupation within the A.D. 825 to 910 time period, and if the single Mancos Gray sherd (from Feature 157) is not a contaminant from later occupation, Surface 1 was probably abandoned between A.D. 860 and 910. Surface 2 and mixed fill ceramics are all appropriate for the A.D. 860 to 910 time period, but the ceramics may not be temporally associated with the surface. If the surface and features do postdate the ceramic types, then it is likely that they postdate A.D. 900.

Assuming that the features were assigned to the correct surfaces, some patterning of activities within the room is apparent. During the occupation of Surface 1, most features were located on the west side of the room. If a work area was present, it was in the east half of the room. Small pits in the center of the room (possibly postholes) are as likely related to the specific use of areas within the structure as they are to roof support. Alternatively, some of these features may be partially slab lined storage pits. The large unburned pit (Feature 119) also may be storage. The presence of hearths supports the inference that domestic activities were carried on in Room 1, rather than in its back rooms, which have no hearths. Artifacts from the features contribute little information. There are too few lithic artifacts and insufficient control over the mode of collection to identify point-located lithic items at the east edge of the room as part of a tool production or processing area, either of which might be expected in this more open part of the structure. Two artifacts associated with ceramic manufacture (the small unfired pot and the polishing stone) that were recovered from the north-east quadrant of the room could be part of a work area in the front room or could have been carried from the work area in the back room (Room 2).

Distribution of features and artifacts on Surface 2 indicate only that features are clustered and, by the presence of hearths, that domestic activities were probably conducted in the area. Although the Room 1 roof could not have been reused for Surface 2, evidence for some kind of roof is provided by the presence of at least two postholes.

A similar range of activities appear to have taken place during both occupations of the Room 1 area. These activities are strongly domestic in nature (e.g., cooking or processing and storage). The use of Room 1 began sometime before A.D. 850 and ended sometime after A.D. 900. It was temporarily abandoned for unknown lengths of time within that date range.

Room 2

Dimensions:

North wall

length:	1.92 m
thickness:	0.25 m
height (remaining):	0.30 m

Chapter 7

EXCAVATIONS AT KIN TL'IISH (SITE 5MT2336), A MULTIPLE-OCCUPATION SITE

ABSTRACT

Excavations were conducted at Kin Tl'iish (Site 5MT2336) by the Dolores Archaeological Program during the summer of 1982 to augment the data base from the south end of the McPhee Reservoir area. The site is located on a terrace above the east bank of the Dolores River, about 2.4 km downstream from Dolores, Colorado.

Probability sampling was conducted in order to provide a data set comparable to those collected from other project area sites. Intensive excavations of structures and use surfaces were carried out to expose the surfaces and thereby obtain information on spatial organization within these units.

The earliest occupation at Kin Tl'iish is known from a Sagehen Phase (A.D. 600-850) Dos Casas Subphase (A.D. 760-850) pitstructure and the associated nonmasonry rooms in the southeast portion of the site. Other remains that may be associated with this occupation were located beneath more recent McPhee Phase (A.D. 850-975) structures.

The most substantial occupation is assigned to the McPhee Phase and is represented by 2 masonry roomblocks and 2 pitstructures.

At least 2 additional occupations followed abandonment of the McPhee Phase structures. The earlier of these has been assigned to the late McPhee Phase or the early Sundial Phase (A.D. 1050-1200) and is represented by 2 small, circular pitstructures. These may be associated with ephemeral occupation surfaces and at least one masonry room.

The last use of Kin Tl'iish is recognized by the presence of late black-on-white sherds in the upper fill of one of the small, circular Sundial Phase pitstructures. The interment of several individuals may be associated with this final use, but no affiliated structures were identified.

Kin Tl'iish functioned primarily as a habitation. However, at least following the McPhee Phase occupation, use of the site was probably seasonal.

ACKNOWLEDGEMENTS

Supervisory responsibilities at the site were divided as follows: K. Dohm was in charge of operations at the site and direc' excavations in Area 1; M. Gould directed excavations in Area 2. Authorship responsibilities correspond to these d..isions.

The investigation of Kin Tl'iish was made possible by essentially volunteer labor. Most crew members were students from the Washington State University field school: Annie Cody, Julie Crisp, Bernard Crustin, Christopher Dore, Carrin Halfman, Marina Iossifides, Cristina Ivany, Michael Katz, Thegn Ladefoged, Toby Levenson, Lynn Mestres, Christopher Meyer, Mark Mitchell, Don Pate, Sheila Quinlan, Alison Rautman, Lee Ann Turner, and Joseph Wilson. Shinya Akamine and David Lipe worked at the site throughout most of the summer and received neither pay nor academic credit. Eric Blinman, Kenneth Decker, Donald Howes, Edward Huber, Allen Kane, Timothy Kohler, William Lipe, Vera Morgan, and Phyllis Wolf volunteered their free time doing fieldwork. Ricky Lightfoot and Neil Morris operated the backhoe. Finally, Maureen Cavanaugh and Gene Davis were freed from other excavation duties to assist in the operations at Kin Tl'iish for several days. The field school excavations were conducted from June through early August. In October, the last excavations were conducted by the DAP testing crew. Testing crew members were Mark Hovezak, James Kleidon, Andrea Tucker, and Richard Yarnell.

Chapter 7

EXCAVATIONS AT KIN TL'IISH (SITE 5MT2336), A MULTIPLE-OCCUPATION SITE

Karen M. Dohm and Melissa Gould

INTRODUCTION

Kin Tl'iish (Site 5MT2336) is a small, multiple-phase habitation at the south end of the McPhee Reservoir area. The site is in the NW 1/4 of the NW 1/4 of section 8, T37N, R15W. The Universal Transverse Mercator grid coordinates for this location are 4,151,600 mN, 717,750 mE, zone 12. Kin Tl'iish is situated in the Dolores Locality of the Escalante Sector of the Yellowjacket District of the Mesa Verde Region (Kane 1983a:14-19). It is one of several small hamlets located on part of a fan overlooking the Dolores River. Kin Tl'iish is arbitrarily distinguished from adjacent sites (5MT4493, 5MT4494, 5MT4507, and 5MT4508) by a decrease in artifact densities between the sites and by a minor drainage across the old river terrace on which it is located.

Investigations at Kin Tl'iish were undertaken by the DAP (Dolores Archaeological Program) to increase the data base for McPhee Phase sites in the south end of the project area through excavation of a probability sample and intensive excavation of selected cultural units. The site was given a high priority for 1982 fieldwork because it was well located for a public display site, and because it was expected to be a suitable site for an archaeological field school due to its inferred simple cultural history.

Kin Tl'iish is named for the numerous rattlesnakes encountered while clearing vegetation from the site. Translation from Navajo is variously "snake house" or "snake market."

Site Setting

Kin Tl'iish is located on an east bank terrace above the Dolores River, about 2.4 km downstream from the town of Dolores. The site rests on a colluvial/alluvial deposit overlying the second terrace of the Dolores River (Holliday and Piety 1981); it is at an elevation of 2103 m (figs. 7.1 and 7.2).

Soil and Agricultural Potential

Soil on the terrace is a Witt loam, which has been described in Leonhardy and Clay (1982) as a Ustollic Haplargid, a deep, well-drained soil found on mesa tops, hillsides, and uplands. In general, the parent sediment for this soil is calcareous, moderately fine textured eolian and reworked material. Specific analyses were not conducted for soils on the site; however, for all noncultural excavation units at Kin Tl'iish, the Witt loam type description is accurate.

The following soil description is based on a typical pedon of Witt loam; the discussion is derived from Leonhardy and Clay (1982). In the Witt series, the A horizon is a loam with a hue of 5YR through 10YR, a value of 5 through 7 (dry), and a chroma of 2 through 4. Commonly, the A horizon is about 20 cm thick and is underlain by a B1 horizon about 10 cm thick. The B1 horizon is differentiated from the underlying B2t horizon on the basis of soil structure. The B2t horizon typically has a hue of 5YR through 7.5YR, a value of 5 through 7 (dry), and a chroma of 2 through 4, and it is typically a clay loam or silty-clay loam, with an average thickness of about 46 cm. A B3ca horizon underlies the B2t in naturally formed soils. It is differentiated primarily by the presence of carbonates that tend to give it a slightly higher value. The B3ca horizon is underlain by a Cca horizon, about 51 cm thick. The C horizon, commonly loam or silt loam, has a hue of 5YR or 7.5YR, a value of 5 through 7, and chroma of 3 through 6.

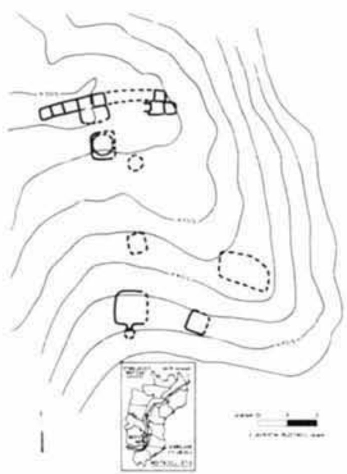

Figure 7.1 - Topographic map of Kin Tl'iish

Figure 7.2 - View of Kin Tl'iish (DAP 130122)

This description of the Witt loam so accurately represents soil on the terrace where Kin Tl'iish is located that where there is a deviation, cultural disturbance may be presumed, even in the absence of apparent cultural materials.

Immediately south of the small terrace on which the site is located, the soil is Cheyenne series, a fine loamy sand over sandy, or sandy-skeletal, mixed mesic Andic Haplustolls. Characteristically, these are deep, well-drained soils formed in loamy alluvium and overlying river cobbles and gravels (Leonhardy and Clay 1982:57).

To the east of the site, soils of the Batterson-Gladel-Rock outcrop complex are found on the canyon wall. Leonhardy and Clay (1982) characterize them as shallow and too rocky to cultivate in most areas and indicate that in the small areas where they are relatively deep, moisture retention is the limiting characteristic for agriculture.

The Witt and Cheyenne series are characterized as being good garden soils. However, Cheyenne soils frequently occur in cold air drainages where it is the number of frost-free days, rather than any soil characteristic, that may be a limiting factor (Leonhardy and Clay 1982). Cold air drainages, which cause local frost pockets, seem to be most severe where the Dolores River canyon is very narrow (Petersen 1983a), on the flood plain, or on slopes facing due east (Petersen 1983b). As none of these conditions applies to Kin Tl'iish, cold air drainage is not expected to have been a problem, and both Witt and Cheyenne series soils may be correlated with good agricultural plots in the area of Kin Tl'iish.

The Witt loam provides about 11.2 ha of arable land immediately adjacent to Kin Tl'iish. Cheyenne series soils provide an additional 20 to 30 ha of arable land south and immediately northwest of the site. Together, the Witt and Cheyenne series soils appear to provide 16 ha of arable land immediately adjacent to Kin Tl'iish. Assuming adjacent sites assigned to specific subphases were occupied simultaneously, gardening by inhabitants of adjacent sites is expected to have truncated the area available to Kin Tl'iish farmers during every occupation of the hamlet. However, even when the population peak occurred during the Periman Subphase (A.D. 850-900) sufficient areas of Witt loam should have been available to support the inhabitants of Kin Tl'iish.

Vegetation

Vegetation communities near Kin Tl'iish are inferred to be the same today as those present during the Anasazi occupation of the site. The immediate site area and the area just south of the site is classified as sagebrush shrubland; vegetation directly west, in the flood plain, is riparian; and vegetation to the east, on the edge of the site, is a pinyon-juniper woodland habitat with scattered sage (Petersen 1984). Vegetation at Kin Tl'iish (table 7.1) is presumed to be typical of big sagebrush communities in the Dolores Locality. Some of the plants listed in table 7.1 were introduced during the historic period, while others may have been subsistence resources for the Anasazi and are discussed later in the section on economy and adaptation. This list was prepared by a member of the DAP Environmental Archaeology Group. The pinyon-juniper woodland located east of the site may have been a source for building materials, fuel wood, and wild plant foods during all periods of Anasazi occupation. For a complete list of plants that occur in the project area, refer to Petersen et al. (1984).

Fauna

A great diversity of fauna is reported for the project area and is attributed to complexities of topography and climate and to seasonal presence of migratory mammals and waterfowl (Neusius and Phagan 1983). Large mammals, especially mule deer (*Odocoileus hemionus*), elk (*Cervus elaphus*), and bighorn (*Ovis canadensis*), tend to

Table 7.1 – Inventory of vegetation observed at Tl'iish

Family	Scientific name	Common name
Trees:		
Fagaceae	*Quercus gambelii*	Gambel oak (scrub oak)
Shrubs:		
Cactaceae	*Opuntia fragilis*	Brittle pricklypear
Anacardiaceae	*Rhus aromatica* spp. *trilobata*	Squawbush (skunkbush)
Compositae	*Artemisia tridentata*	Big sagebrush
Compositae	*Chrysothamnus nauseosus*	Rubber rabbitbrush
Compositae	*C. viscidiflorus*	Rabbitbrush
Rosaceae	*Amelanchier* sp.	Serviceberry
Hydrangeaceae	*Fendlera rupicola*	Cliff fendlerbush
Herbs:		
Boraginaceae	*Cryptantha* sp.	Cryptantha
Compositae	*Antennaria parvifolia*	Littleleaf pussytoes
Compositae	*Cirsium* sp.	Thistle
Compositae	*Crepis acuminata*	Tapertip hawksbeard
Compositae	*Erigeron divergens*	Spreading fleabane
Compositae	*Haplopappus* sp.	Goldenweed
Compositae	*Senecio* sp.	Groundsel
Convolvulaceae	*Convolvulus arvensis*	Bindweed
Gramineae	*Agropyron smithii*	Western wheatgrass
Gramineae	*Bromus tectorum*	Cheatgrass brome
Gramineae	*Oryzopsis* sp.	Ricegrass
Gramineae	*Poa* spp.	Bluegrass
Gramineae	*Sitanion hystrix*	Bottlebrush, squirreltail
Gramineae	*Stipa comata*	Needle-and-thread grass
Leguminosae	*Lotus wrightii*	Wright's deervetch
Leguminosae	*Lupinus* sp.	Lupine
Leguminosae	*L. ammophilus*	Sand lupine
Leguminosae	*Melilotus officinalis*	Yellow sweetclover
Liliaceae	*Calochortus* sp.	Mariposa lily (sego lily)
Malvaceae	*Sphaeralcea coccinea*	Scarlet globemallow
Onagraceae	*Oenothera caespitosa*	Evening primrose
Polemoniaceae	*Phlox hoodii*	Hood's phlox
Polygonaceae	*Eriogonum* sp.	Eriogonum/buckwheat
Scrophulariaceae	*Castilleja chromosa*	Desert Indian paintbrush
Santalaceae	*Comandra umbellata*	Common comandra (bastard toadflax)

The following plants are introduced, rather than native: *Cirsium* sp., *Convolvulus arvensis*, *Bromus tectorum*, *Melilotus officinalis*, and possibly *Poa* spp.

winter in the valley area and summer in the uplands of the San Juan Mountains. These are reported as more common on the east side of the Dolores River, where Kin Tl'iish is located, than on the west side. Some waterfowl use the area during migration or for breeding. Resident avian taxa include hawks and falcons (Falconiformes), owls (Strigiformes), grouse (Tetraonidae), turkey (*Meleagris gallopavo*), woodpeckers (Piciformes), and some perching birds (Passeriformes) (Neusius and Phagan 1983). A complete list of contemporary project area fauna is provided in Benz et al. (1981). On the basis of vegetation zones, all animals found in the project area may be found near Kin Tl'iish, except those whose distribution is limited to marshland.

Other Economic Factors

Three major classes of lithic materials suitable for producing flaked stone tools are available in the project area: cherts and orthoquartzites from the Burro Canyon and

Mormon Formations and hornfels from the river gravels. All 3 classes are abundant and easily obtained near Kin Tl'iish.

Clays suitable for ceramic manufacture are available in the Mormon and Dakota Formations and are at least as close as the Mas Canyon drainage (less than 1 km from Kin Tl'iish).

The mesa tops just east of the site and the river directly south are easily accessible from Kin Tl'iish. The site is situated above the present flood plain, allowing good drainage and a view of the flood plain and adjacent mesas. There is a ford across an outside meander in the Dolores River about 1 km south of the site, where the river makes 2 sharp turns. Assuming the river followed its present course during the occupation of Kin Tl'iish, a ford could be expected in the same general area (because of the physics of river bar formation) prehistorically and would have provided relatively easy access to land west of the Dolores River for the inhabitants.

Summary

As early as the Sagehen Phase, accessibility to agricultural land is interpreted to have been the primary factor in the selection of dwelling locations (Kane 1984; Dane 1983:117). The terrace on which Kin Tl'iish is located provided the site inhabitants with a sufficient amount of some of the best agricultural soils in the project area. The terrace may have provided access to nearly the full range of flora and fauna available in the project area and to an abundant supply of raw materials for the production of lithic tools and ceramic vessels. Apparently, Kin Tl'iish occupied a favorable location for a habitation site.

Cultural Setting

Kin Tl'iish was occupied during portions of the Sagehen (A.D. 600-850), McPhee (A.D. 850-975), and Sundial (A.D. 1050-1200) Phases. Certainly, the cultural setting was different during each phase; however, the McPhee Phase settlement pattern was used to determine the extent of the neighborhood surrounding Kin Tl'iish. A 2.5-km radius was established around the site to define neighboring sites for this period; this radius was arbitrarily retained for the earlier and later phases as well. This 15.9-km² area is referred to as the "neighborhood" throughout this chapter.

During the Sagehen Phase, slightly more than one quarter (19) of the 62 sites in the neighborhood were habitations (this included Kin Tl'iish). Apparently, the preponderance of habitations near Kin Tl'iish is not a chance occurrence; it may be the result of the presence of good agricultural soil. Later, during either the very late Dos Casas Subphase (A.D. 760-850) of the Sagehen Phase or the very early Pe[illegible] Subphase (A.D. 850-900) of the McPhee Phase, the site was reoccupied. The maximum population in the Kin Tl'iish neighborhood is presumed to have been reached during the Periman Subphase. At that time the proportion of habitations to other site types increased (26 out of 74). Considering the topography and soil quality, this increase in not surprising. During the Cline Subphase (A.D. 900-975) of the McPhee Phase the number of habitations surrounding Kin Tl'iish decreased dramatically (only 8 of 48 sites were habitations). The closest sites from this period have been defined as storage facilities and limited activity sites. More habitations were located near the present-day ford to the south. During the Sundial Phase, Kin Tl'iish was used only seasonally, and the neighborhood was even less densely packed than in the Cline Subphase. Of the 33 sites assigned to the Sundial Phase, the nearest to Kin Tl'iish were storage facilities and other seasonal use sites. The 8 Sundial Phase habitations in the neighborhood were all well south of the site.

The site type composition of the Kin Tl'iish neighborhood was very similar during the Sagehen Phase, Periman Subphase, and Sundial Phase. The significant change in social setting occurred between the Periman and Cline Subphases, when use of the area appears to have generally decreased and to have shifted from north to south of Kin Tl'iish.

Investigative Strategy

Research Objectives

Excavations were conducted at Kin Tl'iish to increase information on McPhee Phase sites in the southern portion of the project area. Investigations consisted of probability sampling and intensive excavation of selected cultural units. Based on analysis of the 1978 survey artifact assemblage, which contained evidence for a single Periman Subphase occupation and for very minor use much later, data recovered from Kin Tl'iish were expected to contribute to the study of economy and adaptation, social organization, and possibly extraregional relationships, as detailed in the DAP research design (Kane et al. 1983). Comparisons of Kin Tl'iish with sites in the northern reaches of the project area were expected to contribute to the study of economy and adaptation, by using data such as the following: relative amounts of faunal remains; plant remains from food, heating, and construction; and the types and numbers of features associated with the processing of these materials. Analysis of social organization within the site was aimed at providing an understanding of the relationships among its household clusters (Kane 1983a:12) and comparing these to similar relationships at other sites. Finally, the degree of extraregional influence was to be established on the basis of relative amounts of nonlocal materials.

Investigative Methods

Investigations at Kin Tl'iish began with an early survey of the Dolores Project area (Breternitz and Martin 1973). The site was also described in the 1978 DAP survey, and in 1981, the DAP magnetometer testing program included Kin Tl'iish. Each examination of the site indicated that Kin Tl'iish was a Pueblo habitation, but estimates of site size and the number of pitstructures present varied. Subsurface investigations were conducted in 1982. Most of the work was undertaken during the summer field season; however, a testing crew returned to the site in October to further define the occupation in Area 1, to complete the excavation of the probability squares in that area, to search for pitstructures in Area 2, and to complete stratigraphic descriptions site wide.

Immediately preceding the 1982 excavations, survey records were reviewed, and site and area boundaries were delimited as accurately as possible. Site boundaries were defined by a decrease in artifact density. Area boundaries were defined by the presence of 2 major rubble concentrations, each presumed to represent a roomblock; sandstone blocks and river cobbles were scattered between these presumed roomblock areas.

Surface artifact distributions and locations of proposed excavation units were plotted on the site grid, which was alined with magnetic north on the magnetometer grid. Following the surface artifact collection, an auger testing program was implemented and roomblock walls were cleared. Auger testing proved inefficient due to the depth of the cultural deposits, the time-consuming nature of the testing, and the limited information such sampling provided. This testing method was replaced by hand-dug and backhoe trenches. Excavation of the probability sample, the intensive excavation of cultural units, and examination of the site for additional pitstructures were undertaken simultaneously.

The surface artifact collection was expected to contribute to the estimation of site structure and to the definition of use areas in unexcavated portions of the site. The purpose of auger testing was intended to locate pitstructures; rubble alinements were followed to locate surface structure walls. The intent of the hand and machine trenching was more complex. Trenches were excavated to locate pitstructures and cultural deposits away from the major rubble areas. Trenches were also placed adjacent to probability squares to determine the depth of cultural deposits and provide a view of the stratigraphy prior to opening the squares, thereby allowing more efficient excavation. Elsewhere, trenching was used to facilitate the vertical exposure of site deposits. Figure 7.3 shows the locations of the trenches and other excavation units and Figure 7.4 is a view of Kin Tl'iish during excavation.

The intensive excavations of cultural units were directed at major occupation surfaces (floors), as outlined in the DAP excavation manual (Kane and Robinson 1984), with the intent of identifying spatial organization within individual structures, types of architecture, and relative and absolute dates of construction and abandonment. Within each roomblock area, intensive excavations were intended to describe at least one household cluster. Insufficient time and integrity of the cultural units precluded this. In the Roomblock 1 area, only surface units of one construction element (Element 3) could be investigated fully and only the pitstructures of another (Element 4). In the Roomblock 2 and Roomblock 3 areas, detailed information was collected only from the pitstructures. Some of the judgmentally chosen excavation units were extensions of the probability squares. In Area 1, these expanded excavations were conducted in Nonstructural Units 5 and 6 and in Room 7; in Area 2, they were conducted in Pitstructures 1 and 3.

The purpose of the probability sample (Kohler 1984a) is primarily to allow intersite comparisons based on data collected in similar manners from the sites being compared. At Kin Tl'iish, the probability squares were the only excavation units regularly screened. However, during the summer field season, the several centimeters of sediment above identified floors and features were also screened through one-quarter-inch mesh in those units excavated by hand rather than backhoe. During the final excavations conducted in the fall of 1982, only probability square fill and feature fill from study units that were selected for further investigation (Pitstructures 4 and 5 and Rooms 1, 11, and 13) were screened. Only artifacts directly on a surface were point located except in Pitstructure 1, where artifacts 2 cm above the floor were also point located. These differences in collection methods make a substantial difference in the absolute numbers of artifacts from any structure and any surface and should be borne in mind when comparing cultural remains from the study units at Kin Tl'iish.

The investigative strategy employed at this site was basically one of a test sample suitable for gaining information on the temporal range and type of occupation(s), without concentrating on a specific occupation, because of the complexity of site deposits and the limited time available. This strategy is defined as the Track 2 level of investigation in the DAP mitigation design (Knudson et al. 1984). Very little effort was expended on stratigraphic excavation because of the project-wide emphasis on defining architectural features.

PRELIMINARY OPERATIONS

Surface Artifact Collections

After establishing the site boundaries, the site was gridded into 4- by 4-m units, and artifacts from alternating units

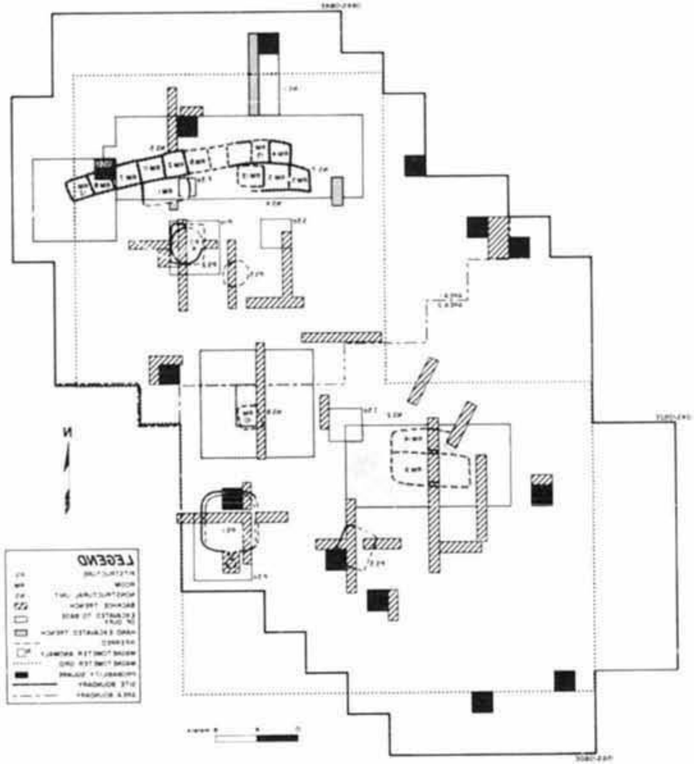

Figure 7.3 - Major cultural units and test sampling plan, Kin Tl'iish.

Figure 7.4 - View of Kin Tl'iish during excavation, facing southwest (DAP 130130)

were collected. This resulted in a 30 percent surface collection of artifacts. The distribution patterns of surface artifacts (figs. 7.5, 7.6, 7.7, 7.8, 7.9, and 7.10) are based on collections made in those grid units; (for lists of artifacts collected from the modern ground surface, refer to appendix 7A).

Most of the artifacts in the surface assemblage were recovered from the west half of the site (fig. 7.5) and, more importantly, patterns of density tended to follow the topographic contours of the site, major concentrations of artifacts were recorded where the elevation of the modern ground surface decreased relatively rapidly. Relatively few artifacts were recovered from the northern rubble concentration (Roomblock Unit 1 in Area 1); more artifacts were recovered from the southern rubble concentration (Roomblock Unit 2 in Area 2) and from the area of the early pitstructure (Pitstructure 1). Knowing that the site had been disked on at least one occasion in the 1950's, and that this disking mixed the upper 8 to 9 cm of earth, it is apparent that artifacts were dragged from the highest points toward lower portions of the site and may be expected to convey only blurred locational information.

Pueblo I ceramics (fig. 7.6) are concentrated at the steep edges of the site, particularly at the northwest edge; they are also present west of Roomblock Unit 2. Pueblo I ceramics are also noted northwest of Pitstructure 1, which may reflect the historic displacement of artifacts and the destruction of the surface rooms (Roomblock Unit 3) there, rather than use of the area by the people using Roomblock Unit 2. The rest, however, are as likely to reflect prehistoric disposal patterns as recent disturbance of the site, based on the location of certain ceramic types in certain areas of the site. Chapin Gray sherds are located primarily between Roomblock Units 1 and 2 (i.e., north of Pitstructure 1) rather than west of the site. Most Moccasin Gray sherds are located at the western edge of the site, especially west of Roomblock Unit 1. This is consistent with the relatively earlier date ascribed to the occupation at the southeast edge of Kin Tl'iish.

Very few Pueblo II ceramics were recovered during the surface artifact collection (appendix 7A). It was expected that Pueblo II ceramics (fig. 7.7) would follow the distribution of late structures, but instead they seem only to follow the pattern of total artifact distribution (fig. 7.5), possibly reflecting disturbance of the Roomblock Unit 1 area by disking. The later wares tend to border the west end of Roomblock 1 and the northwest edge of Roomblock Unit 2. Late structures, in comparison, seem to be most numerous at the north end of the site, particularly along the south end of Roomblock Unit 1.

The flaked lithic debitage has a much more complex distribution (fig. 7.8) than the ceramic artifacts. Debitage was recovered from the probable trash areas and from immediately south of Roomblock Unit 2. There is a heavier concentration over Pitstructure 3 (possibly reflecting the destruction of surface rooms and displacement of artifacts during the historic period) and a much smaller concentration near Pitstructure 1 and its associated roomblock. These concentrations may indicate that work areas were aggregated near the major structural units in a more formalized system than would be suggested by trash that is distributed evenly near every household cluster.

This pattern may be important, given the distribution of flaked lithic tools. The distribution of unifaces, bifaces, and utilized flakes (fig. 7.9) is very different from that of ceramics or flaked lithic debitage. These flaked lithic tools do exhibit a concentration at the northwest edge of the site, but they are also concentrated in the plaza area (Nonstructural Unit 4) dividing Areas 1 and 2, indicating the possibility that a formal work area existed south or southeast of Roomblock Unit 1. No other artifact classes exhibit this distribution. Cores and hammerstones, with which the flaked lithic tools are expected to be associated, are few in number and have a nearly homogeneous distribution (fig. 7.10). Manos and metates are limited to the roomblock areas.

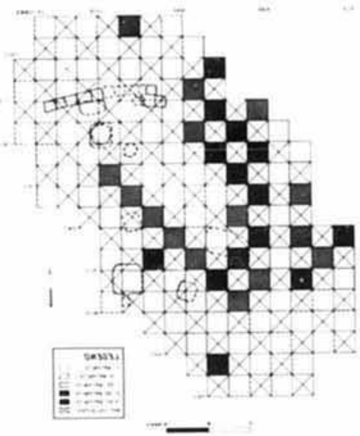

Figure 7.5 - Surface distribution of artifacts, Kin Tl'iish

In summary, the distribution of all types of artifacts tends to follow the topographic contours of the site. Based on the damage to roomblock areas by modern plowing or disking, this distribution of artifacts must partially reflect the recent disturbance of the site. However, because subsurface trash deposits have a similar distribution, it seems likely that the surface deposits accurately indicate a tendency toward aggregated trash disposal, at least during the Sagehen and McPhee Phase occupations of the site, and toward the use of a plaza work area during some period(s) of occupation.

Surface Evidence of Features and Structures

The modern ground surface showed no indications of features, but 2 rubble mounds and several large, shallow depressions were visible. Based on the distribution of the building rubble and the depressions, 2 masonry roomblocks associated with at least 4, and possibly 5, pitstructures were expected. Three depressions were apparent immediately south of the large rubble mound at the north end of the site, and two depressions were visible south of the smaller rubble mound in the southwest portion of the site. At least some of these depressions were assumed to be pitstructures. A narrow scatter of building stones nearly connecting the 2 rubble mounds appears to be the result of historic disturbance. The loose duff was removed from the rubble area in the southwest part of the site, delineating apparent roomblock wall lines. Late, subsurface testing showed that these had only an imperfect relation to underlying rooms. Testing also showed that no structures were present in the middle of the site when the narrow scatter of rubble nearly connected Roomblock Units 1 and 2. No surface evidence of structures was present in the southeast portion of the site.

Removal of loose duff from the north half of the site facilitated delineation of the Pueblo I masonry walls in Area 1. Later, subsurface investigations indicated the presence of upper surfaces associated with an Anasazi occupation more recent than that during the McPhee Phase. These may have been located at the base of the duff, or even slightly above it; evidence for these later structures was largely confused, possibly by activities during the historic period.

Magnetometer Results

A magnetometer survey of Kin Tl'iish was conducted in 1981, and covered 2100 m² or approximately 69.8 percent of the defined site area (fig. 7.11). The survey tested the

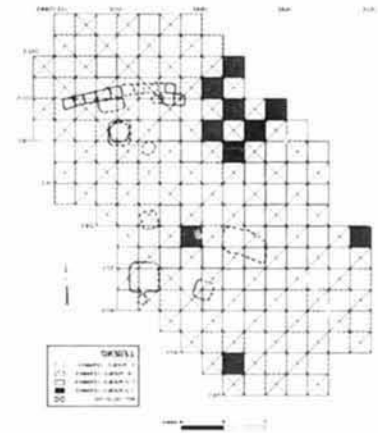

Figure 7.6 - Surface distribution of Pueblo I ceramic artifacts, Kin Tl'iish

2 apparent roomblocks and the probable pitstructures and trash deposits to the south and east (fig. 7.3). Based on the evidence of recent agriculture, some "noise" from iron objects (in particular, barbed wire fencing) was expected.

Five magnetic anomalies were recorded and interpreted to be of cultural origin (table 7.2). Two of these, anomalies P1a and P3a, were correctly interpreted as pitstructures. The survey predicted that the pitstructure causing anomaly P1a was most severely burned in the northeast corner and lacked an antechamber. Subsequent excavation revealed that anomaly P1a corresponds to the superimposed Pitstructures 2 and 4, neither of which have an antechamber.

Anomaly P3a corresponds to Pitstructure 1 in the southeast portion of the site. The strong to moderate burning associated with this anomaly may have been caused by the large hearth (Feature 6) situated just south of the center point of the anomaly.

Small anomalies proved to accurately represent subsurface features. Anomaly F3a, interpreted as a b[illegible]ned feature, may correspond to burned fea[illegible]res 25, 117, 143, and 153) located in the [illegible]oom 1. Anomaly S3a was interpreted as a possible structure with associated burned features or an ash scatter, but it actually represents two large, overlapping pits (Features 16 and 17), the fill of which contained burned ceramics, charcoal, and nonflaked lithic artifacts.

The location of center of anomaly 13a (18N/25E) does not agree with its mapped location (28N/25E). If the provenience (18N/25E) is correct, this anomaly may have been caused by Pitstructure 3, which is located 1 m to the south. If the mapped location of this anomaly (28N/25E) is correct, the source may be a burned feature in an outdoor occupation area east of Roomblock Unit 2.

In summary, results of the magnetometer survey provide an accurate, but conservative, summary of site features and structures. Although the survey identified one large structure (Pitstructure 1) that was not apparent from the surface, it did not identify all burned features in roomblocks or rubble areas (e.g., Feature 11 in Room 5 and Feature 42 in Nonstructural Unit 5).

Auger Testing

Auger testing was conducted to locate pitstructures in Areas 1 and 2 prior to the time that a backhoe became

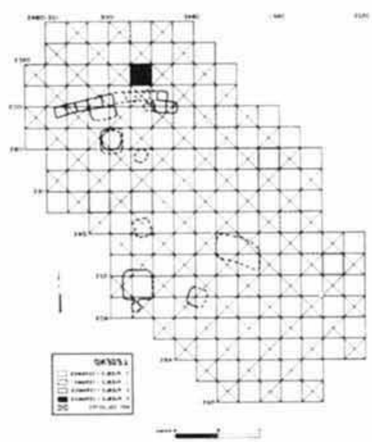

Figure 7.7 - Surface distribution of Pueblo II ceramic artifacts, Kin Tl'iish

available (table 7.3). The fill of one pitstructure (Pitstructure 2) was identified in Area 1 using this technique.

In general, the auger testing was less successful than trenching. The major deficiency of auger testing was that the results were very minimal relative to the expenditure of time and effort; this method was so time consuming that the auger holes had to be set quite far apart. Also, because the auger holes are small, definition of cultural remains is tenuous, being basically the presence or absence of charcoal or clay. Within the auger cores, soil colors are smeared and artifacts are too large and too scarce to be regularly recovered, even in tests of trash deposits.

Nonetheless, in addition to the tests shown in figure 7.3, auger cores were taken from the bases of all cultural units and the bottom of all probability squares to insure that excavations had reached the deepest extent of cultural material.

Predictability of Subsurface Cultural Material

Prehistoric cultural remains at Kin Tl'iish are more complicated than was indicated by the surface survey of the site. Kin Tl'iish was plowed in the 1950's, which probably caused some displacement of building rubble and surface artifacts. However, several substantial surface manifestations (e.g., building rubble and surface depressions) accurately marked the locations of prehistoric activities. The prehistoric sediments were disturbed by the Anasazi as well as by the most recent owners of the land and their activities might have obscured the presence of Pitstructure 1 and obliterated some evidence of surface structures in all areas of the site. However, the magnetometer survey provided accurate information on the location of several study units, including that of Pitstructure 1.

Cultural remains on the modern ground surface that were used to accurately predict subsurface materials include the following: rubble mounds, which generally corresponded to masonry roomblocks; shallow depressions, which marked pits or structures (albeit with only about 50 percent accuracy – not all depressions were structures or features); and artifact concentrations, which marked trash locations. Whether or not types of artifacts on the surface correspond to cultural behavior or to temporal variability is arguable.

In summary, based on the surface artifact assemblage and observations made during the surface survey, temporal

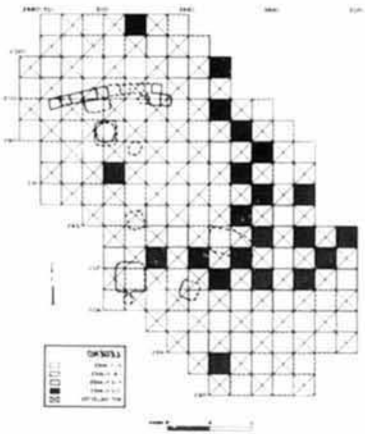

Figure 7.8 - Surface distribution of flaked lithic debitage, Kin Tl'iish

estimates for Kin Tl'iish were not particularly accurate. Surface evidence did accurately predict the locations of architectural remains, although the range of activities that took place at the site and the relationship of one occupation to another remains elusive.

PROBABILITY SAMPLE EXCAVATIONS

The probability sample was based on a simple stratification of the site area. Kin Tl'iish was divided into 2 blocks, based on the 2 rubble mounds and the roughly equal areas south and east of each roomblock extending to the edges of the site was defined by artifact density. The site was gridded into 2- by 2-m units; 1.7 percent (13 squares) of these units from Areas 1 and 2 was used for the probability sample (fig. 7.3). A summary of the probability squares is presented in table 7.4.

Site stratification based on roomblocks was intended to assure sampling from each residential area. A third residential area, Pitstructure 1 and its associated surface rooms, was not recognized by surface evidence; thus, it was not designated as a separate sampling stratum. Each area contains more than one temporally distinct residential unit.

Actual site boundaries and areal boundaries did not correspond well to the surface distribution of artifacts. The site was actually defined too far to the north; probability squares and surface collections at the extreme north end of the site contained almost no artifacts. At the northwest edge of the site, where the major trash deposits are located, the site boundaries should have been enlarged (figs. 7.5, 7.6, 7.7, 7.8, 7.9, and 7.10). The southern and western boundaries of the site also were too conservative; the southern boundary is set almost immediately below Pitstructure 1, probably excluding its trash deposits, and probability squares southwest of Roomblock Unit 2 (associated with Pitstructure 3) contain numerous artifacts. This may have been caused by slope wash depositing cultural materials to the south of Roomblock Unit 2 or a more intense occupation of this area than was originally estimated based on the extent of surface rubble as well as surface artifacts. As a result, any estimates of artifact population totals will probably be somewhat low (the population estimates are presented in Kohler 1984b). However, as a screened sample, the probability squares still provide valuable information.

The probability squares are the only screened samples from Kin Tl'iish for which volumes of dirt are readily computable and are the only screened samples taken

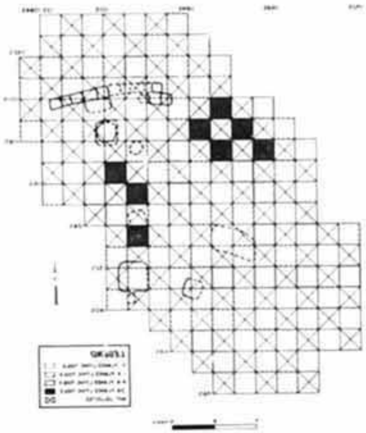

Figure 7.9 - Surface distribution of flaked lithic tools, Kin Tl'iish

from outside the structures. Surface rooms and pitstructures occupy a relatively small portion of the site. It is assumed not only that most activity at Kin Tl'iish took place out-of-doors, but also that most activities took place away from formal occupation areas as defined by features or compacted surfaces. By the careful study of exterior areas, the screened samples from proba... y square can make a significant contribution beyond comparisons with other sites.

Probability squares that did not intersect surface rooms, pitstructures, or occupation surfaces, contained a single cultural stratum overlain by loose duff of varying thickness. Although plow scars were not noted in any probability square, the site had been disked, and it is assumed that the entire site was disked. Therefore, behavioral inferences based on artifact distributions can be made only in a very general way due to the possibility that disking affected the total site artifact distribution.

Stratigraphy in extramural areas is characterized by the presence of a cultural deposit of variable thickness interpreted as sheet trash. In a general way, artifactual differences within the sheet trash deposits may represent functional or temporal differences in the use of the site. For example, ceramic vessels may have been used primarily within structures or in association with hearths.

Certainly, many flaked lithic tools were used inside the structures, and data from pitstructures suggests that the tools were sometimes manufactured and stored there as well. However, many activities involving the use of flaked lithic tools were conducted outside of the structures where activities involving the use of ceramics would be conducted less frequently. Hypothetically, then, where the ratio of ceramics to flaked lithic items is greater than that associated with structure floors, deposits are likely to represent secondary trash disposal. This is a relative measure, however, as the average ceramic/flaked lithic ratio from pitstructures to surface room/floors is approximately 1.7:1.1. That is, more than one sherd was found for every flaked lithic item on structure floors. The ceramic/flaked lithic ratio is not as high (table 7.5) for what appear to be the thickest trash deposits (probability squares 4, 6, and 12), although almost as great as occupation floors in a probability square at the extreme south edge of the site (probability square 8). Where the ratio is very low (probability squares 1 and 6) it is possible that a behavioral difference is being identified, for example, a large number of flaked lithic artifacts might have accumulated because tool manufacture or processing was undertaken in these areas.

The ceramic dates for probability squares without structural remains are consistent with adjacent architecture front room to 2 back room ratio noted in many habitation sites in the area is not possible. However, because the other household clusters at the site are arranged in this manner, it is probably reasonable to assume that this household cluster consists of a similar arrangement. The 2 back rooms appear to have been used primarily for storage, although other activities such as lithic tool manufacturing appear to have been performed in these rooms. The function of the front room is not known with certainty, but based on comparison with other household clusters, it was probably a living room. The presence of numerous artifacts in or on the roof fall of this room suggests that the roof was used as a use area prior to its collapse.

Household Cluster 45. – Household Cluster 45 is composed of Rooms 5, 6, and 10. Based on inferred wall lines and comparisons with other Dos Casas hamlets, it appears that this suite of rooms conforms to the standard room configuration. The 2 back rooms (Rooms 5 and 6) are fairly well defined; the limits of the front room (Room 10) are not known. Since none of the rooms were excavated beyond the point necessary to determine the presence or absence of walls, what activities took place in this household cluster is not known. However, comparison with excavated household clusters in the project area indicates that the back rooms were probably used for storage and the front room was a living room.

Household Cluster 46. – Household Cluster 46 consists of Rooms 4, 7, and 8; this room suite appears to conform to the standard room suite configuration. The 2 back rooms (Rooms 4 and 7) were not excavated to their respective floors but are assumed to have been used for storage. Excavation of the front room (Room 8) was limited to a small trench and a bin (Feature 3) in the northwest corner of the room.

A ceramic cluster of gray ware jar sherds exposed on the floor of the front room suggests food storage and preparation, and the presence of a bin indicates storage of some unknown material. Other activities associated with living rooms also are assumed to have taken place in this room.

Because it is not known whether other pitstructures in addition to Pithouse 1 are present at the site, the relationship between Pithouse 1 and Household Clusters 44, 45, and 46 is uncertain. The pithouse may have been associated with 1, 2, or all 3 household clusters. In terms of function, this pithouse is regarded as a primarily domestic unit because no evidence that would support a primarily ceremonial or integrative function for the structure was encountered.

Discussion

In terms of its physical organization, the hamlet in Area 2 resembles habitation units described by Bullard (1962:102) as being characteristic of the Pueblo I period:

> The Pueblo I habitation unit typically consists of pithouses and a group of storage and usually living rooms placed in a row or arc. The storage and living rooms often have slightly sunken floors. They are usually rectangular and contiguous. If both storage and living rooms are present, the latter are most commonly attached to the front of the former, making a structure two rooms wide.

On Aleah Ridge, Brew also encountered this arrangement of rooms and pithouses. He noted that the rooms were arranged with "2 or more storage rooms adjacent to a single living room" (1946:193).

The one front room to two back room configuration of the three-room suite that comprises Household Cluster 46 and probably Household Clusters 44 and 45 at Hamlet de la Olla conforms to the roomblock configuration described by Bullard and Brew. The numerous ceramic jars found in 2 of the back rooms argue strongly for a storage function for these rooms. The identification of a lithic tool manufacturing area in Room 2 does not necessarily refute the possibility of a storage function, but rather suggests that the room may have served more than a single purpose. This interpretation is supported by Roberts (1956:53, 56), who states that amongst modern Pueblo Indians considerable functional overlap occurs among rooms and many are multifunctional, with storerooms serving as workrooms as well.

Inferring the function of the front row of structures at the hamlet is difficult. Excavation of this portion of the roomblock was not extensive enough to determine the presence or absence of features such as hearths, which might indicate a domiciliary function. Whether 2 of the front structures are actual rooms or whether they are roofed work areas such as ramadas is not known. However, comparison with other front rooms excavated in the project area and elsewhere (cf. Brew 1946) suggests that these rooms were probably domiciles.

The primary function of the pitstructure also is problematical. It has been called a pithouse because no evidence that would indicate it was other than a domicile was recovered during excavation. However, this interpretation is based on the excavation of approximately one-quarter of the structure; total excavation might have revealed evidence of ceremonial or integrative functions. Gillespie (1976:2) has demonstrated that the transition from pithouse to kiva began during the Pueblo I period.

Kane (1983:60) also has indicated that this transition was taking place during the Dos Casas Subphase, which is roughly equivalent to the Pueblo I period, and he suggests that such structures should be considered protokivas. Usually a single protokiva is associated with several household clusters, suggesting that all of the households used the structure. While this appears to be the arrangement of the hamlet in Area 2, it is not known if other pitstructures are present. Pithouse 1 may be the only pitstructure, and it may have functioned as a protokiva. However, its small size (12.1 m²) argues against its use as an integrative ceremonial structure.

APPLICABILITY OF SITE DATA TO DOLORES ARCHAEOLOGICAL PROGRAM RESEARCH DESIGN

Given the incompleteness of the data base, only 3 of the 5 problem domains outlined in the DAP Research Design can be addressed here and those only in the most superficial and cursory fashion. Lack of relevant data precludes discussion of paleodemography and interregional relationships.

Economy and Adaptation

If Room 1 is a field house, then it can be presumed that the individuals who built and used it were agriculturalists. Beyond this statement of the obvious, little can be stated with certainty regarding the particulars of the subsistence strategy employed by the individuals who built and used Room 1 because supporting physical evidence was not present.

An understanding of the man-environment relationship as it pertains to subsistence is founded on a somewhat firmer data base for the hamlet, although the picture that emerges is still far from complete or comprehensive. The Anasazi inhabitants of the hamlet were probably agriculturalists who also relied to a certain extent on hunting and gathering to complete their subsistence base. The presence of corn, even in small quantities, in the pithouse and in 2 of the rooms, demonstrates a dependence on domesticated crops, although the degree of dependence is not known. As noted in the "Site Setting" section of this chapter, arable land is located within walking distance of the site. Anasazi dependence on agriculture is also well documented in the literature (cf. Cattanach 1980; Hayes and Lancaster 1975; Wormington 1947).

Although little evidence exists that directly indicates that a hunting/gathering strategy was employed in addition to agriculture, it is reasonable to assume that the inhabitants of the hamlet took advantage of the wild plant and animal resources that were probably available to them in the immediate site vicinity. If the prehistoric environment was similar to the modern environment, the proximity of riparian, pinyon-juniper, and oak-scrubland zones would have afforded easy access to many valuable resources. Of the plants observed on the site today, many are of potential use to humans. Juniper and ponderosa pine were used in constructing the pithouse roof; the former may also be used for food, fuel, and utilitarian purposes such as basketmaking. Other plants observed in the site vicinity that have various uses include pinyon pine (food, fuel, construction), Gambel oak (fuel, construction), serviceberry (food, fuel, construction, utilitarian), wild onion (food), squawbush (food, fuel, construction, utilitarian), sagebrush (fuel, construction), rabbitbrush (fuel, construction), and brittle pricklypear (food).[1] Squawbush seeds were found in direct association with a ceramic vessel in Room 8.

The various nearby plant communities presumably supported a variety of faunal species that could have been used by the prehistoric inhabitants. The recovery of bird and mammal bones from various living surfaces may support this contention if these remains are not intrusive, postabandonment contaminants. Assuming that the inhabitants were agriculturalists, a "garden hunting" strategy may have been employed, in which the Anasazi inhabitants preyed upon pest species that frequented their agricultural plots (Linares 1976).

It should be reiterated that the above discussion deals with only a few of the resources that **may** have been available to and used by the prehistoric population. A better understanding of the subsistence base requires extensive palynological analysis and a reconstruction of the paleoenvironment; consequently, the exact nature of the economic strategies employed by the inhabitants of the hamlet will remain conjectural. Similarly, an understanding of the means by which the various resources were procured, distributed, and consumed, and the relationship between these activities and overall social organization requires more extensive investigation than time permitted.

Social Organization

Beyond the basic assumption that the Anasazi probably maintained a kin-based society (Knudson et al. 1981:24), very little can be inferred about the particulars of how that society was organized at Hamlet de la Olla based on the scanty evidence recovered during the course of test excavation. Little can be said about the social organization represented by the field house in Area 1; no opinions will be hazarded as to the nature of the group or groups responsible for its construction and use. While the 3

[1] Bruce F. Benz, DAP, personal communication.

household clusters defined in Area 2 of the site theoretically correspond to 3 discrete social units (in this case, termed "households"), what these units actually consisted of and what they corresponded to in terms of Anasazi social constructs remains conjectural. The relatively small size of the rooms that comprise the individual household clusters suggests that the clusters were used by single family groups. It can also be stated with a fair amount of certainty that Pithouse 1 most likely served as a domiciliary rather than a ceremonial structure, which suggests a less complex level of social organization and integration than is postulated for later periods in the Anasazi sequence (Kane 1981c:71).

Cultural Process

This particular problem domain can be addressed only in general terms; given the paucity of data recovered from Hamlet de la Olla, the contribution that this site makes to the elucidation of local and regional culture change is modest. The hamlet in Area 2 is believed to represent the Dos Casas Subphase of the Sagehen Phase within the Anasazi Tradition. Based upon evidence encountered during the investigation of numerous sites in the project area, the Dos Casas Subphase is viewed as the time during which "the prevalent dispersed pattern of habitation units was gradually replaced by an aggregated form" (Kane 1981c:67-68), a trend that is believed to have been accompanied by a simultaneous increase in population. These changes are believed to be reflected in the architecture of habitation sites during this period, as the number of household clusters per habitation increases from 1 to 3 at the beginning of the subphase to as many as 6 by the end of the period (Kane 1981c:67). If Household Clusters 44, 45, and 46 have been defined correctly, and if they do represent discrete social units, then a certain amount of social aggregation might have been taking place and is reflected in the archaeological record. Although Kane (1981c:68) refers to pitstructures during this subphase as protokivas (i.e., structures that are transitional between primarily domiciliary units and primarily ceremonial units), evidence recovered from the excavated portion of Pithouse 1 did not warrant such an interpretation in this particular case.

The McPhee Phase, to which the field house might belong, is believed to have been the time during which the trend towards the aggregation-nucleation of settlements culminated; this trend was accompanied by a simultaneous peaking of population size and an increase in the variety of site types (Kane 1981c:68-69). Kane (1981a:72) has suggested that, with the population living in clusters of habitations rather than in dispersed single household units, special types of sites became necessary. One of these types is the field house, which provided a place of temporary habitation and storage for people living a great distance from their fields. Room 1 appears to reflect this need for bases away from the main habitation.

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NOTE: References marked by * or † represent DAP reports that were published after this chapter was written. Those marked with a * may be found in *Dolores Archaeological Program: Field Investigations and Analysis – 1978*, Bureau of Reclamation, Engineering and Research Center, Denver, 1983; and those marked with a † may be found in *Dolores Archaeological Program: Synthetic Report 1978-1981*, Bureau of Reclamation, Engineering and Research Center, Denver, 1984.

APPENDIX 6A

POLLEN REPORT FOR HAMLET DE LA OLLA

Linda J. Scott

Four pollen washes from four vessels were selected for analysis. One of the samples was taken from vessel 4, a Chapin Gray miniature jar. This vessel was recovered from the fill overlying Room 2 and is interpreted to have been resting on a section of a roof that collapsed later than the rest of the structure. The remaining 3 samples were taken from 2 jars (vessels 6 and 7) and 1 bowl (vessel 5) recovered from the living surface (Surface 1) of Room 2 (table 6A.1).

Pollen from the wash of vessel 4 contains a very large quantity of *Pinus* pollen (fig. 6A.1, table 6A.2), which may be related to the time of year when the jar was last used or when the roof collapsed. No pollen indicative of the probable contents of the jar was observed.

The pollen washes from the other three vessels are relatively similar to one another in their pollen content (fig. 6A.1, table 6A.2). They exhibit arboreal and *Pinus* pollen frequencies considerably lower than those observed in the miniature jar. The majority of the pollen present appears to be background pollen that may have been deposited in the vessels at the time they were filled with dirt after the collapse of the structure. Pollen samples 7 and 8 from vessels 7 and 5, respectively, contain small quantities of *Zea* pollen. In addition, pollen sample 7 contains a large quantity of *Cleome* pollen (table 6A.3). Without control samples from the fill of these vessels, ascribing the presence of these economic pollen types to the contents of the vessels during their use or to post-use introduction is not possible.

Table 6A.1 – Pollen samples, Hamlet de la Olla

Provenience	Comments	Sample No.	Pollen counted
Room 2:			
Fill	Wash from vessel 4, a whole Chapin Gray miniature jar	5	200
Surface 1	Wash from vessel 6, a whole Chapin Gray jar	6	100
Surface 1	Wash from vessel 7, a whole Chapin Gray jar	7	100
Surface 1	Wash from vessel 5, a whole Bluff Black-on-red bowl	8	100

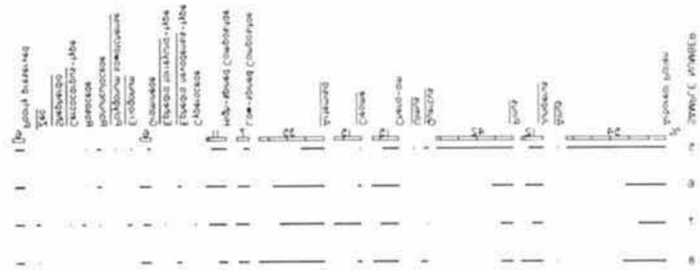

Figure 6A.1 – Pollen frequencies, Hamlet de la Olla

Table 6A.2 – Results of analysis of pollen samples, Hamlet de la Olla

Taxon	Sample No. 5 N	5 %	6 N	6 %	7 N	7 %	8 N	8 %
Arboreal pollen:								
Alnus	1	0.5			1	1.0	1	1.0
Juniperus	16	8.0	10	10.0	6	6.0	12	12.0
Pinus	84	42.0	12	12.0	7	7.0	6	6.0
Quercus	5	2.5			1	1.0	4	4.0
Ulmus	1	0.5						
Nonarboreal pollen:								
Cheno-am	18	9.0	15	15.0	10	10.0	14	14.0
Cleome	1	0.5	2	2.0	15	15.0	2	2.0
Artemisia	25	12.5	28	28.0	24	24.0	35	35.0
Low-spined Compositae	7	3.5	6	6.0	7	7.0	6	6.0
High-spined Compositae	16	8.0	11	11.0	8	8.0	4	4.0
Helianthus-type					1	1.0		
Cyperaceae					1	1.0		
Ephedra nevadensis-type			2	2.0			2	2.0
Ephedra torreyana-type					1	1.0		
Gramineae	4	2.0	6	6.0	4	4.0	5	5.0
Polygonum sawatchense-type	1	0.5						
Eriogonum	2	1.0			2	2.0		
Ranunculaceae	5	2.5	2	2.0	1	1.0		
Rosaceae	2	1.0	1	1.0	2	2.0		
Cercocarpus-type					1	1.0		
Shepherdia	2	1.0			1	1.0	4	4.0
Zea					2	2.0	1	1.0
Indeterminate:								
Poorly preserved	10	5.0	5	5.0	5	5.0	4	4.0
Total pollen	200	100.0	100	100.0	100	100.0	100	100.0

Cheno-am – Chenopodium-amaranth; indistinguishable

Table 6A.3 – Pollen taxa observed at Hamlet de la Olla

Scientific name	Common name
Arboreal pollen:	
Alnus	Alder
Juniperus	Juniper
Pinus	Pine
Quercus	Oak
Ulmus	Elm
Nonarboreal pollen:	
Chenopodiaceae and Amaranthus	Cheno-a.n; members of the goosefoot family and pigweed
Cleome	Beeweed
Compositae	Sunflower family
Artemisia	Sagebrush
Low-spined Compositae	Includes ragweed, cocklebur, and others
High-spined Compositae	Includes rabbitbrush, snakeweed, and others
Helianthus-type	Sunflower
Cyperaceae	Sedge family
Ephedra	Mormon tea
Gramineae	Grass family
Polygonaceae	Knotweed family
Eriogonum	Buckwheat
Polygonum sawatchense-type	Sawatch knotweed
Ranunculaceae	Buttercup family
Rosaceae	Rose family
Cercocarpus-type	Mountain mahogany
Shepherdia	Buffaloberry
Zea	Maize, corn

APPENDIX 6B

ARCHAEOMAGNETIC SAMPLE RESULTS FOR HAMLET DE LA OLLA

J. Holly Hathaway and Jeffery L. Eighmy

Archaeomagnetic dating is a relatively recent chronometric method employed by archaeologists for dating sites. Use of this method not only refines ancient chronological estimates but permits temporal assignment in the absence of other chronometric dating methods (e.g., tree-ring and carbon-14). The accuracy and reliability of dates provided by archaeomagnetism is dependent upon several conditions: (1) precise and conscientious collection of samples in the field; (2) reliable laboratory work, especially with demagnetization and cleaning procedures; and (3) an accurate master curve for the time and area under study. Archaeomagnetic methods are continually being refined in these areas to increase the variety of datable features, to tighten temporal control, and to further understand the nature of magnetic change. For a complete discussion of laboratory and field methods employed by the DAP, as well as an evaluation of the temporal calibration of the Southwest master curve, refer to Hathaway and Eighmy (1982).

Sampling and Methods

Hamlet de la Olla is located at 37.54° N latitude and 251.46° E longitude on the west slope of the Dolores River valley. One archaeomagnetic sample (sample 1) was recovered from this site during the 1980 field season. This sample was collected from the central hearth (Feature 5) of Pithouse 1. Twelve specimens were collected to complete the sample set. Each specimen (an estimated 3.4 cm³ volume) was encased in a 2.5 cm plaster cube (15.6 cm³ volume). The orientation of each specimen was maintained by leveling the cube and measuring the magnetic declination of one cube side. To control for current magnetic declination North Star was sighted on 2 September 1978. The average observed magnetic declination was 13.5°, one-half degree different from the USGS 1965 geological map, and in substantial agreement with expected values estimated from the National Oceanic and Atmospheric Administration map "Magnetic Declination in the United States-Epoch 1975.0."

Laboratory Results

The demagnetized results from sample 1 are reported in table 6B.1. The uccimation and inclination values of the individual magnetic directions are plotted in figure 6B.1. The sample was demagnetized at 50 oersteds. Demagnetization is a laboratory technique used to eliminate effects from secondary components, such as viscous or low temperature thermoremanent magnetization (refer to Hathaway and Eighmy 1982 for a complete discussion of these components).

Table 6B.1 – Archaeomagnetic sample data, Hamlet de la Olla

	Pithouse 1 Feature 5 Sample 1
Total specimens analyzed\total specimens collected	12\12
Demagnetization level (Oe)	50
Mean inclination (dip)	47.46
Mean declination (°E)	3.05
Mean intensity (emu\cc)	0.148x10[illegible]
Mean sample vector	11.98
Precision parameter	532.78
Alpha 95 (degrees)	1.88
Paleolatitude (degrees)	80.69
Paleolongitude (degrees)	54.69
Error along great circle (EP) (degrees)	1.58
Error perpendicular to great circle (EM) (degrees)	2.44

Three tests were used to determine sample reliability: alpha 95, precision parameter and mean sample vector. Alpha 95 is defined as the radius of a circle centered on the observed mean direction within which the true mean will fall 95 percent of the time. Small values indicate tighter clustering about the mean. A good archaeomagnetic sample is defined by alpha 95 values of less than 3.5°. Provided this criterion is met, samples are then plotted and their relative positions to the Southwest master curve are reported. The precision parameter (k value) is estimated by Fisherian statistics and values increase geometrically with 'specimen clustering. The mean sample vector indicates internal consistency as the value approaches the number of specimens used for determination of the mean. Error along the great circle (EP) and perpendicular to the great circle (EM) are functions of the alpha 95 which has an oval distribution when plotted, with a short axis which runs along the great circle between the collecting site and paleopole position. The long axis is perpendicular to the short axis; both are centered on the mean paleopole direction. Plotted samples include these parameters, and sample dating error is determined from the value calculated for the long axis.

The paleopole position for the demagnetized result from sample 1 was plotted and this position is represented in figure 6B.2. This position was then compared to the Southwest master curve; the dates reported here reflect the juxtaposition of the sample with respect to this curve. Because of the nature of this curve, several archaeomagnetic interpretations may be possible for a given paleopole position. To properly assess these results, archaeological interpretation should be used in concert with archaeomagnetic results to determine the most plausible alternative.

The paleopole plot of the sample falls on the inside portion of a bend in the curve and may be interpreted as dating at A.D. 825 or A.D. 875 with an estimated error of ± 25 years. Since the upper range of the A.D. 825 date merges with the lower range of the A.D. 875 date, the interpretation should encompass A.D. 800 through A.D. 900.

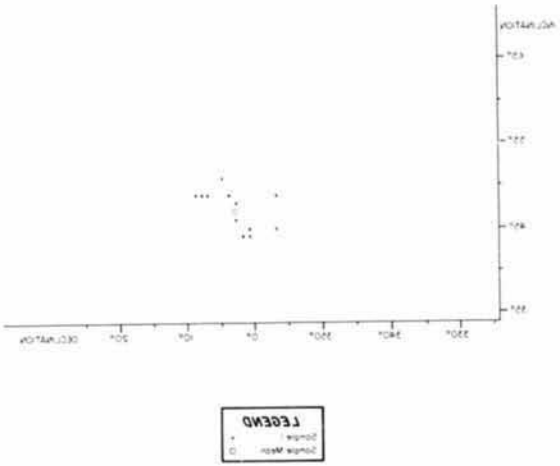

Figure 6B.1 – Declination and inclination plots of the individual magnetic directions from archaeomagnetic sample 1, Hamlet de la Olla.

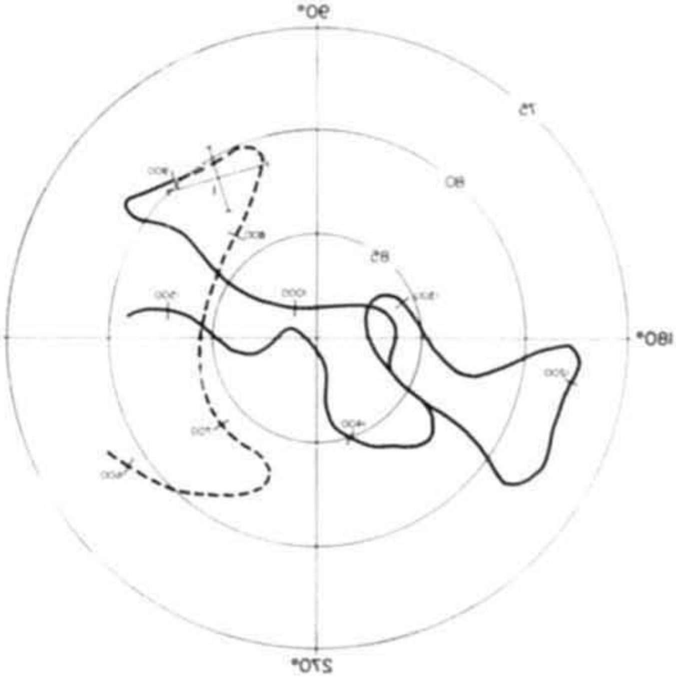

Figure 6B.2 – Southwest master curve and paleopole plots of archaeomagnetic sample 1
Hamlet de la Olla. Solid portion is based on Du Bois (1975); dashed portion
is based primarily on Wolfman (1979).

Table 6.13 – Human bone, Area 1, Hamlet de la Olla

Element	Observations
Humerus (left)	9 shaft fragments
Radius	4 shaft fragments
Metacarpals	5 fragments
Phalanges	16 fragments
Femur (left)	Distal end and 4 shaft fragments, distal epiphysis incompletely fused
Tibia (left)	Proximal shaft and 2 unfused epiphysis fragments
Fibula	Central shaft fragment

In terms of identifying the range of functions that may have been conducted in this area of the site, very little can be stated with certainty beyond noting the presence of metate fragments and manos, which suggests that at least some resource processing occurred. Isolated field houses, such as the one in Area 1, are believed to have served as bases from which agricultural field maintenance, food storage, and perhaps some food-processing activities could have been conducted. Very little material evidence incontrovertibly proves that any of these activities took place in or near the field house in Area 1. However, the presence of a metate on the use surface outside of the structure and the location of the structure in proximity to arable land (refer to "Site Setting") strongly support a field house interpretation.

The function of the isolated wall located southwest of the field house is unknown. No artifacts were recovered that might indicate what function(s) it may have served.

Area 2

Flaked Lithic Artifacts

Because of the small total number of flaked lithic items available for analysis, modern ground surface and excavated materials will be discussed together, with the same reservations and caution as were applied to the interpretation of the Area 1 lithic materials.

A total of 11 flaked lithic tools were recovered from Area 2. Six of these tools were recovered from general excavated fill; the remainder were found in direct association with prehistoric cultural surfaces. Eight of the tools are whole; three are broken. Table 6.14 summarizes the Area 2 flaked lithic tool data.

Five morpho-use forms are recognized in the tool assemblage. Used cores and utilized flakes are the most predominant forms, each accounting for one-third of the total. All of the artifacts found on prehistoric surfaces fall into one of these two categories. Other tools recovered include 2 thick, unifacially worked items, 1 thick biface, and 1 item of indeterminate form. A functional analysis of these items is required to determine the possible uses of each.

A wide variety of raw materials is represented in the flaked lithic tool collection; most of the tools were made from materials from the Morrison and Burro Canyon Formations or from river cobbles and gravel. Refer to table 6.14 for specific raw material breakdowns. With the possible exception of the single "indeterminate" item, all of the materials are available locally.

The materials from which the 12 tools were made fall into 3 grain-size categories: fine, very fine, and microscopic. Over half of the tools fall into the very fine-grained category, slightly more than one-quarter are classified as microscopic grained, and the remainder fall into the fine-grained category. There appears to have been a preference for lithic materials of finer crystalline structure and, consequently, finer flaking quality.

Most of the Area 2 tools appear to be low-energy-input items based on evaluations of their dorsal surfaces. With the exception of the thick biface that had been primarily thinned, none of the items appear to have been extensively refined.

Area 2 yielded 74 pieces of flaked lithic debitage (table 6.15). Of these, 40 are actual flakes or pieces of flakes; the remaining items were classified as angular debris. Only 11 of the 40 flakes were recovered from prehistoric surfaces; the remainder were recovered from the fill of various excavated units.

Most of the Area 2 flakes fall into the fine-grained and very fine-grained size categories. Six flakes are of materials classified as microscopic grained and two are of materials classified as medium grained. Again, a preference for easily flaked materials is noted. All flakes are of locally available raw materials. Less than one-half of all Area 2 flakes are whole; less than one-half retain any cortex.

Nonflaked Lithic Artifacts

The nonflaked lithic assemblage from Area 2 consists of 12 tools. Half of the tools were recovered from general fill; half were recovered from prehistoric cultural surfaces. The 12 tools will be discussed together regardless of provenience. Table 6.16 summarizes the nonflaked lithic tool data for Area 2. The most commonly encountered morpho-use forms are hafted items. Two of these are identifiable as notched axes; one is too fragmentary to determine specific tool type. One complete, though broken, trough metate and one trough metate fragment were

Table 6.14 – Flaked lithic tools, Area 2, Hamlet de la Olla

	Room 2 Surface 1 (N = 2)			Pithouse 1 Surface 1 (N = 3)			Room 8 & Feature 3 (N = 2)			Other excavated units (N = 4)			Area 2 total (N = 11)		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools	2	100.0	33	3	100.0	47	2	100.0	181	4	100.0	41	11	100.0	67
Tool morpho-use															
Indeterminate	0	0	0	0	0	0	1	50.0	136	0	0	0	1	9.1	136
Used core	1	50.0	50	1	33.3	123	1	50.0	225	0	0	0	3	27.3	133
Utilized flake	1	50.0	16	2	66.7	9	0	0	0	1	25.0	25	4	36.4	15
Thick uniface	0	0	0	0	0	0	0	0	0	2	50.0	63	2	18.2	63
Thick biface	0	0	0	0	0	0	0	0	0	1	25.0	13	1	9.1	13
Lithic raw material															
Indeterminate	0	0	0	1	33.3	1	0	0	0	0	0	0	1	9.1	1
Local cobble-gravel	0	0	0	1	33.3	123	1	50.0	136	1	25.0	67	3	27.3	109
Morrison quartzite	0	0	0	0	0	0	1	50.0	225	1	25.0	25	2	18.2	125
Morrison chert	2	100.0	33	0	0	0	0	0	0	0	0	0	2	18.2	33
Burro Canyon quartzite	0	0	0	0	0	0	0	0	0	1	25.0	58	1	9.1	58
Local material, unidentifiable	0	0	0	1	33.3	17	0	0	0	1	25.0	13	2	18.2	15
Grain size															
Fine	0	0	0	0	0	0	1	50.0	136	1	25.0	25	2	18.2	81
Very fine	1	50.0	50	2	66.7	70	1	50.0	225	2	50.0	63	6	54.5	90
Microscopic	1	50.0	16	1	33.3	1	0	0	0	1	25.0	13	3	27.3	10
Dorsal face evaluation															
Indeterminate	0	0	0	0	0	0	1	50.0	136	0	0	0	1	9.1	136
Core	1	50.0	50	1	33.3	123	1	50.0	225	0	0	0	3	27.3	133
Unworked with cortex	0	0	0	2	66.7	9	0	0	0	2	50.0	63	4	36.4	36
Unworked without cortex	1	50.0	16	0	0	0	0	0	0	1	25.0	25	2	18.2	21
Primarily thinned	0	0	0	0	0	0	0	0	0	1	25.0	13	1	9.1	13
Item condition															
Broken identifiable	0	0	0	1	33.3	126	1	50.0	136	1	25.0	13	3	27.3	91
Complete	2	100.0	33	2	66.7	9	1	50.0	225	3	75.0	50	8	72.7	57

recovered from Area 2. The complete specimen was found on Surface 1 of Room 9. This surface is defined as the top of the roof; it appears that the metate was resting on top of the roof prior to its collapse. The metate fragment was recovered from the floor of Room 2. One hammerstone, 1 two-hand mano, 1 mano fragment, 1 anvil stone, and 3 indeterminate tools complete the nonflaked lithic tool assemblage. The small sample precludes extensive interpretation of the data; however, the presence of the 3 hafted implements suggests cutting/chopping functions, and the various grinding implements indicate that at least resource processing probably took place.

Three types of raw materials have been identified in the nonflaked lithic tool assemblage from Area 2. Sedimentary materials account for over half of the inventory; the remainder are made of river cobbles or other igneous materials.

In terms of blank type, modified and unmodified cobbles are the most frequently encountered forms, accounting

Table 6.15 – Flaked lithic debitage, Area 2, Hamlet de la Olla

	Room 2 Surface 1 (N = 15) N	%	Mean wt(g)	Pithouse 1 Surface 1 (N = 13) N	%	Mean wt(g)	Room fill (N = 19) N	%	Mean wt(g)	Other excavated units (N = 27) N	%	Mean wt(g)	Area 2 total (N = 74) N	%	Mean wt(g)
Flake/flake frags:															
Grain size															
Medium	0	0	0	0	0	0	2	10.5	21	0	0	0	2	2.7	21
Fine	2	13.3	2	1	7.7	1	3	15.8	19	7	25.9	10	13	17.6	10
Very fine	5	33.3	11	2	15.4	24	6	31.6	2	6	22.2	5	19	25.7	8
Microscopic	1	6.7	3	0	0	0	3	15.8	2	2	7.4	2	6	8.1	2
Total flakes/ flake frags	8	53.3	—	3	23.1	—	14	73.7	—	15	55.5	—	40	54.1	—
Items with cortex		50.0			66.7			35.7			40.0			42.5	
Whole flakes		25.0			33.3			42.8			46.7			40.0	
Angular debris	7	46.7	11	10	76.9	16	5	26.3	14	12	44.4	21	34	45.9	16

frags – Fragments.
— Information not available.

for all of the hafted and hand-held tools. Shaped slabs of varying thicknesses were used for the metates and one of the indeterminate items. The hammerstone, anvil, and one of the indeterminate forms are classified as "natural" in terms of production stage, i.e., all were utilized in their natural forms without deliberate modification. One mano fragment is too fragmentary to assess production stage. The metates and the hafted implements are all examples of higher energy input items that had been subjected to varying degrees of modification prior to use.

Ceramics

The majority of the artifacts recovered from Area 2 consists of reconstructable ceramic vessels found on floors or other use surfaces in the roomblock. Several of these items were recovered intact; most were broken but identifiable as individual vessels. Tables 6.17 and 6.18 present the Area 2 ceramic data from two points of view. Table 6.17 presents "sherd data," that is, a breakdown of all ceramic material (including reconstructable vessels) by individual sherd characteristics. This table reflects the analytic practice of classifying sherds that lack diagnostic traits as Early or Late Pueblo types, regardless of the fact that they are parts of reconstructable vessels that can be specifically identified to type. This table is included for the convenience of those who wish to make intersite comparisons based on sherd rather than vessel data. Table 6.18 describes the characteristics of each reconstructable vessel recovered from Area 2.

Sherd data. – With the exception of 3 gray ware sherds, all of the Area 2 ceramic material is classified as belonging to the Mesa Verde Culture Category (table 6.17). Three different wares (gray, red, and white) and four different manufacturing tracts (Dolores, San Juan, Blanding, and Sandstone) are represented in the ceramic assemblage.

Gray ware sherds make up 92.2 percent (by weight) of the Area 2 ceramic assemblage (table 6.17). Most of the gray wares (92.1 percent) have been identified as belonging to the Dolores Manufacturing Tract; the San Juan and Sandstone Manufacturing Tracts are also represented. Dolores crushed igneous rock, San Juan crushed igneous rock, and Dakota Sandstone, respectively, are the temper types that correspond to these tracts. Jars are the predominant vessel form, although 2 miniature vessels and 1 seed jar fragment were also recovered.

Red wares constitute 7.5 percent of the ceramic material recovered from Area 2 (table 6.17). All of the red ware sherds are of the Blanding Manufacturing Tract, as defined by the iron-rich, red firing clays used for these items. The sherds are from bowls and jars.

One Polished White sherd and three Chapin Black-on-white sherds, constituting only 0.4 percent of the entire

Table 6.16 – Nonflaked lithic tools, Area 2, Hamlet de la Olla

	Room 2 Surface 1 (N = 2) N	%	Mean wt(g)	Room 1 Surface 1 (N = 2) N	%	Mean wt(g)	Room 9 Surface 1 (N = 1) N	%	Mean wt(g)	Pithouse 1 Surface 1 (N = 1) N	%	Mean wt(g)	Other excavated units (N = 6) N	%	Mean wt(g)	Area 2 total (N = 12) N	%	Mean wt(g)
Total tools	2	100.0	1516	2	100.0	2350	1	100.0	14 000	1	100.0	56	6	100.0	501	12	100.0	[illegible]
Tool morphology																		
Indeterminate	0	0	0	1	50.0	2400	0	0	0	1	100.0	56	1	16.7	504	3	25.0	987
Anvil stone	0	0	0	1	50.0	2300	0	0	0	0	0	0	0	0	0	1	8.3	2 300
Hammerstone	1	50.0	331	0	0	0	0	0	0	0	0	0	0	0	0	1	8.3	331
Two-hand mano	0	0	0	0	0	0	0	0	0	0	0	0	1	16.7	845	1	8.3	845
Mano fragment	0	0	0	0	0	0	0	0	0	0	0	0	1	16.7	168	1	8.3	168
Axe, notched	0	0	0	0	0	0	0	0	0	0	0	0	2	33.3	499	2	16.7	499
Notched or ground suitable item	0	0	0	0	0	0	0	0	0	0	0	0	1	16.7	471	1	8.3	471
Trough metate	1	50.0	2700	0	0	0	1	100.0	14 000	0	0	0	0	0	0	2	16.7	8 350
Lithic raw material																		
River cobble	1	50.0	331	0	0	0	0	0	0	1	100.0	56	0	0	0	2	16.7	193
Igneous	0	0	0	0	0	0	0	0	0	0	0	0	3	50.0	490	3	25.0	490
Sedimentary	1	50.0	2700	2	100.0	2350	1	100.0	14 000	0	0	0	3	50.0	512	7	58.3	[illegible]
Blank type																		
Unmodified cobble	1	50.0	331	1	50.0	2400	0	0	0	1	100.0	56	2	33.3	[illegible]	5	41.7	[illegible]
Modified cobble	0	0	0	1	50.0	2300	0	0	0	0	0	0	3	50.0	621	4	33.3	1 041
Shaped very thin slab	0	0	0	0	0	0	0	0	0	0	0	0	1	16.7	524	1	8.3	524
Shaped thin slab	1	50.0	2700	0	0	0	0	0	0	0	0	0	0	0	0	1	8.3	2 700
Shaped thick slab	0	0	0	0	0	0	1	100.0	14 000	0	0	0	0	0	0	1	8.3	14 000
Item condition																		
Broken																		
Identifiable	0	0	0	0	0	0	0	0	0	0	0	0	5	83.3	568	5	41.7	568
Unidentifiable	1	50.0	2700	0	0	0	0	0	0	0	0	0	1	16.7	168	2	16.7	1 434
Complete/nearly complete	1	50.0	331	2	100.0	2350	1	100.0	14 000	1	100.0	56	0	0	0	5	41.7	3 817
Production evaluation																		
Indeterminate	0	0	0	0	0	0	0	0	0	0	0	0	1	16.7	168	1	8.3	168
Natural (unmodified)	1	50.0	331	1	50.0	2400	0	0	0	1	100.0	56	0	0	0	3	25.0	929
Minimally modified	1	50.0	2700	0	0	0	1	100.0	14 000	0	0	0	3	50.0	490	5	41.7	3 634
Well shaped	0	0	0	1	50.0	2300	0	0	0	0	0	0	2	33.3	681	3	25.0	1 221

336

537

Table 6.17 - Ceramic summary, Area 2, Hamlet de la Olla

Cultural category / Tract / Ware / Type	Room 2 Surface 1 N	Room 2 Surface 1 %wt	Room 3 Surface 1 N	Room 3 Surface 1 %wt	Room 8 Surface 2 N	Room 8 Surface 2 %wt	Room 9 Surface 1 N	Room 9 Surface 1 %wt	Pithouse 1 Surface 1 N	Pithouse 1 Surface 1 %wt	Other excavated units N	Other excavated units %wt	Area 2 total N	Area 2 total %wt
Mesa Verde														
Dolores Tract														
Gray ware														
Chapin Gray	21	22.1	30	14.9	13	24.0	17	6.7	0	0	8*	26.9	89	17.9
Moccasin Gray	11	4.1	0	0	0	0	14	6.6	0	0	0	0	25	2.9
EP Gray	341	57.6	378	85.1	95	71.5	194	88.7	19	72.9	74	64.6	1101	71.1
White ware														
Chapin B/W	0	0	0	0	1	4.5	0	0	0	0	0	0	1	0.4
Polished White	1	0.1	0	0	0	0	0	0	0	0	0	0	1	0.1
San Juan Tract														
Gray ware														
EP Gray	0	[illegible]	0	0	0	0	0	0	1	1.0	0	0	1	0.1
Sandstone Tract														
Gray ware														
EP Gray	0	0	0	0	0	0	0	0	0	0	2	1.1	2	0.1
Blanding Tract														
Red ware														
Abajo R/O	14	3.4	0	0	0	0	0	0	3	9.5	0	0	17	2.0
Bluff B/R	18	4.2	0	0	0	0	0	0	0	0	0	0	18	4.1
EP Red	16	2.1	0	0	0	0	0	0	4	16.6	14	7.4	34	1.4
Indeterminate														
Gray ware														
Unclassifiable Gray	3	0.1	0	0	0	0	0	0	0	0	0	0	3	0.1
Total ceramics	427	100.0	408	100.0	111	100.0	225	100.0	27	100.0	98	100.0	1296	100.0
Total wt (g)	12,082.5		7561.0		2206.1		4369.9		223.9		1111.2		27,554.8	
Vessel form														
Jar	196	86.2	408	100.0	107	90.3	225	100.0	20	73.9	91	82.6	1247	92.1
Bowl	30	13.8	0	0	1	4.5	0	0	7	26.1	6	4.2	46	6.8
Other	1	0	0	0	1	5.2	0	0	0	0	1	13.2	3	1.0

*Includes one whole Chapin Gray miniature jar (vessel 4) recovered from Room 2 fill

EP - Early Pueblo
B/W - Black-on-white
B/R - Black-on-red
R/O - Red-on-Orange

Table 6.18 – Ceramic vessel data, Area 2, Hamlet de la Olla

Vessel No.	Provenience	Pl. No.	Type	Vessel form	Estimated wt when whole (g)*	Estimated vol when whole (ml)*	Comments†
1	Room 8, Surf 2	2	Chapin Gray	Jar	1 095	3 400	No use wear or sooting
2	Room 2, Surf 1	1	Bluff B/R	Bowl	520	1 300	Light use wear on interior surface and rim, heavy use wear on base; no sooting
3	Room 2, Surf 1	9	Abajo R/O	Bowl	525	1 800	Light use wear on rim; no sooting
4	Room 2, fill	1	Chapin Gray	Miniature jar	145	150	No use wear or sooting
5	Room 2, Surf 1	10	Bluff B/R	Bowl	525	1 420	Use wear and sooting indeterminate
6	Room 2, Surf 1	8	Chapin Gray	Jar	1 010	2 300	Heavy use wear on base; sooting
7	Room 2, Surf 1	7	Chapin Gray	Jar	945	2 400	No use wear or sooting
8	Room 8, Surf 2	1	Chapin Gray	Miniature jar	115	120	No use wear or sooting
9	Room 3, Surf 1 Room 2, Surf 1	5	Chapin Gray	Jar	950	2 500	Light use wear on rim; no sooting
10	Room 3, Surf 1	1	Chapin Gray	Jar	1 130	4 000	Heavy use wear on base; sooting
11	Room 3, Surf 1 Room 2, Surf 1	2	Chapin Gray	Jar			No use wear; sooting indeterminate
12	Room 3, Surf 1 Room 2, Surf 1	4	Chapin Gray	Jar	2 035	8 000	Light use wear on base; sooting
13	Room 3, Surf 1	3	Chapin Gray	Jar	1 810	5 000	Light use wear on base; sooting
14	Room 2, Surf 1	2	Chapin Gray	Jar	2 325	7 600	No use wear; sooting
15	Room 2, Surf 1	2,4	Moccasin Gray	Jar	2 090	9 000	Light use wear on interior and base; sooting
16	Room 2, Surf 1	5	Chapin Gray	Jar			Heavy use wear on base; sooting
17	Room 2, Surf 1	5	Bluff B/R	Jar			Use wear indeterminate; no sooting
18	Room 2, Surf 1	6	Chapin Gray	Olla	2 570	12 500	Use wear indeterminate; no sooting
19	Room 9, Surf 1	5,6,7	Chapin Gray	Jar			Light rim wear; sooting
20	Room 9, Surf 1	9	Moccasin Gray	Jar	790	2 200	No use wear or sooting
21	Room 8, Surf 2	3	Chapin Gray	Jar	2 335	4 000	Light interior use wear; sooting indeterminate

Surf – Surface
B/R – Black-on-red
R/O – Red-on-orange
* These columns are left blank when not enough of the vessel is present to estimate weight and volume.
† Indeterminate use wear or sooting indicates that, although signs of wear or soot may be present, it cannot be determined whether they are the result of prehistoric use or postabandonment processes (e.g., damage incurred during excavation or contact with burned roof fall).

ceramic assemblage, were also recovered from Area 2 (table 6.17). All have Dolores crushed igneous rock temper and therefore are identified as belonging to the Dolores Manufacturing Tract; all are bowl sherds.

While all of the Area 2 ceramic materials are classified as belonging to the Mesa Verde Culture Category, the presence of numerous items from other manufacturing tracts, most notably the Blanding Manufacturing Tract, indicates some degree of contact with groups living outside the project area. The nature and extent of these associations, however, are not known. The preponderance of gray wares in the collection is not surprising, since gray wares, especially jar forms, are usually thought to be utilitarian cooking and storage vessels and an abundance of such items is to be expected in a habitation site. Red and white wares are believed to have been used for serving and/or ceremonial purposes (Lucius 1981a).

Reconstructable vessel data – Of the 21 reconstructable vessels recovered from Area 2, 12 are full-size Chapin Gray jars, 2 are miniature Chapin Gray jars or "pinch pots," and one is a large Chapin Gray olla. The remaining vessels consist of 2 Moccasin Gray jars, 2 Bluff Black-on-red bowls, 1 Bluff Black-on-red jar, and 1 Abajo Red-on-orange bowl (table 6.18). Figures 6.24, 6.25, 6.26, 6.27 and 6.28 show examples of the vessels. All but one of the vessels, a Chapin Gray miniature (vessel 4) recovered from a 2- by 2-m grid square in Room 2, were found on the floors of Rooms 2, 3, 8, and 9. Vessel 4 might have been resting on a section of roof that collapsed later than the remainder of the structure; however, an actual use surface was never identified.

Weights and volumes were calculated for vessels that were complete enough to yield reliable estimates. The volumes of the 9 measurable full-size Chapin Gray jars ranged from 2300 to 8000 ml; the average volume of these vessels is 4356 ml. The olla is larger than any of the other Chapin Gray jars and has an estimated volume of 12 500 ml. The 2 Moccasin Gray jars have estimated volumes of 9000 ml and 2200 ml. The 3 red ware bowls are remarkably similar in size, ranging from 520 to 525 g in weight and from 1300 to 1800 ml in volume.

Figure 6.24 – Bluff Black-on-red bowl (vessel 2) recovered from Room 2, Hamlet de la Olla.

Figure 6.25 – Abajo Red-on-orange bowl (vessel 3) recovered from Room 2, Hamlet de la Olla.

Figure 6.[illegible]. Moccasin Gray jar (vessel [illegible]) recovered from Room 2, Hamlet de la Olla.

The amount of use wear in the form of abrasions or striations may reflect duration or intensity of vessel use. This type of wear can occur on the rim, interior surface, and exterior base of vessels. An attempt is made during analysis to distinguish between wear patterns that occurred through use and wear patterns that occurred during excavation or curation of the materials. Similarly, an attempt is made to distinguish between sooting that most likely resulted from use in cooking fires and sooting that appears to have resulted from contact with burned portions of the collapsed structure. Only those signs of wear and sooting that are believed to reflect aboriginal use of the vessels are recorded in table 6.18. Seven of the 21 vessels showed evidence of use wear and sooting; five showed evidence of one or the other. Only 5 vessels, including both Chapin Gray miniatures, were lacking both use wear and sooting. While specific wear patterns have not been associated with specific vessel functions, the presence of soot on a vessel argues strongly for its having been used for cooking.

Nonhuman Bone

Four nonhuman bone fragments were recovered from Area 2; all were found in direct association with use surfaces. Pending laboratory analysis of these faunal remains, discussion must necessarily be limited to observations made in the field.

These remains consist of 1 bird skull fragment, 2 Canis lutrans bone fragments, and 1 long bone fragment from a medium-sized mammal. The bird skull was found on the floor of Room 2 but was not given a PL number. The other 3 bones were found on the floor of the pithouse. These 3 mammal bones were collected at 2 separate point locations (PL's 17 and 18); however, 2 of the bones fit together. None of the nonhuman bone from Area 2 appears to have been deliberately worked or modified.

Vegetal Remains

Vegetal remains consisting of scattered fragments of corn (Zea mays) and one cluster of squawbush (Rhus aromatica) seeds were recovered from Area 2. Some of the corn was recovered from roof fall associated with Pithouse 1; the rest of the specimens were recovered from use surfaces. Table 6.19 summarizes the vegetal remains data for Area 2 of the site.

Botanical Samples

Pollen samples. – Four pollen samples were collected from Area 2; all four are from the inside of whole or nearly whole ceramic vessels. Three of the samples were recovered from vessels (PL's 7, 8, and 10) found on the floor of Room 2; the remaining sample was recovered

Figure 6.[illegible]. Selected [illegible] jars recovered from Hamlet de la Olla: (a) [illegible] jar (vessel [illegible]) from Room 2; (b) Moccasin Gray jar (vessel [illegible]) from Room 8; (c) [illegible] jar (vessel [illegible]) from Room 2; (d) [illegible] jar (vessel [illegible]) from Room 2; (e) [illegible] jar (vessel [illegible]) from Rooms 2 and 5 (DAP [illegible]).

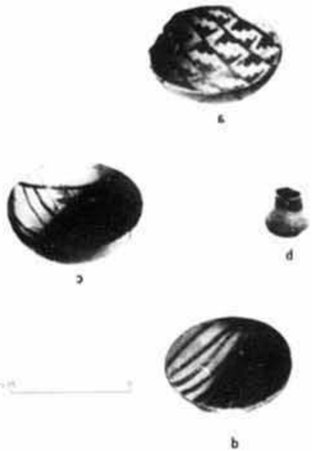

Figure 6.[illegible]. Selected ceramic vessels recovered from Hamlet de la Olla: (a) Bluff Black-on-red bowl (vessel 2) from Room 2; (b) Chapin Gray miniature jar (vessel 4) from Room 2; (c) Abajo Red-on-orange bowl (vessel 1) from Room 2; (d) Bluff Black-on-red bowl (vessel 5) from Room 2 (DAP [illegible]).

from a vessel that was found in fill but is believed to have been resting on a section of roof that appears to have collapsed somewhat later than the rest of the structure. Results from the analysis of these samples are included in appendix 6A.

Bulk soil samples. – A single bulk soil sample (sample 1) was collected from Area 2. This sample was taken from fill surrounding a broken ceramic vessel (PL 3) on Surface 2 of Room 8; results of analysis are presented in table 6.19. The majority of the macrobotanical remains recovered from the sample consists of squawbush (Rhus aromatica) seeds. It is inferred that the fruits of this plant had been stored in the jar, but after the structure burned only the seeds remained. The fruit of this plant may be eaten or used to prepare a lemonade-like beverage (Harrington 1967:261). Whiting (1939) reports that the Hopi used various portions of this plant not only for consumption as a beverage, but also for firewood, prayersticks, medicine, and baskets.

The corn (Zea mays) recovered in sample 1 probably had been resting on the roof or floor of Room 8, rather than stored in the vessel. Similarly, most of the woody materials recovered were probably roofing materials or trash mixed in with fill. Based on its uncharred condition, the small amount of Chenopodium noted in the sample is viewed as a modern contaminant (Minnis 1981).

Dating Samples

Tree-ring samples. – Eleven tree-ring samples were collected from Area 2; all were from roof fall found in Pithouse 1. Dates were obtained from only 2 of the samples; both samples are ponderosa pine. These results of tree-ring analysis suggest dates of approximately A.D. 780. Refer to table 6.20 for a summary of Area 2 tree-ring data.

Archaeomagnetic samples. – One archaeomagnetic sample (sample 1) was recovered from the adobe collar encircling the central hearth (Feature 5) of Pithouse 1. This sample yielded dates of A.D. 825 ± 25 years and A.D. 875 ± 25 years. The latter is almost certainly too late; the former agrees more closely with date estimates based on tree-ring analysis and ceramic typology, especially

Table 6.19 – Macrobotanical remains, Area 2, Hamlet de la Olla

Taxon	Provenience				
Family Genus species Plant part	Room 2 Surf 1	Pithouse 1 Roof fall	Pithouse 1 Surf 1	Room 8 Surf 1	Room 8 Bulk soil sample 1
Anacardiaceae *Rhus aromatica* seeds				11#/C*	85#/C
Chenopodiaceae *Chenopodium* sp. fruit					1#/N
Compositae *Artemisia* sp. wood					0.5g/C
Fagaceae *Quercus gambelii* wood					0.5g/C
Gramineae *Zea mays* kernels cupules cobs	0.1g/C*	0.5g/C*	10.5g/C* 1fg/C*	0.1g/C*	10#/C
Pinaceae *Pinus* sp. wood *Pinus edulis* wood needle					0.5g/C 0.5g/C 1fg/C
Rosaceae Indeterminate wood					0.5g/C
Salicaceae *Populus* sp. wood					0.5g/C
Dicotyledoneae Indeterminate wood					0.5g/C
Indeterminate seed bark					1fg/C 0.5g/C

* Vegetal remains.
/C – Charred.
/N – Noncharred.
g/ – Grams.
#/ – Number present.
fg – Fragment.
Surf – Surface.

Table 6.20 – Tree-ring sample results, Area 2, Hamlet de la Olla

Sample No.	Provenience	Taxon	Inside date (A.D.)	Outside date (A.D.)
1 (DAR 205)	Pithouse 1, roof fall	*Pinus ponderosa*	726p	779vv
3 (DAR 206)	Pithouse 1, roof fall	*Pinus ponderosa*	713p	780v

DAR numbers, taxa, dates, and the following tree-ring symbols were provided by the Laboratory of Tree-Ring Research, University of Arizona, Tucson:
p – Pith ring present.
vv – There is no way of estimating how far the last ring is from the true outside.
v – A subjective judgment that the date is within a very few years of being a cutting date, though there is no direct evidence of the true outside on the specimen.

when the error factor of 25 years is considered. A discussion of archaeomagnetic sampling and a presentation of the data from Hamlet de la Olla can be found in Appendix 6B.

Inferences

Based on the presence of grinding implements (manos and metates), some resource processing is inferred to have taken place in Area 2. Flaked lithic tool manufacture may have occurred in this area of the site as well, although the extent of this activity is not known. Food storage, preparation, and consumption are inferred on the basis of the wide variety of gray ware jars and red ware bowls recovered from the use surfaces of several of the rooms.

SITE SYNTHESIS

Chronology

The field house and wall in Area 1 of the site cannot be positively dated. No tree-ring, carbon-14, or archaeomagnetic samples were collected from Area 1. The recovered ceramic materials consist entirely of Early Pueblo Gray body sherds; they can be used to date Area 1 no more precisely than A.D. 600-950 (Blinman 1982a). Kane (1981a:72) states that field houses generally do not occur in the project area until the beginning of the McPhee Phase, about A.D. 850. If Room 1 is a field house, as is probably the case, then a post-A.D. 850 date is indicated. This would place the structure 40 to 50 years after the occupation of the hamlet in Area 2. The relatively sophisticated architectural style that characterizes Room 1 (coursed masonry, with some shaping of individual sandstone blocks) tends to support this date, since this type of masonry does not appear before about A.D. 825. The burial, a postabandonment intrusion into Room 1, cannot be precisely dated, but it obviously postdates the occupation of the structure.

The inferences and conclusions that have been drawn regarding Area 2 chronology are based on only partial excavation of the hamlet and should therefore be studied with caution. Temporal relationships between excavated and unexcavated portions of the hamlet are unknown, and relationships between the various excavated portions remain speculative. More complete excavation might have yielded more evidence (e.g., additional pitstructures) that would have permitted refinement of the chronological data presented here.

The dating of the hamlet is based primarily on ceramic typology and the results of tree-ring analysis and secondarily on architectural style. In addition to Early Pueblo Gray and Early Pueblo White, both of which date to A.D. 600-950, and Chapin Gray, which dates to A.D. 600-925 (Blinman 1982a:7), several more temporally diagnostic ceramics were recovered from the use surfaces of Pithouse 1 and several of the rooms. These ceramic types and their respective date ranges are as follows (Blinman 1982a:7, 1982b):

Polished White (Room 2)	A.D. 700-900
Early Pueblo Red (Pithouse 1, Room 2)	A.D. 720-925
Abajo Red-on-orange (Pithouse 1, Room 2)	A.D. 720-925
Moccasin Gray (Room 2, Room 9)	A.D. 760-925
Bluff Black-on-red (Room 2)	A.D. 740-925

The tree-ring samples recovered from Pithouse 1 suggest an initial occupation date of approximately A.D. 780. If Kane's (1981c:93) estimate of 10 to 30 years as the average occupation span for Dolores area Anasazi pitstructures is correct, then the dates A.D. 780-800/810 can tentatively be postulated for the duration of the occupation of the hamlet. The apparent jacal construction of the roomblock and the lack of a bench and antechamber in the pithouse are similar to some of the architectural characteristics noted at other project area sites believed to date to the same general time period (refer to Brisbin 1982; Yarnell 1980). Unfortunately, finer chronological subdivisions, such as episodes of construction or remodeling at Area 2, cannot be ascertained given the incompleteness of the data base.

Temporal Units

Two elements, which correspond to Areas 1 and 2 of the site, were identified at Hamlet de la Olla. An element is defined by Kane (1981a:80) as a period of major use at a site and is represented by a significant building or remodeling episode. Based on this definition, Element 1 at Hamlet de la Olla is represented by the pithouse and the roomblock. However, the definition of this element is regarded as tentative because whether any major remodeling of these structures took place or whether additional pitstructures were associated with the roomblock is not known. Element 2 is represented by the field house, the isolated wall, and the occupation area. Elements 1 and 2 do not appear to be temporally or functionally related; in fact, they are 2 entirely different occupations which happen to be subsumed under the single administrative designation of Site 5MT2181.

The burial found in the field house has been designated Episode 1 because it is regarded as a separate entity from the defined elements and because it is an intrusive, temporally discrete feature. An episode is an occupation of very brief duration, the smallest temporal unit recognized in the DAP temporal system (Kane and Phagan 1981).

Element 1 is believed, on the basis of ceramic typology, tree-ring dates, and architectural style, to fall within the Dos Casas Subphase (A.D. 760-850) of the Sagehen Phase (A.D. 600-850). This temporal designation corresponds to the Pueblo I time period of the Pecos classification system. Positive identification of the phase and subphase to which Element 2 belongs is not possible given the lack of diagnostic evidence; however, it is speculated that Element 2 represents a later phase than Element 1, probably the McPhee Phase. This phase is dated to A.D. 850-975 and corresponds to the late Pueblo I-early Pueblo II time periods of the Pecos system. Also, determining positively when Episode 1 occurred is not possible, except that it occurred after Element 2.

Spatial Units

The DAP spatial system consists of a hierarchical series of spatial units that are convenient for making observations about prehistoric populations. The largest spatial unit that will be considered in regard to Hamlet de la Olla is the community cluster; this is the space and facilities used by a community (Kane 1981a:38). On the basis of the estimated occupation span of the hamlet and its proximity to other similar habitation sites that date to approximately the same time period, Hamlet de la Olla is believed to be part of the Lucero Community Cluster. It is not known with which community cluster the structures in Area 1 are associated.

The Lucero Community Cluster

Currently, the only excavated sites that are believed to belong to this community cluster are Area 2 at Hamlet de la Olla, Area 1 at Rio Vista Village (Fields 1981), and Area 4 at Pettman Hamlet (Yarnell 1980). The assignment of these areas to the cluster is based on their location and their cultural/temporal affiliation. As constituent members of a given community, the various sites that comprise the cluster are presumed to have shared at least some common resources, a circumstance that suggests a degree of social cooperation. By definition, community clusters fall into 1 of 3 categories: nucleated, dispersed, and band territories (Kane 1981a:39). While the Dos Casas Subphase is believed to reflect a transition from dispersed to more aggregated settlements (Kane 1981c:67), the exact nature and extent of the relationship between the occupants of Hamlet de la Olla and other members of the Lucero Community are not known.

Household Clusters

The household cluster is a spatial unit that can be identified on the site level. A household cluster consists of the space and facilities used by a household (Kane 1981a:37). Research conducted in the project area indicates that the typical Dos Casas household cluster consists of a surface structure used as a living room, 2 smaller surface structures used as storage rooms, a pithouse possibly used for domestic and religious purposes, and miscellaneous features and surfaces outside of the structures.

Several household clusters were identified at the hamlet in Area 2. These units are presented in the following discussion. Household cluster numbers were assigned on a project-wide basis. Since the facilities in Area 1 are only part of a household cluster and might have been used by several households, they were not assigned a household cluster number.

Household Cluster 44. – Household Cluster 44 is comprised of Rooms 2, 3, and 9; had time permitted more extensive investigation of the hamlet, additional areas outside of and adjacent to these rooms, probably would have been included as well. Because most of the walls of the structures that constitute the cluster are missing, and because Room 9 was not completely excavated, determining definitely whether the suite conforms to the 1

Table 7.49 – Summary of feature distribution possibly associated with Element 3, Kin Tl'iish

Feature type	Number of features: Front rooms (N=2)	Back rooms (N=3)	End rooms (N=1)	Nonstr units (N=4)	Pitstrs (N=1)	Total (N=11)	Percent of features: Front rooms (N=2)	Back rooms (N=3)	End rooms (N=1)	Nonstr units (N=4)	Pitstr (N=1)	Total (N=11)
Hearth	1			1	1	3	1.0			1.0	1.0	2.9
Burned pits	1			2		3	1.0			1.9		2.9
Bell-shaped cists				1	1	2				1.0	1.0	1.9
Wall cists					1	1					1.0	1.0
Bins					1	1					1.0	1.0
Other storage cists			1			1			1.0			1.0
Small pits (1-20 cm)	5	2	3	8	5	23	4.8	1.9	2.9	7.7	4.8	22.1
Medium pits (20-99 cm)	12	3	1	5	3	24	11.5	2.9	1.0	4.8	2.9	23.1
Borrow pits				2		2				1.9		1.9
Large pits (>1 m)												
with burned fill	1			3		4	1.0			2.9		3.8
without burned fill	2			4		6	1.9			3.8		5.8
Postholes												
with shims or basestone	8	3	5		1	17	7.7	2.9	4.8		1.0	16.3
other	4	1	8		1	14	3.8	1.0	7.7		1.0	13.5
Other features		1*			1† 1‡	3		1.0			1.9	2.9
Total	34	10	18	26	16	104	32.7	9.6	17.3	25.0	15.4	100.0

*Cluster of small holes
†Ash pit
‡Wingwall
Pitstrs - Pitstructures
Nonstr - Nonstructural

1, Rooms 2, 4, 5, 7, 8, and 11, and possible Room 3. All of the features in Nonstructural Unit 4, except Feature 9?, probably are associated with this element, as are at least one of the features in Nonstructural Unit 5. Nonstructural Un... for lack of a better association, although it is clearly ... than the rest of Element 3. Nonstructural Unit 7 was not combined with Elements 1 or 2 because structures and surfaces from these elements are located at the south end of the site. Some of the features that underlie the roomblock unit also could be part of Element 3. Specifically, the borrow pit identified in Room 1 and assigned to Nonstructural Unit 5 may belong to an earlier construction event within Element 3.

Evidence indicates some roomsuites were probably constructed as a single building event; others, however, were obviously not. Only Rooms 7 and 8 show clear evidence of construction as a single episode. The back wall for both rooms is continuous, and the wall dividing the 2 rooms abuts the back wall. It is inferred that the front room associated with Rooms 7 and 8 was constructed at the same time; this room, however, was not excavated. The skewed arrangement of Room 2 relative to Room 1 – in the roomsuite consisting of Rooms 1, 2, and 11 – tends to be more consistent with construction in at least two separate events. The relationship of Rooms 3, 4, and 5 remains less clear.

Element 3 surfaces are overlain by surfaces from at least 1 other element, and in places possibly 2 elements. The trash associated with those later occupations is frequently mixed with earlier deposits, which obscure occupational debris associations in areas outside of the roomblock unit. The material culture associated with Element 3 is probably best defined based on artifacts taken directly from the room floors and from cleared areas of the Pitstructure 2 floor.

The ceramic assemblage is composed of sherds generally predating the dominance of Mancos Gray and later types. In the rooms, there is a predominance of white ware bowls, possibly reflecting the use of the rooms for domestic activities. Other artifacts in the rooms are distributed in a manner more similar to their distributions across the rest of the site, except for nonhuman bone, and are briefly discussed under "Material Culture" for the entire site. The dearth of nonhuman bone associated with Element 3 may reflect poor preservation in the surface rooms and in the small portion of Pitstructure 2 that was exposed.

The roomblock unit, as a whole, shows evidence of domestic use, but some of the rooms within the roomblock unit seem to have had more specialized functions. As expected, front rooms and occupation areas (nonstructural units) may have had similar functions, based on similar numbers and types of features (table 7.49). These functions may be domestic in nature. Back rooms, by their lack of features, may be storage related. Room 2 is a possible exception, with its evidence for a ceramic manufacturing area; but its primary function might have been storage. This dichotomy between front rooms and back rooms is consistent with data from other Pueblo I sites in the Mesa Verde Region (e.g., Hayes and Lancaster 1975; Birkedal 1976; Kane 1983b).

Because Nonstructural Units 5 and 7 may belong to 2 or several elements, inclusion solely with Element 3 may be misleading. For example, a probable posthole and a bell-shaped cist associated with Nonstructural Unit 7 may indicate the presence of a roofed structure, abandoned before, or torn down for, the construction of rooms at the west end of the roomblock unit.

Element 4

The final major period of construction is Element 4. It is defined by two small circular pitstructures (Pitstructures 4 and 5) and may include Surface 2 of Room 1, Room 13, late features in Room 3, Nonstructural Units 4 and 5, and possibly Nonstructural Unit 1. The nature of this occupation is different from the hamlet immediately preceding it – here, the pitstructures are the major focus. Although the pitstructures are late, neither seems to have functioned as a kiva; both have substantial storage facilities (Pitstructure 5 might have contained only storage facilities – not enough of the floor was exposed to determine whether other types of features were present). Pitstructure 4, however, appears to have had some ritual significance: it was abandoned ritually, and it has at least 1 small pit (Feature 108), which is ascribed ritual significance by virtue of its partially concealed location and its contents. The pitstructures are assigned to the same element because corrugated sherds were recovered from the floor of each. Surface rooms and other surfaces assigned to this element also contained later ceramics, or, in the cases of Room 13 and Feature 6, they were defined as part of a late element according to their stratigraphic position (table 7.4b). Artifacts that should be associated with Element 4 are mixed with trash from Element 3, thus, the range of artifact types and the depth of deposits from which to infer the intensity of occupation are lacking.

Element 5

The standing remains of the last prehistoric element at the site are minimal; however, if the distribution of the scattered burial (Feature 2) represents room fill placed in the area preparatory to late construction, actual construction during Element 5 may have been considerable. Only Nonstructural Unit 6, and possibly the latest features in

Nonstructural Unit 5, attest to the nature of the construction, which seems to have been predominantly, or wholly, ramada-type structures built over fill. Element 5 is dated based on the presence of ceramics from somewhere within the A.D. 1000-1150 time range. These artifacts occur in the upper fill of Pitstructure 4 and on the modern ground surface. Within the roomblock unit area, the matrix around the scattered human burials was used to indicate the extent of Element 5 construction. Nonstructural Unit 6 and Burial 29 (Feature 19) were associated with a surface above this matrix. Since these burials were limited to the southern edge of the roomblock, Element 5 construction may have been limited to that area as well; however, the assignment of features in Nonstructural Unit 5 to Element 5 presupposes that other activities covered a larger area of the site. It is possible that Burial 30 (Feature 162), an intrusive feature into Room 13 fill, is also associated with this element.

Material Culture

As noted in the site setting discussion, all raw materials necessary for lithic tool production and ceramic manufacture were locally available and abundant. Moreover, all types of fauna available anywhere in the Dolores River valley could be taken near the site during some part of the year, with the possible exception of birds associated with a marsh habitat. The material culture from Kin Tl'ish reflects these locational advantages during all time periods, but particularly during its earlier, major occupations.

Ceramics

Pottery clay and temper materials were locally available, and most ceramics, perhaps as a result, were made locally. Ceramics from outside of the Dolores Tract comprise only 6.9 percent (by count) of the ceramic collection. These nonlocal sherds are more common among the earlier ceramic types (pre-A.D. 910) than among the later ceramic types, and only 4 nonlocal sherds can be attributed to the post-A.D. 910 use of the site.

Within the site, gray wares are more abundant than white or red wares, and jars are the most common vessel form. The popularity of jars reflects the predominance of jar forms within gray wares, and the relative emphasis on cooking and storage functions (cf. Freeman and Brown 1964). This general pattern is broken in rooms. In both rooms associated with the Periman and with the Cline Subphases, bowls, particularly white ware bowls, are more common than they are in the associated pitstructures, and, in fact, white wares and bowls are more abundant in those rooms than are jars. This pattern is particularly true of room floors. This apparent importance of bowls may be partially a function of small sample size, but it is expected to be generally correct because a relatively great importance of bowls and white wares is apparent in room fill, as well. It seems likely, in general, that room fill reflects room use (albeit not of a particular room) because of Anasazi trash disposal patterns. The tendency toward increased use of bowls and white wares in surface rooms tends to be supported by data from the pitstructures. More bowls are present in the early pitstructure (Pitstructure 1) than in later pitstructures (appendix 7A), which is consistent with the shift of domestic and social functions out of the exclusive realm of pitstructures and into the surface rooms (Freeman and Brown 1964; Harrington 1927).

Flaked Lithic Tools and Debitage

Like the ceramics, flaked lithic artifacts tend to have been manufactured from local materials, perhaps coming predominantly from the river gravels. Only 2.3 percent of the flaked lithic tools and 0.3 percent of the flaked lithic debitage are from nonlocal materials (obsidian, chalcedony, and jasper). Moreover, based on similar distributions of tools and debitage of the same grain size (appendix 7A), it is possible either that most of the tools were manufactured at the site or that most tools manufactured at the site were used at the site as well.

Whether they are on structure floors or in trash deposits, most flaked lithic tools (76.9 percent) are complete, or nearly so. There appears to be no difference in the ratio of flaked lithic tools to other artifact types between structure floors and trash deposits, indicating possible undifferentiated tool production and use within the site. However, this inference may be affected by the distribution of utilized flakes. Utilized flakes are the most common flaked lithic tool type at Kin Tl'ish (appendix 7A). They comprise 65.7 percent of all flaked lithic tools at the site and they are more common in refuse deposits away from structures than elsewhere. Their distribution reflects either a predominance of processing activities that took place away from the main habitation areas or, more likely, the expedient production of these flakes and the lack of their curation.

At least one other flaked lithic tool type appears to have an uneven distribution. Used cores are more common than expected in room fills and on room floors. As argued for the ceramic distributions, this may represent a difference in activities associated with surface rooms and other occupation areas.

Nonflaked Lithic Tools

The distribution of ground and pecked stone artifacts is meaningful only in broad perspective, because of the small sample size and because of the common reuse of these artifacts in the construction of surface rooms and pitstructures. The nonflaked lithic assemblage from Kin

Tl'ish contains only 161 artifacts. This total is sufficient to describe the nonflaked lithic tool distribution as a whole, but no finer level of distribution can be discussed with confidence. Nonflaked lithic tools, especially manos and metates, are virtually limited to surface rooms and pitstructures. Metates were frequently reused in the construction of surface room or pitstructure walls and rarely were collected as artifacts from those contexts. Manos were also used in construction, most commonly they served as base stones or shims in postholes and were collected, artificially increasing the ratio of manos to metates from rooms. However, even considering this bias, there are many more manos than metates (a ratio of about 3:1). Moreover, because it cannot be reasonable assumed that every mano and every metate was scavenged from trash deposits and old occupation surfaces for construction supplies, it is obvious that the use of manos and metates was largely or exclusively limited to surface room and pitstructure areas. According to Hough (1919), manos and metates were not used in open or courtyard situations. There is no indication that any other artifact or material type should exhibit such exclusive distribution.

Nonhuman Bone

There are 34 worked bone artifacts in the collections from Kin Tl'ish. Of these, 79.4 percent are from pitstructure fills or pitstructure floors, primarily from Pitstructure 1 (58.8 percent of all worked bone). The assemblage from the Pitstructure 1 fill and floor includes all worked bone from common raven (*Corvus corax*), large bird, and indeterminate bird or mammal (appendix 7A). Bird or possible bird bone makes up 50 percent of the worked bone assemblage from Pitstructure 1. That distribution may represent either a ceremonial significance for the raven (or other large birds) or a potentially real, but untestable, temporal difference in the choice of bone appropriate for working. It is untestable because bone preservation in surface rooms is considerably poorer than in pitstructures, and many of the activities carried on in Dos Casas Subphase pitstructures could logically be expected in surface rooms during later time periods. The near absence of wing bones argues against the keeping of birds for feathers.

The overwhelming presence of bird bones in Pitstructure 1 may be no more significant than the use of small mammal bone for tool manufacture. Pitstructure 1 is the only location in which worked *Lepus* (jackrabbit/hares) or other small mammal bones were found (appendix 7A). Pitstructure 1 also contained worked Artiodactyla and other large mammal bones. The pitstructure yielded more worked nonhuman bone artifacts than any other provenience at Kin Tl'ish. Thus, the data from Pitstructure 1, when compared to the data from the rest of the site, may indicate a temporal trend in the choice of animal bone suitable for tool manufacture. However, this is not testable.

A total of 552 fragments of unworked animal bone was recovered from the site (appendix 7A). Based on percentages of nonhuman bone sorted by class and size, a preference for working large, rather than small, mammal bone is evident and the uneven ratio of large to small mammal bone in the worked bone assemblage is not a function of differential preservation. This class comprises a smaller percentage of the total nonhuman bone collection. Small mammals were apparently brought back to the site more commonly than medium or large mammals.

Presumably, all mammals brought back to the site were used for food. Regular use of animals for food rather than tools is implied by the common occurrence of bone shaft fragments to the exclusion of epiphyseal ends which might have been crushed for marrow. Although more small mammals were brought to the site, this should not imply that they were the major source of meat; large mammals may still have been the primary animal contribution to total caloric intake.

The greater absolute numbers of bone recovered from Pitstructures 1 and 3, as opposed to other structures, are not necessarily significant because of the differences in excavation and collection techniques. One probability square was excavated in Pitstructure 1 and one was excavated in Pitstructure 3; other pitstructures were excavated largely by backhoe.

Applicability of Site Data to the Dolores Archaeological Program Research Design

In general, Kin Tl'ish makes a major contribution to the DAP research design because it was occupied during several periods. The same environmental variables were constant for the site during all periods of Anasazi occupation, while site area use varied. Data from the site may make substantive contributions at least to the data base used in answering questions about economy and adaptation, paleodemography, social organization and extraregional relationships. Through these topics, questions about cultural processes can be addressed. Refer to the DAP research design (Kane et al. 1983) for a discussion of problem domains.

Economy and Adaptation

The study of economy and adaptation is concerned with the prehistoric use of the paleoenvironment. Almost every resource available within the Dolores River valley was accessible to inhabitants of Kin Tl'ish, and evidence from the site indicates a heavy emphasis on exploitation of local resources during all periods of occupation

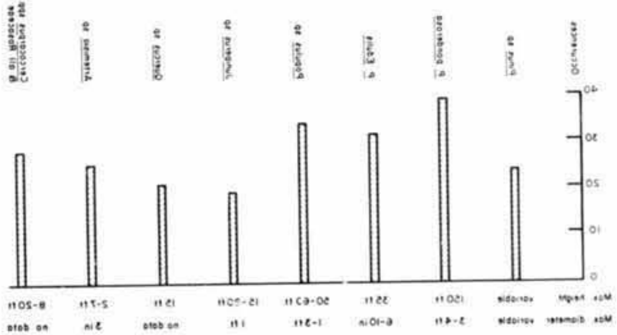

Figure 7.11 - Comparisons of plant species, maximum heights, and diameters for construction materials, Kin Tl'iish

Plant remains recovered from the site reflect the use of resources available in the immediate area. Wild plants are represented by remains of pigweed (Amaranthus sp.), goosefoot (Chenopodium sp.), groundcherry (Physalis sp.), purslane (Portulaca sp.) and nightshade (Solanum sp.). One beeweed (Cleome serrulata) seed and two blazing star (Mentzelia sp.) seeds were also recovered. These plants are documented ethnographically (Curtin 1949; Whiting 1939) as being used for food. Many noncharred tobacco (Nicotiana attenuata) seeds were found in several contexts in all the pitstructures.

Common bean (Phaseolus vulgaris) remains were found in pits and hearths in Rooms 1 and 10, and corn (Zea mays) was present in hearths and postholes in pitstructures and in pits in rooms. Use of these cultigens by the prehistoric occupants can be assumed.

Epidermis of yucca (Yucca sp.) leaves was located in the upper fill of a pit (Feature 96) in the plaza area (Nonstructural Unit 4), indicating that this plant was processed (extraction of the fiber). Yucca fiber is a material commonly used in the construction of cordage, rope, baskets, and articles of clothing.

Wood remains recovered from the site consist of saltbush (Atriplex sp.), juniper (Juniperus sp.), pinyon pine (Pinus edulis), ponderosa pine (Pinus ponderosa), cottonwood (Populus sp.), Gambel oak (Quercus gambelii), rose family (Rosaceae) including true mountain mahogany (Cercocarpus montanus), and silver buffaloberry (Shepherdia argentea). These types of wood were evidently used for construction and for fuel. The presence of sagebrush/rabbitbrush (Artemisia sp./Chrysothamnus sp.), reeds (Phragmites sp.), rose family (Rosaceae) types, and willow family (Salicaceae) types such as cottonwood (Populus sp.) probably indicates their use as closing material.

All wood recovered from the site is locally available; no spruce (Picea) or fir (Abies) (which would only be available from much higher elevations in this portion of the Dolores valley) is found in the assemblage. All wood types could have been procured within a 1-km radius of the site. Although ponderosa pine was not identified in the woodland above Kin Tl'ish, it frequently is part of the pinyon-juniper woodland (Betz et al. 1981:table 1.4.1) and, hence, the local forest probably provided the ponderosa pine beams used at Kin Tl'ish.

Beyond a preference for locally available resources, preference for wood seems to have been based on size (fig. 7.11). Trees with greater maximum heights and diameters were preferred during all occupations and for all uses. As primary beams or corner posts, ponderosa pine comprises approximately 70 percent of the wood species used, and is also the most common wood species for all uses at the site. The common occurrence may be related to its use as closing material rather than for structural support. Presence of wood in hearths is not considered separately from construction elements because firewood probably is expediently procured and therefore probably includes a significant amount of salvaged timber from abandoned or remodeled structures.

Other construction notes may apply to the site as a whole. Kin Tl'ish structures have an unusually great number of postholes per surface room. The number of postholes appear to be an inverse function of how substantial the walls are. In Pueblo III rooms constructed with wholly masonry walls, no postholes are found (refer to Cattanach 1980; Rohn 1971). In rooms with less masonry in the walls, more postholes are present. For instance, Site 12 at Alkali ridge has evidence of the direct decrease in the use of post supports where rock is present in the walls (Brew 1946), and excavations at site 5MV 1676 on Mesa Verde also show the relationship between masonry and posts in substantial walls (Hayes and Lancaster 1975). Moreover, Hayes and Lancaster also point out the regular occurrence of a four-post support pattern in rooms with composite walls.

A specific discussion of adaptation to particular environmental changes is not possible. What can be said is that, as expected for all sites in the Dolores River valley from about A.D. 800 to 900 (Kane 1983), artifact diversity decreases through time. This can be measured by diversity of faunal remains and possibly by changes in ceramic types or manufacturing traits. During the first occupation (Element 1), the greatest diversity in types of worked bone and the higher percentages of nonlocal ceramics were observed. Element 2 ceramics exhibit a greater diversity than those in Elements 3, 4, and 5. Elements 3, 4, and 5 are difficult to separate temporally because of their spatial overlap. These differences in ceramics and the probable difference in choices of faunal materials suitable for worked bone becomes more important taken in the context of the lack of change in other natural resources (i.e., wood). No change in the use of wood was noted over time. Based on structural remains, all wood recovered from the site was locally available, and preference for wood species (or, implicitly, availability of wood species) does not seem to change over time.

Paleodemography

The population model for the Dolores River valley has a population maximum between about A.D. 840 and A.D. 880, preceded by exponential growth and followed by an irregular population decline (Kane et al. 1983). Pitstructure 1 fill was largely natural, as was Pitstructure 3 fill. Pitstructure 2 had filled, or almost completely filled, before Pitstructure 4 was excavated into it. Pitstructure 4, however, was only partially filled prior to the final recognizable occupation (a campsite limited activity area).

That most pitstructures were completely filled, substantiates time lapses between major occupations of the site indicated by architectural and ceramic dating. However, these conclusions are mitigated by the possibility that the arbitrary site boundaries are defined far too narrowly. The reuse of beams from Pitstructure 1, and possibly from surface rooms in Roomblock Unit 1 (although in this latter instance posts could have been used for other roomblock units), indicated some nearby construction, probably at one of the neighboring surveyed sites which are arguably part of the same settlement. As such, the reuse of beams argue for a heavier use of the area and perhaps a shorter span of time between construction events.

No good estimates for site population are made for any period, and no estimates for length of site occupation during any period would be fruitful, except to note that the final occupation (Sundial Phase) must have been brief, regardless of its size.

In terms of the characteristics of the site population, the burial assemblage is too small to make a significant contribution, but it may contribute to the sample of the total valley population. Remains from 6 human inhumations (Features 2, 19, and 162) were recovered. The burials probably date to A.D. 880 to 950, although some of them may date to A.D. 840 to 880.

Social Organization

The major contribution to this topic is from Element 2 (the occupation in the southwest quadrant of the site) where it is likely that individuals occupying more than 1 roomsuite and intending to share the same pitstructure (Pitstructure 3) were present from the initial construction during that element. Several surface rooms were apparently occupied prior to the completion of the associated pitstructure. Based on the evidence from Kin Tl'ish, the household groups (those individuals occupying 1 roomsuite) arriving at different times might have required different pithouses. The pithouse, rather than the roomsuite, may best define an economic unit (Wilk and Netting 1984).

Element 2 may be contemporary with Element 3 (Roomblock Unit 1 and Pitstructure 2). During all other periods of occupation, Kin Tl'ish seems to have been occupied by a single residential group (those individuals occupying a pithouse and associated roomsuites), unless adjacent sites are considered to be part of the same settlement. The arbitrary nature of the division of this settlement from others on the terrace hampers a discussion of the number of households at Kin Tl'ish although the site population maximum did occur within the expected A.D. 840 to 880 range.

Extraregional Relationships

Evidence suggests that during all occupations at Kin Tl'ish primary reliance was on locally produced items. All plant materials and all faunal resources recovered from the site could have been locally obtained. Nonlocal ceramics and nonlocal lithic raw materials are present, but few when compared to those commonly recovered from sites in the project area. The near absence of nonlocal materials at Kin Tl'ish is not surprising since all necessary subsistence resources seem to have been locally available and abundant. As expected, based on the population distribution patterns over the rest of the valley, the greatest number of nonlocal ceramic vessels at this site are probably associated with Elements 2 and 3. Nonlocal items recovered from Kin Tl'ish originated from the same places as nonlocal materials from other sites in the project area. This reinforces the concept that the occupants of Kin Tl'ish and other valley inhabitants were part of the same political and economic system.

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NOTE: References marked by § represent DAP reports that were published after this chapter was written. Those marked with a § may be found in *Dolores Archaeological Program: Studies in Environmental Archaeology*, compiled by Kenneth Lee Petersen, Vickie L. Clay, Meredith H. Matthews, and Sarah H. Neusius, Bureau of Reclamation, Engineering and Research Center, Denver, August 1985.

constructed a new roomblock but never completed the pitstructure. The construction of Pitstructure 3 and use of Roomblock Unit 2 and adjacent Nonstructural Unit 2 may have also been contemporaneous with, or earlier than, the occupation of Pitstructure 2 and its associated surface rooms in Area 1.

SITE SYNTHESIS

Chronology

The first evidence of occupation at Kin Tl'ish dates close to A.D. 800, and Anasazi use of the site continued until after A.D. 1050. The occupation of the site probably was not continuous, and the site function varied (habitation, seasonal locus, and possibly limited activity locus). With these fluctuations in function through time, the part of the site that was intensively used varied and, in general terms, shows a shift from the south-facing slope of the site during an early period of occupation, to the top of the river terrace during the final occupation.

The full range of occupation is defined by ceramics, but is refined by the architectural typology for the Dolores valley, stratigraphic relationships, and in one case, an archaeomagnetic date (table 7.46). Within the broad time spans defined, the sequence of events is largely understood through the stratigraphic relationships between various occupation surfaces (fig. 7.70, table 7.47).

Ceramic types present in the total site assemblage reflect the changing intensities of site occupation. At least 3 and perhaps 4 periods of occupation can be inferred based on ceramic data alone, and relative intensities can be subjectively estimated using the principles set forth by Kohler and Blinman (1984) and the distinctive assemblages described by Blinman et al. (1984).

The period between A.D. 825 and 910 appears to encompass the majority of sherd deposition, based on the relative frequencies of Moccasin Gray and Mancos Gray. The presence of Mancos Gray defines at least some occupation after A.D. 860, and the presence of McPhee Black-on-red places at least some occupation in the A.D. 880 to 910 time period. If occupation was continuous (although perhaps declining) between A.D. 860 and 910, all of the Mancos Gray, McPhee Black-on-red, and Cortez Black-on-white sherds could be explained, along with some of the Moccasin Gray, Chapin Gray, and minor pre-A.D. 910 types. Moccasin Gray is too abundant to be accounted for by deposition in the post-A.D. 860 period alone, but could be accounted for by deposition beginning at A.D. 840 or perhaps as early as A.D. 825.

High frequencies of Chapin Gray are too great to be accounted for by deposition after A.D. 825, and reflect an earlier use of the site. Chapin Black-on-white sherds are likely to have belonged to this occupation, and although other types could be contemporary with these two (including some of the red ware sherds), none must be contemporary. Chapin Black-on-white and Chapin Gray occur in the project area from A.D. 600 through at least A.D. 800, and ceramic data alone can only be used to infer an occupation prior to A.D. 825.

The third definite occupation is evident in ceramic types that could have been deposited only after A.D. 910 (corrugated gray ware sherds and Mancos Black-on-white). Occupation must post-date A.D. 980, based on the presence of Mancos Black-on-white, and A.D. 1025 on the basis of Dolores Corrugated. If all of the post-A.D. 910 ceramics represent the remains of a single occupation, the occupation would date within the A.D. 1025 to 1100 time period. However, 2 or more occupations may also account for the observed type distributions. Mancos Corrugated consistently occurs in the project area after A.D. 930, and an early 10th century occupation could explain both the Mancos Corrugated sherds and some of the Cortez Black-on-white sherds. This would have to be followed by one or more occupations after A.D. 1025 to account for the association of Mancos Black-on-white and Dolores Corrugated.

Architectural divisions refine the ceramic sequence slightly. Pitstructure 1, although perhaps within the A.D. 800 to 900 range, obviously falls at the extreme early end of the range. Architecturally, Pitstructures 2 and 3 could be roughly contemporaneous, and could date either earlier or later than the introduction of Mancos Gray ceramics. The general absence of Mancos Gray and other, later sherds in Area 2 suggests that Roomblock Unit 2 and Pitstructure 3 construction predate the introduction of Mancos Gray, and therefore predate A.D. 860. Similarly, the rare occurrence of Mancos Gray (or later) ceramics on room floors, features, or other lower fills in rooms in Roomblock Unit 1 suggests that Pitstructure 2 and its associated rooms also may predate the introduction, or common occurrence, of Mancos Gray (too little of Pitstructure 2 was cleared to accurately indicate what ceramics are directly associated with its occupation).

Integration of Spatial and Temporal Units

The site chronology has been divided into 5 elements based on construction events. The earliest use of the site (late A.D. 700's or early A.D. 800's) was during the Sagehen Phase; this occupation of Kin Tl'ish has been classified as a Dos Casas Subphase hamlet. The hamlet was occupied by one or several household groups sharing one pitstructure but using an undetermined number of surface rooms that might have been widely scattered (table 7.48). The occupation of the site during this period is identified as Element 1.

Table 7.46 – Summary of evidence used in dating study units, Kin Tl'ish

	Area 1			
	Room 1 Surface 1	Room 1 Surface 2	Room 2	Room 3
Ceramic types	Chapin Gray Moccasin Gray EP Gray EP White EP Red	Piedra B/W	EP Gray	Chapin Gray Moccasin Gray Mancos Gray EP Gray Polished White EP Red
Ceramic date estimate	Inadequate but consistent with A.D. 825-875 date range	Inadequate sample	Inadequate sample	A.D. 860-925
Architectural characteristics	Mud and rubble walls with some coursed masonry and slabs; 6-post roof support; contiguous with other rooms; multiple burning pits	Not known	In shallow depression; substantial coursed masonry and mud walls; 4-post roof support; prepared floor; contiguous with other rooms	Mud and rubble walls; 4-post roof support; contiguous with other rooms; possibly had low front partition rather than wall
Stratigraphic relationships	Later than some NS 5 features; earlier than Room 1, Surface 2; shares wall with Rooms 2 and 11	Later than Room 1, Surface 1; earlier than Feature 2	Later than some NS 5 features; shares walls with Rooms 1 and 11	Later than NS 7 and unnumbered features; earlier than Room 13, NS 4, Features 96 and 2; shares walls with Rooms 4 and 5
Archaeomagnetic dates				
Probable date range	A.D. 825-875	A.D. 900-950*	Earlier than A.D. 910	Final use A.D. 860-925

Table 7.46 - Summary of evidence used in dating study units, Kin Tl'iish - Continued

	Area 1				
	Room 4	Room 5	Room 7	Room 8	Room 11
Ceramic types	Moccasin Gray	EP Gray	EP Gray Polished white	EP Gray Polished White EP Red	EP Gray
Ceramic date estimate	Inadequate sample	Inadequate sample		Inadequate sample	Inadequate sample
Architectural characteristics	In shallow depression; coursed rubble walls	Mud and rubble walls; 4-post roof support	Coursed masonry with footings; prepared floor	Coursed masonry with footings	In shallow pit; mud and rubble walls
Stratigraphic relationships	Later than NS 7; partly shared wall with Room 5	Later than NS 7; earlier than Feature 2; shares walls with Rooms 3 and 4	Later than unnumbered occupation; earlier than Feature 2, NS 6; shares wall with Room 8	Shares wall with Room 7, possibly with Room 12	Shares walls with Rooms 2 and 1
Archaeomagnetic dates					
Probable date range	Later than A.D. 825	A.D. 825-925	A.D. 825-950	A.D. 825-950	A.D. 825-910

Table 7.46 - Summary of evidence used in dating study units, Kin Tl'iish - Continued

	Area 1				
	Room 13	Room 6	Room 15	NS 1	NS 4
Ceramic types	EP Gray Mancos Corrugated			Chapin Gray? Moccasin Gray Mancos Gray EP Gray Mancos B/W Polished White	Chapin Gray? Moccasin Gray EP Gray Polished white
Ceramic date estimate	Inadequate sample, but consistent with A.D. 900-950 date range			A.D. 860 - 925 A.D. 1000-1150	Inadequate sample, but consistent with A.D. 760-925 date range
Architectural characteristics	Not known	Not known	Not known		
Stratigraphic relationships	Truncates Room 3; earlier than Feature 2, unnumbered Nonstructural unit	May share wall with Room 2	May share wall with Room 4		
Archaeomagnetic dates					
Probable date range	A.D. 900-950	Not known	Not known	A.D. 860-925 A.D. 1000-1150	A.D. 760-925

NS - Nonstructural Unit
EP - Early Pueblo
B/W - Black-on-white
B/R - Black-on-red
PS - Probability Square

Table 7.46 - Summary of evidence used in dating study units, Kin Tl'ish - Continued

	Area 1			
	SS 5	SS 7	Feature 2	Trash deposits (PS 1, 3, 4, 6)
Ceramic types	LP Gray? Corrugated Body Sherds LP Red		Mancos B/W? Corrugated Body Sherds	Chapin Gray Moccasin Gray Mancos Gray Corrugated Body Sherds LP Gray Chapin B/W Mancos B/W Painted White Polished White Slipped Red McPhee B/R LP Red
Ceramic date estimate	Inadequate sample from several features		A.D. 900-1050	At or before A.D. 800 A.D. 825-910 including node after A.D. 860 A.D. 910-1050 A.D. 1050-1300
Architectural characteristics				
Stratigraphic relationships	Multicomponent; one part underlies Rooms 1 and 2, parts may be contemporaneous or later	Underlies Rooms 3, 4, and 5	Overlies Room 1 Surface 2, Rooms 3, 5, and 7; underlies SS 6, Feature 19	
Archaeomagnetic dates				
Probable date range	A.D. 760-1050	Not known	A.D. 900-1150**	Multiple, as ceramic date estimates above

Table 7.46 - Summary of evidence used in dating study units, Kin Tl'ish - Continued

	Area 1			Area 2	
	Pitstructure 2	Pitstructure 4	Pitstructure 5	Room 9	Room 10
Ceramic types	LP Gray	Moccasin Gray LP Gray Mancos Corrugated	LP Gray Corrugated Gray Polished white		LP Gray
Ceramic date estimate	Inadequate sample	A.D. 910-980	Inadequate sample, but consistent with A.D. 900-925 date range		Inadequate sample
Architectural characteristics	Small subrectangular L-shaped wingwall; no bench; probable ventilation system; wall cist; circular hearth with ash pit	Small, circular; wall cists; ceremonial hole; no bench; ventilation system	Small, circular storage cists; no bench	Mud and rubble walls	Possibly jacal
Stratigraphic relationships	Truncated by Pitstructure 4	Truncates Pitstructure 2; overlain by late deposit		Truncates unnumbered features; shares wall with Room 14	Not known
Archaeomagnetic dates					
Probable date range	A.D. 825-910	A.D. 900-950	A.D. 900-950	A.D. 800-900	A.D. 750-825

Table 7.46 - Summary of evidence used in dating study units, Kin Tl'iish - Continued

	Area 2				
	Room 14	NS 8	Trash deposits (PS 8, 9, 10, 12, and 13)	Pitstructure 1	Pitstructure 3
Ceramic types			Chapin Gray Moccasin Gray Corrugated Body Sherds EP Gray Piedra B/W Painted White Polished White EP White Slipped Red EP Red	Chapin Gray EP Gray Moccasin Gray BL Bluff B/R BL Abajo R/O	EP Gray Chapin Gray Chapin B/W Mancos Gray Moccasin Gray BL EP Red
Ceramic date estimate			Major deposits A.D. 825-910; some after A.D. 900	Inadequate sample but consistent with date prior to A.D. 825	Inadequate but estimated at A.D. 800-860
Architectural characteristics	Mud and rubble walls			Large subrectangular; 4-post pattern; enlarged ventilation system or antechamber; partial bench; ceremonial and processing features; possible wall cist; partially rock lined hearth with ash pit south of deflector	Small subrectangular; bench absent
Stratigraphic relationships	Shares wall with Room 9	Not known			
Archaeomagnetic dates				A.D. 690-780 or A.D. 860-940	

Table 7.46 - Summary of evidence used in dating study units, Kin Tl'iish - Continued

	Area 2				
	Room 14	NS 8	Trash deposits (PS 8, 9, 10, 12, and 13)	Pitstructure 1	Pitstructure 3
Probable date range	A.D. 800-860††	A.D. 760-825§§	A.D. 760-830, A.D. 825-910, A.D. 900-1200	A.D. 760-825	A.D. 800-860

*Based primarily on late sherds in fill.
†From features only.
§From associated upper room fills.
**The late date reflects the possibility that Feature 2 is fill for late, or last, site occupation.
††Based on absence of Mancos Gray or other ceramics commonly found only after A.D. 860.
§§Based on probable association with Pitstructure 1.

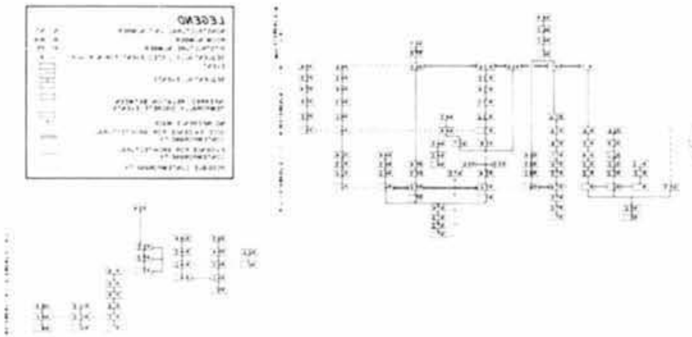

Figure 7.70 - Diagram of stratigraphic events at Kin Tl'iish. Refer to table 7.47 for an explanation of events.

During the occupation of Pitstructure 1, or perhaps following its abandonment (the length of such period of disuse is unknown), construction in the southern portion of the site was continued. This second construction element is generally associated with the McPhee Phase, and architectural characteristics place this occupation in either the Periman or the Dos Casas Subphase. It is apparent that several household groups were occupying the site at this time; numerous roomsuites were associated with each pitstructure (Pitstructure 2 in Area 1 and perhaps Pitstructure 3 in Area 2). This occupation probably took place after A.D. 840 in both areas of the site, based on the high frequency of Moccasin Gray sherds. By the late A.D. 800's, the southern half of the site was abandoned although some trash, probably associated with the later occupation in Area 1, was deposited in the vicinity of Area 2 probability squares. In the north half of the site, the occupation is assumed to have ended prior to A.D. 900; however, it might have been occupied later, or longer, based on the presence of a few Mancos Gray sherds. These 2 groups (south and north) are referred to as Elements 2 and 3.

The pitstructure at the north end of the site (Pitstructure 2) ended its uselife in a fire of unknown proportion. Occupation in the roomblock unit might have continued.

Table 7.47 - Key to events in figure 7.70

P1.1	Pitstructure 1:	construction
P1.2	Pitstructure 1:	use; feature remodeling and use
P1.3	Pitstructure 1:	abandonment
P1.4	Pitstructure 1:	deposition of postoccupational fill begins
P1.5	Pitstructure 1:	roof support posts and some roof beams scavenged
P1.6	Pitstructure 1:	deposition of postoccupational fill completed
P2.1	Pitstructure 2:	construction
P2.2	Pitstructure 2:	use
P2.3	Pitstructure 2:	burning and abandonment
P2.4	Pitstructure 2:	deposition of postoccupational fill
P3.1	Pitstructure 3:	construction begins
P3.2	Pitstructure 3:	abandonment
P3.3	Pitstructure 3:	deposition of lower fill
P3.4	Pitstructure 3:	deposition of upper fill
P4.1	Pitstructure 4:	construction
P4.2	Pitstructure 4:	use
P4.3	Pitstructure 4:	abandonment, possibly with ritual
P4.4	Pitstructure 4:	deposition of postoccupational fill begins
P4.5	Pitstructure 4:	upper walls of pitstructure and Pitstructure 2 collapse
P4.6	Pitstructure 4:	deposition of postoccupational fill containing human bone, common large rocks
P4.7	Pitstructure 4:	deposition of sediments containing late Black-on-white ceramics
P5.1	Pitstructure 5:	construction
P5.2	Pitstructure 5:	use
P5.3	Pitstructure 5:	burning and abandonment
P5.4	Pitstructure 5:	deposition of postoccupational fill begins
P5.5	Pitstructure 5:	deposition of large sandstone blocks
P5.6	Pitstructure 5:	deposition of postoccupational fill
R1.1	Room 1:	construction of Surface 1 and walls
R1.2	Room 1:	construction of features and use
R1.3	Room 1:	remodeling of some Surface 1 features
R1.4	Room 1:	deposition of fill above Surface 1, including wall construction materials
R1.5	Room 1:	Surface 2 preparation, feature construction, use
R1.6	Room 1:	remodeling of some Surface 2 features
R1.7	Room 1:	deposition of fill above Surface 2, including human bone associated with Feature 2, wall construction materials
R2.1	Room 2:	construction of walls and floors
R2.2	Room 2:	use
R2.3	Room 2:	abandonment
R2.4	Room 2:	deposition of postoccupational fill begins
R2.5	Room 2:	deposition of burned roof materials
R2.6	Room 2:	deposition of postoccupational sediments continues

Table 7.47 - Key to events in figure 7.70 - Continued

R3.1	Room 3:	excavation of floor
R3.2	Room 3:	construction of walls and features
R3.3	Room 3:	use and remodeling episodes
R3.4	Room 3:	abandonment
R3.5	Room 3:	corner posts scavenged
R3.6	Room 3:	deposition of trash fill in some or all features
R3.7	Room 3:	removal of south wall, if present
R3.8	Room 3:	removal of, or excavation through, part of east wall
R3.9	Room 3:	deposition of late postoccupational fill, including human bone associated with Feature 2
R4.1	Room 4:	construction
R4.2	Room 4:	use and abandonment
R4.3	Room 4:	deposition of natural and cultural postoccupational fill
R4.4	Room 4:	deposition of collapsed structural materials
R5.1	Room 5:	leveling or excavation for floor (Surface 2)
R5.2	Room 5:	construction of walls and features
R5.3	Room 5:	use and remodeling of some features
R5.4	Room 5:	abandonment, removal of corner posts
R5.5	Room 5:	deposition of postoccupational fill including some human bone, associated with Feature 2
R5.6	Room 5:	deposition of collapsed burned materials from Feature 37 or construction of slab feature and break in postoccupational deposition
R5.7	Room 5:	deposition of postoccupational sediments
R7.1	Room 7:	construction and use of features under Room 7
R7.2	Room 7:	abandonment of features under Room 7
R7.3	Room 7:	construction fill of some features under Room 7
R7.4	Room 7:	construction of walls
R7.5	Room 7:	construction of floor
R7.6	Room 7:	construction of features
R7.7	Room 7:	use
R7.8	Room 7:	abandonment
R7.9	Room 7:	deposition from wall collapse begins
R7.10	Room 7:	deposition of postoccupational trash
R7.11	Room 7:	deposition of wall collapse, trash fill, including human bone
R8.1	Room 8:	walls constructed
R8.2	Room 8:	floor constructed
R8.3	Room 8:	use and abandonment
R8.4	Room 8:	deposition of postoccupational fill
R9.1	Room 9:	construction and use of features underlying Room 9 walls
R9.2	Room 9:	construction
R9.3	Room 9:	use
R9.4	Room 9:	abandonment
R9.5	Room 9:	deposition of postoccupational fill
R10.1	Room 10:	construction
R10.2	Room 10:	use
R10.3	Room 10:	abandonment

Table 7.47 - Key to events in figure 7.70 - Continued

R111	Room 11:	construction
R112	Room 11:	use
R113	Room 11:	abandonment and deposition of postoccupational fill
R131	Room 13:	excavation of floor and construction of walls
R132	Room 13:	use
R133	Room 13:	abandonment
R134	Room 13:	deposition of collapsed structural materials
R135	Room 13:	excavation of pit and deposition of Burial 30
R136	Room 13:	deposition of postoccupational fill including human bone associated with Feature 2
R141	Room 14:	construction
R142	Room 14:	use
R143	Room 14:	abandonment
R144	Room 14:	deposition of postoccupational fill
N11	Nonstructural Unit 1:	construction, use, abandonment and fill of features
N21	Nonstructural Unit 2:	construction and use of features
N22	Nonstructural Unit 2:	abandonment
N41	Nonstructural Unit 4:	construction of features in southern plaza area
N42	Nonstructural Unit 4:	deposition of fill in some features
N43	Nonstructural Unit 4:	remodeling features in plaza, deposition of fill
N44	Nonstructural Unit 4:	construction of features in roomblock area, especially Feature 96
N45	Nonstructural Unit 4:	deposition of fill in features completed
N51	Nonstructural Unit 5:	construction and use of features under Rooms 1 and 2, and early features north of rooms
N52	Nonstructural Unit 5:	construction fill deposited in features under Roomblock 1 walls
N53	Nonstructural Unit 5:	construction, use, abandonment, and fill of other features
N61	Nonstructural Unit 6:	surface levelled
N62	Nonstructural Unit 6:	construction of features, including Burial 29
N63	Nonstructural Unit 6:	abandonment
N64	Nonstructural Unit 6:	deposition of postoccupational fill
N71	Nonstructural Unit 7:	construction and use of early features
N72	Nonstructural Unit 7:	abandonment
N73	Nonstructural Unit 7:	deposition of trash in some abandoned features
N74	Nonstructural Unit 7:	deposition of construction fill
N75	Nonstructural Unit 7:	uselives of features located away from Rooms 1, 3, and 4
N81	Nonstructural Unit 8:	construction of features
N82	Nonstructural Unit 8:	use of features
N83	Nonstructural Unit 8:	abandonment of features

Table 7.48 - Summary of cultural unit counts by element, Kin Tl'iish

Element	Cultural units												Subphase assignment
	Ind rooms		Front rooms		Back rooms		Possible end rooms		Nonstr units		Pitstrs		
	Inv	Inf	Inv	Inf	Inv	Inf	Inv	Inf	Inv	Inf	Inv	Inf	
1	1	~1							1	~1	1	1	Dos Casas
2			1	2	1	3-5			1	~1	1	1	Dos Casas/ Primaan
3			2	4	5	9-10	1	1-2	2+	~2	1	1	Dos Casas/ Primaan
4	1	~2							0 or 1	unknown	2	2	Cline
5									0 or 1	unknown	0	0	No subphase assignment (Sundial Phase)

Ind - Indeterminate
Inf - Inferred
Nonstr - Nonstructural
Pitstrs - Pitstructures
Inv - Investigated

of the site might have been abandoned only briefly before new construction was begun. This construction is part of a late McPhee Phase occupation dating between about A.D. 900 and 950. Two pitstructures and an undetermined number of surface rooms were constructed. This occupation is referred to as Element 4.

The next occupation of the site follows a long period of abandonment and is not a full-scale reoccupation. Based on the few instances of Dolores Corrugated and Mancos Black-on-white sherds, this occupation dated between A.D. 1000 and 1150. This final use of the site is classified as a Sundial Phase seasonal locus and is referred to as Element 5.

Element 1

The first element at Kin Tl'ish includes at least Pitstructure 1, Room 10, and Nonstructural Unit 8. This occupation dates to the late A.D. 700's or early A.D. 800's. It may represent construction of a single household cluster, and all the units may be contemporaneous, although that is far less certain. As presented, the occupation was centered in Pitstructure 1, which served as the primary focus of economic, domestic, and ritual activity. The economic activities are defined by the following: remains associated with processing or maintenance south of the wingwall; the numerous pits on either side of the hearth that might have been used as storage, processing, or heating pits; and the possible storage cist (Feature 69) on the bench. Domestic activities are represented by the hearth and ash pit and are suggested by the presence of a trough metate leaning against the south wall. The proposed ritual function for Pitstructure 1 is based on the cluster of small holes north of the ash pit.

Surface rooms immediately north and northwest of Pitstructure 1 are presumed to be contemporaneous with the pitstructure. At this early date, pitstructures may be expected to have had surface rooms associated with them, and these (of which only Room 10 was excavated) have the typical spatial relationship (Kane 1984) where the rooms occur to the north or northwest of the pitstructures.

Element 1 material culture is known from artifacts lying directly on the floor of Pitstructure 1. The ceramic assemblage is dominated by Chapin Gray and Early Pueblo Gray sherds. Nonflaked lithic artifacts are common, dominated by two-hand manos and an associated trough metate (other metates were used for interior pitstructure construction). Trash deposits associated with the pitstructure occupation actually may be south or southeast of the arbitrary site boundaries.

Element 2

The second major period of construction at the site may have taken place in Area 2 on the south slope of the terrace, 15 to 20 m west of Pitstructure 1. Element 2 includes an unfinished pitstructure and a small roomblock unit containing 1 or 2 front rooms and 3 to 5 back rooms (table 7.48). Of these, only Pitstructure 3 and Rooms 9 and 14 were investigated. An occupation surface (Nonstructural Unit 2), defined by features north of the roomblock unit, probably is part of this construction element, also. Other archaeological remains present in this southwest quadrant of the site include at least 1 deep pit (Feature 163) underlying the south edge of Room 9. Whether this feature (and others presumably present) belong to an earlier construction element – either Element 1 or an unnumbered element – or represent an earlier episode in Element 2 is not known.

Roomblock Unit 2 and Nonstructural Unit 2 are known only from test trenches. Nonetheless, the narrow wall between Rooms 9 and 14 suggests that they could have been constructed as a single unit. The implied rapid construction would be consistent with the brief occupation, begun with the surface rooms but abandoned before the pitstructure was finished.

At least part of the trash south of this surface room/pitstructure area is probably associated with Element 2, although some may date to earlier and later occupations. The stratification of trash deposits within Pitstructure 3 is consistent with natural deposition (all deposits sloped down toward the center of the pitstructure), but the amount of trash in the depression is consistent with intentional disposal. It is inferred that both processes were taking place. Certainly, however, trash in the pitstructure fill and sheet trash to the south were deposited not long after the abandonment of the roomblock unit. The ceramics are virtually all consistent with a date preceding A.D. 860, or at least prior to A.D. 875, when Mancos Gray vessels became common. If indeed Element 2 postdates the occupation of Pitstructure 1, the material culture from Element 2 may be best defined by the artifacts collected from probability square 130S/94E; this square sampled the trash fill in Pitstructure 1, to which inhabitants of this roomblock unit might have been in a good position to add.

Element 3

This construction period includes most, if not all, of the masonry rooms in Roomblock Unit 1; a small, subrectangular pitstructure (Pitstructure 2); most of the features in the plaza area (Nonstructural Unit 4) west of the pitstructure; and, perhaps, some of the features associated with occupation surfaces north of the roomblock unit, although feature assignments there and temporal assignments to features underlying the roomblock unit are problematic.

Investigated structures within the roomblock unit that probably are part of Element 3 are Surface 1 in Room sherds on the bench, 27 (PL's 334 and 356) are part of a Chapin Gray jar (vessel 2, fig. 7.63) found along the east wall. The other 14 sherds were scattered along the bench, north and south of the Chapin Gray jar.

Among the 50 pieces of flaked lithic debitage from the Surface 1, 40 are of very fine grained material, 5 of microscopic-grained material, and 3 of fine-grained material; 2 pieces are angular debris. Twenty-five of these items are whole flakes. As with the ceramics, most of these pieces are north of the wingwalls. The flaked lithic tools from Surface 1 are 5 cobble tools; 3 utilized flakes; 2 used cores; 1 partially worked, thick biface; and 1 unused core. Of these tools, 1 used core (PL 271), 1 unused core (PL 197), 1 cobble tool (PL 261), and 1 utilized flake (PL 263) are located behind the wingwalls. The remaining 8 tools are distributed north of the wingwalls within a 1-m circumference of the hearth and near the east wall.

Flaked lithic debitage and flaked lithic tools from the bench occur in 2 clusters along the north and east walls. The flaked lithic debitage assemblage consists of 10 fine-grained items, 8 very fine grained items, and 3 microscopic-grained items. Three utilized flakes, 1 thick uniface, and 1 corner-notched projectile point are in the northern cluster. Two utilized flakes occur in the eastern cluster, and one flaked axe (PL 311) is located in the northeast corner.

Nearly all (6 out of 8) of the nonflaked lithic tools from Surface 1 are found in the southern portion of the pitstructure. These items are 2 generalized nonflaked lithic tool fragments, 1 flat-surface abrading stone, 1 hammerstone, 1 two-hand mano, and 1 minimally altered item. Also behind the east wingwall, resting against the wall on 0.5 cm of fill, was a trough metate (PL 272). The grinding surface has been only slightly used, and it exhibits pecking around the edges. A hammerstone northwest of Feature 65 and a generalized tool fragment near Feature 105 are the only nonflaked lithic tools on the floor north of the partition. Four unmodified rocks (PL's 264, 265, 251, and 269) are behind the wingwall as well. The predominance of tools, especially nonflaked lithic tools, in the southern portion of Pitstructure 1 is believed to represent a processing or tool storage area (fig. 7.64). A jet ornament

Figure 7.63 - Chapin Gray jar (vessel 2) from bench, Pitstructure 1, Area 2, Kin Tliish (DAP 154424)

Figure 7.64 - Lithic storage area, Pitstructure 1, Area 2, Kin Tliish (DAP 125904)

(PL 363), which was broken during manufacture, is the only nonflaked lithic item from the bench.

The faunal assemblage from the floor consists of 20 bones; these include 3 small mammal long bones, 1 small mammal rib, 1 small mammal skull fragment, 1 squirrel (Sciuridae) right femur, 6 bones from a common raven (*Corvus corax*) skull, 2 common raven leg bones, 1 large mammal thoracic vertebra, 2 bird bone fragments, 1 mammal or bird long bone, and 2 unidentifiable nonhuman bones. Most of these bones are in the east half of the structure, close to the wingwall. The only item exhibiting modification is the raven skull – the beak had been sawed off. Among the 5 bones from the bench, 3 (1 phalanx, 1 wing, and 1 carpometacarpus) are from deep-wading birds (Ciconiiformes), 1 is a mammal or bird long bone shaft, and 1 is a small mammal vertebra.

It is likely that all the bones on the floor are food-related refuse. The presence of the common raven skull with the beak missing suggests that the beak was removed for an ornament, fetish, or tool. The 3 bird bones from the bench suggest the use of water fowl for food; the feathers probably were used for ornamentation or fletching. The high percentage of small mammal bones in features associated with food processing activities (Features 6 and 65) are indicative of their importance in the diet of Pitstructure 1 inhabitants.

A corn (*Zea mays*) kernel (PL 82) and a piece of adobe (PL 70) complete the Surface 1 artifact assemblage.

Although Pitstructure 1 was leisurely abandoned, the spatial patterning of the remaining artifacts reflects certain loci of prehistoric activity. The area south of the wingwalls was used for storage of nonflaked lithic items and flaked lithic tools (as evidenced by the presence of several unmodified rocks, 1 used core, 1 unused core, 2 generalized nonflaked lithic tools, 1 flat-surface abrading stone, 1 cobble tool, 1 two-hand mano, 1 utilized flake, 1 hammerstone, 1 metate, and 1 minimally altered item). Some of these tools were undoubtedly employed in food processing or tool manufacturing activities; however, the by-products of such activities (e.g., vegetal debris and flaked lithic debitage) are almost nonexistent south of the wingwall. Therefore, tool storage appears the primary activity during the final use of this area.

The most dense concentration of floor artifacts occurs north of the wingwalls. West of the hearth, most of the artifacts (ceramics, flaked lithic debitage, and flaked lithic tools) are clustered within 1 m of the wingwall. East of the hearth, between the wingwall and the south edge of the northeast posthole, artifacts are more evenly distributed. Within this area are most of the nonhuman bones from the surface; most are unmodified small mammal bones. Nonflaked lithic tools are absent. Flaked lithic tools are represented by a single cobble tool (PL 158); all ceramics except PL's 41, 54, 59, 65 are Early Pueblo Gray jar sherds, and most of the artifact assemblage is composed of flaked lithic debitage. It is likely that the area in the vicinity of the hearth (which includes Features 50, 51, 52, 53, and 65) was used for several purposes, including food preparation, food consumption, storage, and possibly tool manufacture.

The northern third of Pitstructure 1 contains noticeably fewer floor artifacts than the southern portion. A group of items, composed largely of flaked lithic debitage and flaked lithic tools, rests on the bench surface along the north wall. All of the tools (1 corner-notched projectile point, 3 utilized flakes, and 1 thick uniface) and most of the debitage flakes are unbroken.

On the bench due east of the hearth is an artifact cluster consisting of 28 sherds from 1 Chapin Gray jar (vessel 2), 4 nonhuman bones (3 of which are from deep-wading birds), 2 utilized flakes, 4 pieces of flaked lithic debitage, and 1 Early Pueblo Gray sherds. The bench surface was apparently used for storage of at least 1 ceramic vessel (the Chapin Gray jar) and flaked lithic tools (flaked axe [PL 311] and projectile point [PL 344]). Processing of vegetal or animal products may have been carried out here as well, as is suggested by the presence of utilized flakes and faunal remains.

Patterns Observed

Six activity loci are recognized in Pitstructure 1. Five of these are believed to have been associated with the occupation of the structure.

The most obvious center of activity is the hearth. Cooking, heating, lighting, and probably food preparation was focused in this area. The ash pit (Feature 64) south of the hearth and probably the large pit (Feature 65) north of the hearth were related to the use of the hearth. The sand and ash strata in the hearth, interpreted to be occupational deposits, contained charred corn (*Zea mays*), cheno-am fruit, small mammal and bird bones, and artifacts. The silt loam deposit overlying the sand and ash is interpreted as a postoccupational deposit similar to that overlying the floor in the rest of the structure. Edible plant and animal remains from this stratum were very similar to those from the occupational stratum below, except that most of the bone is uncharred. Perhaps this postoccupational stratum contained significant amounts of trash derived from secondary refuse, including hearth fills.

Feature 64 may have been used as a repository for ash and debris from the hearth. Feature 65 was intentionally filled, perhaps with a combination of primary and secondary refuse, including by-products of food processing and food consumption. Small pieces of flaked lithic delitage recovered from Features 6 and 65 may have accumulated during periodic structure maintenance, at which time small items might have been swept into large features. Alternatively, this lithic debris might have been associated with plant processing activities.

The second activity represented is storage of several nonflaked and flaked lithic tools and unmodified cobbles south of the wingwall (fig. 7.64). The following objects were found in that area: 1 trough metate (Pl. 272), 1 two-hand mano (Pl. 198), 1 hammerstone (Pl. 267), 1 flat-surface abrading stone (Pl. 268), 2 generalized nonflaked lithic tool fragments (Pl.'s 196 and 270), 1 minimally altered item (Pl. 262), 1 cobble tool (Pl. 261), 1 used core (Pl. 271), 1 unused core (Pl. 197), 1 utilized flake (Pl. 263), and 4 unmodified co...es (Pl.'s 251, 264, 265, 269). The metate was leaning against the east wall, and the two-hand mano was located west of the deflector. Grinding and food processing activities probably took place in this area as well.

The bench appears to have functioned as a convenient storage area for a variety of items. One Chapin Gray jar (Pl.'s 334 and 356), a portion of 1 Chapin Gray seed jar (Pl.'s 317, 318, 319, and 322), 1 flaked axe (Pl. 311), 2 bone tools (Pl.'s 325 and 302), 5 utilized flakes (Pl.'s 337, 338, 341, 342, and 352), 1 projectile point (Pl. 344), and 23 pieces of flaked lithic debitage were found on the bench surface. The bench may also have served as a work table on which processing or lithic tool manufacture was undertaken.

An unknown activity, which may have been ritual in nature, is represented by the concentration of small (average diameter is 2.3 cm), sandfilled holes (Features 129) and several sand-filled pits (Features 130, 131, 132, 133, and 135) north of Feature 65. A lengthy discussion of such features and their occurrence within the Dolores Project area is presented by Brisbin (1984a:70-75). Characteristically, they are found in early Pueblo I pitstructures, surrounding the hearth, sipapu, or rectangular central pit north of the hearth. Prayer sticks (pahos) or plume holders may have been set into these holes during ritual observances. Such a use of prayer sticks has been documented in ethnographic accounts of Hopi ceremonies (Parsons 1974; Smith 1952:189). The bottoms of the holes are tapered, as if a sharp object had been inserted into their bases. The only other item of possible ritual significance noted in Pitstructure 1 is the raven skull (Pl. 225) from which the beak had been removed. The skull is 30 cm east of the hearth.

Storage may be inferred by the presence of Features 50, 51, 52, 53, 69, 103, 105, and 115. Some or all of these pits were possibly used for storage; however, at the time Pitstructure 1 was abandoned, none of these features were functioning as storage facilities.

Sometime after the occupation of Pitstructure 1 ceased, the upright posts and probably the roofing members were salvaged. Base slabs from several of the postholes might have been removed at this time. The high density of artifacts above the floor suggests that discard activities took place while the pitstructure filled.

Dating

Pitstructure 1 is dated by its ceramic assemblage, architectural style, and an archaeomagnetic sample. The structure has been assigned to the Dos Casas Subphase (A.D. 750-850) of the Sagehen Phase (A.D. 600-850).

Pitstructure 1 ceramic types and their range of occurrence within the Dolores Project area (Blinman et al. 1984) include the following: Chapin Gray (A.D. 600-925), Moccasin Gray (A.D. 760-925), Abajo Red-on-orange (A.D. 720-925), and Bluff Black-on-red (A.D. 740-925). The period of overlap among all of these types is A.D. 760-925. The absence of Mancos Gray suggests an occupation prior to A.D. 880, and the scarcity of Moccasin Gray relative to Chapin Gray indicates a date prior to A.D. 825.

Typically, Dos Casas Subphase pitstructures possess the following characteristics: a four-post roof support system, a ventilation system, upright-slab wingwalls coated with adobe, a bench, a complex sipapu, a deflector incorporated in the wingwall, and a subrectangular main chamber (Kane 1983b:161-166). Pitstructure 1 possessed all but the complex sipapu and the deflector incorporated in the wingwall.

An archaeomagnetic sample (sample 1) was obtained from the hearth (Feature 6). The analysis of this sample provided 2 date ranges (A.D. 680-780 and A.D. 860-940). The absence of Mancos Gray and the low ratio of Moccasin Gray to Chapin Gray render the later date range implausible. The earlier range, A.D. 680-780, overlaps with the ceramic date estimates and architectural style of Pitstructure 1. It is likely that the structure was used sometime between A.D. 760 and 825.

Interpretations

Pitstructure 1, a Dos Casas Subphase domicile built in sterile sediments near the southeast edge of Kin Tl'iish, is believed to have been occupied sometime between A.D. 760 and 825. The pitstructure appears to have been used for domestic, economic, and ritual purposes. A leisurely abandonment of this structure is postulated, during which roofing members were salvaged and refuse was discarded.

Pitstructure 1 is believed to be associated with Room 10 and adjacent Nonstructural Unit 8. There may be similar

to a portion of the roomblock unit at Dos Casas Hamlet (the type site for the Dos Casas Subphase), which is described as "5 jacal surface rooms, separated by 3 occupation\activity areas which may have been covered by ramadalike timber and brush structures" (Brisbin et al. 1982).

Due to limited excavation in the roomblock north of Pitstructure 1, determining what type of social group used this pitstructure is difficult. The total roofed area of Pitstructure 1 is 31.9 m². Using Casselberry's (1974:117-122) formula of 1 occupant per every 6 m² of roofed dwelling space, which was derived from several societies using multiple-family dwellings, the group size for the pitstructure and associated room to the north (Room 10) is estimated at 6 to 7 individuals. Nonstructural Unit 8, to the west of Room 10, is not included in this estimate because whether any portion of this area was roofed is not known. Two occupations, each represented by a single pitstructure and 3 to 5 associated rooms, are documented at Dos Casas Hamlet (Brisbin et al. 1982:121-122). Estimated group size using Casselberry's formula for each occupation is 7 to 9 individuals (Brisbin et al. 1982:131). Kane (1983b:44) suggests that Dos Casas Subphase habitation sites typically "consist of 1 or 2 pitstructures that were shared by several family groups and that apparently were used for integrative as well as domestic functions." The estimate of 6 to 7 occupants for Pitstructure 1 and Room 10 is conservative, considering that only a portion of Roomblock Unit 3 was excavated. It is probable that more than a single nuclear family, or perhaps an extended family, lived at Kin Tl'iish during the Dos Casas Subphase.

The only nonlocal items from Pitstructure 1 and Roomblock Unit 3 are red ware sherds (appendix 7A). All lithic items are made from locally available raw materials, and the floral and faunal remains recovered from these units are presently available in the project area.

Roomblock Unit 2

Preliminary mapping of the southwestern roomblock unit (Roomblock Unit 2) prior to stripping the vegetation revealed a rubble scatter 20 m long and 8 m wide trending northeast to southwest (figs. 7.65 and 7.66). After vegetation cover and loose rubble we.e removed, the roomblock unit boundary had apparently been altered by historic farming practices. The actual dimensions of the roomblock unit are estimated to be 5 by 9 m. This would include at least 2 front rooms and probably more back rooms.

Four backhoe trenches (excavation units 3, 4, 16, and 17) were dug in hopes of better defining the locations of surface rooms (fig. 7.3). Within excavation unit 17, 2 masonry rooms (Rooms 9 and 14) belonging to the same roomsuite were encountered. Documentation of these

Figure 7.65 - Roomblock Unit 2, Area 2, Kin Tl'iish (DAP 130135). The roomblock is located just above center in the photograph.

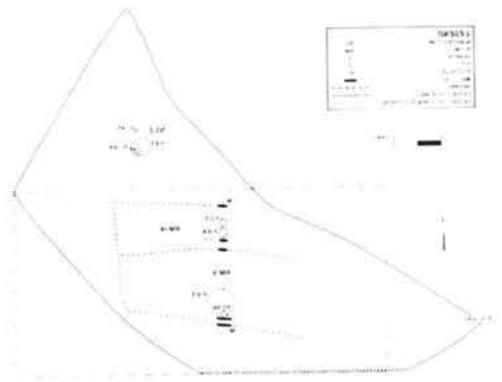

Figure 7.66 - Map of Roomblock Unit 2 and Nonstructural Unit 2, Area 2, Kin Tl'iish

structures is limited to a stratigraphic profile (fig. 7.67). An extramural work area (Nonstructural Unit 2) is located north and east of Roomblock Unit 2 (fig. 7.66).

Artifact recovery in the Roomblock Unit 2 vicinity was limited to surface collection and partial excavation of 1 hearth and 3 postholes (Features 43 and 44, 45, and 46, respectively). Unfortunately, no artifacts were recovered from the fill above the floors in Rooms 9 and 14. Hence, dating of this roomblock is based on architectural chronology and its presumed association with Pitstructure 1 to the south. Ceramics from the modern ground surface are consistent with this early Pueblo I date.

Roomblock Unit 2 may date to early in the Penman Subphase. The substantial amount of sandstone and cobbles scattered throughout the roomblock unit area suggests that these rooms were more similar to Area 1 surface rooms than to the Dos Casas Subphase structures north of Pitstructure 1. A single, unfinished pitstructure (Pitstructure 3), which dates to the late Dos Casas or early Penman Subphase, was identified south of Roomblock Unit 2. After extensive testing failed to reveal a second pitstructure south of the roomblock, it was concluded that at least 2 surface rooms (Rooms 9 and 14) had been constructed and inhabited prior to the completion of a pitstructure. The possible lack of an occupied pitstructure associated with Roomblock Unit 2 suggests that these rooms were used seasonally or for a short period of time, or that it might have been customary to construct rooms prior to finishing the accompanying pitstructure. This would not contradict Wilshusen's (1984) hypothesis that dirt from pitstructure excavation is used for the accompanying roomblock construction. Rooms 9 and 14 could have been built as soil was removed during Pitstructure 3 excavation.

Room 9

Dimensions:

North-south axis at floor:	3.25 m
North-south axis including walls:	3.75 m
North wall height (remaining):	0.08 m

Room 9 is a front room that shares its north wall with Room 14. One surface and two overlapping features (Features 46 and 163) were identified in the west profile. The bases of the walls are low stubs of native earth. Judging by the amount of river cobbles and sandstone slabs encountered in the backhoe trench at least one and probably more courses of cobble and sandstone-slab masonry overlay the north wall stub. Adobe packed around the south edge of the southern posthole (Feature 46) may be all that remains of a jacal or mud front wall.

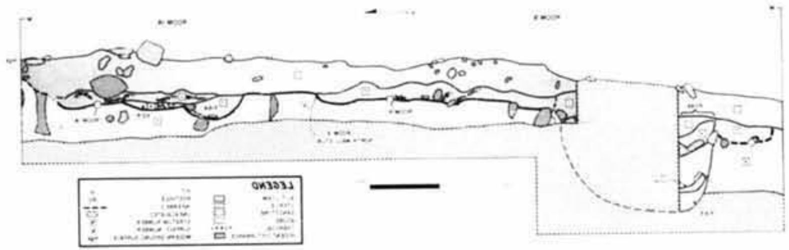

Figure 7.67 - Stratigraphic profile, Rooms 9 and 14, Area 2, Kin Tl'iish. There is no Stratum 7 in this profile. Refer to Figure 7.66 for profile location.

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Stratigraphy. - The Room 9 floor is the contact with sterile sediments, 30 to 50 cm below the modern ground surface (fig. 7.67). A 7- to 15-cm-thick deposit of silt loam containing charcoal and artifacts lay above the floor. Postabandonment deposits, 17 to 27 cm thick, with yellow mottling, cultural material, and rocks, overlay the room fill.

Surface 1. - The unprepared surface was cut into sterile soil and leveled slightly, forming a short (8-cm-high) wall stub along the north wall. The floor slopes gently to the south, following the natural contour of the modern surface.

Posthole (Feature 46). Feature 46 is a deep (63 cm) cylindrical (40 cm diameter) pit located in the south end of Room 9. The posthole was dug into the trash fill of a large pit (Feature 163), and rock shims were used to shore up the post. The presence of one feature inside another indicates the possibility that the room was remodeled. The charred *Pinus ponderosa* post in the feature was not datable. Most of the artifacts collected from the posthole are probably associated with the underlying pit (Feature 163).

Burned pit (Feature 163). The function of Feature 163 was not identified. This large (75 cm deep and 115 cm in diameter) feature burned and was filled to floor level with stratified trash (fig. 7.67). The posthole (Feature 46) was then excavated along the southern edge of the pit. Feature 163 might have been used as a storage facility prior to the construction of Room 9. Storage cists are frequently burned to help seal the walls (Dyk and Dyk 1980). Alternatively, construction of Feature 46 in the fill of Feature 163 may represent remodeling of the south wall of Room 9; hence, Feature 163 might have been located, at one time, within the confines of Room 9.

Interpretations. - Room 9 is a front room with an unprepared floor. It possesses a masonry north wall, which is shared with Room 14, and perhaps a jacal south wall. A deep, burned pit (Feature 163) may predate the construction of Room 9 or originally might have been associated with Room 9 and later truncated by remodeling of the south wall. Rooms 9 and 14 are assumed to be contemporaneous, based on their shared wall and the similarity of the room fills.

Room 14

Dimensions:

North-south axis along floor:	1.70 m
North-south axis (including south wall):	2.10 m
North wall height (remaining):	0.13 m

Room 14 is a masonry back room that shares its south wall with Room 9.

Stratigraphy. - Rooms 14 and 9 exhibit similar stratigraphy. Room 14 has a use-compacted surface on sterile soil overlain by a 13-cm-thick silt loam deposit which contained artifacts, charcoal, and adobe. Postabandonment deposits overlie the room fill.

The lower walls are believed to have been composed of low (8 to 13 cm) stubs of native earth overlain by at least one and perhaps several courses of masonry.

Surface 1. - The undulating, use-compacted floor had been excavated at least 15 cm into sterile soil. Two features (Features 164 and 215) were identified on Surface 1.

Unburned pits (Features 164 and 215). Feature 164 is a basin-shaped feature, at least 15 cm deep and estimated at 36 cm in diameter, located along the south wall. It contains ashy fill laden with artifacts, charcoal, and bone. Feature 215 also contains ashy fill; it is situated just north of Feature 164 and measures 7 cm deep and at least 43 cm in diameter. It is also basin shaped. Both features were viewed only in profile.

Interpretations. - Room 14 is a small, back room adjacent to Room 9. Unfortunately, no artifacts were collected from this room that would help define its relationship to Room 9. However, it is likely that Rooms 9 and 14 were occupied contemporaneously, since they share a wall and are stratigraphically very similar.

Nonstructural Unit 2

Subsurface investigations north of Roomblock Unit 2 (excavation units 3, 4, and the north end of 17) encountered 3 features (Features 43, 44, and 45). All 3 features (table 7.44) are located at the south end of excavation unit 3, 2 to 3 m north of the east edge of Roomblock Unit 2. Although no features were located west of Features 43, 44, and 45 in excavation units 4 and 17 (north of Room 14), features do likely exist in this area. Nonstructural Unit 2 includes the area immediately north of Roomblock Unit 2. It is similar to the area north of Roomblock Unit 1, where several features, including a hearth, are located. The density of surface-collected materials from this area is relatively low. Most of the artifacts are pieces of flaked lithic debitage (figs. 7.5, 7.6, 7.7, 7.8, and 7.9).

Surface 1

The surface of Nonstructural Unit 2 is defined by the presence of the 3 features. No attempt was made to follow

Table 7.44 - Feature summary, Surface 1, Nonstructural Unit 2, Area 2, Kin Tl'ish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
43	Hearth	Round	Basin	86	80	25
44	Posthole	Round	Cylindrical	28	28	*25
45	Posthole	n.o.	Cylindrical	23	23	*11

*Existing dimension; complete dimensions not available.
Refer to figure 7.66 for feature location.
n.o. - Observation could not be made.

the surface; hence, boundaries were not observed. The surface appears only as the contact between cultural and natural deposits.

Posthole (Feature 44). - Feature 44 is a posthole containing a base slab, later remodeled into a hearth (Feature 43). Small fragments of charred *Pinus ponderosa* recovered from the east edge of the posthole may be derived from the post. This posthole is an average size (28 cm in diameter and 25 cm deep) for above-ground structures at this site.

Hearth (Feature 43). - The hearth construction incorporates all but the lower 17 cm of the posthole (Feature 44). The central portion of the hearth was removed during backhoe excavation of the trench. Only a small portion of the hearth, along the south and west perimeters, remains. The hearth is well burned along the edges and appears to have a discontinuous layer of adobe plaster at its base.

Posthole (Feature 45). - The other posthole associated with Nonstructural Unit 2 is situated along the east edge of excavation unit 3, 7 cm east of the hearth. It contains a shaped base stone, above which lies postabandonment fill, a brown loam with numerous inclusions of charcoal flecks, adobe, and rootlets. In all likelihood, the post was intentionally removed.

Interpretations

The density of surface-collected materials (fig. 7.5) from Nonstructural Unit 2 is relatively low. Most of the artifacts recovered from the unit are pieces of flaked lithic debitage. The area north of Roomblock Unit 2 was probably used for several purposes. The presence of a hearth indicates that processing or cooking was carried out. This hearth obviously postdates Feature 44, but might have been used contemporaneously with Feature 45. Alternatively, the 2 postholes might have been used together.

These postholes could have been part of a specialized feature, such as a drying rack for hide processing or for corn. They may be remnants of a temporary or partially roofed structure or a ramada built off the northeast corner of Roomblock Unit 2.

No strong argument can be made for contemporaneity of Nonstructural Unit 2 and Roomblock Unit 2. However, features commonly occur north of roomblock units (e.g. Features 1 and 42 north of Roomblock Unit 1). The proximity of Nonstructural Unit 2 features to the Area 2 rubble mound suggests that they are associated.

Pitstructure 3

Dimensions:

North wall	
length (measured):	1.08 m
length (inferred):	3.45 m
height (observed):	1.27 m
height (inferred):	1.40 m
South wall	
length (measured):	2.20 m
length (inferred):	3.45 m
height (observed):	0.65 m
height (inferred):	1.11 m
East wall	
length (measured):	3.70 m
length (inferred):	3.70 m
height (observed):	1.18 m
height (inferred):	1.30 m
West wall	
length (inferred):	3.70 m
North-south diameter:	3.82 m
East-west diameter:	3.68 m
Total floor area (inferred):	14.10 m

Pitstructure 3 is a small, unfinished structure 7 m west of Pitstructure 1 (fig. 7.68). It was first detected in the profile of excavation unit 12 along the west edge of probability square 136S/84E. The presence of a pitstructure in this area was suspected from a magnetometer anomaly (13a), which was provenienced 1 m north of the north wall of Pitstructure 3 (refer to fig. 7.9, table 7.2); also masonry surface rooms are situated 7 m to the northwest.

After the initial recognition of the pitstructure walls, an east-west trench was cut along the north edge of the probability square to determine the east-west pitstructure dimension. It is estimated that about half of the pitstructure floor was exposed. Pitstructure fill outside the probability square was removed with a backhoe and shovels to 10 cm above the floor. Deposits within 5 cm of the floor and within the probability square were screened.

Excavation in Pitstructure 3 exposed the entire east wall, the eastern portion of the north and south walls, and a west wall profile in excavation unit 12. The north wall exhibits the best preservation and stands 1.27 m high. The walls are basically vertical and meet the leveled area of the floor at right angles. The wall-floor juncture in the

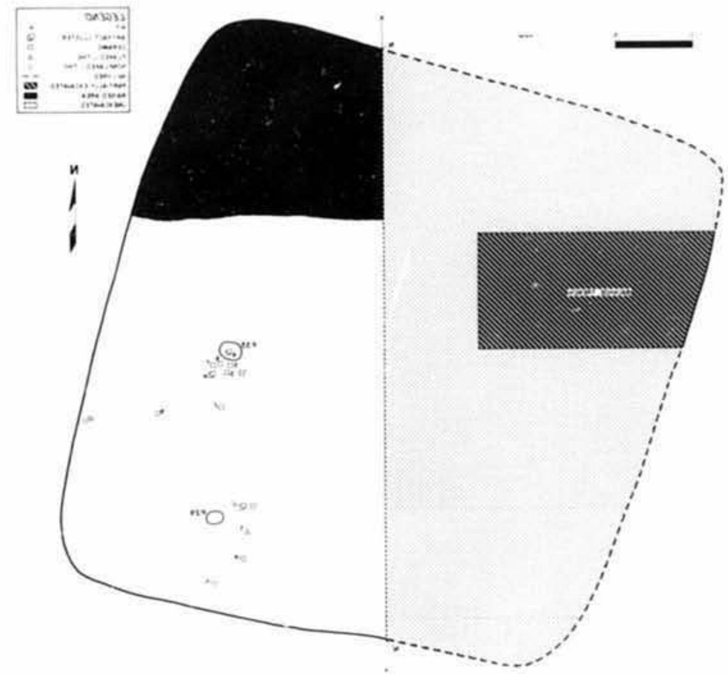

Figure 7.68 - Feature locations and point-located artifacts, Surface 1, Pitstructure 3, Area 2, Kin Tlish

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unfinished portion of the pitstructure is rounded. None of the walls are plastered.

Stratigraphy

When the construction of Pitstructure 3 ceased, filling began. Four main stratigraphic units were recognized (fig. 7.69). Stratum 4, a 107-cm mixed deposit of cultural and natural material lay directly on the irregular pitstructure floor. Stratum 4 was composed primarily of a reddish-brown silt loam which contained artifacts, charcoal, adobe, and large, unmodified sandstone rocks. Stratum 4 contained several substrata characterized by charcoal lenses, charcoal-rich deposits with small indistinct lenses of charcoal-free sediments, and areas of relatively little charcoal and adobe.

Stratum 3, a natural deposit, overlay Stratum 4 and filled the remaining pitstructure depression. It was a 45-cm-thick deposit of reddish-brown silt loam. The deposit contained a few artifacts and pieces of charcoal (1 to 3 mm) and was mottled with indistinct yellowish-red patches.

Strata 2 and 1 comprised the topsoil unit. Stratum 2 was distinguished from Stratum 1 by the presence of cultural materials and a slightly firmer consistency. Stratum 1 lacked cultural materials and was more friable due to the presence of many roots.

Surface 1

The Pitstructure 3 floor is an irregular surface identified as the contact between cultural fill and native earth. In the southern two-thirds of the structure, the floor is level. In the northern third of the pitstructure, undulating sterile sediments are as much as 25 cm above the leveled, southern surface. In this portion of the pitstructure, there is no indication of a finished surface.

Unburned pits (Features 29 and 33) - Neither of the 2 features identified in Pitstructure 3 appear to have been intensively used or intentionally filled. Both pits lacked artifacts. Feature 29 is a shallow basin (8 cm long, 11 cm wide, and 2 cm deep) with poorly defined boundaries. It is filled with very loose silt loam containing bits of charcoal. Feature 33 is a relatively cylindrical pit (14.0 cm long, 12.0 cm wide, and 16.5 cm deep) along the north edge of the probability square. As with Feature 29, it is filled with a reddish-brown silt loam containing tiny flecks of charcoal.

Material Culture - Floor Artifacts

The 15 point-located artifacts or artifact clusters in Pitstructure 3 (table 7.45) are located within the probability square. Eight of these (PL's 1 through 8) are derived from a portion of a Chapin Gray jar lying 1 cm above the floor. The remaining seven PL's (PL's 9 through 15) are in contact with the floor. No pattern of association between these artifacts was noted. The abrading stones and rocks (PL's 9, 10, 14, and 15) might have been used in pitstructure construction, perhaps for smoothing the walls and the floor or sharpening digging sticks. Alternatively, these rocks may have been tossed into the structure after construction efforts were abandoned; several large sandstone rocks were noted in the structure fill.

The floor fill (the arbitrary stratum from 5 cm above the floor down to the surface) artifact assemblage consisted of 94 sherds, 8 nonflaked lithic tools, 17 flaked lithic tools, 70 pieces of flaked lithic debitage, and 62 nonhuman bones (these totals include the point-located artifacts listed in table 7.45). Gray ware sherds comprise most of the ceramic assemblage, and well over half of the gray wares have been identified as Chapin Gray, of which 25 percent is derived from one vessel (PL's 1 through 8). One Moccasin Gray sherd and one Mancos Gray sherd were recovered. The nonhuman bone count is inflated due to the presence of an immature rabbit that probably died in the pitstructure depression. The presence of several large mammal long bone shafts argues that faunal remains were culturally deposited here also. Based on the large number and weight of the items from floor fill, material remains are interpreted to be primarily culturally deposited refuse.

Material Culture - Pitstructure Fill Artifacts

Nearly all the artifacts from pitstructure fill are derived from the probability square, where deposits were excavated in 20-cm levels. The artifact count ranges from 26 items in Level 3 to 199 items in Level 2. The mean weight of ceramics and flaked lithic artifacts ranges from 3.72 to 8.94 g, respectively. Arbitrary levels with high artifact densities also have high mean artifact weights, suggesting that high artifact density is directly related to a larger proportion of culturally versus naturally deposited items. It is inferred that larger or heavier items are far less apt to be transported by natural means than are lighter and/or smaller objects. Thus, culturally deposited strata should exhibit greater artifact density and greater artifact weight per cubic meter than naturally deposited strata.

Like the floor fill ceramic assemblage, most of the sherds are gray wares, and the dominant ceramic type is Chapin Gray. Moccasin Gray is the next most common type. One Corrugated Body Sherd was recovered from Level 2 (20 to 40 cm below modern ground surface) and is assumed to be associated with the Pueblo II occupation of Kin Tlish.

Dating

Based on architectural and ceramic dating, Pitstructure 3 appears to have been built during the late Dos Casas

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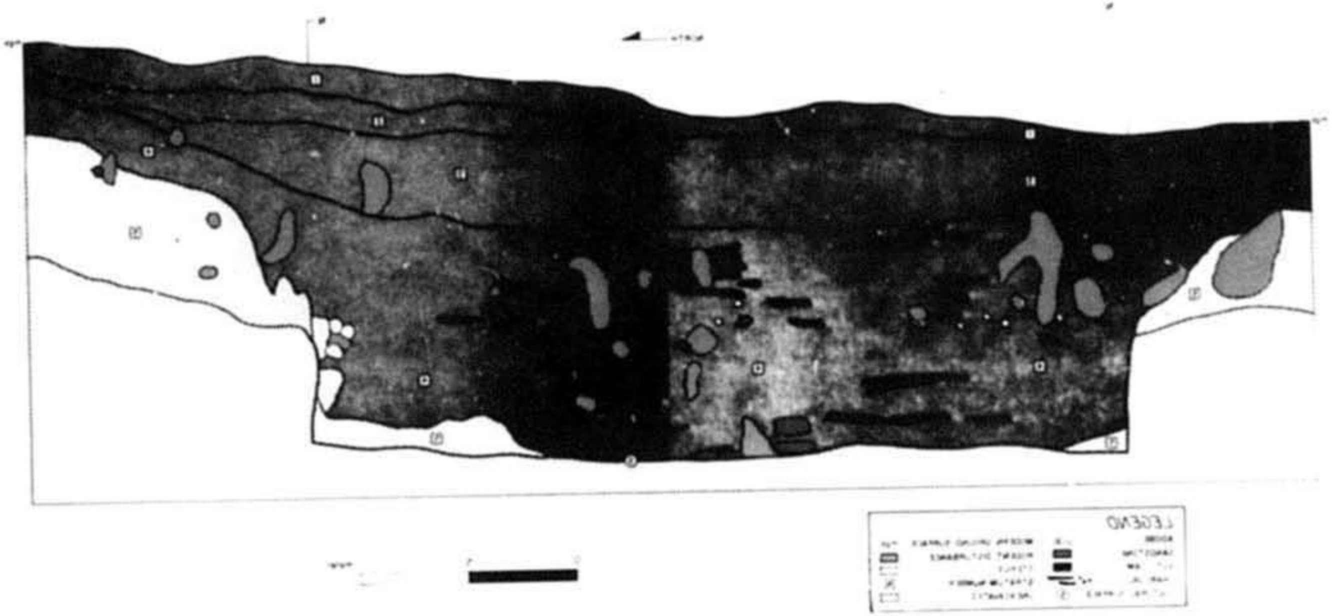

Figure 7.69 - Stratigraphic profile, Pitstructure 1, Area 2, Kin Tl'iish. Refer to figure 7.68 for profile location

Table 7.45 - Point-located artifacts, Surface 1, Pitstructure 3, Area 2, Kin Tl'ish

PL No.	Material class	Item description
1	Ceramic	DL Early Pueblo Gray jar sherd
2	Ceramic	DL Chapin Gray jar sherd
3	Ceramic	DL Chapin Gray jar sherd
4	Ceramic	DL Chapin Gray jar sherds (2)
5	Ceramic	DL Chapin Gray jar sherd
6	Ceramic	DL Chapin Gray jar sherd
7	Ceramic	DL Early Pueblo Gray jar sherd
8	Ceramic	DL Early Pueblo Gray jar sherds (2)
9	Nonflaked lithic	Abrading stone
10	Nonflaked lithic	Not culturally modified
11	Ceramic	DL Early Pueblo Gray jar sherd
12	Ceramic	DL Polished White Bowl sherds (21)
13	Flaked lithic	Debitage
14	Nonflaked lithic	Abrading stone
15	Nonflaked lithic	Minimally altered item

Refer to figure 7.68 for artifact locations.
(N) - Number of items.
DL - Dolores Manufacturing Tract.

(A.D. 800-850) or early Periman (A.D. 850-860) Subphase. The small floor area (14.05 m²) and the absence of a bench are not Dos Casas Subphase characteristics. Average Dos Casas Subphase pitstructures are 23 m² in area and posess a bench (Kane 1983b:162). The vertical walls of Pitstructure 3 and the well-rounded southeast and northeast corners suggest that the walls of the structure were near completion when construction was abandoned. Had a bench been intended it probably would have been cut prior to leveling the floor or smoothing the wall faces. Such was the case in an unfinished pitstructure at Pueblo de las Golondrinas (Site 5MT5107); the bench was cut, but not faced, before the floor was leveled (Brisbin 1984b:98).

A total of 364 sherds was recovered from the fill and floor of Pitstructure 3. Typeable gray ware sherds from both surface and fill contexts (appendix 7A) are dominated by Chapin Gray. This inflated representation of Chapin Gray is due to the 8 point-located sherds (PL's 1 through 8) that belong to a Chapin Gray jar. Neckbanded sherds (Mancos Gray and Moccasin Gray) are present in small quantities. Mancos Gray occurs in floor fill only.

Pitstructure 3 is believed to have been constructed sometime between A.D. 800 and 860. The single occurrence of Chapin Black-on-white in Level 5 of the probability square suggests an early date, prior to A.D. 825. The presence of one Mancos Gray sherd among the 7 neckbanded sherds suggests a date close to A.D. 850, when Mancos Gray first appears in the project area.

Interpretations - Pitstructure 3 is an unfinished structure believed to have been built between A.D. 800 and 860. The southern two-thirds of the structure appear to have been nearly completed. The floor in this area is level, the walls are smooth, and the only 2 Pitstructure 3 features were found there. The floor in the northern third of the structure was never finished. Neither features nor floor artifacts were encountered in this portion of the pitstructure.

It is assumed that Pitstructure 3 was never occupied or completed. The absence of postholes indicates that the structure was never roofed, and no evidence suggests that domestic activities ever took place here.

The Roomblock Unit 2 rubble mound is 7 m northwest of Pitstructure 3 and measures approximately 9 m long. It probably contains at least 2 roomsuites. Only Rooms 9 and 14, within the east end of the roomblock unit, were investigated. Extensive trenching south of Roomblock Unit 2 encountered only Pitstructure 3. Rooms 9 and 14, and probably additional unexcavated rooms to the east, may have been inhabited without the typical pitstructure accompaniment. During the first half of the ninth century A.D., this portion of Kin Tl'ish may have functioned as a field station or seasonal habitation. Alternatively, these rooms may have been built by the inhabitants of Pitstructure 1. The dating assignment of Pitstructure 1 (A.D. 760-825) overlaps with the date estimate for Pitstructure 3 (A.D. 800-860). While still residing in Pitstructure 1, the occupants may have

Table 7.41 - Feature summary, Surface 1, Pitstructure 1, Area 2, Kin Tl'ish - Continued

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
115	Unburned pit	Oval	. . .	65	64	. . .
127	Unburned pit	Oval	Cylindrical	15	11	19
128	Unburned pit	Round	Cylindrical	6	6	7
129	Cluster of small holes	Round	Cylindrical	2	2	5
130	Unburned pit	Round	Cylindrical	8	8	12
131	Unburned pit	Oval	Triangular	11	8	16
132	Unburned pit	Round	Triangular	4	4	11
133	Unburned pit	Round	Basin	5	5	6
135	Unburned pit	Round	Cylindrical	8	8	12
136	Unburned pit	D-shaped	Basin	20	7	5
171	. . .	Round	. . .	29	26	. . .
172	Ventilation system	Round	. . .	*140	*140	. . .
173	. . .	Round	. . .	28	27	. . .
214	Deflector	n.a.	n.a.	18	8	45

Refer to figure 7.61 for feature locations.
. . . - Information not available.
n.o. - Observation could not be made.
n.a. - Not applicable.
* Existing dimension; complete dimensions not available.

located on the south wall, as well). The absence of post remnants in all the holes indicates that these members were salvaged after the occupation of the structure. Rock shims and a possible base slab occur in only Features 7 and 88, suggesting that most of these items were removed along with the posts.

The main support postholes are evenly spaced, 4 m apart, and form a square. The northern pair is 75 cm south of the north wall and the southern pair is incorporated into the wingwall (Feature 5). The northern postholes are larger in diameter than the southern pair at the floor surface, but the bases of the holes are nearly identical in size. The location of the southern postholes within the upright-slab wingwalls may have supplied enough support to the southern posts to reduce the need for larger postholes. Alternatively, the northern posts may have been larger. Without auxiliary posts along the north wall, these supports probably carried more of the roof load than did the southern columns. The northern posts possibly stood higher than the southern pair, providing a slight tilt to the roof. This construction technique has been suggested by Bullard (1962:129) as a means for providing better drainage. If the main portion of the roof was inclined rather than flat, it would have been most reasonable to slant the roof towards the south, following the slope of the prehistoric ground surface (fig. 7.60). A taller roofing member might require a larger posthole diameter. Lastly, had the northern pair of posts been replaced while the structure was in use, it is likely that the diameter of the postholes would have increased if the posts were wedged into place without removing the entire roof.

Posthole (Feature 7). The northeast corner posthole (Feature 7) has a profile shaped like an inverted cone, wide at its mouth and tapering to 10 cm in diameter at its base, 90 cm below the floor. At Surface 1, the northern perimeter of the feature is ringed by an adobe collar up to 8 cm wide and 9 cm high. Two shallow pits (Features 8 and 10) of unknown function are situated in the adobe collar. Their proximity to the northeast corner post suggests that they were associated with Feature 7. Feature 7 was filled with a mixed deposit (cultural and natural) of silt loam with numerous chunks of adobe, charcoal, artifacts, and a few small rocks (1-5 cm). A flat sandstone slab (1 by 13 by 5 cm), 4 cm above the base of the posthole, may have functioned as a base slab. The fill assemblage from Feature 7 was very similar to that of other main support postholes. Some of this material was probably deposited during occupation of the structure and much more was deposited after the upright member was removed.

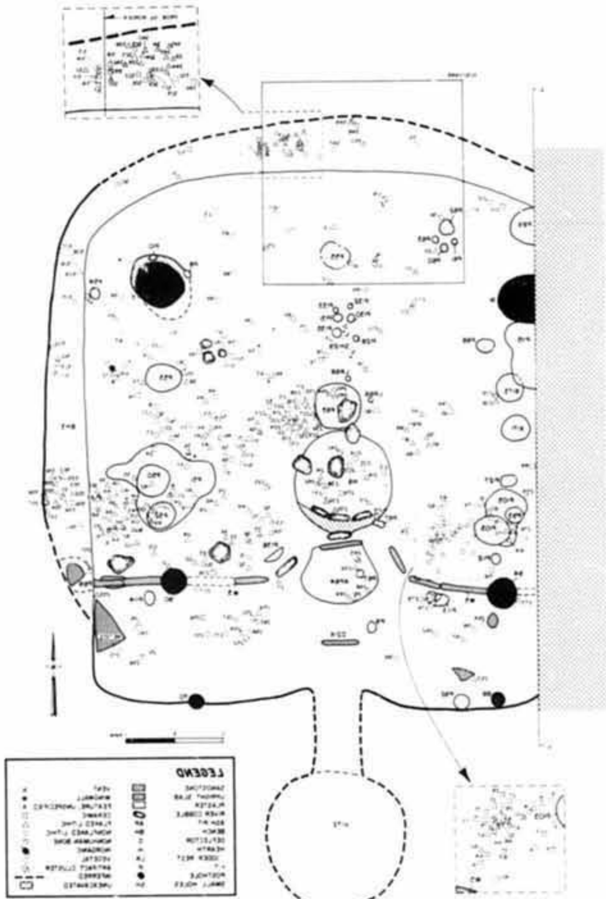

Figure 7.61 - Feature locations and point-located artifacts, Surface 1, Pitstructure 1, Area 2, Kin Tl'ish

Figure 7.82 - Surface 1, Pitstructure 1, Area 2, Kin Tl'iish (DAP 236012)

Posthole (Feature 97). The northwest posthole was only partially excavated because it undercuts the western boundary of Pitstructure 1. Along the south edge, the feature is bordered by an unexcavated pit (Feature 115). The fill of Feature 97 was a mixed deposit similar to the northeast posthole but contained more adobe beam casts. Neither rock shims nor a base slab were present; either they were never present or they were removed along with the post.

Postholes (Features 90 and 94). The southern main support posts are positioned within the partition walls. An upright slab is missing immediately west of each posthole. These slabs were probably dislodged to facilitate removal of the posts. The upright slabs east of the postholes appear to have actually abutted the posts. The construction sequence is suggested as follows: (1) the posts were put in place, (2) the wingwalls were erected to stabilize the uprights, and (3) plaster was applied over the slabs and around the base of the posts. Plaster remnants are present along the edges of both features. Features 90 and 94 were filled with a mixed deposit of silt loam containing charcoal, vegetal debris, adobe, artifacts, and bones.

Postholes (Features 88 and 70). Neither of these 2 auxiliary postholes located along the south wall contain posts. Remains of a broken two-hand mano were wedged into the base of Feature 88. Above the rocks, the feature fill consisted of silt loam with charcoal. The charcoal, identified as sagebrush (*Artemisia* sp.), ponderosa pine (*Pinus ponderosa*), and rose family (Rosaceae) might have originated from fallen roofing debris or trash. Feature 70 was dug partially into the south wall of Pitstructure 1. A post impression extends up the wall, 50 cm above the pitstructure floor. Plaster inside the north edge of the posthole probably helped hold the upright in place.

Bench (Feature 3). – A "three-quarter bench," typical of late Basketmaker and early Pueblo pitstructures (Bullard 1962:29, 37) lines the pitstructure north of the wingwall. The bench (Feature 3) is cut into sterile sediments and covered with 1 to 3 cm of silt loam plaster with charcoal, clay, and sand inclusions. The feature is best preserved along the east wall, where it stands 80 cm high and 47 cm wide. Identification of the bench face and surface along the north wall was problematic due to erosion and rodent disturbance. Several artifacts were found on the bench and are discussed in the "Material Culture" section.

Wingwall (Feature 5). – Originally composed of 7 upright slabs and 1 pedestaled cobble, the upright-slab partition, typical of Sagehill and Dos Casas Subphase pitstructures (Kane 1983b:152, 164, 165), divides the pitstructure into northern and southern compartments. The wingwall is oriented east-west across the structure. A single opening (80 cm wide) just south of the hearth provides access between compartments. The plastered slabs average 8 to 10 cm thick and stand a maximum of 54 cm above the floor. The following description of the wingwall construction is based on the removal of one slab. The upright slab was placed along the north edge of a narrow, 20-cm-deep trench. The trench was partially filled with sediment upon which a small sandstone slab was wedged at an angle against the base of the upright slab. Fill was packed in the remaining space up to floor level. Adobe plaster extended from the floor, across the trench, and up the sandstone slab. All the in situ slabs are very stable. Two large slabs, believed to be the two missing uprights immediately west of the southern main support postholes, were found leaning against the east wingwall on approximately 50 cm of fill. This suggests that following the abandonment of the pitstructure, 50 cm of fill accumulated on the floor of the structure near the wingwalls before the two main supports (from Features 90 and 94) were salvaged. The upright slabs just west of each posthole (Features 90 and 94) were moved to facilitate extraction of the posts.

Hearth (Feature 6). – The Pitstructure 1 hearth is large and shallow. An adobe coping lines the south edge of the feature. Three river cobbles are set along the interior edge of this coping, and a fourth cobble lies along the south edge. A 15-cm-wide and 2- to 4-cm-deep shelf forms the north, east, and west edge of the feature. A large, flat, fire-blackened rock was perched on the shelf.

The base of the hearth was covered with sand, and the sand was overlain by ash with charcoal, adobe, and sand inclusions. This was Stratum 2, which is interpreted as primary refuse associated with use of the hearth. Above Stratum 2 was Stratum 1, a compact silt loam with charcoal and adobe inclusions, which is believed to have been deposited after use of the hearth ceased.

Surprisingly, artifacts from these 2 strata are very similar. Recovered from Stratum 1 were 48 pieces of flaked lithic debitage, 1 utilized flake, 8 small mammal bones (3 ribs, 4 long bone shafts, and 1 terminal phalanx), 1 jackrabbit (*Lepus* sp.) tarsal bone, 1 mammal or bird bone fragment, 1 unidentifiable nonhuman bone fragment, 1 Chapin Gray jar sherd, 10 Early Pueblo Gray jar sherds, 8 Moccasin Gray jar sherds, 1 Early Pueblo Red bowl sherd, and 1 Polished White bowl sherd. Botanical remains represented are charred sagebrush (*Artemisia* sp.), Gambel oak (*Quercus gambelii*), ponderosa pine (*Pinus ponderosa*), pinyon pine (*Pinus edulis*), rose family (Rosaceae), cottonwood (*Populus* sp.), and pine (*Pinus* sp.) wood; also present are 1 charred Utah juniper (*Juniperus osteosperma*) scale, 61 unburned tobacco (*Nicotiana attenuata*) seeds, 1 unburned goosefoot (*Chenopodium* sp.) fruit, and the charred remains of corn (*Zea mays*), (8 cupules, 0.1 g of cob, and 0.1 g of kernels).

The artifact assemblage from Stratum 2 consisted of 93 pieces of flaked lithic debitage, 4 Early Gray jar sherds, 9 small mammal bones (1 rib, 1 charred first phalanx, and 7 long bone shafts – 4 of which are charred), 1 large mammal long bone shaft, and 1 bird long bone shaft. Charred sagebrush, juniper, ponderosa pine, pinyon pine, true mountain mahogany (*Cercocarpus montanus*), Gambel oak, cottonwood, rose family, and pine wood were identified, as well as 15 charred Utah juniper scales. Charred corn (1.0 g of cob, 34 cupules and cupule fragments, and 0.2 g of kernels), 1 burned cheno-am fruit, 27 unburned tobacco seeds, and bark and a seed from unidentifiable plants were also found in Stratum 2. Stratum 2 was directly related to the use of the Feature 6. The charred wood suggest that a diversity of fuel types were used for fire. The large number of flaked lithic debitage items may be the product of pitstructure maintenance in that these items might have been swept into the hearth, which functioned as a convenient repository. Corn, cheno-am fruit, large and small mammal bones, and bird bones from Stratum 2 were the remains of food products believed to have been consumed and probably prepared here. The unburned tobacco seeds are interpreted as contaminants that might have been brought in prehistorically within the sand or during the excavation of the pitstructure. The similarity between strata may indicate that the overlying stratum was secondary refuse from other hearths and that this refuse was dumped into Pitstructure 1 after abandonment.

Ventilation system (Feature 172). – Only a small portion of the Pitstructure 1 ventilation system (the upper 10 cm of ventilator shaft fill) was excavated. The tunnel opening was recognized as an area of fill along the south wall directly south of the deflector slab. It has a subrectangular shape with rounded corners and measures 50 cm wide by 40 cm high. The tunnel extends approximately 80 cm south, where it opens into the ventilator shaft. The diameter of the shaft is estimated at 140 cm, based on the removal of the upper 10 cm of fill. Large ventilator shafts are common in Dos Casas Subphase pitstructures in the Dolores Project area (Brisbin et al. 1982; Kane and Chenault 1982; Yarnell 1982). No artifacts were recovered from this feature.

Deflector (Feature 214). – The sandstone slab along the north edge of Feature 64 may have functioned as a low deflector, impeding some of the air flow from the ventilator tunnel (Feature 172). There is, however, a more formal, 45-cm-high, deflector slab 45 cm north of the ventilator tunnel. This slab apparently diverted most of the airstream from the tunnel.

Ash pit (Feature 64). – Feature 64 is positioned due south of the hearth within the gap in the wingwall. It is bounded on the north by an upright slab that extends 10 cm above the pitstructure floor. The pit was dug 13.5 cm below the floor surface, the slab was put in place, and the feature was intentionally filled with 5 to 7 cm of silt loam with sand and charcoal inclusions. A 2- to 5-cm deposit of ash mixed with sand, charcoal, and bits of adobe accumulated over the basal fill. Along the north edge of the feature, close to the slab, this ash stratum was truncated by a 5-cm-thick silt loam with a low density of charcoal and pieces of adobe. On the south end of the feature, the ash stratum was also truncated by a shallow (2 cm thick) sandy silt loam with ash, adobe, and charcoal inclusions. The location of Feature 64 south of the hearth, and the presence of an ash layer within the fill suggests that the basin functioned as an ash pit at some time. It was later disturbed, either during or after occupation of the pitstructure. Five items were found on top of Feature 64 fill; these include 1 piece of angular debris (PL 239) and 4 pieces of flaked lithic debitage (PL's 243, 247, and 249). The relationship of these items to the feature is not known – their association may be coincidental.

Ladder rests (Features 66 and 68). – Features 66 and 68 are tentatively interpreted as ladder rests, based on their size, shape, and central location. They are cylindrical holes, 25 cm apart, just west of the large central pit (Feature 65). No artifacts were recovered from the loose sandy silt loam fill.

Unburned pit (Feature 92). – This pit, located along the south wall just east of Feature 88, may have been another auxiliary posthole. It is round, but shallower than Features 70 and 88. The feature contained one sherd, a charred fragment of mountain mahogany (*Cercocarpus* sp.) and bits of charcoal and adobe.

Other features. – Thirty-eight unburned pits complete the Pitstructure 1 feature assemblage. All but Features 69, 115, 129, 171, and 173 were completely excavated. Most have a round to oval plan and a basin or cylindrical profile. Three basic fill types were recognized in these features: cultural, postoccupational, and mixed (cultural and post-occupational). The feature descriptions that follow are grouped according to fill type.

Pits with cultural fill (Features 52, 54, 60, 61, 62, 63, 65, 86, 93, 105, 112, 113, 114, 127, 128, 129, 130, 131, 132, 133, 135, 136, and 173). Culturally filled features contained sand, sandy loam, or silt loam.

Sand-filled pits (Features 86, 93, 129, 130, 131, 132, 133, 135, and 173) are interpreted as temporarily filled, available for reuse at any time. None of these features held many artifacts. Features 86, 93, and 173 are situated along the west side of the pitstructure amidst several overlapping features. Feature 93 intrudes into a larger pit (Feature 105) and Feature 173 is truncated by a very large pit (Feature 115). Feature 129, 130, 131, 132, 133, and 135 comprise a cluster of small pits north of Feature 65. Feature 129 is a concentration of 13 very small (average diameter is 2.3 cm and average depth is 5 cm) sand-filled holes. Unfired clay was pressed into the base of one hole. Many of the holes have tapered bases, perhaps resulting from insertion of a pointed object. Such holes are frequently found along the north-south axis of pitstructures, surrounding large, rectangular central pits. Brisbin (1984a) suggested that these small holes have ceremonial significance, perhaps related to the use of prayer sticks. Within this group of holes were 5 sand-filled pits (Features 130, 131, 132, 133 and 135); although they are slightly larger than the holes, based on proximity they are believed to be associated.

Features intentionally filled with sand loam or silt loam (Features 52, 54, 60, 61, 62, 63, 65, 105, 112, 113, 114, 127, 128, and 136) are interpreted to have been closed or not in use at the time of pitstructure abandonment. Generally, culturally deposited silt loam was distinguished from postoccupationally deposited silt loam on the basis of greater compaction and fewer adobe and cultural inclusions. Features that were not recognized until the floor was scraped, because they were capped or covered with the sand preparation on the floor, were also interpreted as intentionally filled.

Features 112, 113, 114, and 136 are near the wingwall. Feature 113 is a group of 3 pits, of which the 2 largest are separated by a rock partition. The partition is composed of a used core (Pl. 275) and a two-hand mano fragment (Pl. 274) wedged 7 cm into the feature and plastered over. Feature 113 appears to have had a specialized, but unidentified, function. Features 112 and 114 are basins. Neither contains artifacts. Feature 136 is a half-moon-shaped basin with a basal groove 18.0 cm long and 1.5 cm wide. It was also void of artifacts.

Near the north wall 3 small pits (Features 60, 61, and 63) are assumed to be associated with 1 larger pit (Feature 62), based on proximity. Each of the small pits is inclined; Feature 60 angles to the south, Feature 61 angles to the north, and Feature 63 angles to the northwest. Feature 62 is a very shallow basin. None of the pits contained artifacts.

On either side of the hearth are three large, overlapping features. A pit (Feature 105), the biggest feature among the western group, was filled prior to the construction of Features 93 and 103 within it. Within the eastern group (Features 50, 51, and 52), Feature 52 and most of Feature 51 were filled prior to the abandonment of Pitstructure 1. Feature 52 was dug into the fill of Feature 51 and was filled with a very coarse-grained sandy loam that contained numerous artifacts. These trios of overlapping basins were likely the focus of storage activities in Pitstructure 1. Another probable storage facility (Feature 69) is located on the bench (refer to the Feature 69 discussion).

Feature 65 is a large, relatively circular pit, centrally located in the structure. The pit was dug into sterile earth and filled with 1.5 cm of sand. Sometime later the feature was intentionally filled with primary or secondary refuse, capped with a sandy silt loam with charcoal flecks, and covered with 1 to 2 cm of sand. The artifact assemblage from this pit is very similar to that from the hearth (Feature 6). Feature 65 borders the north edge of Feature 6. The proximity of these features suggests their association, and the contents of Feature 65 indicate that byproducts of food processing activities were deposited here. The feature obviously fell into disuse and was intentionally filled. A large rock and 3 debitage flakes (Pl.'s 244, 245, 246) were resting on top of the fill.

Feature 128 is found among the group of small pits north of Feature 65, and Feature 127 is north of the 3 large pits west of the hearth. Neither of these held artifacts.

Feature 54 is a small pit between the northeast main support posthole and the bench. It contained no artifacts, and no estimate has been made regarding its function.

Pits with postoccupational fill (Features 8, 9, 10, 50, 67, 92, and 115). Those pits with postoccupational fill (a loosely compacted silt loam containing charcoal, adobe, and occasional artifacts) are interpreted as having been open, or perhaps in use, at the end of the Pitstructure 1 occupation. Features 8 and 10 are small, shallow pits situated in the coping along the north edge of the northeast posthole (Feature 7). Both were void of artifacts. Feature 9, which contained no artifacts, is an irregularly shaped pit, 21 cm northwest of the deflector.

Feature 50 is inside Feature 51, amidst the large basins east of the hearth. This feature might have been the last among this group of basins to be used. Feature 67 is a

shallow, circular depression containing no artifacts, located within the shallow basin of Feature 64. Feature 92, noted as a possible auxiliary posthole along the south wall, is much shallower than the other auxiliary postholes along the south wall.

The upper fill in Feature 115, which truncates the northwest corner of Feature 173 along the west wall of Pitstructure 1, resembles the postoccupational fill in other excavated features. This pit was only partially excavated.

Pits with mixed fill (Features 51, 53, 55, 69, 87, 89, and 103). Most of the features containing mixed fill contained cultural fill at the base of the features that was overlain by postoccupational fill. Features 51 and 53 were almost entirely filled with a cultural deposit. Feature 51 is the largest of the intersecting features east of the hearth. It has an amorphous shape with three lobes and a shallow lip that extends to the east. Silt loam with occasional bits of charcoal filled most of the feature and the shallow lip on the east was entirely filled with sand. Features 50 and 52 were dug into this cultural fill. The upper 5 cm of fill in Feature 51 was a postoccupational deposit.

Just north of these 3 features is an oblong basin (Feature 53), predominantly filled with sandy loam and ash, overlain by a small amount of postoccupational sediment.

Features 55 and 87 were disturbed by rodents and nearly void of artifacts. Feature 55 is located along the north-south axis of the structure, north of the cluster of small holes (Feature 129). Feature 87 consists of 2 shallow, connected pits within the coping along the southwest edge of the hearth (Feature 6).

A single pit (Feature 69) was recognized on the bench, due east of the wingwall, although rodent disturbance obscured much of the feature. Partial excavation revealed a pit of unknown dimensions dug through the bench surface and partially filled with a cultural deposit (to at least 7 cm below the level of the bench surface). A sandstone slab was lying close to the top of the feature fill. Feature 69 might have been a storage cist.

Feature 89 is situated along the north wall on the west edge of the excavated portion of Pitstructure 1. This basin contained a basal lens of sand overlain by postoccupational fill. Several artifacts were found on top of this sand.

Feature 103 was dug into Feature 105; it contained stratified fill and several artifacts.

Feature 171 was not excavated and its fill type was never identified.

Feature summary. – Of the pits (unburned pits and cluster of small holes) identified in Pitstructure 1, 61 percent were culturally filled (24 percent were filled with sand and 37 percent were filled with silt loam). Those containing sand are interpreted as temporarily filled, and those with silt loam are considered to have been permanently filled. Nineteen percent of the pits were filled with postoccupational deposits and 19 percent had mixed fills. Those with postoccupational deposits were empty at the time of pitstructure abandonment, indicating that they were probably in use close to that point in time. Pits with mixed deposits most often contained sand at the base and postoccupational material above the sand. These features also might have been functional when the pitstructure was abandoned.

The number of intentionally filled features may be a reasonable index of the length of time that the structure was occupied. It is assumed that the longer a structure is occupied, the more likely that features will be remodeled or covered over. The large percentage (61 percent) of features that were apparently not in use at the time of abandonment indicates that Pitstructure 1 might have been used for a relatively long period of time. The presence of 9 features that overlap (Features 50, 51, 52, 91, 93, 103, 105, 115, and 173) would also support a lengthy occupation. Although most of the overlapping features are located along the west edge of Pitstructure 1, suggesting that this portion of the structure was most intensively used, features interpreted to have been available for use at the time of pitstructure abandonment are evenly distributed throughout the structure. These latter features include numerous large pits (Features 50, 51, 53, 115, 89, 103, 64), the hearth (Feature 6), several small pits (Features 8, 9, 10, 67, 89, 92), and ladder rests (Features 66 and 68). All of the features interpreted as specialized or in an unusual configuration (e.g. Features 60, 61, 62, 63, 113, 129, 130, 131, 132, 133, 135, and 136) were intentionally filled. All architectural features, except perhaps the ash pit (Feature 64), appear to have been functioning during the final use of the structure.

Material Culture

The description of the material culture from Pitstructure 1 is limited to selected feature fills and point-located items, especially those from Surface 1. All artifacts recovered from Pitstructure 1 are listed in appendix 7A. Of the 441 artifacts point located in Pitstructure 1 (tables 7.42 and 7.43), 245 were found on the floor or bench surface, 191 were recovered within 2 cm of the bench or floor surface or within a feature, and 5 were in upper pitstructure fill.

Ceramics from the floor include 49 Early Pueblo Gray sherds, 7 Chapin Gray sherds, 4 Moccasin Gray sherds, 2 Polished White sherds, and 1 Early Pueblo Red sherd. Most of these were situated north of the wingwall, where floor artifact density was highest (fig. 7.61). Of the 41

Table 7.42 – Point-located artifacts, Surface 1 and Feature 1 (bench), Pitstructure 1, Area 2, Kin Tl'iish

PL No	Material class	Item description
*1	Ceramic	Item misplaced (not mapped)
*3	Ceramic	Item misplaced (not mapped)
*4	Flaked lithic	Item misplaced (not mapped)
5	Ceramic	DL Early Pueblo Gray jar sherd
6	Ceramic	DL Early Pueblo Gray jar sherd
7	Ceramic	DL Early Pueblo Gray jar sherd
8	Flaked lithic	Debitage
*9	Flaked lithic	Utilized flake
*10	Ceramic	DL Early Pueblo Gray jar sherds (2)
11	Nonhuman bone	Mammalia, medium or large
*12	Ceramic	DL Early Pueblo Gray jar sherd
*13	Ceramic	DL Early Pueblo Gray jar sherd
*14	Ceramic	DL Early Pueblo Gray jar sherd
*15	Flaked lithic	Debitage
16	Flaked lithic	Debitage
*17	Ceramic	DL Early Pueblo Gray jar sherd
18	Ceramic	DL Moccasin Gray jar sherd
19	Flaked lithic	Debitage
20	Flaked lithic	Debitage
*21	Ceramic	DL Early Pueblo Gray jar sherd
*22	Ceramic	DL Early Pueblo Gray jar sherd
*23	Ceramic	DL Early Pueblo Gray jar sherd
24	Ceramic	DL Early Pueblo Gray jar sherd
*25	Ceramic	DL Chapin Gray bowl sherd
*26	Ceramic	DL Chapin Gray bowl sherd
*27	Ceramic	DL Moccasin Gray jar sherd
*28	Ceramic	DL Early Pueblo Gray jar sherd
*29	Ceramic	DL Early Pueblo Gray jar sherd
30	Ceramic	DL Early Pueblo Gray jar handle sherd
*31	Ceramic	DL Early Pueblo Gray jar sherd
*32	Flaked lithic	Debitage
*33	Ceramic	DL Early Pueblo Gray jar sherd
*34	Flaked lithic	Debitage
35	Ceramic	DL Early Pueblo Gray jar sherd
36	Flaked lithic	Debitage

Table 7.42 – Point-located artifacts, Surface 1 and Feature 1 (bench), Pitstructure 1, Area 2, Kin Tl'iish – Continued

PL No	Material class	Item description
*37	Ceramic	DL Early Pueblo Gray jar sherd
38	Flaked lithic	Utilized flake
39	Ceramic	DL Early Pueblo Gray jar sherd
40	Nonhuman bone	Lepus sp.
*41	Ceramic	DL Polished White bowl sherd
42	Flaked lithic	Corner-notched projectile point
43	Flaked lithic	Item misplaced
44	Flaked lithic	Debitage
45	Flaked lithic	Debitage
46	Ceramic	BL Early Pueblo Red jar sherd
47	Flaked lithic	Debitage
48	Ceramic	DL Early Pueblo Gray jar sherd
49	Flaked lithic	Debitage
50	Ceramic	Item misplaced
51	Flaked lithic	Debitage
52	Flaked lithic	Debitage
53	Flaked lithic	Debitage
*54	Ceramic	DL Chapin Gray jar sherd
*55	Ceramic	DL Early Pueblo Gray jar sherd
*56	Flaked lithic	Debitage
*57	Flaked lithic	Debitage
*58	Ceramic	DL Early Pueblo Gray jar sherd
*59	Ceramic	CA Polished White bowl sherd
60	Flaked lithic	Debitage
*61	Flaked lithic	Debitage
62	Ceramic	DL Early Pueblo Gray jar sherd
63	Ceramic	DL Early Pueblo Gray jar sherd
*64	Flaked lithic	Debitage
*65	Ceramic	BL Early Pueblo Red bowl sherd
66	Flaked lithic	Unused core
*67	Ceramic	Item misplaced
68	Flaked lithic	Debitage (2)
69	Ceramic	BL Early Pueblo Red jar sherd
70	Inorganic	Earthen construction material
71	Flaked lithic	Debitage
72	Flaked lithic	Debitage
*73	Flaked lithic	Debitage
74	Ceramic	DL Early Pueblo Gray jar sherd
*75	Flaked lithic	Debitage
76	Flaked lithic	Debitage
77	Ceramic	DL Moccasin Gray jar sherd
78	Ceramic	DL Early Pueblo Gray jar handle sherd
79	Ceramic	DL Early Pueblo Gray jar sherd
80	Flaked lithic	Debitage
*81	Flaked lithic	Debitage
*82	Vegetal	Zea mays kernel, charred (<1 g)
*83	Flaked lithic	Debitage
84	Flaked lithic	Debitage (2)

Table 7.42 - Point-located artifacts, Surface 1 and Feature 3 (bench), Pitstructure 1, Area 2, Kin Tl'iish - Continued

Pl. No.	Material class	Item description
85	Ceramic	DL Early Pueblo Gray jar sherd
86	Flaked lithic	Debitage
87	Ceramic	DL Unfired clay (31.5 g) (not mapped)
88	Ceramic	BL Early Pueblo Red bowl sherd
89	Flaked lithic	Debitage
90	Flaked lithic	Item misplaced
91	Flaked lithic	Debitage (2)
92	Flaked lithic	Debitage (2)
*93	Flaked lithic	Debitage
*94	Flaked lithic	Debitage
*95	Flaked lithic	Debitage
*96	Flaked lithic	Debitage
*97	Ceramic	DL Early Pueblo Gray jar sherds (2)
*98	Ceramic	DL Early Pueblo Gray jar sherd
*99	Flaked lithic	Debitage
100	Ceramic	BL Early Pueblo Red bowl sherd
101	Flaked lithic	Angular debris
102	Flaked lithic	Debitage
103	Flaked lithic	Debitage
104	Ceramic	DL Moccasin Gray jar sherd
*105	Nonhuman bone	Sciuridae
*106	Nonhuman bone	Mammalia or Aves
107	Ceramic	DL Early Pueblo Gray jar sherd
109	Ceramic	DL Early Pueblo Gray jar sherds (2)
110	Flaked lithic	Debitage
*111	Ceramic	DL Early Pueblo Gray jar sherd
112	Flaked lithic	Debitage
*113	Ceramic	DL Early Pueblo Gray jar sherd
114	Flaked lithic	Drill
115	Ceramic	DL Polished White bowl sherd
116	Ceramic	BL Early Pueblo Red bowl sherd
117	Ceramic	DL Early Pueblo Gray jar sherd
118	Ceramic	DL Early Pueblo Gray jar sherd
119	Ceramic	DL Early Pueblo Gray jar sherd
120	Flaked lithic	Debitage
121	Flaked lithic	Debitage
122	Flaked lithic	Debitage
123	Ceramic	DL Early Pueblo Gray jar sherd
124	Flaked lithic	Debitage
*125	Flaked lithic	Debitage
*126	Flaked lithic	Angular debris
*127	Nonflaked lithic	Not culturally modified
*128	Nonhuman bone	Mammalia, small
*129	Flaked lithic	Debitage
*130	Nonhuman bone	Mammalia, small
131	Nonhuman bone	Mammalia, small
132	Flaked lithic	Debitage
133	Flaked lithic	Debitage

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Table 7.42 - Point-located artifacts, Surface 1 and Feature 3 (bench), Pitstructure 1, Area 2, Kin Tl'iish - Continued

Pl. No.	Material class	Item description
134	Flaked lithic	Debitage
135	Flaked lithic	Debitage
*136	Nonhuman bone	Mammalia, large
*137	Flaked lithic	Debitage
*138	Flaked lithic	Debitage (2)
*139	Flaked lithic	Cobble tool
*140	Flaked lithic	Cobble tool
*141	Flaked lithic	Cobble tool
142	Nonflaked lithic	Not culturally modified
*143	Flaked lithic	Debitage
*144	Flaked lithic	Debitage
*145	Flaked lithic	Debitage
*146	Flaked lithic	Item misplaced
*147	Flaked lithic	Debitage
*148	Flaked lithic	Debitage
*149	Flaked lithic	Angular debris
150	Flaked lithic	Item misplaced
151	Nonhuman bone	Mammalia, small
152	Flaked lithic	Debitage
153	Flaked lithic	Debitage
154	Ceramic	DL Painted White bowl sherd
155	Flaked lithic	Angular debris
*156	Flaked lithic	Debitage
*157	Flaked lithic	Debitage
*158	Flaked lithic	Cobble tool
159	Ceramic	DL Chapin Gray bowl sherd
*160	Ceramic	DL Early Pueblo Gray jar sherd
*161	Ceramic	DL Moccasin Gray jar sherd
*162	Flaked lithic	Debitage
163	Ceramic	DL Early Pueblo Gray jar sherd
164	Ceramic	DL Polished White jar sherd
*165	Ceramic	DL Moccasin Gray jar sherd
*166	Ceramic	DL Early Pueblo Gray jar sherd
167	Ceramic	SI Early Pueblo Gray jar sherd
168	Flaked lithic	Debitage
*169	Ceramic	DL Early Pueblo Gray jar sherd
*170	Flaked lithic	Thick biface
171	Flaked lithic	Debitage
172	Flaked lithic	Debitage
*173	Flaked lithic	Debitage
*174	Flaked lithic	Debitage
*175	Ceramic	DL Early Pueblo Gray jar sherd
176	Ceramic	DL Early Pueblo Gray jar sherd
*177	Ceramic	DL Early Pueblo Gray indeterminate sherd (not mapped, but behind east wingwall)
*178	Ceramic	DL Early Pueblo Gray jar sherd (not mapped, but apparently behind east wingwall)
179	Nonhuman bone	Item misplaced

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Table 2.42 - Point-located artifacts, Surface 1 and Feature 3 (bench), Protostructure 1, Area 2, Kin Tl'iish - Continued

PL No.	Material class	Item description
*180	Flaked lithic	Debitage
181	Flaked lithic	Debitage
*182	Ceramic	DL Mocassin Gray jar sherd
183	Ceramic	DL Early Pueblo Gray jar sherd
*184	Ceramic	DL Early Pueblo Gray jar sherd
185	Flaked lithic	Debitage
*186	Flaked lithic	Debitage
187	Flaked lithic	Debitage
*188	Flaked lithic	Debitage
189	Ceramic	DL Early Pueblo Gray jar sherd
190	Ceramic	DL Early Pueblo Gray jar sherd
191	Ceramic	CA Early Pueblo Gray jar sherd
*192	Flaked lithic	Used core
*193	Flaked lithic	Debitage
*194	Flaked lithic	Debitage
*195	Flaked lithic	Debitage
*196	Nonflaked lithic	Generalized tool fragment
*197	Flaked lithic	Unused core
*198	Nonflaked lithic	Two-hand mano
199	Ceramic	DL Early Pueblo Gray jar sherd
*200	Flaked lithic	Debitage
*201	Nonflaked lithic	Hammerstone
*202	Flaked lithic	Utilized flake
203	Ceramic	DL Early Pueblo Gray jar sherd
204	Ceramic	DL Early Pueblo Gray jar sherd
205	Ceramic	DL Early Pueblo Gray jar sherd
*206	Ceramic	DL Early Pueblo Gray jar sherds (15)
*207	Nonhuman bone	Mammalia, small
208	Flaked lithic	Debitage
209	Flaked lithic	Debitage
210	Ceramic	DL Early Pueblo Gray jar sherd
*211	Ceramic	DL Early Pueblo Gray jar sherd
*212	Ceramic	DL Early Pueblo Gray indeterminate sherd
213	Nonhuman bone	Aves
214	Flaked lithic	Debitage
215	Flaked lithic	Debitage
216	Flaked lithic	Debitage
217	Flaked lithic	Debitage
218	Flaked lithic	Debitage
219	Flaked lithic	Angular debris
220	Flaked lithic	Angular debris
221	Nonhuman bone	Mammalia, unidentifiable
222	Ceramic	DL Early Pueblo Gray jar sherd
*223	Nonhuman bone	Mammalia, small
*224	Flaked lithic	Debitage
*225	Nonhuman bone	Corvus corax (?) Corvus corax (?) - indeterminate worked items Aves (?)

Table 2.42 - Point-located artifacts, Surface 1 and Feature 3 (bench), Protostructure 1, Area 2, Kin Tl'iish - Continued

PL No.	Material class	Item description
*226	Flaked lithic	Debitage
227	Flaked lithic	Debitage
228	Flaked lithic	Debitage
229	Flaked lithic	Debitage
*230	Nonhuman bone	Indeterminate (?)
*231	Flaked lithic	Debitage
*232	Flaked lithic	Angular debris
*233	Flaked lithic	Debitage
*234	Flaked lithic	Debitage
235	Flaked lithic	Debitage
236	Flaked lithic	Debitage
237	Ceramic	DL Mocassin Gray jar sherd
238	Flaked lithic	Debitage
239	Flaked lithic	Angular debris
240	Ceramic	DL Early Pueblo Gray jar sherds (3)
241	Flaked lithic	Debitage
242	Flaked lithic	Debitage (2)
243	Flaked lithic	Debitage (2)
244	Flaked lithic	Debitage
245	Flaked lithic	Debitage
246	Flaked lithic	Debitage
*247	Flaked lithic	Debitage
*248	Flaked lithic	Item misplaced
*249	Flaked lithic	Debitage
*250	Ceramic	DL Early Pueblo Gray jar sherd
*251	Nonflaked lithic	Not culturally modified
*252	Ceramic	DL Chapin Gray jar sherds (4)
*253	Flaked lithic	Debitage
*254	Ceramic	DL Early Pueblo Gray jar sherd
*255	Ceramic	DL Early Pueblo Gray jar sherd
*256	Ceramic	DL Early Pueblo Gray jar sherd
257	Flaked lithic	Used core
*258	Nonhuman bone	Mammalia, small
*259	Nonflaked lithic	Generalized tool fragment
260	Nonflaked lithic	Minimally altered item
*261	Flaked lithic	Cobble tool
*262	Nonflaked lithic	Minimally altered item
*263	Flaked lithic	Utilized flake
*264	Nonflaked lithic	Not culturally modified
*265	Nonflaked lithic	Not culturally modified
*267	Nonflaked lithic	Hammerstone
*268	Nonflaked lithic	Abrading stone
*269	Nonflaked lithic	Not culturally modified
*270	Nonflaked lithic	Generalized tool fragment
*271	Flaked lithic	Used core
272	Nonflaked lithic	Trough metate
*273	Flaked lithic	Debitage

Table 7.42 - Point-located artifacts, Surface 1 and Feature 3 (bench), Pitstructure 1, Area 2, Kin Tl'ish - Continued

PL No.	Material class	Item description
274	Nonflaked lithic	Two-hand mano
275	Flaked lithic	Used core
*276	Flaked lithic	Debitage
279	Ceramic	DL Early Pueblo Gray jar sherd
280	Ceramic	DL Early Pueblo Gray jar sherd (not mapped)
301	Flaked lithic	Debitage (4)
302	Nonhuman bone	Artiodactyla — simple awl
303	Ceramic	DL Early Pueblo Gray jar sherds (2)
304	Ceramic	DL Early Pueblo Gray jar sherds (3) (not mapped)
*305	Flaked lithic	Debitage
*306	Ceramic	DL Early Pueblo Gray jar sherd
*307	Nonflaked lithic	Not culturally modified
*308	Nonflaked lithic	Not culturally modified
*309	Flaked lithic	Debitage
*310	Flaked lithic	Debitage
*311	Flaked lithic	Flaked axe
*312	Ceramic	DL Early Pueblo Gray jar sherd
*313	Flaked lithic	Debitage
*314	Flaked lithic	Debitage
*315	Flaked lithic	Debitage
*316	Ceramic	DL Early Pueblo Gray jar sherd
*317	Ceramic	DL Chapin Gray seed jar sherd
318	Ceramic	DL Early Pueblo Gray jar sherd
319	Ceramic	DL Early Pueblo Gray jar sherds (2)
320	Flaked lithic	Utilized flake
*321	Flaked lithic	Debitage
*322	Ceramic	DL Chapin Gray seed jar sherd
*323	Flaked lithic	Debitage
*324	Flaked lithic	Debitage
*325	Nonhuman bone	Mammalia or Aves — indeterminate edge-use item
*326	Ceramic	DL Early Pueblo Gray jar sherd
327	Ceramic	DL Early Pueblo Gray jar sherd
328	Flaked lithic	Utilized flake
329	Flaked lithic	Debitage
330	Flaked lithic	Debitage
331	Flaked lithic	Debitage
332	Ceramic	DL Early Pueblo Gray jar sherd
333	Ceramic	Item misplaced (not mapped)
*334	Ceramic	DL Early Pueblo Gray jar handle sherd
		DL Chapin Gray jar sherds (3), vessel 2
		DL Early Pueblo Gray jar sherds (2), vessel 2
*335	Nonhuman bone	Mammalia, small
*336	Flaked lithic	Debitage
*337	Flaked lithic	Utilized flake
*338	Flaked lithic	Utilized flake
*339	Flaked lithic	Debitage
*340	Flaked lithic	Thick uniface

Table 7.42 - Point-located artifacts, Surface 1 and Feature 3 (bench), Pitstructure 1, Area 2, Kin Tl'ish - Continued

PL No.	Material class	Item description
*341	Flaked lithic	Utilized flake
*342	Flaked lithic	Utilized flake
*343	Flaked lithic	Debitage
*344	Flaked lithic	Corner-notched projectile point
*345	Flaked lithic	Debitage
*346	Ceramic	DL Early Pueblo Gray jar sherd
*347	Ceramic	DL Early Pueblo Gray jar sherd
*348	Ceramic	DL Chapin Gray jar sherd
*349	Flaked lithic	Debitage (2)
*350	Flaked lithic	Debitage
*351	Ceramic	DL Early Pueblo Gray jar sherd
*352	Flaked lithic	Utilized flake
*353	Nonhuman bone	Ciconiiformes (2)
*354	Flaked lithic	Debitage
*355	Nonhuman bone	Ciconiiformes
*356	Ceramic	DL Chapin Gray jar sherd, vessel 3
*357	Ceramic	DL Early Pueblo Gray jar sherds (2)
*358	Flaked lithic	Debitage
*359	Flaked lithic	Debitage
*360	Ceramic	DL Early Pueblo Gray jar sherd
*361	Flaked lithic	Utilized flakes (2) (not mapped)
		Debitage (not mapped)
*362	Flaked lithic	Debitage
*363	Nonflaked lithic	Art ornament fragment

* These artifacts are located directly on Surface 1 or the bench surface. The other PL's are within 2 cm of the surface or are in features.

PL numbers not listed represent items later determined not to be associated with the surface. Refer to figure 7.61 for artifact locations.

(N) - Number of items
(g) - Weight of items
DL - Dolores Manufacturing Tract
BL - Blanding Manufacturing Tract
CA - Cahone Manufacturing Tract
SJ - San Juan Manufacturing Tract

Table 7.43 - Point-located artifacts from the fill, Pitstructure 1, Area 2, Kin Tl'ish

PL No.	Material class	Item description
1	Nonhuman bone	Artiodactyla - simple awl (not mapped)
2	Nonflaked lithic	Anvil stone (not mapped)
108	Nonflaked lithic	Abrading stone
277	Nonhuman bone	Odocoileus hemionus - simple awl (not mapped)
278	Nonflaked lithic	Item misplaced (not mapped)

Table 7.35 – Stratigraphic description, Pitstructure 4, Area 1, Kin Tl'iish

Stratum No.	Sediment description	Color (Munsell notation)	Inclusions	Comments/interpretations
1	Sandy silt; fine platy structure	Brown (7.5YR 4/5 to 5/4, dry)	Cobbles and artifacts	Abrupt smooth boundary to Stratum 2. Plow zone
2	Silt loam; mottles of high organics, massive	Dark brown (7.5YR 3/2 to 4/4, dry)	Few charcoal or artifacts	Abrupt to gradual boundary to Stratum 3. Postabandonment deposit; high organic content may be remnants of the old A horizon
3	Silt loam; lenses	Brown (7.5YR 4/4, dry)	Lenses have greater charcoal content, few small artifacts including some bone	Gradual smooth boundary to Stratum 4 or gradual wavy boundary to Stratum 5. Postoccupational deposit, at least mostly natural rather than cultural
4	Silt loam	Brown (7.5YR 4/4, dry)	Charcoal flecks and some bone including possible bone	More coarse than Stratum 3. Clear smooth boundary to Stratum 5. Mixed natural and cultural deposit, primarily from slump of fill behind Pitstructure 4 wall
5	Silt loam	Dark brown (7.5YR 3/2, dry)	Charcoal flecks and ash; large tabular sandstone fragments and a few large cobbles	Abrupt wavy boundary to Stratum 4 or 6. Collapsed structural unit.
6	Silt loam	Dark reddish brown (5YR 3/3, moist)	Charcoal-rich areas; large, charred beam fragments, few tabular sandstone fragments, other artifacts including bone, burned bone, and human bone	Abrupt wavy boundary to Stratum 7. Roof fall
7	Silt loam	Dark reddish brown (5YR 3/4, moist)	Few rocks, charcoal fragments, adobe flecks, and ceramics	Abrupt smooth boundary to Pitstructure 4 floor. Natural postoccupational deposit containing some wall slump material
8	Silt loam	Yellowish red (5YR 4/6, moist)		Native earth
9	Silt loam	Dark reddish brown (5YR 3/4, moist)	Decreasing artifacts with depth	Fill of a pit
10	Silt loam	Yellowish red (5YR, 4/6, moist)	Mottles of brown silt loam	Pitstructure 2 fill; probably wall melt
11	Silt loam	Yellowish red (5YR 4/6, moist)	Carbonates	Native earth

Table 7.36 – Point-located artifacts, Surface 1, Pitstructure 4, Area 1, Kin Tl'iish

PL No.	Material class	Item description
1	Nonflaked lithic	Trough metate
2	Ceramic	DL Corrugated Body Sherds, jar sherds (4)
3	Ceramic	DL Early Pueblo Gray jar sherds, saucer form (3); vessel 3
4	Nonflaked lithic	Not culturally modified
5	Nonflaked lithic	Not culturally modified
6	Nonflaked lithic	Trough metate
7	Flaked lithic	Debitage
8	Ceramic	DL Moccasin Gray jar sherd
9	Ceramic	DL Corrugated Body Sherds, jar sherds (6)
10	Nonflaked lithic	Metate
11	Ceramic	DL Corrugated Body Sherds, jar sherds (38); vessel 5
		DL Mancos Corrugated jar sherds (13); vessel 5

Refer to figure 7.50 for artifact locations.
(N) - Number of items.
DL - Dolores Manufacturing Tract.

Table 7.37 – Feature summary, Surface 1, Pitstructure 4, Area 1, Kin Tl'iish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
82	Burned pit	Oval	Rectangular	61	51	13
108	Unburned pit	Round	Other	12	10	17
109	Wall cist	Irregular	Rectangular	67	52	37
139	Hearth	Round	Basin	71	68	22
149	Wall cist	Subrectangular	Irregular	*80	80	*80
180	Unburned pit	Round	. . .	*14	*13	. . .
181	Ventilation system	n.o.	Irregular	. . .	. . .	. . .

*Existing dimension; complete dimensions not available.
Refer to figure 7.50 for feature location.
n.o. - Observation could not be made.
. . . - Information not available.

the hearth was capped with a slab and the ventilator tunnel was sealed similarly with a sandstone slab.

Because the occupation of Pitstructure 4 postdates A.D. 900, and because of the circular shape of the structure, there was some temptation to classify Pitstructure 4 as a kiva. However, although some ceremonial activities were probably carried out in this structure, the most clear and pervasive evidence is for the primary use of the pitstructure for domestic and economic activities. Pithouses generally become less common through the Pueblo I period (Breternitz and Lipe 1984); however, Kane (1984) indicates that pithouses, rather than kivas, are the more usual structure in the Dolores River valley during the late Pueblo I period. Similarly, late domestic pitstructures are recorded on Paiute Mesa in southeastern Utah (Hobler 1974), although those structures do not have the general appearance of kivas and are shallower than any structure classified as a pithouse in the project area.

In summary, Pitstructure 4 may be both a domestic and a ceremonial structure. Throughout its uselife, it served primarily domestic and economic functions, based on evidence from its feature and artifact assemblages; however, its architecture and the mode of its abandonment are evidence for the ceremonial or ritual significance of the structure.

Figure 7.53 – Mancos Corrugated jar (vessel 5) in Feature 139 (hearth), Pitstructure 4, Area 1, Kin Tl'iish (DAP 127115)

Figure 7.54 – Feature 108 (pit), Pitstructure 4, Area 1, Kin Tl'iish (DAP 125930)

Pitstructure 5

Dimensions

North-south axis (inferred)	2.12 m
East-west axis (inferred)	2.17 m
Maximum remaining wall height	0.90 m
Total floor area (estimate)	4.60 m

This small, circular pitstructure (fig. 7.56) was discovered immediately southwest of Pitstructures 2 and 4. Excavations within Pitstructure 5 are limited to single north-south backhoe trench that cut the unit slightly east of its center (fig. 7.57).

The pitstructure was excavated into native earth. It might have had a bench or platform along at least the north wall. Where the floor is not cut by features, it curves up to form the lower walls of the pitstructure. No postholes from which to infer the roofing pattern were identified in the excavated portion of the structure.

Stratigraphy

Based on the west wall of the test trench, the stratigraphy (not illustrated) reveals that the pitstructure was excavated into native earth. The floor, which rests on native earth, is approximately 1.2 m below the prehistoric ground surface or 1.5 m below modern ground surface at the north end of the trench. Roof fall immediately overlies the floor. Roofing materials were commonly less than 5 cm thick, although in some areas they were as thick as 10 cm. The roof fall was overlain by a zone containing large chunks of sandstone and some river cobbles. Many of these rocks are as much as 61 cm in diameter (too large to represent wall facings); their function is unknown. Within this zone, native earth forming the north wall of the pitstructure is cut as a shelf approximately 50 cm above the floor and approximately 30 cm deep. No corresponding, stepped deposit was identified against the south wall of the structure; the shelf may be a result of structure collapse. The stratum containing the large sandstone rocks was approximately 65 cm thick. It was

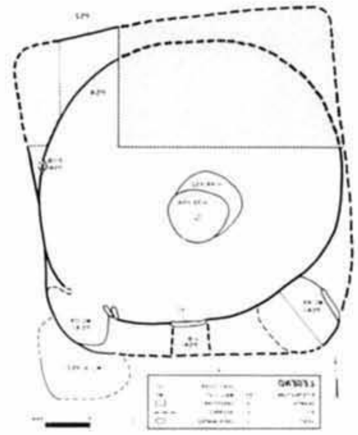

Figure 7.55 – Map illustrating Pitstructure 4 centered over Pitstructure 5, Area 1, Kin Tliish

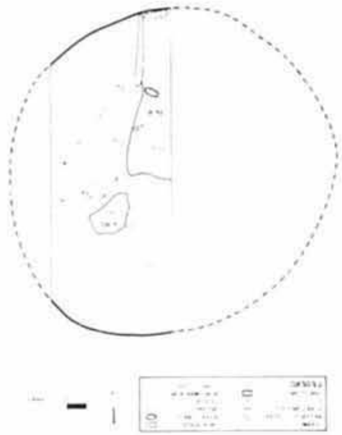

Figure 7.56 – Feature locations and point-located artifacts, Surface 1, Pitstructure 5, Area 1, Kin Tliish

overlain by another postoccupational deposit containing cultural materials, approximately 40 cm thick. That deposit, in turn, was overlain by a homogeneous deposit, which was probably the modern agricultural zone.

Surface 1

The pitstructure floor was excavated into native earth. The floor is approximately 0.5 cm thick. It was apparently cleared, then compacted as a function of use, and following some period of use silt loam was deposited and compacted through use. The silt loam deposit is inferred as "cleaning" rather than remodeling.

Nineteen artifacts were point located on Surface 1 (table 7.38). The floor was sealed by roof fall, and artifacts on the floor are probably related to use of the structure; however, an insufficient amount of the floor was excavated to infer any pattern in the distribution of artifacts.

Two features were identified in the excavated portion of the pitstructure. Neither was excavated.

Unburned pit (Feature 188) – This irregularly shaped pit was located in the southeast quadrant of the pitstructure. The upper fill is similar to or the same as the roof fall stratum overlying the floor in the rest of the structure. The function of the pit is unknown.

Slab-lined pit (Feature 161) – The north half of Feature 161 has upright sandstone slabs protruding as much as 16 cm above the pitstructure floor, and sandstone slabs line at least 3 sides of the feature. The exposed portion of the south half of the pit is slightly irregular in plan and the fill contained numerous sandstone rocks (presumably from postoccupation events), but no such lining was detected for the south side. The pit might have been used for storage.

Interpretations

This small, circular pitstructure is similar to Pitstructure 4 immediately to the northeast. Like that pitstructure, both early Pueblo Gray sherds and corrugated sherds were present on the floor. In Pitstructure 5, however, early and late sherds were sealed on the floor by roof fall. Many more artifacts were on this floor, including numerous flaked lithic items, probably reflecting a more hasty abandonment. The artifacts and the features identified in the small portion of the floor that was cleared are consistent with domestic and economic use of the structure; no evidence for ceremonial use was noted. Except for the 2

Figure 7.57 – Surface 1, Pitstructure 5, Area 1, Kin Tliish (DAP 127332). The dashed line in the lower portion of the photograph is the inferred location of the pitstructure wall.

corrugated sherds, the ceramic assemblage, although small, is consistent with ceramics recovered from the main occupation of Roomblock Unit 1, and the structure would be considered a contemporaneous pithouse. However, the late ceramics and the shape and size of the structure (indicative of a later occupation) provide evidence that Pitstructure 5 probably postdates the rooms.

INTENSIVE EXCAVATIONS – AREA 2

Intensive excavations in Area 2 initially focused on the 7 probability squares (fig. 7.3) for that area. The 5 westernmost probability squares contained trash deposits, and the 2 southeastern probability squares encountered 2 pitstructures (Pitstructures 1 and 3). Once the pitstructures were recognized, efforts were concentrated on excavation of approximately 75 percent of these structures. Roomblock Unit 2 investigations were not a priority; extensive disturbance had occurred in this area (judging by the extent of scattered rubble). Documentation of Roomblock Unit 2 and the adjacent Nonstructural Unit 2 to the north was limited to trenches and stripping loose sediments above the expected wall.

Minimal investigation of the area north of Pitstructure 1 was carried out to determine whether associated surface rooms were present. A trench (excavation unit 10) and a 4- by 2-m area were excavated by hand, and some surface stripping was carried out with a backhoe (fig. 7.3). When Room 10 and Nonstructural Unit 8 were recognized, this area was referred to as Roomblock Unit 3.

Two elements are recognized in Area 2. The earliest includes the occupation of Pitstructure 1 and Roomblock Unit 3 during the Dos Casas Subphase. Sometime later, either during the late Dos Casas or early Perman Subphase, Roomblock Unit 2 and Nonstructural Unit 2 were occupied and construction of Pitstructure 3 was begun. A large pit (Feature 163) in Roomblock Unit 2 that underlies the south wall of Room 9 might have been used during the preceding occupation or might have been part of the roomblock and later truncated by remodeling in Room 9.

The description of Area 2 cultural units is arranged by subphase occupation, beginning with the earliest (Dos Casas Subphase). Discussion of each element is organized by roomblock unit, nonstructural unit, and pitstructure. Due to intensive excavations of the pitstructures, most of the descriptions focus on these units.

Roomblock Unit 3

Roomblock Unit 3 (fig. 7.58) is recognized as a series of at least 10 features which are located on the south-facing slope, 7 to 11 m north of Pitstructure 1. Two postholes (Features 71 and 169) and a small amount of sandstone rubble were initially encountered in this area during the hand excavation of a 1-m-wide, north-south trench (excavation unit 10). After a 4- by 2-m unit was opened east of these postholes, 3 more features were found and Room 10 was identified. Scraping for feature stains with a backhoe revealed an additional 5 features (Nonstructural Unit 8) west of Room 10. Due to time constraints, none of the features in Nonstructural Unit 8 were excavated.

Evidence of a structure in this area was not apparent. Subsurface investigation uncovered long parallel scars extending 5 to 8 cm into the B horizon, indicating that the Roomblock Unit 3 area had been plowed or diked. In addition to disturbance caused by historic farming practices, natural erosion had obscured any trace of the prehistoric ground surface in this area.

The only artifacts collected from Roomblock Unit 3 were recovered during the surface collection and as a result of excavation at the location of Room 10. Because deposits in Roomblock Unit 3 were highly disturbed and because

Table 7.38 - Point-located artifacts, Surface 1, Pitstructure 5, Area 1, Kin Tl'iish

PL No.	Material class	Item description
1	Flaked lithic	Debitage
2	Flaked lithic	Cobble tool
3	Flaked lithic	Thin uniface
4	Nonhuman bone	Item misplaced
5	Ceramic	DL Corrugated Body Sherds, jar sherds (2)
6	Ceramic	DL Early Pueblo Gray jar sherd
7	Nonhuman bone	Mammalia, large
8	Vegetal	Pinus edulis wood, charred (4.3 g)
9	Flaked lithic	Debitage
10	Flaked lithic	Debitage
11	Flaked lithic	Debitage
12	Flaked lithic	Debitage
13	Flaked lithic	Debitage
14	Ceramic	DL Early Pueblo Gray jar sherd
15	Nonhuman bone	Indeterminate fragment
16	Flaked lithic	Debitage (2)
17	Ceramic	DL Polished White bowl sherd

Refer to figure 7.56 for artifact locations.
(N) - Number of items.
(g) - Weight of items.
DL - Dolores Manufacturing Tract.

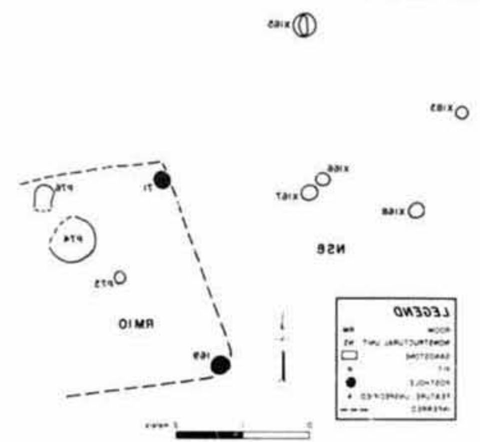

Figure 7.58 - Feature locations, Room 10 and Nonstructural Unit 8, Area 2, Kin Tl'iish

the priority was to locate surface and architectural features, sediments from the modern ground surface down to the sterile B horizon were not screened. All materials from features were screened through ¼-inch mesh.

Artifact density on the modern ground surface in this area is higher than average for the site (fig. 7.5). Flaked lithic tools and Early Pueblo Gray sherds are well represented. A Mancos Black-on-white sherd was also collected. This is not believed to be associated with Room 10, but rather with the last use of the site during the Sundial Phase.

Roomblock Unit 3 and Pitstructure 1 are believed to represent the earliest occupation of Kin Tl'iish. These are the only Dos Casas Subphase structures identified, suggesting that a small group inhabited the site during this period.

Room 10

The presence of a room in Roomblock Unit 3 is indicated by the arrangement of the following 5 features (fig. 7.59): 2 postholes (Features 71 and 169), a possible hearth (Feature 74), a possible ash pit (Feature 76), and a small unburned pit (Feature 73).

Although a few sandstone rocks were noted east of Room 10 in excavation unit 10, no positive identification of Room 10 wall remnants could be made. If at some time a basal course of rock typical of Dos Casas Subphase rooms had been present, the rubble was removed either prehistorically or during historic clearing/farming of the area. Natural erosion could have obliterated any trace of jacal walls. A few pieces of adobe were found in the fill.

Postholes were found only in the west half of Room 10. If the 2 postholes (Features 71 and 169) were located close to the west wall, the estimated wall length would have been 3.5 m. If the possible hearth (Feature 74) was centrally located between the east and west walls, the room would have been essentially square.

Stratigraphy. - Sediments were removed as a single unit down to the contact with the sterile B horizon, approximately 18 cm below the modern ground surface. The modern surface horizon (0-8 cm deep) was loose, unstructured, very fine, yellowish-red sandy loam held together primarily by roots. The stratum was underlain by approximately 9 cm of compact, reddish-brown, sandy clay loam with a large, platy structure. The prehistoric ground surface was not observed. All features recognized had been dug into the sterile B horizon.

Surface 1. - An actual surface in Room 10 was not observed. The room floor was defined on the presence of the 3 pits and 2 postholes (table 7.39) noted in the excavation unit.

Postholes (Features 71 and 169). Features 71 and 169 average 27 cm in diameter and contained rocks for post

Figure 7.59 - Features in Room 10, Area 2, Kin Tl'iish (DAP 123421)

Table 7.39 – Feature summary, Surface 1, Room 10, Area 2, Kin Tl'iish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
71	Posthole	Round	Cylindrical	27	23	43
73	Unburned pit	Round	Cylindrical	16	14	10
74	Burned pit	Oval	Irregular	34	34	15
76	Unburned pit	Oval	Basin	40	30	8
169	Posthole	Round	Cylindrical	•30	•27	. . .

•Existing dimension; complete dimensions not available.
Refer to figure 7.58 for feature location.
. . . - Information not available.

support. A flat rock lined the base of Feature 71 and a generalized tool fragment (Pl. 1) had been placed vertically along the south wall of the feature. Small sandstone rocks, interpreted to be shims, were located along the periphery of Feature 169. Feature 71, the only posthole excavated, was filled with postoccupational wind- and water-deposited material containing tiny bits of charcoal. No wood was present. Feature 169 was bisected during the excavation of excavation unit 10 and was only documented in profile.

Burned pit (Feature 74). This shallow basin was disturbed by rodents and disking along portions of its south and east boundaries. The north and west edges of the feature exhibit oxidation. A silt loam with a high ash content overlays the burned portion of Feature 74. Covering the central, unburned area of the feature was a very compact sandy clay loam with tiny flecks of charcoal, 33 sherds, and 1 piece of flaked lithic debitage. All but one sherd are derived from a Moccasin Gray jar. The 1 corrugated sherd was found at the bottom of a plow scar. Feature 74 may have functioned as a hearth, based on its large diameter, shallow depth, and the presence of oxidation.

Unburned pit (Feature 76). Feature 76, a small unburned pit, is situated along the north edge of Feature 74. Feature 76 was filled with the same material (ashy silt loam) as that found in the burned portion of the possible hearth. Four pieces of flaked lithic debitage, 1 charred bean (*Phaseolus*), 2 Early Pueblo Gray jar sherds, 1 unmodified river cobble, and 3 small sandstone fragments were recovered from the feature fill. The high ash content in the fill suggests that Feature 76 was used as an ash pit associated with the possible hearth.

Unburned pit (Feature 73). Feature 73, a cylindrical pit of unknown function, is situated southwest of the possible hearth. It was filled with a compact sandy clay loam with tiny pieces of charcoal and contained no artifacts.

Interpretations. - Room 10 is believed to be a nonmasonry structure of which approximately the western two-thirds have been identified. Severe disturbance by rodents, erosion, insects, and historic farming has obscured all traces of the walls and surface. A hearth and an ash pit were probably centrally positioned in the room. The presence of the burned bean in the ash pit may indicate that domestic activities occurred here.

The location of Room 10, coupled with its ceramic assemblage from undisturbed contexts, suggests that this structure was part of the Dos Casas Subphase occupation of Kin Tl-iish. The small (3 Early Pueblo Gray sherds and 3 Moccasin Gray sherds) ceramic sample from the hearth and ash pit is consistent both with the early ceramic assemblage from Pitstructure 1 (located 7 m south of Room 10) and with the presence of Pueblo I ceramics in the surface assemblage from this vicinity (fig. 7.6). Project area surface rooms dating to the Dos Casas Subphase typically contain a basal course of rock overlain by mud (Brisbin et al. 1982; Kuckelman 1983). The absence of building stone in Room 10 may indicate that masonry was never present in the room or that the stones were removed after occupation of the structure ended. During the Dos Casas Subphase, pitstructures were typically located a few meters south or southwest of the surface rooms (Kane 1983b:153). Pitstructure 1 conforms to this pattern and is the only pitstructure detected in the vicinity of Room 10.

Nonstructural Unit 8

Features 165, 166, 167, 168, and 183 (table 7.40) situated slightly north and west of Room 10, comprise Nonstructural Unit 8. These features were not excavated, and all

Table 7.40 – Feature summary, Surface 1, Nonstructural Unit 8, Area 2, Kin Tl'iish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
165	. . .	Round	. . .	•30	•30	. . .
166	. . .	Round	. . .	•18	•18	. . .
167	. . .	Round	. . .	•24	•20	. . .
168	. . .	Round	. . .	•21	•21	. . .
183	. . .	Round	. . .	•16	•16	. . .

•Existing dimension; complete dimensions not available.

Because these features were not excavated, feature types were not assigned and dimensions describe only the size of the stains encountered at the contact of cultural and natural sediments. Refer to figure 7.58 for feature locations.

. . . - Information not available.

were recognized as dark stains encountered during backhoe scraping of the area. They were observed at the contact between cultural and sterile sediments. This contact may represent the approximate location of the prehistoric ground surface in this area; however, due to the natural and historical disturbances, no positive identification of a cultural surface was made.

The features range from 16 to 30 cm in diameter, and all appear to be round in plan. Feature 165 contains a large river cobble. Feature 183 may be a posthole or a very small hearth, as it is burned along the east edge and contains fragments of charred wood.

Little is known about the activities carried out in Nonstructural Unit 8. The modern ground surface assemblage from this area (figs. 7.5, 7.8, and 7.9) is dominated by flaked lithic tools and debitage, perhaps indicating a focus on specialized processing activities or trash disposal. If Feature 183 is a posthole, it might have functioned as part of a drying rack, smoking rack, elevated storage facility, or even a structure.

At Dos Casas Hamlet (Site 5MT2193), the roomblock is composed of "7 jacal surface structures separated by 2 occupation/activity areas which might have been covered by ramada-like timber and brush structures. There were also at least 4 "outdoor" pit features in the vicinity" (Brisbin et al. 1982:100). Room 10 and Nonstructural Unit 8 at Kin Tl-iish may resemble the layout at Dos Casas Hamlet, where closed structures (such as Room 10) are located next to open or only partially walled roofed work areas such as Nonstructural Unit 8.

Pitstructure 1

Dimensions

North wall	
length (observed)	5.13 m
length (inferred)	5.50 m
height (remaining)	0.85 m
South wall	
length (observed)	5.13 m
length (inferred)	5.50 m
height (remaining)	1.00 m
East wall	
length (observed)	4.82 m
length (inferred)	4.82 m
height (remaining)	0.85 m
West wall	
length (observed)	not observed
length (inferred)	4.82 m
height (remaining)	not observed
Total floor area	25.5 m

Pitstructure 1 is located on a gentle [illegible]cing slope, 3 m lower in elevation than th[illegible]ion of the site on which Roomblock Unit [illegible]structed (fig. 7.3). It is flanked on the east by a small drainage that marks the southeastern limit of the site and is situated 7 m east of Pitstructure 3 and 7 m south of Room 10.

Pitstructure 1 was first recognized during the excavation of probability square 1305/94E (fig. 7.3). After removal of 30 cm of postabandonment fill, the probability square was augered to a depth of 1.08 m without reaching a floor. The occurrence of charcoal and adobe in the augered sediments coupled with the depth of the deposit indicated the presence of a pitstructure. A cross trench was excavated to determine the location of the structure walls. The north-south trench was placed along the west edge of the probability square, down the 94E line. The west profile of this trench was used for the stratigraphic description of Pitstructure 1 fill (fig. 7.60). An east-west trench cuts through the pitstructure just north of the hearth. The entire pitstructure east of the north-south trench (approximately 85 percent of the structure) was excavated. Pitstructure fill within the probability square and 0 to 10 cm above the floor was screened through one-quarter-inch mesh, and material from excavated features was screened through one-eighth-inch mesh.

Stratigraphy

Six main stratigraphic units are recognized in the north-south profile of Pitstructure 1. Stratum 1 was the topsoil unit: a brown to dark brown friable silt loam. This unit was 10 to 30 cm thick and overlies pitstructure fill.

Strata 2 and 3 were natural deposits containing little cultural material. Stratum 2 was reddish-brown silt loam of firm consistency, and had a clear, smooth boundary with Stratum 3. It was found within the north half of the pitstructure and ranged from 1 to 37 cm thick. Stratum 3, a yellowish-red silt loam, contained slightly larger pieces (less than 1 cm) of charcoal than Stratum 2. It was 1 to 45 cm thick and was present within the northern two-thirds of the pitstructure. Stratum 3 was bounded along its upper limit by Strata 2 and 1 and along its lower limit by Strata 4 and 6. The lower boundary of Stratum 3 was basin shaped and was thickest 80 cm south of the north wall of the structure.

Stratum 4 was a unit (1 to 100 cm thick) of yellowish-red silt loam north of the wingwall. This unit was characterized by long, 2- to 3-cm-thick lenses of sand, charcoal-rich deposits, and deposits free of charcoal. A moderate amount of cultural material was present in addition to sandstone rocks (5-14 cm) and chunks of adobe (1-7 cm). This stratum represents a mixed deposit derived from both cultural and natural (wind and water) agents. It was located in the basin created by the upper boundary of Stratum 6. Water likely collected in the basin, causing suspension and then redeposition of particles in lenses along the base of the cavity. The charcoal-rich lenses are interpreted as secondary refuse that was subsequently redeposited by alluvial activity.

Stratum 5 was the sterile subsoil into which Pitstructure 1 was constructed. It was very firm, brown silt loam containing calcium carbonate nodules. The lower wall in the northwest corner of the excavated portion of Pitstructure 1 was formed by a stepped block of firm, light reddish-brown silt loam (Substratum 5a in fig. 7.60) exhibiting a very high percentage of calcium carbonate nodules. This is interpreted to be the bench, although its surface occurs closer to the pitstructure floor than elsewhere in the structure.

Stratum 6 was a massive unit of crumbly, dark brown silt loam that rested on the pitstructure floor. Cultural materials, including adobe and charcoal, occurred throughout this unit in very high percentages. Stratum 6 was comprised of collapsed structural material, probably wall fall and roof fall, mixed with trash. The absence of roof beams in this and the overlying deposits is explained by the probable salvaging of wood from the pitstructure evidenced by the absence of posts in all the postholes. Stratum 6 was thickest in the south half of the pitstructure. In the north half of Pitstructure 1, Stratum 6 created a basin that was filled primarily with Stratum 4. The very thick configuration of Stratum 6 in the southern end of the pitstructure may have resulted from intentional removal of the roof in the southern end of the structure prior to removal of the roof in the northern portion. Had the roof south of the main framework been dismantled first, massive filling originating from both the walls and the roofs may have accumulated in this area. As the remaining roof (in the north end of the structure) was dismembered, closing material might have been deposited in the cavity at the southern end of the structure.

In summary, sometime after Pitstructure 1 fell into disuse the roof was dismantled and the structure began filling with wall fall, roof fall, and trash. The remaining pitstructure depression was filled by natural processes and occasional episodes of trash disposal.

Surface 1

The thin (0.5 to 1.0 cm) floor of Pitstructure 1 is hard, use-compacted native earth covered with varying thicknesses (0.2 to 3.0 cm) of sand. The sand is thickest near the middle of the structure, just north of Feature 65. The floor is dish shaped, level in the middle and raised along the edges where it nears the walls. It is most raised in the northeast corner where it is 15 to 17 cm higher than in the center of the structure. As is typical of partitioned pitstructures (Bullard 1962:152), the floor south of the wingwall is higher (5 cm) than the floor immediately north of the slab walls. Artifacts from the floor are discussed in the "Material Culture" section.

The 52 features documented in Pitstructure 1 are listed in table 7.41 and their locations are shown in figures 7.61 and 7.62. All but Features 115, 171, and 173 were wholly or partially excavated.

Postholes. – At least 6, and perhaps 7, postholes are located in the excavated portion of Pitstructure 1. These include 4 main support postholes (Features 7, 90, 91, and 94) and 2 auxiliary postholes (Features 70 and 85) located along the south wall (Feature 92 may be a posthole, also

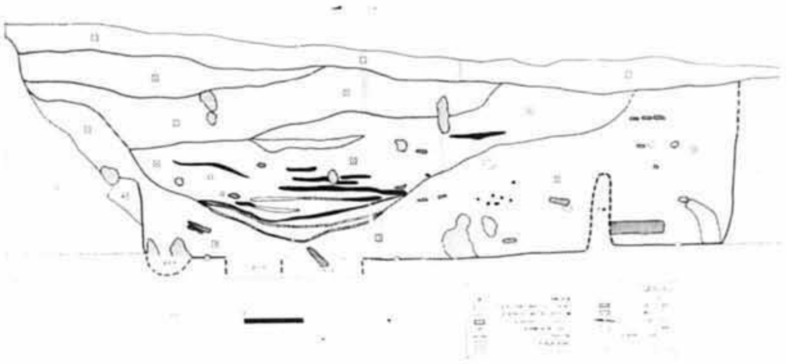

Figure 7.60 – Stratigraphic profile, Pitstructure 1, Area 2, Kin Tl'iish. Refer to figure 7.61 for profile location.

Table 7.41 – Feature summary, Surface 1,
Pitstructure 1, Area 2, Kin Tl'iish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/ height (cm)
3	Bench	n.o.	...	...	47	80
5	Wingwall	Complex	Rectangular	800	12	54
6	Hearth	Round	Basin	105	96	20
7	Posthole	Oval	Triangular	52	47	90
8	Unburned pit	Round	Basin	9	9	4
9	Unburned pit	Round	Basin	11	9	8
10	Unburned pit	Round	Basin	7	7	4
50	Unburned pit	Round	Basin	33	30	13
51	Unburned pit	Irregular	Irregular	88	107	27
52	Unburned pit	Round	Cylindrical	30	28	20
53	Unburned pit	Oval	Basin	35	27	[illegible]
54	Unburned pit	Oval	Basin	13	9	8
55	Unburned pit	Round	Basin	35	25	10
60	Unburned pit	Oval	Triangular	9	6	9
61	Unburned pit	Round	Cylindrical	7	7	9
62	Unburned pit	Round	Basin	15	14	2
63	Unburned pit	Round	Complex	5	5	9
64	Ash pit	Oval	Irregular	60	76	14
65	Unburned pit	Round	Basin	43	44	25
66	Ladder rest	Round	Basin	5	5	2
67	Unburned pit	Round	Basin	7	7	2
68	Ladder rest	Round	Basin	5	5	5
69	Unburned pit	n.o.	...	...	...	...
70	Posthole	Round	Cylindrical	15	15	25
86	Unburned pit	Round	Basin	18	14	1
87	Unburned pit	Complex	Complex	10	6	5
88	Posthole	Round	Cylindrical	18	15	26
89	Unburned pit	Round	Basin	35	42	18
90	Posthole	Round	Cylindrical	25	24	70
91	Posthole	Rectangular	Cylindrical	46	50	73
92	Unburned pit	Round	Basin	13	14	12
93	Unburned pit	Oval	Bell	24	15	17
94	Posthole	Rectangular	Cylindrical	32	30	[illegible]
103	Unburned pit	Oval	Basin	34	30	17
105	Unburned pit	Complex	Complex	55	40	23
112	Unburned pit	Round	Basin	11	10	7
113	Unburned pit	Complex	Complex	30	15	14
114	Unburned pit	Oval	Basin	14	11	8

recording its appearance in profile. No artifacts were noted. The feature was overlain by 5 to 7 cm of a partly cultural deposit beneath the Room 5 floor.

Unburned pit (Feature 122). – Feature 122 was identified in profile. The test unit profile did not cut to the base of the pit, however, it is apparent that the pit was excavated into native earth and has a stratified fill. The deepest stratum identified was dark brown and contained no artifacts or other material. It was overlain by brown silt loam with inclusions of charcoal and adobe or by strong brown silt loam with no inclusions. A small amount of burned earth was present along the northern edge of the pit. The pit was heavily disturbed both as a result of rodent and plant activity and the construction of the floor in Room 4, which truncated the east portion of the pit. The function of Feature 122 is not known; the burned earth at the north edge of the pit may be postoccupational fill rather than evidence of burning within the feature.

Unburned pit (Feature 123). – This small pit was identified approximately 30 cm below its point of origin. The pit is oval in plan and may have been cylindrical in profile, based on the small area in which high chroma sediment was noted prior to recognition of the feature. The feature fill was a brown loam containing soft red adobe, charcoal inclusions, and humus stains. No artifacts were noted. Feature 123 was probably a posthole, based on its apparent morphology, especially the depth which appeared to be more than 30 cm.

Unburned pit (Feature 207). – Feature 207 was identified in a test trench. It is located at the contact between cultural fill and native earth, less than 20 cm below the modern ground surface. The feature contained many rocks; however, it was not investigated, and its function is not known.

Unburned pit (Feature 208). – Feature 208 was identified north of Feature 207, in the same context as the other pit. It was not investigated and its function is not known.

Interpretations

The chronology for Nonstructural Unit 7 has been established only by stratigraphic evidence. The stratigraphy shows that occupation at the north end of Kin Tl'iish predated Roomblock 1 construction. Whether Nonstructural Unit 7 represents an occupation as early as that of Pitstructure 1 in Area 2 is not known.

The features may have been intentionally filled, as many do not contain trash. However, intentional filling would argue for a more rapid reuse of the area than would be indicated by the length of time estimated between Pitstructure 1 occupation and Roomblock Unit 1 occupation.

The type of occupation area represented by Nonstructural Unit 7 was not determined. Feature types include a storage cist (Feature 121) and unburned pits (Features 123, 208, 48, and 207), 3 of which may be postholes. The number and distribution of the possible postholes is insufficient even for a ramada-type structure.

Feature 2

Feature 2 (fig. 7.47, Human Burials 31-1, 31-2, 31-3, and 31-4) is an arbitrary provenience given to human bones recovered from the upper fill of masonry rooms in Roomblock Unit 1. The bones in Feature 2 represent 4 individuals (3 adults and 1 child), which is based on the incomplete excavations. Therefore, it is likely that the number of individuals actually present in this feature was somewhat higher. The original burial type of any individual in Feature 2 is unknown. These burials were disturbed or destroyed prehistorically.

The bones appear to be in redeposited sediments; the bones and the matrix of other fill may have been leveled, following their deposition in the roomblock. Where burials were redeposited at the east end of the roomblock, they were subsequently leveled and an occupation surface (Nonstructural Unit 6) was established over at least part of the deposit.

It is possible that sometime after the occupation of Pitstructure 2, several bodies were interred in the pitstructure fill. Pitstructure 4 was subsequently excavated into the fill of this structure and perhaps during removal of Pitstructure 2 fill these bones (Feature 2) were redeposited across the roomblock in basket loads of dirt. Bones remaining in the fill of Pitstructure 2 behind the walls of Pitstructure 4 may have become mixed with the walls of Pitstructure 4 deposits after the latter structure collapsed.

The bones were limited to the upper fill of individual rooms and were often interspersed with roof fall and wall fall, especially sandstone slabs and blocks. The burials were disarticulated and often the bones were fragmentary. The sediments that formed the matrix for the bones were similar from room to room. Within Room 7, the matrix was friable (dry), brown to dark brown loam with a medium granular structure. It contained some artifact, charcoal, and root inclusions (refer to fig. 7.30, table 7.18). The depth of Feature 2 is variable, but it is within 5 to 25 cm below the modern ground surface. Other bones identified in the fill of Pitstructures 2 and 4 were neither provenienced with Feature 2 nor submitted for lab identification. The matrix in which these bones were found was virtually the same as that around the bones from Feature 2 in Roomblock Unit 1. The matrix in Pitstructures 2 and 4 was a brown to dark brown coarse silt

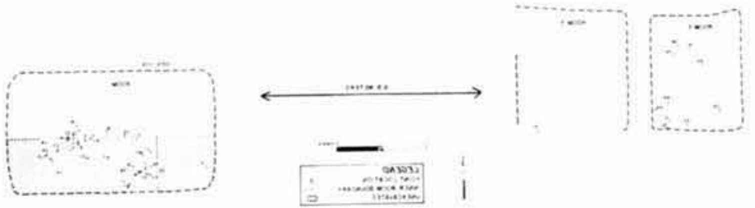

Figure 7.47 – Point-located human bone from Feature 2 (Burials 31-1, 31-2, 31-3, and 31-4), Area 1, Kin Tl'iish

C52

loam containing charcoal fragments, artifacts, and sandstone slabs and blocks. In the pitstructures, most (possibly all) bone was identified in fill well above the level of the floor of the later pitstructure. All but one fragment of bone was within or above roof fall and mixed fill in Pitstructures 2 and 4 which had washed toward the center of the late pitstructure depression after the wall between them collapsed.

In total, scattered remains of human burials were found in all rooms that were wholly or partly excavated except Rooms 2 and 4 (back rooms). Human bone was noted in Room 13, but not collected, and bone was recovered from the plaza area (Nonstructural Unit 4) between the roomblock and the pitstructures, but it was not provenienced with point locations. In the surface rooms, most bone came from the central portion of the roomblock, especially from front rooms immediately north of Pitstructures 2 and 4 (fig 7.47).

Although the date when Feature 2 was deposited is not known, the bones were placed in rooms assumed to have been abandoned prior to A.D. 900, according to ceramic dating. Since Feature 2 was located in the uppermost fill in surface rooms, it should be associated with the latest dates assigned to room fill. Upper fill in Rooms 1 and 7 included not only Corrugated Body Sherds, but also a few Mancos Black-on-white sherds, which were produced after A.D. 980 (Blinman et al. 1984:table 2). A complete discussion of the human remains from Kin Tl'iish is presented in appendix 7B.

Pitstructure 2

Dimensions:

North wall	
excavated length:	unknown
inferred length:	3.60 m
maximum height remaining:	0.96 m
South wall	
excavated length:	unknown
inferred length:	2.75 m
maximum height remaining:	0.45 m
East wall	
excavated length:	3.25 m
inferred length:	3.25 m
maximum height remaining:	1.08 m
West wall	
excavated length:	unknown
inferred length:	3.80 m
maximum height remaining:	1.35 m
Total floor area:	14.00 m

Pitstructure 2 is a small, subrectangular structure excavated into native earth. The pitstructure floor is approximately 1.9 m below the modern ground surface and may have been almost as deep relative to the prehistoric ground surface. The roof support system probably consisted of 4 corner supports with 2 support posts in the south end of the structure which might have been set in a wingwall system.

The pitstructure was only partially excavated. Moreover, most of the pitstructure floor was destroyed by the later construction of a deeper pitstructure (Pitstructure 4) (fig. 7.48).

Stratigraphy

Very little of the postoccupational fill in Pitstructure 2 remains for investigation. However, based on deposits at the extreme north and south edges of the pitstructure depression, roof collapse preceded, or at least co-occurred, with wall collapse (Strata 9 and 11 in fig. 7.49, table 7.33). At the north edge of the structure, from which drainage and slumpage would be expected, roof fall was overlain by Stratum 8, which is interpreted as having been derived largely from the collapse of the native earth walls. At the north and east edges of the pitstructure, wall melt was overlain by Stratum 6, a mixed, cultural and natural deposit that probably contained some secondary refuse from the plaza area (Nonstructural Unit 4). The prehistoric ground surface, probably within Stratum 2, must have been located above this depth for these sediments to wash into the pitstructure depression. Stratum 2 is interpreted as a postabandonment deposit that contained a developing soil horizon. As excavations did not continue north of the pitstructure, it is not possible to say where the prehistoric surface was. East and west of the pitstructure, almost to the northern edge of the structure, upper sediments had been disturbed by historic plowing (Stratum 1).

Surface 1

The floor of Pitstructure 2 is a use-compacted surface on native earth. The surface is flat to slightly basin shaped, and floors curve to become the pitstructure walls. Most of the central portion of the floor was truncated by later construction (Pitstructure 4).

Artifacts associated with the surface (an Early Pueblo Gray ware and a debitage fragment) were recovered only from the extreme north end of the exploratory trench. Although charred beams (*Pinus ponderosa* and *Populus* spp.) lay directly on the floor, and the floor itself was sooted, the small sample of floor area and number of artifacts makes it impossible to determine whether the pitstructure was catastrophically abandoned. The artifacts may be part of a postoccupational deposit or

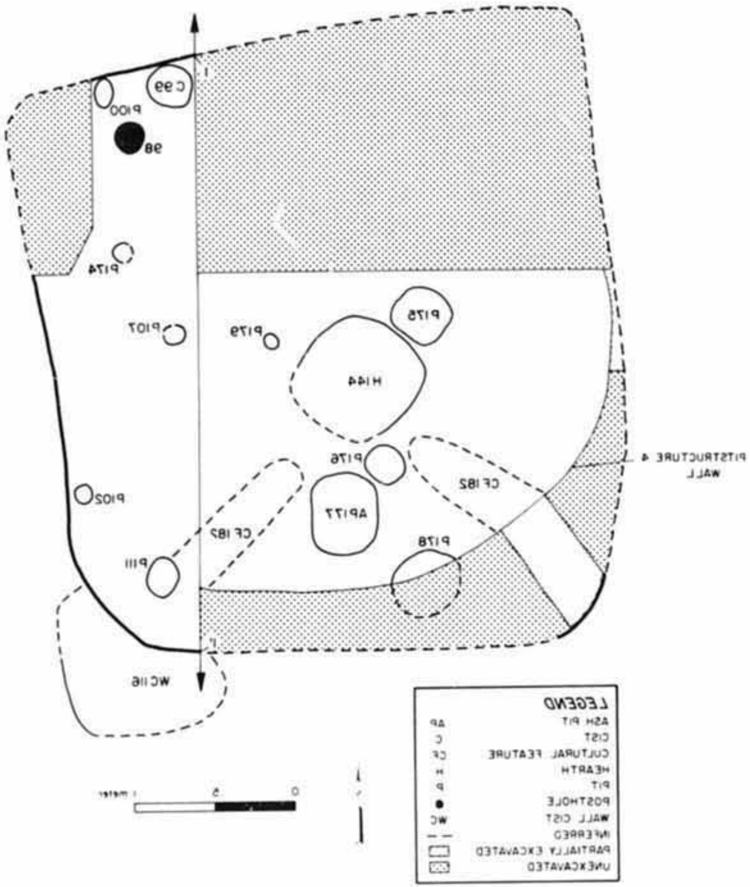

Figure 7.48 - Feature locations, Surface 1, Pitstructure 2, Area 1, Kin Tl'iish

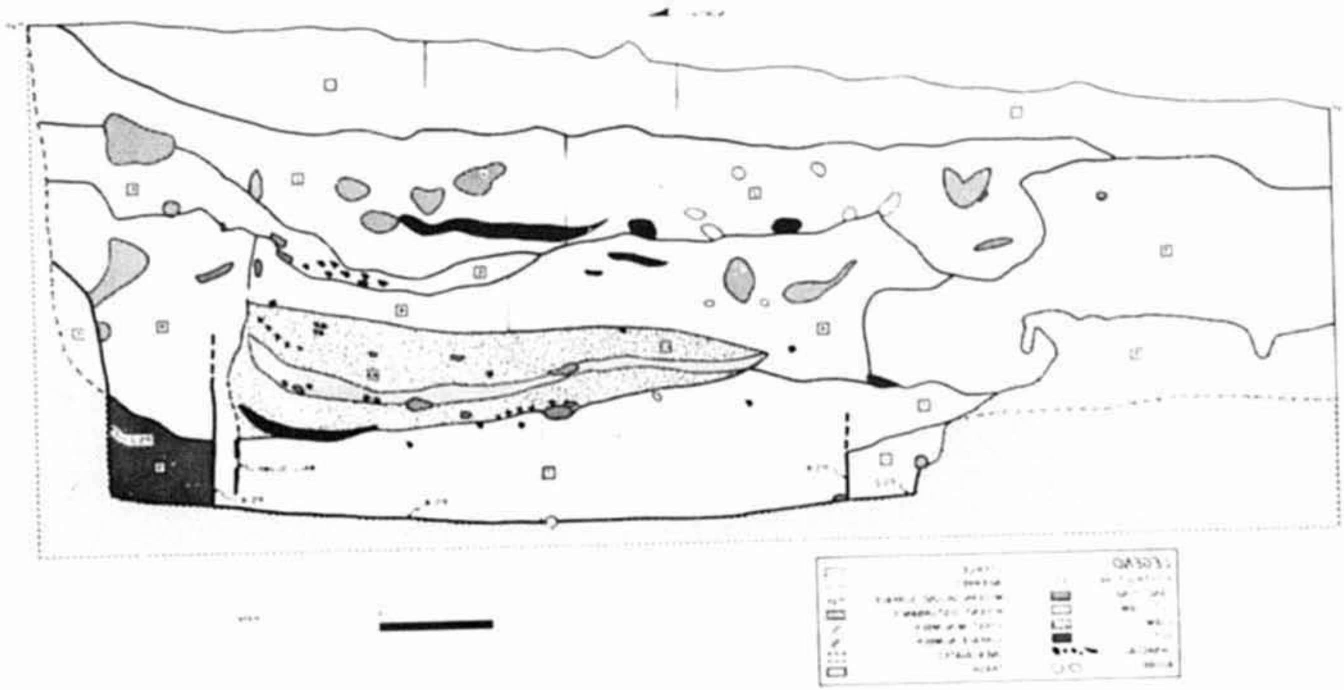

Figure 7.49 - Stratigraphic profile, Poststructures 2 and 4, Area I, Kin Tl'iish. Refer to figures 7.48 and 7.50 for profile location

Table 7.33 - Stratigraphic description, Pitstructures 2 and 4, Area 1, Kin Tl'ish

Stratum No.	Sediment description	Color (Munsell notation)	Inclusions	Comments/interpretations
1	Sandy silt	Brown (7.5YR 4/5 to 5/4, dry)	Cobbles and artifacts	Abrupt smooth boundary to Stratum 2. Plow zone
2	Silt loam	Dark brown (7.5YR 3/2 to 4/4 dry)	Mottles of organic material, few charcoal or artifact inclusions; fingers of higher chroma silt loam; many krotovina	Abrupt wavy boundary to Stratum 4 or 6. Postabandonment deposits
3	Silt loam	Strong brown (7.5YR 5/6, dry)	Carbonate inclusions and some charcoal	Abrupt, irregular boundary to Stratum 5. Natural deposit with some admixture of cultural material where deposits have slumped into pitstructure depression
4	Silt loam	Reddish brown to yellowish red (7.5YR 4/4 to 5YR 5/5, dry)	Charcoal inclusions of various sizes, adobe, and artifacts	Gradual smooth boundary to Stratum 10 or abupt boundary to Stratum 7. Postoccupational deposit which includes, naturally deposited materials and redeposited trash
5	Silt loam	Light brown (7.5YR 6/4, dry)		Native earth
6	Silt loam	Brown (7.5YR 5/4, dry)	Fragments of charcoal and, along its lower boundary, tabular sandstone fragments	Abrupt wavy boundary to Stratum 4. Postoccupational deposit
7	Silt loam	Reddish brown to yellowish red (7.5YR 4/4 to 5YR 5/3)	Adobe (very similar to Stratum 4)	Natural, postoccupational deposit containing some wall slump material
8	Silt loam; fine	Strong brown (7.5YR 4/6 to 5/6)	Massive, with some charcoal	Abrupt boundary to Stratum 9. Pitstructure 2 fill, probably including some collapsed structural materials
9	Silt	Brown to dark brown (7.5YR 4/4, dry)	Charred beam fragments, especially near base of stratum and some ceramic sherds	Abrupt smooth boundary to Pitstructure 2 floor. Collapsed roof stratum, Pitstructure 2
10	Loam; lenses of charcoal and brown loam	Reddish brown to yellowish red (5YR 5/5, dry)	Many small artifacts, sandstone spalls, and charred beam fragments	Collapsed roof stratum, Pitstructure 4
11	Silt loam	Brown to dark brown (7.5YR 4/4, dry)	Charred beam fragments, burned adobe, and some ceramic sherds	Collapsed roof stratum Pitstructure 2

may be associated with material from the roof. In any event, too few items are available to provide behavioral information.

Functional areas within the pitstructure depend on the interpretation of feature patterning. Fifteen features (table 7.34, fig. 7.48) were identified in the cleared areas of the pitstructure.

Posthole (Feature 98) – The northeast corner posthole is a deep cylinder with evidence for at least one remodeling episode within its stratified fill. The lowest stratum consisted of a river cobble, which served as a base stone, overlain by a graduated fill of pebbles. The larger pebbles were nearer the base of the pit and all pebbles were packed most closely near the edges of the pit. The very fine pebbles at the top were overlain by another flat river cobble that seems also to have served as a base stone. Pebbles ring the posthole just above this base stone, and several rock shims and an Early Pueblo Gray jar sherd (Pl. 1), which apparently served as a shim, ring the top of the posthole at Surface 1. Matrix for the pebbles was a very fine, brown silt loam containing a few pieces of flaked lithic debitage and, especially in the fill above the upper base stone, charred wood remains. Four fragments of wood were identified in situ. Two of these (Pl.'s 3 and 4) were recovered from the lower fill. Both contain juniper (*Juniperus* sp.) wood that presumably represent the same post; however, ponderosa pine (*Pinus ponderosa*) wood was also recovered in Pl. 3. Apparent post remains in the upper fill include pinyon pine (*Pinus edulis*) and ponderosa pine, but other wood is present, and all of it is charred.

Hearth (Feature 144) – This central hearth is a deep basin. Most of the hearth was removed by the construction of the central hearth (Feature 159) for Pitstructure 4. Only the lowest fill in Feature 144 remained; this fill was ash with some charcoal, which was interpreted as primary refuse. Two Moccasin Gray jar sherds were recovered from this ash, as were numerous macrobotanical remains in a bulk soil sample (BS 49). All of the macrobotanical remains are charred; the assemblage is dominated by seeds of forbs; this is one of the few assemblages of probable plant food remains from Kin Tl'iish. Refer to table 7A.12 for a list of plant remains from this feature. The early primary fill seems to have been capped with construction fill, including sandstone slabs and sediment, that was similar in color and texture to native earth. This cap was probably deposited during the construction of the Pitstructure 4 hearth.

Wall cist (Feature 116) – Most of this wall cist was removed as a result of backhoe testing. The cist might have been semicircular to bell shaped in plan with a wedge-shaped profile. The fill, which contained large amounts

Table 7.34 – Feature summary, Surface 1, Pitstructure 2, Area 1, Kin Tl'iish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
98	Posthole	Round	Cylindrical	21	20	25
99	Small floor cist	Round	Bell	24	26	29
	Unburned pit					
100	Unburned pit	Round	Basin	17	11	6
102	Unburned pit	Round	. . .	13	12	. . .
107	Unburned pit	Oval	Basin	15	13	10
111	Wall cist	Round	Cylindrical	20	25	68
116	Hearth	n.o.	Wedge shaped	80	45	41
144	Unburned pit	Round	Basin	*80	*84	41
174	Unburned pit	n.o.	Basin	*15	15	11
175	Unburned pit	Rectangular	. . .	*46	*46	. . .
176	Ash pit	Round	. . .	*29	*32	. . .
177	Unburned pit	n.o.	. . .	*66	*50	. . .
178	Unburned pit	Round	. . .	54	55	. . .
179	Cultural feature	Round	. . .	*9	*9	. . .
182		Irregular	. . .	*203	*46	. . .

*Existing dimension; complete dimensions not available.
Refer to figure 7.48 for feature location.
n.o. - Observation could not be made.
. . . - Information not available.

of burned adobe, was similar to the roof fall stratum in the main chamber of the pitstructure. Fill may have been collapsed roof materials in a naturally deposited matrix. One Early Pueblo Gray jar sherd recovered from the east edge of the cist may be part of this postoccupational deposit. Presumably, the cist was used for storage; however, the nature of the storage is unknown.

Small floor cist (Feature 99) – This small, bell-shaped cist is slightly asymmetrical. At least the lower part of the feature was plastered with mud. The cist contained a stratified fill. The lower fill was fine, brown silt loam with very small mottles of adobe, flecks of charcoal, and very small, irregular mottles of ash; it contained flaked lithic debitage and a small bone fragment. Two bulk soil samples (BS 36 and 37) revealed numerous charred macrobotanical remains (refer to table 7A.12). The upper fill of Feature 99 was loose, brown silt loam with many inclusions of burned adobe and charcoal, including 3 beam fragments that were submitted for tree-ring dating (these did not provide dates). This upper fill resembled the roof fall above the pitstructure floor and is presumed to be the same deposit. The function of the cist appears to have been storage and may have required the numerous leaf fragments found in the feature as part of the storage process. As mud lining enhances protection from pests (Dyk and Dyk 1980), Feature 99 may have been used for food storage.

Unburned pit (Feature 100) – This small basin may contain only postoccupational fill. The fill was loose, brown silt loam with a high ash content; it was very similar to the fill above the floor. Three debitage flakes, a utilized flake, and a mammal bone fragment were present in the uppermost fill.

Unburned pit (Feature 102) – Feature 102 is a small circular pit capped with a grayish silt loam. The pit was partially obscured during the construction of the wall of Pitstructure 4. The capping formed part of a coping of the later Pitstructure 4 wall-floor boundary. The pit was not excavated and its function is not known.

Unburned pit (Feature 107) – This small, oval basin was truncated by Feature 82 in Pitstructure 4. Its fill was brown silt loam with inclusions of charcoal and adobe, but no artifacts. The function of the pit is not known, and it is not apparent whether the pit remained open during the occupation of Pitstructure 4.

Unburned pit (Feature 111) – This circular pit near the southeast corner of the structure was capped with brown silt loam. Only the upper 2 cm of fill were removed; however, this was sufficient to indicate a probable cylindrical profile and the presence of a considerable amount of charcoal and at least 1 piece of flaked lithic debitage below the capping. Based on its location in the pitstructure and on its similarity in size to Feature 98, Feature 111 probably is a posthole for a corner roof support.

Unburned pit (Feature 174) – Feature 174 was truncated during the construction of Feature 82 (burned pit) in Pitstructure 4. The fill in Features 174 and 82 was the same; it was silt loam with numerous charcoal inclusions, which is interpreted as a mixture of postoccupational and cultural sediment. The function of the pit is not known.

Cultural feature (Feature 182) – This feature is defined by irregularities in the Pitstructure 4 surface, approximately 7 to 9 cm below the presumed Pitstructure 2 surface. The dimensions indicated in table 7.34 represent the west half of Feature 182. Although it is not certain whether prehistoric excavations of Feature 182 were for the footings of a substantial wingwall or matched pits (the feature was not investigated), the location and plan makes the wingwall a likely interpretation (fig. 48).

Miscellaneous features not excavated (Features 175, 176, 177, 178, and 179) – Five pits were identified, but not investigated. Features 175, 176, 177, and 179 are located near the perimeter of the hearth and are presumed to be functionally associated with the hearth. The Pitstructure 4 floor truncated these features by as much as 10 cm. All of them must have had a relatively great original depth for central features; therefore, none is interpreted as a pot rest. Feature 177 is interpreted as an ash pit, based on its location and on characteristics of its upper fill. Feature 175, the small pit northeast of the hearth and Feature 176, the small pit northwest of the Feature 177, might also have been ash pits or warming pits. If Features 175 or 176 were used for storage, containment of food stores would be likely, based on their proximity to the hearth (Bretternitz and Lipe 1984). Feature 178 is located near the south end of the structure, south of the possible wingwall scars (Feature 182). Based on that location, a storage function would seem likely. No speculation has been made regarding the function of Feature 179, a very small pit northeast of the hearth.

Interpretations

Pitstructure 2 is a domestic structure. Most features, excluding the apparent corner roof supports and the probable wingwalls, focus on the hearth or appear to have been storage units.

The pitstructure must have had a four-corner roof support system with roof supports in the south end of the structure set into the inferred wingwall. Both wingwall sections apparently abutted the south wall of the structure. The ash pit for the hearth is immediately south of the wingwall opening. No evidence for a deflector was found at the opening of the wingwall; the deflector could have been at the mouth of the ventilator tunnel, south of the excavated portion of the pitstructure.

All of the pits at the perimeter of the hearth area are presumed to be related to cooking or heating activities. Features 175 and 176 may be secondary ash pits or warming pits. Feature 177 is probably the ash pit. The function of Feature 179 is not known.

All remaining features might have been for storage. Certainly, the wall cist (Feature 116) and the bell-shaped cist (Feature 99) are storage units. It is possible that other less distinctively shaped pits also were used for storage.

Dates on the occupation of the pitstructure are inferred from architecture, ceramic analysis, and dates from the associated masonry roomblock. Architecturally, the pitstructure dates within the ninth century; it is subrectangular, lacks a bench, is assumed to possess a ventilation system rather than an antechamber (an antechamber would have been visible in the test trench through the east half of the pitstructure), and does not have well-defined plaster or stone paving (Kane 1984). A date in the late ninth century is supported by its small size and its subrectangular shape, which are both characteristic of Grass Mesa Subphase pitstructures in the project area (Lipe et al. 1988). The U-shaped wingwalls, although present in the project area during that period, are present elsewhere much earlier (e.g., Pithouse F in Jeddito Valley [Daifuku 1961]). In the project area, the ash pits south of the hearth and wingwalls long predate the Grass Mesa Subphase (Kane 1984). Architecturally, Pitstructure 2 could predate A.D. 875, the beginning of the Grass Mesa Subphase.

The architectural date estimates for the pitstructure may be refined by comparison with ceramic data from both the pitstructure and the associated roomblock. The total ceramic assemblage is characteristic of the A.D. 860 to 910 time period (Blinman et al. 1984:72-74), and although types specifically indicative of the A.D. 880 to 910 time period are absent, the total sample is too small to rule out their presence. Although the vast majority of the ceramics postdate A.D. 860, the relatively high frequency of Chapin Gray sherds suggests that initial occupation and construction may have predated A.D. 860, and perhaps was as early as A.D. 825.

Pitstructure 4

Dimensions:

North-south diameter:	2.90 m
East-west diameter:	2.80 m
Maximum remaining wall height:	0.63 m
Inferred wall height:	1.86 m
Total floor area:	8.54 m²

Pitstructure 4 (figs. 7.50 and 7.51) is a small, deep, circular structure. Based on the ceramic assemblage and the stratigraphic location, the occupation of the structure occurred late in the sequence of site occupation. Although it has no wingwalls and no ash pit, its predominately domestic and economic foci are evident by the presence of large storage cists and by the domestic artifacts left on the floor.

Stratigraphy

Pitstructure 4 was excavated through the floor of Pitstructure 2 (figs. 7.49 and 7.52). The Pitstructure 4 floor rests on native earth except where it intersects features associated with the earlier pitstructure. After the pitstructure was sealed and abandoned, infilling began with water-laid sediments and wall slump (Stratum 7, table 7.35). The major deposition began with the subsequent collapse of the burned roof (Strata 5 and 6). Following this, most infilling seems to have been a natural process that occurred relatively quickly.

Numerous human bones were noted along the west edge of the profile. They were not submitted to the lab for identification. These bones may represent an interment in or on the pitstructure roof, or in Pitstructure 2 behind the Pitstructure 4 wall, which washed or collapsed into the lower fill of this late pitstructure. Alternatively, the abandoned depression might have been used by later inhabitants of Kin Tl'iish for burial as well for other purposes.

Surface 1

The floor in Pitstructure 4 is very slightly basin-shaped in profile. It is use compacted; no further preparation was noted. The artifacts recovered from Surface 1 are listed in table 7.36, and the features identified in the structure are described in table 7.37.

Hearth (Feature 139). – The Pitstructure 4 hearth is centered over the hearth of the earlier pitstructure and is separated from the fill of the lower feature by a thin lens of construction material. Fine ash partially filled the pit and contained botanical remains (table 7A.10). Several debitage fragments and nonhuman bones were recovered from the mixed wood and ash. A large, Mancos Corrugated jar (Pl. 11, vessel 5) rested in the hearth (fig. 7.53). The jar had been modified by removal of its base, and an unmodified sandstone slab partially covered the top of the jar.

Ventilation system (Feature 181). – The ventilator tunnel opening is centered in the south wall, at floor level. It has an adobe coping reinforced with rock and it was sealed with a shaped sandstone slab. No part of the ventilation system was investigated.

Wall cist (Feature 109). – This cist was cut behind the southeast corner, and uses the floor and corner walls of

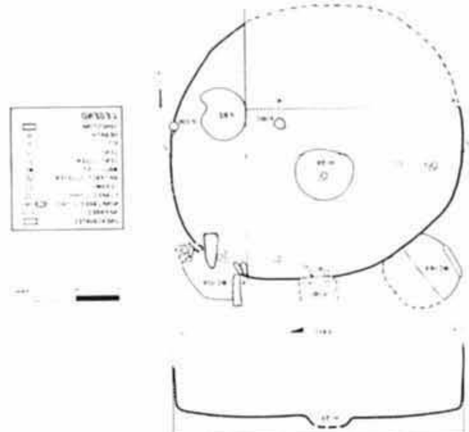

Figure 7.50 – Architectural profile and map showing feature locations and point-located artifacts, Surface 1, Pitstructure 4, Area 1, Kin Tl'iish.

Pitstructure 2 as its boundaries. The height and profile could not be determined because the cist was truncated during mechanized trenching. The walls bordering the pit are redeposited native earth and trash. A shallow trench appears to have been excavated as a foundation for the wall. Near the metate, which forms the west wall, rocks were set in the trench; at the east end, only earth and trash were used for wall construction. The floor of the earlier pitstructure is somewhat higher and, at the cist opening, the Pitstructure 4 surface curves up to the Pitstructure 2 floor; elsewhere, this is an abrupt edge, which forms the lower part of the Pitstructure 4 wall. Few artifacts were recovered from the cist fill; most were removed during backhoe trenching. Several artifacts (PL's 1, 2, 3, 4, 5, and 6 listed in table 7.36) were recovered from the floor of the cist, however, and these may indicate that the cist was used for nonfood storage.

Wall cist (Feature 149). – The wall cist is in the southwest corner of the structure. The cist is oval to subrectangular in plan and has a subrectangular roof/wall with a basin-shaped floor cut approximately 15 cm below the depth of the pitstructure floor. The opening into the cist is roughly circular, marked by an adobe coping. The interior wall of the cist was coated with a thin adobe slip. No artifacts were collected. The fill was loose and uncompacted and is interpreted as a postabandonment deposit of water-laid sediments mixed with collapsed structural materials.

Burned pit (Feature 82). – This pit truncated 2 Pitstructure 2 features (Features 107 and 174) and probably incorporated 1 (Feature 174). The flat base of the pit is slightly oxidized, and the silt loam fill contained numerous fragments of charcoal (the larger fragments were identified as Dicotyledonae). The function of the pit is not known. As the charcoal comprised only a small amount of the fill, it is possible that this is a postoccupational deposit, although it differs from the fill above the pitstructure surface.

Unburned pit (Feature 108). – This small straight-sided pit or cist was cut into the floor and the lower part of the east wall of the pitstructure. The pit opening is partially hidden by a small rock slab plastered into the wall (fig. 7.54). Its fill is a very "clean" brown silt loam with a distinctive artifact content, which consisted of charred juniper (*Juniperus* sp.) wood, 2 Early Pueblo Gray lug handles, 4 flaked lithic items, 1 piece of limonite, 1 fossilized mollusc, and 2 pebbles. Based on the artifact content, this feature perhaps served as a storage receptacle for ceremonial items, at least during its last use.

Figure 7.51 - Eastern portion of Pitstructure 4, Area 1, Kin Tl'iish (DAP 129929)

Unburned pit (Feature 180). - This small pit, located northeast of the hearth, was not excavated, and its function is not known.

Interpretations

Pitstructure 4 is a small, circular chamber with few floor features. It was used for domestic and economic activities, but some of the architectural attributes (e.g., lack of a wingwall) are indicative of ceremonial use, and its abandonment seems to have been performed in a ritual manner.

The date of construction and use of Pitstructure 4 is debatable. The presence of a Mancos Corrugated vessel and other sherds on the floor indicates a date range of A.D. 910 to 1150 (Blinman 1982). The presence of Early Pueblo Gray sherds in the quantity recovered could indicate construction and use at the early end of this range but, since the pitstructure is excavated into a Pueblo I pitstructure, it is almost equally possible that the sherds represent curated or collected items.

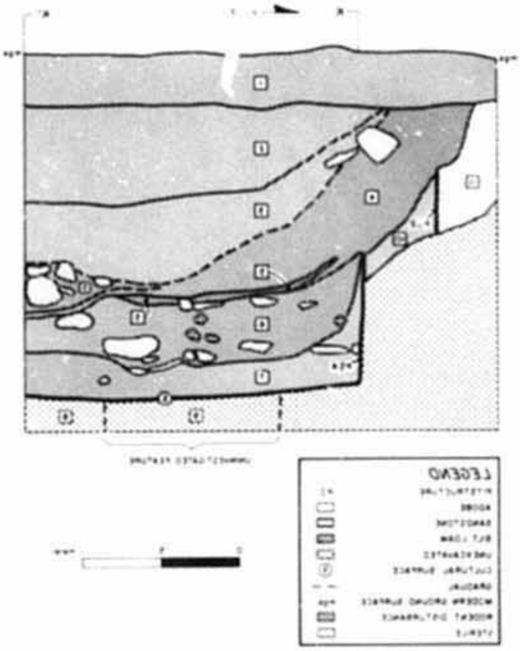

Figure 7.52 - Stratigraphic profile, Pitstructure 4, Area 1, Kin Tl'iish. Refer to figure 7.50 for profile location.

In terms of use, this structure was utilitarian. The few floor features that are present have a markedly utilitarian appearance. Two large storage units are symmetrically placed at the southwest and southeast corners of the pitstructure and a thin metate was recovered from near the hearth. Using only these data, Pitstructure 4 would be classified as a pithouse; however, because of the ceramic assemblage and the architecture, such an assignment is problematic.

Architecturally, some ceremonial characteristics are present. The construction of the pitstructure is sufficiently unusual to suggest some ceremonial connections. The pitstructure is nearly centered over Pitstructure 2 (fig. 7.55). Although construction of such a "pocket pithouse" simply might have been convenient, the centering of Pitstructure 4 over Pitstructure 2 is exact to a point beyond the requirements of energy efficiency in construction. Refer to McGuire and Schiffer (1983) for discussion of such energy requirements. The hearth is located over the central hearth of the earlier structure and at least the southeast corner wall cist abuts the earlier wall, and the floor of Pitstructure 2 forms the floor of the cist. Also, the artifacts in Feature 108 (unburned pit) and the partial concealment of the pit might have had ritual or ceremonial importance. Most importantly, the mode of abandonment indicates ceremony; the large corrugated jar in

Table 7.26 - Stratigraphic description, Nonstructural Unit 4, Area 1, Kin Tl'iish - Continued

Stratum No.	Sediment description	Color (Munsell notation)	Inclusions	Comments/interpretations
12	Silt loam	Brown to light brown (7.5YR 5.5/4, dry)	Small nodules of carbonates	Native earth
13	Silt loam	Dark brown (7.5YR 4/4, dry)	Charcoal and adobe and artifacts	Cultural refuse, possibly reworked by natural agents
14	Lens	Yellowish red (5YR 5/6, dry)	Flecks of charcoal and adobe	Part of Stratum 13 depositional event
15	Silt loam	Reddish brown (5YR 5/? dry)	Cultural materials, especially ceramics; charcoal in large fragments and adobe	Secondary refuse, intentional pit fill
17	Silt loam	Strong brown (7.5YR 5/5, dry)	Charcoal, adobe flecks, other cultural materials	Initial filling of pit with either primary or secondary refuse, based on mounding near center of pit
18	Silt loam	Brown or light brown (7.5YR 5.5/4, dry)	Infrequent flecks of charcoal	
19	Lens	Strong brown (7.5YR 4/6, dry)	Charcoal	Part of Stratum 15 depositional episode
20	Silt loam	Strong brown (7.5YR 4/6, dry)	Artifacts and charcoal	Part of Stratum 15 depositional episode
21	Silt loam	Dark reddish gray (5YR 4/2, dry)	Charcoal, large mottles of adobe and some artifacts	Refuse
22	Silt loam	Reddish brown	Charcoal and adobe	

Table 7.27 - Feature summary, Surface 1, Nonstructural Unit 4, Area 1, Kin Tl'ish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
16	Unburned pit	Round	Basin	220	200	80
17	Unburned pit	n.o.	Basin	110	. . .	•50
20	Unburned pit	n.o.	Basin	98	. . .	•39
96	Unburned pit	Round	. . .	. . .	. . .	. . .
216	Posthole	n.o.	. . .	. . .	. . .	. . .

•Existing dimensions; complete dimensions not available.
Refer to figure 7.38 for feature locations.
. . . -Information not available.
n.o. - Observation could not be made.

been a remodeling episode. The function for both Features 16 and 17 might have been the same. Artifacts from these features were not separated.

Unburned pit (Feature 20). - In the trench wall, Feature 20 appears as a dip in the boundary between culturally deposited sediments and native earth. As with the other pits observed in the trenches, artifacts were collected only when they were dislodged in the process of straightening the trench walls; the only ceramics recovered are early wares. Also like the other pits, the edges of Feature 20 are not discolored from burning. No function was identified.

Unburned pit (Feature 96). - A large, round feature was identified immediately south of Room 3, apparently overlying the southern edge of the room. The feature was not excavated, but artifacts encountered during the process of delimiting the feature were collected. The feature was identified above the contact with native earth; however, at its northern edge, where the feature may have overlain Room 3, feature fill was difficult to distinguish from room fill. There, the upper feature fill was identified by a greater density of artifacts. This material appeared mounded over the pit. The small amount of feature fill removed from this "mound" included 20 ceramic sherds, 10 flaked lithic debitage items, 1 cobble hammerstone, 1 flat-surface abrading stone, as well as charred remains of yucca (Yucca sp.) epidermis and gymnosperm wood. The function of the pit is not known.

Interpretations

Nonstructural Unit 4 is part of the plaza area south of Roomblock Unit 1. Five features are associated with the plaza; others are presumed to be present elsewhere in the plaza area. The investigated features imply heavy use of the plaza area for an unidentified activity that required large open pits. When the features were not used for their primary function, they were the locus of trash deposition. Use of the features seems to have been limited to the first half of the ninth century, based on ceramic dating.

The interpretation of the use of Nonstructural Unit 4 is based only on evidence from the small portion of the plaza along the west edge of the residential area. It is estimated that less than 10 percent of the plaza area was sampled, assuming that all of the area between the roomblock and the south edge of the pitstructures served as a plaza. This plaza has been subjected to modern plowing. Presumably, more cultural features once existed in the sampled area than are presently documented for Nonstructural Unit 4.

Nonstructural Unit 5

Nonstructural Unit 5 (fig. 7.40) is defined by features under Rooms 1 and 2 and features identified in excavations north of Room 2. Within the masonry roomblock area, features were assigned to Nonstructural Unit 5 only if they undercut room walls, whereas all features north of Room 2 are assigned to Nonstructural Unit 5. No evidence for walls or roofing was found; thus, the area encompassed by Nonstructural Unit 5 was assumed to be used for extramural activities.

Stratigraphy

Within the area of the masonry roomblock, cultural and natural deposits above contact with native earth pertain to overlying rooms and their postabandonment events. In the trench north of the rooms, it was clear that deposits had undergone some historic period agricultural modification (disking). In the trench profile (fig. 7.41, table 7.28), the earliest events are represented by a pit (Feature 210) that was excavated into native earth (Stratum 6). The pit filled (Stratum 1) with natural deposits and subsequently was truncated by excavations either for a shallow surface exhibiting at least one pit (Feature 210)

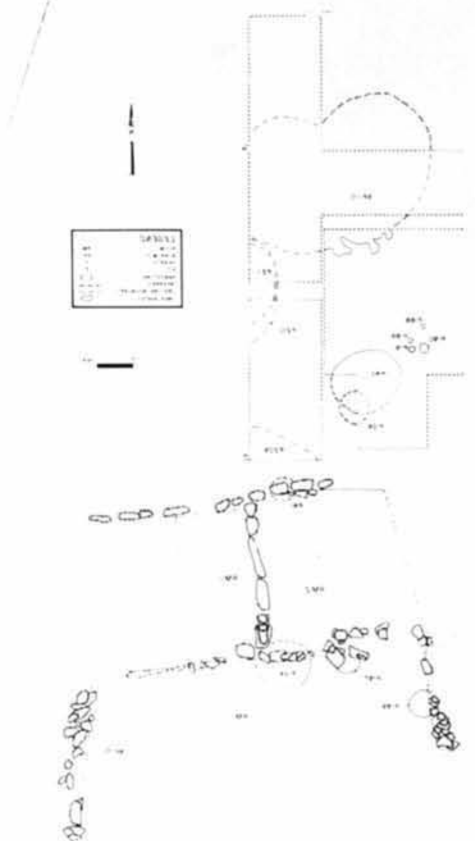

Figure 7.40 - Map of Surface 1, Nonstructural Unit 5, Area 1, Kin Tl'ish

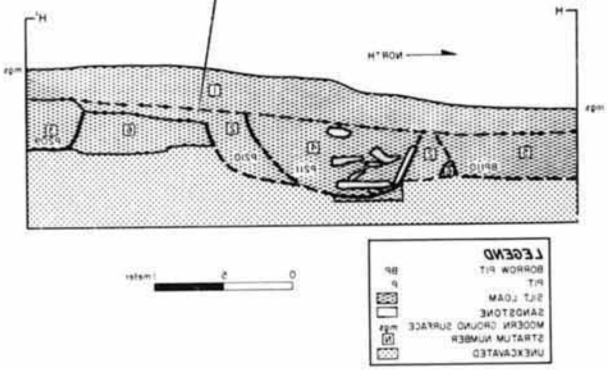

Figure 7.41 – Stratigraphic profile, Nonstructural Unit 5, Area 1, Kin Tl'iish. Refer to figure 7.40 for profile location.

identified as Stratum 2, or for a complex feature with a large shelf. After Feature 209 had filled, or nearly filled, with deposits that included cultural refuse, the pit was truncated by Features 211 (Stratum 4) and 110 (Stratum 5). The sequence and the type of fill that was deposited above these features are unknown because of the historic dosking (Stratum 1).

The overlapping fills of Features 209, 210, 211, and 110 exhibited a high degree of stratigraphic complexity. Feature 126 was assigned to Surface 1 along with the other Nonstructural Unit 5 pits, although the feature was identified immediately below loose dull and is probably temporally associated with the most recent prehistoric occupation at the site identified in Nonstructural Unit 6. Because of the proximity of Feature 126 to the masonry roomblock, it was not disturbed by dosking; however, the surface with which the feature is actually associated was not identified.

Surface 1

Surface 1 of Nonstructural Unit 5 is defined by contact with native earth, although some features might have been constructed after the deposition of a small amount of cultural fill. Certainly, not all features assigned to Surface 1 are contemporaneous. Considerable evidence for remodeling exists among the 15 pits (table 7.29).

Hearth (Feature 42) – This hearth is located immediately north of the roomblock. It is a shallow basin with a partial sandstone slab lining. The fire in Feature 42 was so intense that portions of the sides and base of the hearth were vitrified. River cobbles near the base of the pit show severe burning; their bases are discolored white and black, as if they had been placed on a hot fire. The fill was stratified; the lowest deposit was a very dark gray dirt containing many large fragments of charcoal. This deposit was overlain by a yellowish-red fill. The discolored sandstone slabs and river cobbles separated the yellowish-red deposit from the lower fill. Apparently, the slabs were placed on burning wood, and redeposited native earth placed over them, possibly as a covering. The fill which overlay the charcoal and slabs contained most of the artifacts from the feature. The pit is presumed to have functioned as a hearth or a roasting pit. It might have been used for roasting corn, based on the corn remains in a bulk soil sample, but that inference is tenuous. Eight mammal bone fragments also were recovered. Only the north half of this feature was excavated. An archaeomagnetic sample from the rim of the hearth did not yield a date, but since the pole position fell near the latter end

Table 7.28 – Stratigraphic description, Nonstructural Unit 5, Area 1, Kin Tl'iish

Stratum No.	Sediment description	Color (Munsell notation)	Inclusions	Comments/interpretations
1	Silt loam	Brown	Artifacts, rocks, and flecks of adobe and charcoal	Postabandonment deposit with inclusion of many rocks from collapsed structures to the south
2	Silt loam	Dark grayish brown	A few tabular sandstone spalls, fragments of charcoal, and lithic flakes	Postoccupational fill of Feature 210 (unburned pit) and possibly above Nonstructural Unit 5, Surface 1
3	Silt loam	Yellowish brown	Internal lenses of dark brown to very dark brown silt loam, organic inclusions and few sandstone spalls	Postoccupational fill of Feature 209 (unburned pit)
4	Silt loam	Very dark grayish brown	Large charcoal fragments, sandstone slabs, ceramic sherds, and mottles of yellowish-brown silt loam	Fill of Feature 211 (burned pit). Includes construction fill of slab lining with fill probably relating to use of pit mixed with postoccupational deposit
5	Silt loam, fine	Dark brown	Ash and some artifacts	Fill of Feature 110 (borrow pit). Mixture of secondary and natural deposits
6	Silt loam	Reddish brown		Native earth

Table 7.29 - Feature summary, Surface 1, Nonstructural Unit 5, Area 1, Kin Tl'iish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/ height (cm)
41	Unburned pit	n.o.	Basin	. . .	37	*24
42	Hearth	Round	Basin	95	91	31
110	Borrow pit	Complex	Basin	235	200	55
124	Unburned pit	Oval	Basin	42	41	9
126	Burned pit	n.o.	Basin	*47	. . .	*6
170	Borrow pit	Irregular	. . .	200	200	. . .
188	Unburned pit	Round	Triangular	*6	*6	*6
189	Unburned pit	Round	Triangular	*6	*6	*6
190	Unburned pit	Oval	Cylindrical	*14	*11	*6
191	Unburned pit	Round	Basin	*15	*10	*8
197	Unburned pit	Oval	. . .	32	32	. . .
199	Unburned pit	n.o.	. . .	16	18	. . .
209	Unburned pit	n.o.	. . .	. . .	. . .	. . .
210	Unburned pit	n.o.	Basin	*163	. . .	*54
211	Burned pit	Oval	Basin	*123	. . .	*54

*Existing dimensions; complete dimensions not available.
Refer to figure 7.40 for feature locations.
. . . - Information not available.
n.o. - Observation could not be made.

of the southwest master curve and does not occur near the A.D. 850 portion, the hearth is probably a late feature.

Burned pit (Feature 126) - Feature 126 is a shallow pit containing burned fill; the edges may also be burned. The pit is located immediately below the modern ground surface. The fill was a dark grayish-brown silt loam with inclusions of charcoal. It overlays fill above Feature 42 (hearth), thus it must postdate Surface 1; however, the late surface with which the feature is associated was not identifiable.

Burned pit (Feature 211) - Feature 211 truncates the central portion of an earlier pit (Feature 210). Feature 211 has a partial slab lining apparent in the north end of the pit. The slab lining could represent remodeling or, more likely, it could represent different construction in the lower part of the pit. The function of the pit is unknown.

Borrow pit (Feature 110) - This large, irregular pit is about 3 m north of the roomblock and north of the other features encountered in Nonstructural Unit 5. The pit was excavated into native earth. The fill was similar to the postoccupational deposit that overlays it, except that it contained more ash. Several artifacts were recovered from the small portion of Feature 110 encountered in the probability square (945/98E), but they do not contribute to the identification of pit function. Based on shape, size, and location north of the roomblock, the feature is presumed to be a borrow pit. It might have been used eventually for secondary trash disposal and disposal of building remnants during some late occupation; numerous sandstone slabs and spalls were recovered from fill in the long north-south trench.

Borrow pit (Feature 170) - A borrow pit (Feature 170) was identified at the east edge of Room 1, but it was not cleared. It underlies the wall of the later masonry room and may be as large as Feature 110.

Unburned pit (Feature 124) - This large pit (Feature 124) is covered by the north wall of Room 1 and is truncated by Feature 119 in Room 1. Its fill was a mottled, dark brown silt loam with flecks of charcoal, jacal, gravel, sandstone spalls, and a single sherd from a miniature Chapin Gray vessel. Only the west half of the pit, within Room 1 boundaries, was cleared. The function of the pit was not determined.

Unburned pit (Feature 41) - This deep basin was identified beneath the north wall of Room 2, at the same depth as Feature 42 (hearth), by the presence of its rock fill. The fill appears to be a construction-related deposit forming the foundation of the room wall. It is a brown silt loam containing numerous large sandstone spalls. The fill, except for the rocks, is identical to the mud mortar

in the Room 2 wall. No other cultural materials were recovered from the fill. The original function of the pit is not known.

Unburned pits (Features 188, 189, 190, and 191) - These 4 small circular to oval pits were identified northwest of Feature 42 (hearth). Fill in all 4 pits was brown to dark grayish-brown earth with charcoal inclusions. Feature 191, which was heavily disturbed by rodent burrows, also contained a few bits of adobe and concretions. Because the pits are small and contain bits of charcoal, which could be derived from rotted wood, it is inferred that these features might have held small posts; any more precise function is unknown.

Unburned pit (Feature 197) - This small pit is capped with a small amount of redeposited native earth and is overlain by the north wall of Room 1. The upper fill in the pit was grayish-brown earth with bits of charcoal, sandstone or limestone, and inclusions of native earth. The pit was not excavated and its function is not known.

Unburned pit (Feature 199) - Another small pit (Feature 199) is partially covered by the west wall of Room 1. Its upper fill in the area of the wall was similar to that found in Feature 41. Heavy rodent disturbance obscured the feature outline. The pit was not excavated, and its function is unknown.

Unburned pit (Feature 209) - An unburned pit, identified in the trench immediately north of Room 2, probably is an oval basin. Based on the curvature identified in the trench, Feature 209 should extend into Room 2; however, no evidence of the pit was found beneath the Room 2 floor or in the wall with Feature 41. The southern portion of the pit may have been cleanly packed with native earth. In the northern portion of the pit, the fill exhibited lenses that indicate natural deposition. The function of the pit was not identified.

Unburned pit (Feature 210) - This unburned pit was identified in profile and appears to be a large, oval basin. The center of the pit was wholly replaced by Feature 211, a slightly deeper pit. Feature 210 fill was a homogeneous dark grayish-brown silt loam (Stratum 2) that contained some artifacts. Stratum 2 also formed the fill above native earth south of the pit, suggesting either postoccupational deposition of both the feature fill and of the silt loam on the surrounding surface, or the presence of a shallow ledge ringing at least part of the pit. The function of this pit is not known.

Interpretations

Nonstructural Unit 5 is one of several nonstructural surfaces identified by the presence of features at the north end of Kin Tl'iish. Although the 15 features associated with Nonstructural Unit 5 have been assigned to a single, arbitrary surface (Surface 1), these features were actually constructed on several surfaces at different points in time. No feature is associated with a well-defined surface in Nonstructural Unit 5, and, except where features overlap, most relative chronological information is missing.

The earliest features assigned to Nonstructural Unit 5 may be those underlying Rooms 1 and 2 (fig. 7.42; table 7.30). Some of the features north of the roomblock (e.g., Feature 210 and possibly Feature 110) also may be early.

Based on their stratigraphic location, the large burned hearth (Feature 42) and its associated small pits (Features 188, 189, 190, and 191) are probably contemporaneous with the Pueblo I site occupation, which covers the major period of masonry roomblock construction. Most of the other features probably overlap with the period of roomblock construction and use.

Any of the features north of the rooms could have been in use prior to roomblock construction or during roomblock use. However, because of the presence of a late surface within some of the rooms (particularly in Room 1), features just below the modern ground surface north of the rooms (e.g., Feature 126 and probably Feature 211) are presumed to have been constructed following the abandonment of the roomblock.

In summary, several time periods are represented in Nonstructural Unit 5. The earliest of these predates the masonry roomblock, and, therefore, may be as early as Pitstructure 1 (late Dos Casas Subphase), although the ceramic assemblage is not sufficient to provide support for this estimate. Some of the features may have been in rooms destroyed by later masonry construction and some features are contemporaneous with the roomblock. The borrow pit north of the rooms might have been excavated for room construction; burned pits might have been used for activities much like those in the plaza area (Nonstructural Unit 4) south of the rooms. Other features are presumed to postdate the masonry roomblock, based on comparisons with late surfaces within the roomblock. The evidence does not differentiate the uses of Nonstructural Unit 5 during the last phase of site occupation from those during early occupations.

Nonstructural Unit 6

Nonstructural Unit 6 is located at the east end of the roomblock, overlying the Pueblo I masonry rooms (fig. 7.43). It is defined by the presence of several pits and appears to have been at, or only slightly lower than, the modern ground surface. Its true surface has been eroded or disturbed beyond recognition; therefore, the boundaries of Nonstructural Unit 6 are not known because of this disturbance, and because its excavation was limited

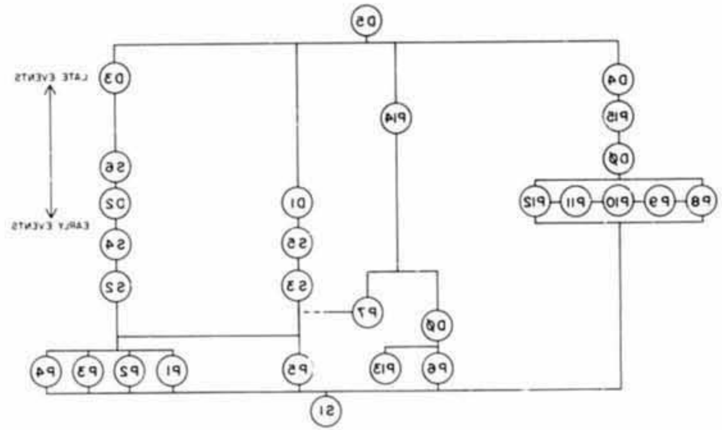

Figure 7.42 – Matrix diagram of stratigraphic events, Nonstructural Unit 5, Area 1, Kin Tl'iish

to probability square 98S/106E and expanded excavations around the probability square.

North of Rooms 7 and 8, the fill below Surface 1 of the nonstructural unit was probably related to the room occupation rather than to the subsequent use of Nonstructural Unit 6; thick sheet trash dating to the Pueblo I period or earlier was found along the entire north edge of the roomblock. In contrast, a corrugated sherd (post-A.D. 910) was found above the inferred level of Surface 1 of Nonstructural Unit 6. Within the boundaries of Room 7, which underlies part of Nonstructural Unit 6, fill below the Nonstructural Unit 6 surface was composed of collapsed structural material, trash mixed with fallen structural material, and trash deposits that contained fragments of human bone. The deposits that contained human bone exhibit abrupt boundaries with adjacent deposits, which showed their discrete deposition (refer to Stratum 2 in fig. 7.50).

Surface 1

As noted, the surface of Nonstructural Unit 6 is identified only by the presence of features (table 7.31).

Human Burial 29 (Feature 19) – Feature 19 (figs. 7.44 and 7.45) is the primary burial of an adult female (appendix 7B). The burial pit was excavated into the fill of Room 7 and cut several centimeters into the room floor. The room and the burial are not associated. The interment was made after the room walls had collapsed and the room depression had filled.

The woman was set into an oval pit. She rested on her back, with her head to the east and with her legs flexed and turned to her right (south). Her arms were flexed with her hands extended just above her shoulders. Grave goods were not apparent.

The matrix around the bones was a slightly hard, strong, brown silt loam with few artifacts and some charcoal. Artifacts were recovered from the lower feature fill by screening the sediment through one-eighth-inch mesh; most of the artifacts are small pieces of lithic debitage. Two nonflaked lithic artifacts were recovered from near the head and may be part of a complex grave covering. Remains from a few plants were recovered in a bulk soil sample (BS 9) from the abdominal area and may represent either stomach contents or plants interred with the body.

The silt loam that formed the matrix around the bones was overlain by a discontinuous lens of friable brown to dark brown loam which contained numerous charcoal

Table 7.30 – Key to stratigraphic events associated with Nonstructural Unit 5 and depicted in figure 7.42

S1	Leveling of Surface 1 of Nonstructural Unit 5.
S2	Construction of Surface 1 and walls of Room 1.
S3	Construction of Surface 1 and walls of Room 2.
S4	Abandonment of Surface 1 of Room 1.
S5	Abandonment of Room 2.
S6	Construction through abandonment of Surface 2, Room 1.
D0	Deposit of fill above Surface 1, Nonstructural Unit 5.
D1	Deposit of fill above Surface 1, Room 2.
D2	Deposit of fill above Surface 1, Room 1.
D3	Deposit of fill above Surface 2, Room 1.
D4	Deposit of fill above Surface 2, Nonstructural Unit 5.
D5	Deposit of sediments associated with postabandonment processes across the site and modern plow zone.
P1	Construction of Feature 197.
P2	Construction of Feature 199.
P3	Construction of Feature 124.
P4	Construction of Feature 170.
P5	Construction of Feature 41.
P6	Construction of Feature 210.
P7	Construction of Feature 110.
P8	Construction of Feature 42.
P8	Construction of Feature 188.
P10	Construction of Feature 189.
P11	Construction of Feature 190.
P12	Construction of Feature 191.
P13	Construction of Feature 209.
P14	Construction of Feature 211.
P15	Construction of Feature 126.

inclusions. Near the feet, this lens appeared only as a deposit of charcoal (fig. 7.50).

The lens of charcoal and dark brown loam or, where the lens was absent, the silt loam burial matrix, was overlain by and bounded at the sides of the pit by dark brown silt loam with charcoal. A rock covering at the head was in or on this stratum, but might have been braced by rocks in the lower fill of the burial pit. This dark brown loam was overlain only by Stratum 1 and rocks at the modern ground surface.

Postholes (Features 142, 184, and 185) – Three slab-lined postholes were identified in Nonstructural Unit 6. The tops of these postholes, 2 of which are located north of Rooms 7 and 8 (Features 184 and 185), lay just below the modern ground surface. None is associated with a definite cultural surface, and in no case is a posthole apparent except by the presence of the slabs; no changes in soil colors or texture identify the outlines of these postholes.

Each of postholes is defined by small, upright sandstone slabs forming a triangular base for the post. Features 142 and 184 contain 3 upright slabs; Feature 185 contains only 2 upright slabs. The slabs and the posts rested on small base slabs.

Slab-lined pit (Feature 212) – Feature 212, a small pit with 2 upright slabs, is located immediately east of Feature 185. Like the postholes, the pit was not recognized as a feature except by the presence of the slabs; therefore, artifacts that might have been present are not separated from other cultural fill. The feature is not associated with a definite cultural surface and is assigned to Surface 1 in Nonstructural Unit 6 on the basis of its depth and its proximity to Features 184 and 185. Depending on the depth of the true, associated surface, Feature 212 could be a bin instead of a pit. The 2 upright slabs are set on the west and south sides of 2 flat river cobbles, which lie horizontally at the base of the feature. The upper of the 2 cobbles was identified in the field as mano. The function of the pit, or bin, is not known.

Interpretations

Nonstructural Unit 6 may represent either the remains of an ephemeral structure or an exterior occupation surface. The presence of several postholes indicates that at least part of the surface might have been roofed

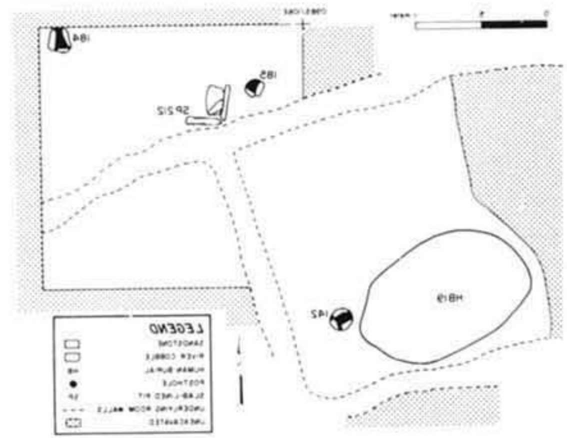

Figure 7.43 - Map of Surface 1, Nonstructural Unit 6, Area 1, Kin Tl'iish

Table 7.31 - Feature summary, Surface 1, Nonstructural Unit 6, Area 1, Kin Tl'iish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
19	Human burial (Burial 29)	n.a.	n.a.	120	80	45
142	Posthole	Round	Cylindrical	15	15	17
184	Posthole	Other	Cylindrical	17	17	17
185	Posthole	Other	Cylindrical	15	12	17
212	Slab-lined pit	Rectangular	Rectangular	33	31	17

Refer to figure 7.43 for feature location.
n.a. - Not applicable.
. . . - Information not available.

Nonstructural Unit 6 is relatively late. Based on the inclusion of blocks of earth containing fragments of human bone identified in the upper fill of Feature 19, it postdates the masonry rooms (except, perhaps, Room 13) and the deposition of Feature 2 (the scattered burials). Nonstructural Unit 6 could be contemporaneous with the late pitstructures (Pitstructures 4 and 5). However, artifacts above Surface 1 include a mixture of ceramics from all time periods during which Kin Tl'iish was occupied.

Nonstructural Unit 7

Nonstructural Unit 7 (fig. 7.46) is immediately west of, and under the west end of, Roomblock Unit 1 (fig. 7.3). Nonstructural Unit 7 apparently predates at least the west end of Roomblock Unit 1. Features were assigned to Nonstructural Unit 7 only if they undercut room walls and were clearly buried beneath Rooms 3, 4, or 5, except in the case of features identified in a short, hand-excavated

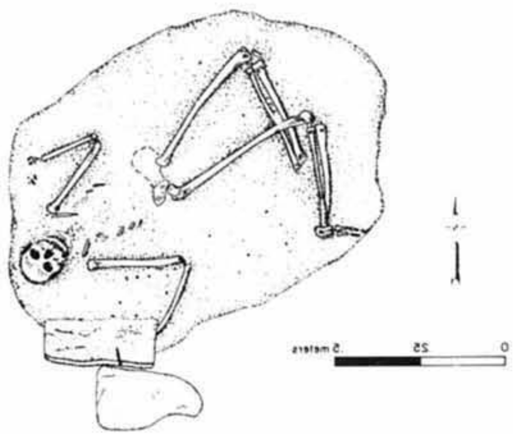

Figure 7.44 - Feature 19 (Burial 29), Nonstructural Unit 6, Area 1, Kin Tl'iish

Figure 7.45 - View of Feature 19 (Burial 29), Nonstructural Unit 6, Area 1, Kin Tl'iish (DAP 122201)

trench west of the roomblock. Pits that were truncated by later features were provenienced with the rooms, under the assumption that intrusive features could reflect room remodeling.

The size of Nonstructural Unit 7 is not known; it may be more than the combined dimensions of Rooms 3, 4, and 5. Early features were positively identified under Rooms 4 and 5 and, since parts of the Room 3 and Room 5 floors are constructed on fill, other (unidentified) Nonstructural Unit 7 features probably underlie those floors.

Surface 1

The Nonstructural Unit 7 surface was identified only in profile. It ranges from a 1- to 2-cm lens of charcoal south of Feature 121 to the noncompacted boundary of native earth at Features 122, 207, and 208.

Five features are provenienced with this surface (table 7.32); eight additional features assigned to Rooms 3 and 5 (Features 13, 14, 24, and 38 in Room 3; Features 48, 57, 78, and 79 in Room 5) may actually belong to this cultural unit.

<u>Small floor cist (Feature 121)</u>. - A bell-shaped storage cist was identified in profile. It was excavated into native earth, unlined, and apparently uncapped. The fill was stratified. The lower stratum was loose, grayish-brown earth which contained adobe, charcoal, and at least one large rock. The upper stratum was light brown silt loam with flecks of charcoal, a few large pieces of adobe, and flecks of a carbonate.

The feature was identified in a stratigraphic test unit next to the west wall of Room 5; it was not investigated beyond

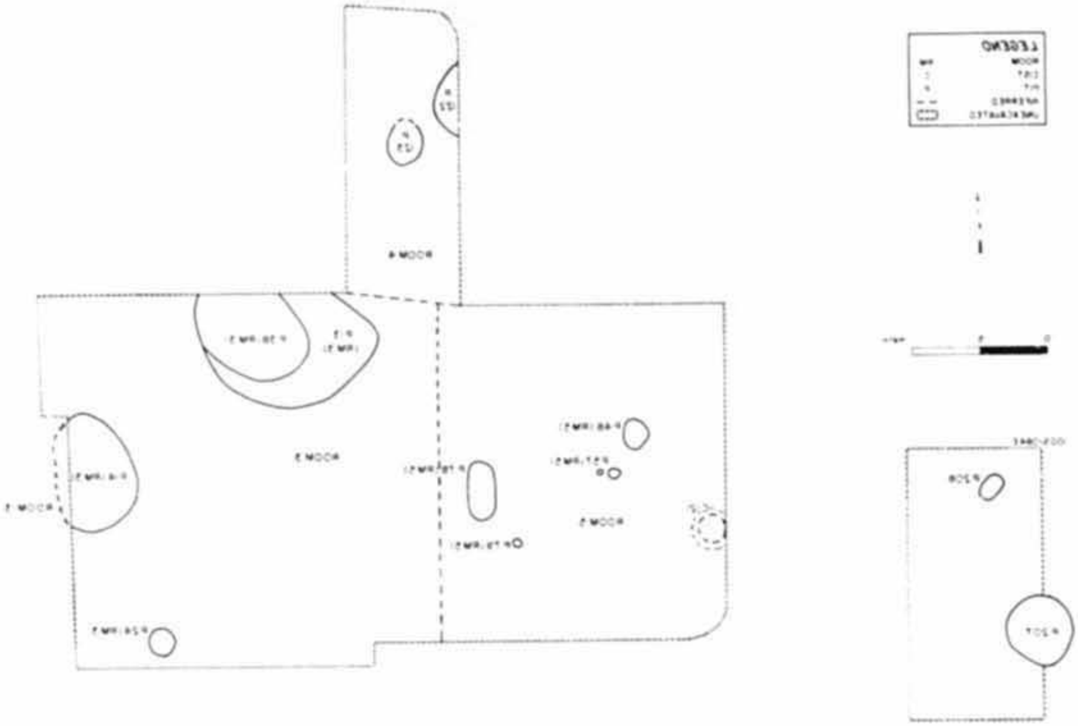

Figure 7.46 – Map of Nonstructural Unit 7, Area 1, Kin Tl'iish. Several features assigned to Rooms 3 and 5 are shown in this figure. These assignments were tenuous and the features might have been associated with Nonstructural Unit 7 instead of the rooms.

Table 7.32 – Feature summary, Surface 1, Nonstructural Unit 7, Area 1, Kin Tl'iish

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/ height (cm)
121	Small floor cist	n.o.	Bell	•39	....	•26
122	Unburned pit	n.o.	Basin	•82	100	42
123	Unburned pit	Oval	....	36	25	....
207	Unburned pit	Round	....	51	49	....
208	Unburned pit	Oval	....	17	17	....

•Existing dimension; complete dimensions not available.
Refer to figure 7.46 for feature location.
n.o. - Observation could not be made.
.... - Information not available.

APPENDIX 7A

MATERIAL CULTURE TABLES

Table 7A.1 - Ceramic data summary, Kin Tl'iish

Culture category / Tract / Ware / Type	Modern ground surface N	Modern ground surface %wt	Room 1 Surface 1 and features N	Room 1 Surface 1 and features %wt	Room 1 Surface 2 and features N	Room 1 Surface 2 and features %wt	Room 1 Mixed fills and features N	Room 1 Mixed fills and features %wt	Room 1 Total N	Room 1 Total %wt	Room 2 Surface 1 and features N	Room 2 Surface 1 and features %wt	Room 2 Mixed fills and features N	Room 2 Mixed fills and features %wt	Room 2 Noncultural fills and features N	Room 2 Noncultural fills and features %wt
Mesa Verde																
Dolores Tract																
Gray ware																
Chapin Gray	[illegible]	1.5	[illegible]	4.1	8	7.5			[illegible]	4.5			[illegible]	[illegible]		
Moccasin Gray	[illegible]	[illegible]	[illegible]	11.1	[illegible]	[illegible]			[illegible]	10.2			[illegible]	30.7		
Mancos Gray		[illegible]		[illegible]	[illegible]	[illegible]			[illegible]	[illegible]						
Early Pueblo Gray	593	[illegible]	53	[illegible]	25	65.8			[illegible]	[illegible]	6	97.4	14	89.8	1	100.0
Late Pueblo Gray			1	0.2					[illegible]	0.1						
Mancos Corrugated																
Dolores Corrugated																
Corrugated Body Sherds	16	1.8					1	57.9	1	1.8						
White ware																
Chapin Black-on-white																
Piedra Black-on-white	1	0.5			2	7.6			2	1.5						
Cortez Black-on-white													2	11.8		
Mancos Black-on-white	2	0.4											1	2.5		
Painted white	[illegible]	[illegible]														
Polished white	11	5.0	1	1.4	3	6.9			6	2.4						
Slipped white																
Sherd white																
Smudged ware																
Plain Smudged																
San Juan Tract																
Gray ware																
Chapin Gray																
Moccasin Gray																
Early Pueblo Gray	2	0.2														
White ware																
Cortez Black-on-white																
Painted white																
Polished white	1	[illegible]														
Sherd white	1	0.1														
Animas Tract																
Gray ware																
Early Pueblo Gray	1	0.1														
Cahone Tract																
Gray ware																
Early Pueblo Gray	8	0.6														
Corrugated Body Sherds																
White ware																
Polished white																
Sandstone Tract																
Gray ware																
Early Pueblo Gray																
White ware																
Painted white																
Polished white	1	0.1														
Blanding Tract																
Red ware																
Abajo Red-on-orange																
Bluff Black-on-red	2	0.2					1	42.1	1	1.1						
Deadmans Black-on-red																
Early Pueblo Red	12	1.2	5	2.9					5	2.2	1	2.6				
Slipped Red	4	0.4														
Kayenta																
White ware																
Early Pueblo White			14	14.7					14	11.4						
Chuska																
Gray ware																
Early Pueblo Gray																
Cibola																
White ware																
Early Pueblo White	1	0.2														
Late Pueblo White	1	0.1														
Cibola or Kayenta																
Gray ware																
Early Pueblo Gray	1	0.5	1	1.0					1	0.8						
White ware																
Early Pueblo White																
Unclassifiable White																
Indeterminate																
Gray ware																
Unclassifiable Gray																
Gray Body Sherds																
White ware																
Pueblo II White																
Painted white																
Polished white																
Red ware																
Unclassifiable Red																
Late Pueblo Red																
Total ceramics	744	100.0	90	100.0	39	100.0	2	100.0	131	100.0	7	100.0	27	100.0	1	100.0
Total wt (g)	2,936.8		1,042.8		262.8		41.1		1,346.5		89.4		278.9		5.7	
Vessel form																
Gray ware																
Bowl	6	1.0	1	0.3	3	4.9			4	1.8			1	3.2		
Jar	668	[illegible]	61	[illegible]	30	[illegible]	1	57.9	96	[illegible]	6	97.4	23	[illegible]	1	100.0
Other	4	0.9	7	4.9	1	5.4			3	4.0						
White ware																
Bowl	24	4.2	13	15.0	4	12.7			19	14.2						
Jar	14	2.6	2	1.1	1	0.4			3	1.0			1	14.1		
Other	1	0.1														
Red ware																
Bowl	11	1.2	4	2.5					4	2.0	1	2.6				
Jar	4	0.4	1	0.3			1	42.1	2	1.5						
Other																
Smudged ware																
Bowl																

NOTE: Percentages less than 0.05 are not recorded in the percent weight column.

Table 7A.1 - Ceramic data summary, Kin Tl'iish - Continued

Culture category / Tract / Ware / Type	Room 2 Total n	Room 2 Total %wt	Room 3 Surface 1 and features n	Room 3 Surface 1 and features %wt	Room 3 Mixed fills and features n	Room 3 Mixed fills and features %wt	Room 3 Total n	Room 3 Total %wt	Room 4 Surface 1 and features n	Room 4 Surface 1 and features %wt	Room 4 Roof fall and features n	Room 4 Roof fall and features %wt	Room 4 Total n	Room 4 Total %wt	Room 5 Surface 1 and features n	Room 5 Surface 1 and features %wt
Mesa Verde																
Dolores Tract																
Gray ware																
Chapin Gray	1	4.4	11	8.0			11	6.7			1	[illegible]	1	[illegible]	1	1.3
Moccasin Gray	4	25.4	31	14.5	2	5.1	33	13.4	2	28.6	1	4.1	1	6.3	3	[illegible]
Mancos Gray			3	1.3	4	5.9	7	[illegible]							2	[illegible]
Early Pueblo Gray	23	57.7	120	54.1	30	71.3	150	61.3	1	71.4	22	89.2	23	67.7	30	71.7
Late Pueblo Gray																
Mancos Corrugated																
Dolores Corrugated											1	4.3	1	3.9	1	3.9
Corrugated Body Sherds																
White ware																
Chapin Black-on-white			1	4.1	1	6.6	2	8.7								
Piedra Black-on-white																
Cortez Black-on-white	2	9.9														
Mancos Black-on-white																
Painted white	1	2.1	1	0.2			1	0.2							1	0.4
Polished white			12	2.4	3	3.2	15	[illegible]								
Slipped white																
Sherd white																
Smudged ware																
Plain Smudged			1	0.1			1	0.1								
San Juan Tract																
Gray ware																
Chapin Gray																
Moccasin Gray			1	0.4			1	[illegible]			1	1.5	1	1.1		
Early Pueblo Gray			1	0.1			1	0.1								
White ware																
Cortez Black-on-white																
Painted white																
Polished white																
Sherd white																
Animas Tract																
Gray ware																
Early Pueblo Gray																
Cahone Tract																
Gray ware																
Early Pueblo Gray																
Corrugated Body Sherds																
White ware																
Polished white																
Sandstone Tract																
Gray ware																
Early Pueblo Gray			1	0.5			1	0.4								
White ware																
Painted white											1	0.3	1	0.3		
Polished white																
Blanding Tract																
Red ware																
Abajo Red-on-orange			1	1.3			1	1.2								
Bluff Black-on-red			1	0.4			1	0.4								
McPhee Black-on-red			4	0.5	2	1.2	7	1.9			1	0.5	1	0.4	1	3.7
Early Pueblo Red	1	0.4	1	0.2	6	4.4	6	1.5								
Slipped Red																
Kayenta																
White ware																
Early Pueblo White																
Chuska																
Gray ware																
Early Pueblo Gray																
Cibola																
White ware																
Early Pueblo White																
Late Pueblo White																
Cibola or Kayenta																
Gray ware																
Early Pueblo Gray																
White ware																
Early Pueblo White																
Unclassifiable white																
Indeterminate																
Gray ware																
Unclassifiable Gray																
Gray Body Sherds																
White ware																
Pueblo II white																
Painted white																
Polished white																
Red ware																
Unclassifiable Red																
Late Pueblo Red																
Total ceramics	37	100.0	185	100.0	48	100.0	233	100.0	3	100.0	31	100.0	34	100.0	38	100.0
Total wt (g)	134.0		1,926.4		383.3		2,309.7		29.3		306.4		334.7		254.1	
Vessel form																
Gray ware																
Bowl	1	4.4	3	4.0			3	5.0								
Jar	32	83.3	156	[illegible]	35	[illegible]	191	[illegible]	3	100.0	29	99.7	32	99.1	33	89.9
Other			3	1.3	1	[illegible]	4	3.6							3	5.8
White ware															1	2.6
Bowl	3	11.9	8	1.6	4	[illegible]	9	[illegible]			1	0.1	1	0.3		
Jar			3	[illegible]			3	[illegible]								
Other			1	4.1			1	[illegible]								
Red ware																
Bowl	1	0.4	7	1.7	2	1.2	12	2.3			1	0.5	1	0.4	1	3.7
Jar			1	0.1	6	4.4	6	4.5								
Other																
Smudged ware																
Bowl			1	0.3			1	0.3								

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Table 7A.1 - Ceramic data summary, Kin Tl'iish - Continued

Culture category / Tract / Ware / Type	Room 5 Mixed fills and features n	Room 5 Mixed fills and features %wt	Room 5 Total n	Room 5 Total %wt	Room 6 Mixed fills and features n	Room 6 Mixed fills and features %wt	Room 7 Surface 1 and features n	Room 7 Surface 1 and features %wt	Room 7 Cultural fills and features n	Room 7 Cultural fills and features %wt	Room 7 Mixed fills and features n	Room 7 Mixed fills and features %wt	Room 7 Total n	Room 7 Total %wt	Room 8 Surface 1 and features n	Room 8 Surface 1 and features %wt
Mesa Verde																
Dolores Tract																
Gray ware																
Chapin Gray			1	1.0												
Moccasin Gray			3	13.8	2	100.0					1	7.0	2	0.8		
Mancos Gray			1	[illegible]					1	[illegible]	1	[illegible]	1	[illegible]		
Early Pueblo Gray			30	65.5			32	98.9	8	[illegible]	4	11.4	45	[illegible]	2	26.8
Late Pueblo Gray																
Mancos Corrugated	1	66.1	1	11.8												
Dolores Corrugated																
Corrugated Body Sherds	3	32.8	4	9.1							2	13.7	2	1.8		
White ware																
Chapin Black-on-white																
Piedra Black-on-white																
Cortez Black-on-white																
Mancos Black-on-white																
Painted white																
Polished white			1	0.5			1	1.1			2	12.0	1	2.3	1	57.1
Slipped white																
Sherd white											2	23.0	2	2.7		
Smudged ware																
Plain Smudged																
San Juan Tract																
Gray ware																
Chapin Gray																
Moccasin Gray																
Early Pueblo Gray																
White ware																
Cortez Black-on-white																
Painted white																
Polished white																
Sherd white																
Animas Tract																
Gray ware																
Early Pueblo Gray																
Cahone Tract																
Gray ware																
Early Pueblo Gray																
Corrugated Body Sherds																
White ware																
Polished white																
Sandstone Tract																
Gray ware																
Early Pueblo Gray																
White ware																
Painted white																
Polished white																
Blanding Tract																
Red ware																
Abajo Red-on-orange																
Bluff Black-on-red																
McPhee Black-on-red																
Early Pueblo Red	1	1.1	2	3.2					1	3.1			1	0.3	1	13.1
Slipped Red																
Kayenta																
White ware																
Early Pueblo White																
Chuska																
Gray ware																
Early Pueblo Gray									1	7.0			1	0.4		
Cibola																
White ware																
Early Pueblo White																
Late Pueblo White																
Cibola or Kayenta																
Gray ware																
Early Pueblo Gray																
White ware																
Early Pueblo White																
Unclassifiable white																
Indeterminate																
Gray ware																
Unclassifiable Gray																
Gray Body Sherds																
White ware																
Pueblo II white																
Painted white																
Polished white																
Red ware																
Unclassifiable Red																
Late Pueblo Red																
Total ceramics	5	100.0	43	100.0	2	100.0	33	100.0	12	100.0	13	100.0	58	100.0	4	100.0
Total wt (g)	55.2		309.5		20.7		375.2		55.5		58.1		489.0		40.6	
Vessel form																
Gray ware																
Bowl																
Jar	4	98.9	37	95.5	2	100.0	32	98.9	11	96.9	9	65.0	52	96.6	2	29.8
Other			3	4.7												
White ware																
Bowl			1	0.5			1	1.1			3	29.0	4	4.1	1	57.1
Jar											1	6.0	1	0.7		
Other																
Red ware																
Bowl	1	1.1	2	3.2					1	3.1			1	0.3	1	13.1
Jar																
Other																
Smudged ware																
Bowl																

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Table 7A.1 - Ceramic data summary, Kin Tl'iish - Continued

Culture category: Tract, Ware, Type	Room 8 Mixed fills and features N	Room 8 Mixed fills and features %wt	Room 8 Total N	Room 8 Total %wt	Room 9 Surface 1 and features N	Room 9 Surface 1 and features %wt	Room 10 Surface 1 and features N	Room 10 Surface 1 and features %wt	Room 11 Surface 1 and features N	Room 11 Surface 1 and features %wt	Room 11 Noncultural fills and features N	Room 11 Noncultural fills and features %wt	Room 11 Total N	Room 11 Total %wt	Room 13 Surface 1 and features N	Room 13 Surface 1 and features %wt
Mesa Verde																
Dolores Tract																
Gray ware																
Chapin Gray							3	43.2			2	12.7	2	11.6		
Moccasin Gray																
Mancos Gray	1	21.9	1	16.9												
Early Pueblo Gray	3	10.1	4	14.4	1	100.0	31	54.5	2	100.0	51	81.9	53	88.4	4	85.7
Late Pueblo Gray															1	14.3
Mancos Corrugated																
Dolores Corrugated																
Corrugated Body Sherds	2	17.1	2	11.7			1	2.3								
White ware																
Chapin Black-on-white																
Piedra Black-on-white																
Cortez Black-on-white																
Mancos Black-on-white																
Painted White	1	3.5	2	15.0												
Polished White	1	4.4	1	3.4							1	2.3	1	2.0		
Slipped White																
Sherd White																
Smudged ware																
Plain Smudged																
San Juan Tract																
Gray ware																
Chapin Gray																
Moccasin Gray																
Early Pueblo Gray																
White ware																
Cortez Black-on-white	1	17.9	1	13.8												
Painted White																
Polished White																
Sherd White																
Animas Tract																
Gray ware																
Early Pueblo Gray																
Cahone Tract																
Gray ware																
Early Pueblo Gray																
Corrugated Body Sherds																
White ware																
Polished White																
Sandstone Tract																
Gray ware																
Early Pueblo Gray																
White ware																
Painted White																
Polished White																
Blanding Tract																
Red ware																
Abajo Red-on-orange																
Bluff Black-on-red																
McPhee Black-on-red			1	3.0												
Early Pueblo Red	2	26.1	2	23.2							1	3.0	1	2.6		
Slipped Red																
Kayenta																
White ware																
Early Pueblo White																
Chuska																
Gray ware																
Early Pueblo Gray																
Cibola																
White ware																
Early Pueblo White																
Late Pueblo White																
Cibola or Kayenta																
Gray ware																
Early Pueblo Gray																
White ware																
Early Pueblo White																
Unclassifiable White																
Indeterminate																
Gray ware																
Unclassifiable Gray																
Gray Body Sherds																
White ware																
Pueblo II White																
Painted White																
Polished White																
Red ware																
Unclassifiable Red																
Late Pueblo Red																
Total ceramics	10	100.0	14	100.0	1	100.0	35	100.0	2	100.0	55	100.0	57	100.0	5	100.0
Total wt (g)	137.7		178.3		91.7		228.2		47.2		292.8		340.0		7.7	
Vessel form:																
Gray ware																
Bowl																
Jar	5	89.0	7	44.4	1	100.0	35	100.0	2	100.0	53	96.4	55	95.4	5	100.0
Other																
White ware																
Bowl	2	7.0	3	18.4							1	2.3	1	2.0		
Jar	1	17.9	1	13.8												
Other																
Red ware																
Bowl	2	26.1	3	23.2							1	3.0	1	2.6		
Jar																
Other																
Smudged ware																
Bowl																

Table 7A.1 - Ceramic data summary, Kin Tl'iish - Continued

Culture category: Tract, Ware, Type	Room 13 Noncultural fills and features N	Room 13 Noncultural fills and features %wt	Room 13 Total N	Room 13 Total %wt	Pitstructure 1 Surface 1 and features N	Pitstructure 1 Surface 1 and features %wt	Pitstructure 1 Mixed fills and features N	Pitstructure 1 Mixed fills and features %wt	Pitstructure 1 Noncultural fills and features N	Pitstructure 1 Noncultural fills and features %wt	Pitstructure 1 Total N	Pitstructure 1 Total %wt	Pitstructure 2 Surface 1 and features N	Pitstructure 2 Surface 1 and features %wt	Pitstructure 2 Noncultural fills and features N	Pitstructure 2 Noncultural fills and features %wt
Mesa Verde																
Dolores Tract																
Gray ware																
Chapin Gray	6	7.0	8	7.0	33	10.5	10	17.7	15	8.1	58	10.1	3	19.6		
Moccasin Gray	2	1.6	2	1.6	21	4.1	7	5.4	3	0.7	26	4.3				
Mancos Gray	2	1.4	2	1.4												
Early Pueblo Gray	75	70.7	79	70.8	356	76.1	60	50.5	235	85.3	651	73.0	5	80.4	5	100.0
Late Pueblo Gray									1	1.0	1	0.3				
Mancos Corrugated			1	0.1												
Dolores Corrugated																
Corrugated Body Sherds	1	0.2	1	0.2					1	0.4	1	0.1				
White ware																
Chapin Black-on-white							1	0.8			1	0.1				
Piedra Black-on-white	2	6.3	2	6.3			1	0.4			1	0.1				
Cortez Black-on-white																
Mancos Black-on-white																
Painted White					2	0.8	1	0.8	1	0.1	4	0.5				
Polished White	6	4.5	6	4.5	11	3.8	3	1.0	8	3.2	22	0.9				
Slipped White																
Sherd White																
Smudged ware																
Plain Smudged																
San Juan Tract																
Gray ware																
Chapin Gray																
Moccasin Gray																
Early Pueblo Gray					5	0.8			5	3.3	10	1.3				
White ware																
Cortez Black-on-white																
Painted White																
Polished White																
Sherd White																
Animas Tract																
Gray ware																
Early Pueblo Gray					3	0.4			1	0.3	4	0.3				
Cahone Tract																
Gray ware																
Early Pueblo Gray					4	0.7					4	0.4				
Corrugated Body Sherds																
White ware																
Polished White					1						1					
Sandstone Tract																
Gray ware																
Early Pueblo Gray					1	0.1	1	0.3			2	0.1				
White ware																
Painted White																
Polished White																
Blanding Tract																
Red ware																
Abajo Red-on-orange					1	0.1	1	0.4			2	0.1				
Bluff Black-on-red					3	0.1	3	13.5	2	1.1	5	2.2				
McPhee Black-on-red																
Early Pueblo Red	1	0.1	1	0.1	20	2.4	16	17.1	24	5.4	62	4.0				
Slipped Red					2	0.3	1	0.3	2	0.4	5	0.3				
Kayenta																
White ware																
Early Pueblo White					1	0.1					1					
Chuska																
Gray ware																
Early Pueblo Gray																
Cibola																
White ware																
Early Pueblo White									1	0.2	1	0.1				
Late Pueblo White																
Cibola or Kayenta																
Gray ware																
Early Pueblo Gray																
White ware																
Early Pueblo White																
Unclassifiable White																
Indeterminate																
Gray ware																
Unclassifiable Gray									2	0.4	2	0.1				
Gray Body Sherds																
White ware																
Pueblo II White																
Painted White																
Polished White																
Red ware																
Unclassifiable Red					1	0.2					1	0.1				
Late Pueblo Red									1	0.2	1	0.1				
Total ceramics	101	100.0	106	100.0	464	100.0	101	100.0	303	100.0	868	100.0	8	100.0	5	100.0
Total wt (g)	1,601.5		1,609.2		3,673.9		1,144.6		1,764.6		6,583.1		78.9		501.1	
Vessel form:																
Gray ware																
Bowl	1	0.5	1	0.5	3	1.3	1	0.5			8	0.9				
Jar	90	[illegible]	95	[illegible]	438	[illegible]	72	[illegible]	293	88.0	731	[illegible]	8	100.0	5	100.0
Other	1	3.1	1	3.1	7	4.7	7	6.1	3	2.6	13	4.4				
White ware																
Bowl	2	1.2	2	1.2	11	0.7	4	2.4	11	1.5	26	1.2				
Jar	2	[illegible]	2	[illegible]	4	0.4	1	0.3			5	0.4				
Other	1	0.7	1	0.7												
Red ware																
Bowl	1	0.1	1	0.1	20	2.4	16	17.2	22	5.6	58	4.2				
Jar					6	0.4	5	6.1	3	1.3	20	1.3				
Other																
Smudged ware																
Bowl																

Table 7A.1 - Ceramic data summary, Kin Tl'iish - Continued

Culture category: Tract / Ware / Type	Pitstructure 2 Total N	Pitstructure 2 Total % wt	Pitstructure 3 Surface 1 and features N	% wt	Pitstructure 3 Roof fall and features N	% wt	Pitstructure 3 Mixed fills and features N	% wt	Pitstructure 3 Total N	% wt	Pitstructure 8 Surface 1 and features N	% wt	Pitstructure 8 Mixed fills and features N	% wt	Pitstructure 8 Nonstructural fills and features N	% wt
Mesa Verde:																
Dolores Tract																
Gray ware																
Chapin Gray			16	50.6			17	13.5	28	27.1						
Moccasin Gray	3	2.6	1	4.1	1	100.0	4	2.0	[illegible]	[illegible]	1	0.7				
Mancos Gray			1	0.5					1	[illegible]						
Early Pueblo Gray	10	97.4	50	36.7			220	79.2	278	64.7	34	3.2	29	84.5	3	91.2
Late Pueblo Gray																
Mancos Corrugated											13	1.7				
Dolores Corrugated													1	2.2		
Corrugated Body Sherds							1	0.2	1	0.2	44	93.2	4	5.4	4	8.8
White ware																
Chapin Black-on-white							1	0.3	1	0.2						
Piedra Black-on-white																
Cortez Black-on-white																
Mancos Black-on-white													1	0.8		
Painted White							1	0.4	1	0.2	6	1.4				
Polished White			22	2.7			3	1.3	24	1.8	1	0.1	1	1.1		
Slipped White																
Sherd White													1	2.4		
Smudged ware																
Plain Smudged																
San Juan Tract																
Gray ware																
Chapin Gray																
Moccasin Gray																
Early Pueblo Gray																
White ware																
Cortez Black-on-white																
Painted White			1	0.6					1	0.2						
Polished White							1	0.4	1	0.2						
Sherd White																
Animas Tract																
Gray ware																
Early Pueblo Gray																
Cahone Tract																
Gray ware																
Early Pueblo Gray											1	0.3				
Corrugated Body Sherds																
White ware																
Polished White							1	0.1	1	0.1						
Sandstone Tract																
Gray ware																
Early Pueblo Gray							1	0.2	1	0.1						
White ware																
Painted White																
Polished White																
Blanding Tract																
Red ware																
Abajo Red-on-orange							1	0.2	1	0.3						
Bluff Black-on-red							1	0.2	1	0.2						
McPhee Black-on-red			2	1.5			7	0.8	9	1.1			1	1.6		
Early Pueblo Red			1	0.2			1	0.1	2	0.3						
Slipped Red																
Kayenta:																
White ware																
Early Pueblo White							1	0.2	1	0.1						
Chuska:																
Gray ware																
Early Pueblo Gray																
Cibola:																
White ware																
Early Pueblo White																
Late Pueblo White																
Cibola or Kayenta:																
Gray ware																
Early Pueblo Gray							1	0.3	1	0.2						
White ware																
Early Pueblo White																
Unclassifiable White																
Indeterminate:																
Gray ware																
Unclassifiable Gray																
Gray Body Sherds																
White ware																
Pueblo II White													2	1.4		
Painted White																
Polished White																
Red ware																
Unclassifiable Red																
Late Pueblo Red																
Total ceramics	13	100.0	98	100.0	1	100.0	269	100.0	364	100.0	100	100.0	41	100.0	7	100.0
Total wt (g)		576.0		1,131.7		4.5		1,962.6		3,097.8		4,157.3		1,410.1		317.8
Vessel form:																
Gray ware																
Bowl			7	[illegible]			1	0.1	8	[illegible]						
Jar	13	100.0	90	[illegible]	1	100.0	[illegible]	[illegible]	304	[illegible]	95	[illegible]	35	[illegible]	7	100.0
Other			1	0.5			3	[illegible]	4	1.8	2	0.2				
White ware																
Bowl			21	[illegible]			5	[illegible]	27	[illegible]	4	[illegible]	2	[illegible]		
Jar			2	[illegible]			6	[illegible]	8	[illegible]	3	[illegible]	1	[illegible]		
Other													2	1.4		
Red ware													1	1.6		
Bowl			2	[illegible]			5	1.4	8	[illegible]						
Jar			1	[illegible]			4	0.5	5	[illegible]						
Other																
Smudged ware																
Bowl																

Table 7A.1 - Ceramic data summary, Kin Tl'iish - Continued

Culture category: Tract / Ware / Type	Pitstructure 4 Total N	% wt	Pitstructure 5 Surface 1 and features N	% wt	Nonstructural Unit 1 Surface 1 and features N	% wt	Nonstructural Unit 4 Surface 1 and features N	% wt	Nonstructural Unit 5 Surface 1 and features N	% wt	Nonstructural Unit 5 Mixed fills and features N	% wt	Nonstructural Unit 5 Total N	% wt
Mesa Verde:														
Dolores Tract														
Gray ware														
Chapin Gray			1	8.8	4	[illegible]	4	5.6	2	17.7	1	0.5	3	2.9
Moccasin Gray	1	0.2			10	[illegible]	13	4.5						
Mancos Gray					1	3.6								
Early Pueblo Gray	65	27.4	4	63.5	26	57.3	87	88.3	8	70.4	46	94.7	54	91.2
Late Pueblo Gray														
Mancos Corrugated	13	1.2												
Dolores Corrugated	[illegible]	[illegible]												
Corrugated Body Sherds	52	67.3	2	24.2					2	7.5	2	3.0	4	3.7
White ware														
Chapin Black-on-white														
Piedra Black-on-white							1	0.2						
Cortez Black-on-white														
Mancos Black-on-white	1	0.2			1	[illegible]								
Painted White	5	1.0												
Polished White	2	0.4	1	3.5			2	0.5						
Slipped White														
Sherd White	1	0.6												
Smudged ware														
Plain Smudged														
San Juan Tract														
Gray ware														
Chapin Gray														
Moccasin Gray														
Early Pueblo Gray														
White ware														
Cortez Black-on-white														
Painted White														
Polished White														
Sherd White														
Animas Tract														
Gray ware														
Early Pueblo Gray														
Cahone Tract														
Gray ware														
Early Pueblo Gray	1	0.2												
Corrugated Body Sherds														
White ware														
Polished White														
Sandstone Tract														
Gray ware														
Early Pueblo Gray														
White ware														
Painted White														
Polished White														
Blanding Tract														
Red ware														
Abajo Red-on-orange														
Bluff Black-on-red														
McPhee Black-on-red														
Early Pueblo Red	1	0.4							1	4.5	1	1.8	2	2.2
Slipped Red														
Kayenta:														
White ware														
Early Pueblo White														
Chuska:														
Gray ware														
Early Pueblo Gray														
Cibola:														
White ware														
Early Pueblo White														
Late Pueblo White														
Cibola or Kayenta:														
Gray ware														
Early Pueblo Gray														
White ware														
Early Pueblo White														
Unclassifiable White														
Indeterminate:														
Gray ware														
Unclassifiable Gray														
Gray Body Sherds														
White ware														
Pueblo II White	2	0.3												
Painted White														
Polished White					1	0.7								
Red ware														
Unclassifiable Red														
Late Pueblo Red														
Total ceramics	146	100.0	8	100.0	43	100.0	107	100.0	13	100.0	50	100.0	63	100.0
Total wt (g)		5,885.2		48.8		656.7		1,620.1		46.9		286.7		333.6
Vessel form:														
Gray ware														
Bowl					1	4.4	1	[illegible]	1	[illegible]			1	[illegible]
Jar	131	97.0	7	96.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	49	98.2	[illegible]	[illegible]
Other	2	0.1			3	[illegible]	1	[illegible]	1	[illegible]			1	[illegible]
White ware														
Bowl	6	1.3	1	3.5	2	4.9	2	0.4						
Jar	4	0.4					1	0.3						
Other	2	0.3												
Red ware														
Bowl	1	0.4							1	4.5	1	1.8	2	2.2
Jar														
Other														
Smudged ware														
Bowl														

Table 7A.1 - Ceramic data summary, Kin Tl'iish - Continued

Culture category / Tract / Ware / Type	Nonstructural unit & mixed fills and features N	% wt	Other excavated units N	% wt	Site total N	% wt
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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Table 7A.2 - Flaked lithic tools, Kin Tl'iish

	Modern ground surface			Room 1						Room 1			Room 2					
				Surface 1 and features			Surface 2 and features			Total			Surface 1 and features			Mixed fills and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	313	100.0	70	13	100.0	250	3	100.0	57	16	100.0	214	1	100.0	8	3	100.0	68
Tool morpho-use																		
Inapplicable																		
Indeterminate	4	1.3	76															
Utilized flake	223	71.2	25	6	46.2	39	2	66.7	48	8	50.0	41	1	100.0	8	1	33.3	40
Core	11	3.5	171	1	7.7	283	1	33.3	74	2	12.5	179				1	33.3	160
Used core, cobble tool	25	8.0	270	1	7.7	2,350				1	6.3	2,350						
Thick uniface	21	6.7	194	2	15.4	154				2	12.5	154						
Thin uniface	6	1.9	29															
Specialized form	3	1.0	289	1	7.7	17				1	6.3	17				1	33.3	4
Thick biface	16	5.1	133	1	7.7	52				1	6.3	52						
Thin biface	2	0.6	3	1	7.7	4				1	6.3	4						
Projectile point	2	0.6	1															
Grain size																		
Coarse																		
Medium	1	0.3	240															
Fine	29	9.3	97	1	7.7	19	1	33.3	7	2	12.5	13						
Very fine	229	73.2	74	9	69.2	358	2	66.7	82	11	68.8	308				2	66.7	100
Microscopic	54	17.3	33	3	23.1	2				3	18.8	2	1	100.0	8	1	33.3	4
Item condition																		
Indeterminate																		
Broken																		
Indeterminate	27	8.6	34															
Distal present	8	2.6	50															
Proximal present	16	5.1	8	1	7.7	1				1	6.3	1						
Medial/lateral present	7	2.2	5	1	7.7	4				1	6.3	4						
Complete/nearly complete	255	81.5	80	11	84.6	295	3	100.0	57	14	87.5	244	1	100.0	8	3	100.0	68
Dorsal face evaluation																		
Indeterminate																		
Core	34	10.9	219	2	15.4	1,317	1	33.3	74	3	18.8	902				1	33.3	160
Unworked with cortex	140	44.7	78	5	38.5	71	2	66.7	48	7	43.8	65						
Unworked without cortex	131	41.9	25	3	23.1	7				3	18.8	7	1	100.0	8	2	66.7	22
Edged with cortex	1	0.3	94	2	15.4	117				2	12.5	117						
Edged without cortex	2	0.6	3															
Primarily thinned	2	0.6	13															
Secondarily thinned	3	1.0	2	1	7.7	4				1	6.3	4						
Well shaped																		

Table 7A.2 - Flaked lithic tools, Kin Tl'iish - Continued

	Room 5			Room 7						Room 7						Room 8		
	Surface 1 and features			Surface 1 and features			Cultural fill, and features			Mixed fills and features			Total			Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	3	100.0	18	1	100.0	7	2	100.0	292	5	100.0	125	8	100.0	152	1	100.0	422
Tool morpho-use																		
Inapplicable																		
Indeterminate	1	33.3	2															
Utilized flake	2	66.7	26				1	50.0	2	2	40.0	1	3	37.5	1			
Core																		
Used core, cobble tool							1	50.0	581	1	20.0	290	2	25.0	436	1	100.0	422
Thick uniface				1	100.0	7							1	12.5	7			
Thin uniface																		
Specialized form										1	20.0	1	1	12.5	1			
Thick biface										1	20.0	332	1	12.5	332			
Thin biface																		
Projectile point																		
Grain size																		
Coarse																		
Medium																		
Fine																1	100.0	422
Very fine	1	33.3	51				1	50.0	581	2	40.0	311	3	37.5	401			
Microscopic	2	66.7	2	1	100.0	7	1	50.0	2	3	60.0	1	5	62.5	2			
Item condition																		
Indeterminate																		
Broken																		
Indeterminate	1	33.3	2													1	100.0	422
Distal present										2	40.0	1	2	25.0	1			
Proximal present																		
Medial/lateral present	1	33.3	1															
Complete/nearly complete	1	33.3	51	1	100.0	7	2	100.0	292	3	60.0	208	6	75.0	202			
Dorsal face evaluation																		
Indeterminate																		
Core							1	50.0	581				1	12.5	581	1	100.0	422
Unworked with cortex	2	66.7	26							1	20.0	290	1	12.5	290			
Unworked without cortex	1	33.3	2	1	100.0	7	1	50.0	2	2	40.0	1	4	50.0	3			
Edged with cortex										1	20.0	332	1	12.5	332			
Edged without cortex																		
Primarily thinned										1	20.0	1	1	12.5	1			
Secondarily thinned																		
Well shaped																		

Table 7A.2 - Flaked lithic tools, Kin Tl'iish - Continued

	Room 8						Room 9 Surface 1 and features			Room 11 noncultural fills and features			Room 13		
	Mixed fills and features			Total									Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	4	100.0	91	5	100.0	157	2	100.0	2	2	100.0	440	1	100.0	71
Tool morpho-use															
Inapplicable															
Indeterminate															
Utilized flake	3	75.0	62	3	60.0	62	1	50.0	1	1	50.0	3			
Core															
Used core, cobble tool	1	25.0	180	2	40.0	301				1	50.0	877			
Thick uniface													1	100.0	71
Thin uniface															
Specialized form															
Thick biface															
Thin biface															
Projectile point							1	50.0	3						
Grain size															
Coarse															
Medium															
Fine	1	25.0	2	2	40.0	212	1	50.0	1						
Very fine	3	75.0	121	3	60.0	121				1	50.0	877	1	100.0	71
Microscopic							1	50.0	3	1	50.0	3			
Item condition															
Indeterminate															
Broken															
Indeterminate				1	20.0	422									
Distal present															
Proximal present															
Medial/lateral present															
Complete/nearly complete	4	100.0	91	4	80.0	91	2	100.0	2	2	100.0	440	1	100.0	71
Dorsal face evaluation															
Indeterminate															
Core	1	25.0	180	2	40.0	301				1	50.0	877			
Unworked with cortex	3	75.0	62	3	60.0	62	1	50.0	1				1	100.0	71
Unworked without cortex										1	50.0	3			
Edged with cortex															
Edged without cortex															
Primarily thinned															
Secondarily thinned							1	50.0	3						
Well shaped															

Table 7A.2 - Flaked lithic tools, Kin Tl'iish - Continued

	Room 13						Pitstructure 1			Pitstructure 1								
	Noncultural fills and features			Total			Surface 1 and features			Mixed fills and features			Noncultural fills and features			Total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	6	100.0	176	7	100.0	176	63	100.0	160	21	100.0	44	33	100.0	16	117	100.0	99
Tool morpho-use																		
Inapplicable							1	1.6	1							1	0.9	1
Indeterminate							4	6.3	2	2	9.5	2	2	6.1	6	8	6.8	3
Utilized flake	5	83.3	56	5	71.4	56	32	50.8	22	9	42.9	12	17	51.5	10	58	49.6	17
Core							3	4.8	877				2	6.1	70	5	4.3	554
Used core, cobble tool	1	16.7	776	1	14.3	776	10	15.9	526	1	4.8	333				11	9.4	508
Thick uniface				1	14.3	71	4	6.3	8				2	6.1	25	6	5.1	14
Thin uniface							2	3.2	2	1	4.8	1	5	15.2	19	8	6.8	13
Specialized form							3	4.8	69	3	14.3	130	1	3.0	1	7	6.0	85
Thick biface							2	3.2	632				3	9.1	18	5	4.3	263
Thin biface										1	4.8	80				1	0.9	80
Projectile point							2	3.2	2	4	19.0	2	1	3.0	1	7	6.0	2
Grain size																		
Coarse										1	4.8	370				1	0.9	370
Medium							2	3.2	244							2	1.7	244
Fine							8	12.7	59	7	33.3	4	6	18.2	9	21	17.9	26
Very fine	5	83.3	210	6	85.7	187	28	44.4	323	8	38.1	59	12	36.4	18	48	41.0	203
Microscopic	1	16.7	9	1	14.3	9	25	39.7	4	5	23.8	11	15	45.5	18	45	38.5	9
Item condition																		
Indeterminate																		
Broken																		
Indeterminate							10	15.9	41	6	28.6	19	2	6.1	6	18	15.4	30
Distal present													2	6.1	1	2	1.7	1
Proximal present										3	14.3	4	1	3.0	1	4	3.4	3
Medial/lateral present							2	3.2	4	1	4.8	370				3	2.6	126
Complete/nearly complete	6	100.0	176	7	100.0	176	51	81.0	190	11	52.4	39	28	84.8	18	90	76.9	118
Dorsal face evaluation																		
Indeterminate							2	3.2	1							2	1.7	1
Core							8	12.7	665				2	6.1	70	10	8.5	546
Unworked with cortex	5	83.3	210	6	85.7	187	17	27.0	269	7	33.3	71	2	6.1	11	26	22.2	196
Unworked without cortex	1	16.7	9	1	14.3	9	32	50.8	5	8	38.1	11	27	81.8	14	67	57.3	9
Edged with cortex							1	1.6	13	1	4.8	333				2	1.7	173
Edged without cortex							1	1.6	25	2	9.5	3				3	2.6	10
Primarily thinned							1	1.6	3				1	3.0	1	2	1.7	2
Secondarily thinned							1	1.6	2	2	9.5	2	1	3.0	1	4	3.4	2
Well shaped										1	4.8	2				1	0.9	2

Table 7A.2 - Flaked lithic tools, Kin Tl'iish - Continued

	Pitstructure 2 Surface 1 and features			Pitstructure 3 Surface 1 and features			Pitstructure 3 Mixed fills and features			Pitstructure 3 Total			Pitstructure 4 Surface 1 and features			Pitstructure 4 Mixed fills and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	1	100.0	45	17	100.0	215	42	100.0	29	59	100.0	82	5	100.0	19	1	100.0	160
Tool morpho-use																		
Inapplicable																		
Indeterminate																		
Utilized flake	1	100.0	45	4	23.5	9	30	71.4	21	34	57.6	19	5	100.0	19			
Core				1	5.9	152	3	7.1	116	4	6.8	125						
Used core, cobble tool				5	29.4	466	1	2.4	183	6	10.2	419						
Thick uniface				4	23.5	230	2	4.8	10	6	10.2	157				1	100.0	160
Thin uniface				1	5.9	167	1	2.4	8	2	3.4	88						
Specialized form				1	5.9	27	3	7.1	4	4	6.8	10						
Thick biface				1	5.9	28				1	1.7	28						
Thin biface							1	2.4	1	1	1.7	1						
Projectile point							1	2.4	2	1	1.7	2						
Grain size																		
Coarse																		
Medium																		
Fine				1	5.9	28	3	7.1	4	4	6.8	10						
Very fine	1	100.0	45	13	76.5	277	28	66.7	42	41	69.5	116	4	80.0	23	1	100.0	160
Microscopic				3	17.6	12	11	26.2	2	14	23.7	5	1	20.0	1			
Item condition																		
Indeterminate							1	2.4	6	1	1.7	6						
Broken																		
Indeterminate				2	11.8	5	3	7.1	1	5	8.5	2						
Distal present							1	2.4	2	1	1.7	2						
Proximal present							2	4.8	9	2	3.4	9	1	20.0	1			
Medial/lateral present							2	4.8	1	2	3.4	1						
Complete/nearly complete	1	100.0	45	15	88.2	243	33	78.6	36	48	81.4	100	4	80.0	23	1	100.0	160
Dorsal face evaluation																		
Indeterminate																		
Core				2	11.8	129	3	7.1	116	5	8.5	121						
Unworked with cortex	1	100.0	45	10	58.8	268	13	31.0	47	23	39.0	143	5	100.0	19	1	100.0	160
Unworked without cortex				3	17.6	1	24	57.1	3	27	45.8	2						
Edged with cortex				2	11.8	361	1	2.4	183	3	5.1	301						
Edged without cortex																		
Primarily thinned																		
Secondarily thinned							1	2.4	2	1	1.7	2						
Well shaped																		

Table 7A.2 - Flaked lithic tools, Kin Tl'iish - Continued

	Pitstructure 4			Pitstructure 5			Nonstructural Unit 1			Nonstructural Unit 4			Nonstructural Unit 5					
	Total			Surface 1 and features			Surface 1 and features			Surface 1 and features			Surface 1 and features			Mixed fills and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	6	100.0	42	2	100.0	353	8	100.0	61	3	100.0	645	1	100.0	1	2	100.0	1
Tool morpho-use																		
Inapplicable																		
Indeterminate																1	50.0	1
Utilized flake	5	83.3	19				6	75.0	23				1	100.0	1	1	50.0	1
Core							1	12.5	67	1	33.3	209						
Used core, cobble tool				1	50.0	543				1	33.3	804						
Thick uniface	1	16.7	160				1	12.5	281									
Thin uniface				1	50.0	162												
Specialized form										1	33.3	922						
Thick biface																		
Thin biface																		
Projectile point																		
Grain size																		
Coarse																		
Medium																		
Fine							1	12.5	15	1	33.3	922				1	50.0	1
Very fine	5	83.3	50	2	100.0	353	6	75.0	68	2	66.7	507				1	50.0	1
Microscopic	1	16.7	1				1	12.5	67				1	100.0	1			
Item condition																		
Indeterminate																		
Broken																		
Indeterminate				1	50.0	543							1	100.0	1	1	50.0	1
Distal present																		
Proximal present	1	16.7	1															
Medial/lateral present																		
Complete/nearly complete	5	83.3	50	1	50.0	162	8	100.0	61	3	100.0	645				1	50.0	1
Dorsal face evaluation																		
Indeterminate																		
Core							1	12.5	67	2	66.7	507						
Unworked with cortex	6	100.0	42	2	100.0	353	6	75.0	68	1	33.3	922						
Unworked without cortex							1	12.5	15				1	100.0	1	2	100.0	1
Edged with cortex																		
Edged without cortex																		
Primarily thinned																		
Secondarily thinned																		
Well shaped																		

Table 7A.2 - Flaked lithic tools, Kin Tl'iish - Continued

	Nonstructural Unit 5 Total			Nonstructural Unit 6 mixed fills and features			Other excavated units			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	3	100.0	1	6	100.0	11	227	100.0	33	813	100.0	73
Tool morpho-use												
Inapplicable										1	0.1	1
Indeterminate	1	33.3	1	1	16.7	2	7	3.1	33	22	2.7	26
Utilized flake	2	66.7	1	4	66.7	16	168	74.0	20	534	65.7	23
Core							4	1.8	83	30	3.7	210
Used core, cobble tool							3	1.3	246	57	7.0	422
Thick uniface							19	8.4	84	63	7.7	128
Thin uniface							4	1.8	67	22	2.7	41
Specialized form							7	3.1	87	25	3.1	122
Thick biface							4	1.8	58	29	3.6	156
Thin biface							4	1.8	5	10	1.2	12
Projectile point				1	16.7	1	7	3.1	1	20	2.5	1
Grain size												
Coarse										1	0.1	370
Medium										3	0.4	243
Fine	1	33.3	1	2	33.3	2	23	10.1	11	90	11.1	65
Very fine	1	33.3	1	2	33.3	28	154	67.8	43	532	65.4	93
Microscopic	1	33.3	1	2	33.3	3	50	22.0	12	187	23.0	16
Item condition												
Indeterminate										1	0.1	6
Broken												
Indeterminate	2	66.7	1	1	16.7	2	30	13.2	32	88	10.8	42
Distal present				2	33.3	2	11	4.8	7	26	3.2	19
Proximal present							12	5.3	49	38	4.7	20
Medial/lateral present							21	9.3	21	35	4.3	24
Complete/nearly complete	1	33.3	1	3	50.0	20	153	67.4	35	625	76.9	86
Dorsal face evaluation												
Indeterminate				1	16.7	2				3	0.4	1
Core							7	3.1	152	70	8.6	314
Unworked with cortex				1	16.7	16	98	43.2	47	333	41.0	88
Unworked without cortex	3	100.0	1	3	50.0	15	108	47.6	16	359	44.2	16
Edged with cortex							2	0.9	18	13	1.6	192
Edged without cortex							4	1.8	4	9	1.1	6
Primarily thinned							2	0.9	1	8	1.0	4
Secondarily thinned				1	16.7	1	2	0.9	2	13	1.6	2
Well shaped							4	1.8	3	5	0.6	2

Table 7A.3 - Flaked lithic debitage, Kin Tl'iish

	Modern ground surface			Room 1 Surface 1 and features			Room 1 Surface 2 and features			Room 1 Total			Room 2 Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags: Grain size															
Medium	2	0.3	8	0	0	0	1	3.1	27	1	1.1	27	0	0	0
Fine	157	19.8	5	10	16.9	3	8	25.0	69	18	19.8	32	16	36.4	
Very fine	420	53.0	8	39	66.1	6	18	56.3	2	57	[illegible]	4	14	31.8	1
Microscopic	213	26.9	2	10	16.9	2	5	15.6	1	15	16.5	1	14	31.8	1
Total flakes/flake frags	792	100.0	6	59	100.0	5	32	100.0	19	91	100.0	10	44	100.0	1
Items with cortex	169	21.3	...	17	28.8	...	7	21.9	...	24	26.4	...	7	15.9	...
Whole flakes	504	63.6	...	24	40.7	...	12	37.5	...	36	39.6	...	12	27.3	...
Nonlocal items	1	0.1	...	0	0	0	0	0	0	0	0	0	1	2.3	...
Angular debris	10	100.0	16	0	0	0	6	100.0	7	6	100.0	7	0	0	0

Table 7A.3 - Flaked lithic debitage, Kin Tl'iish - Continued

	Room 2 Mixed fills and features			Room 2 Noncultural fills and features			Room 2 Total			Room 3 Surface 1 and features			Room 3 Mixed fills and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags: Grain size															
Medium	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fine	1	7.7	1	0	0	0	17	28.3		69	27.0	5	0	0	0
Very fine	8	61.5	10	2	66.7	6	24	40.0	4	137	53.5	5	2	33.3	4
Microscopic	4	30.8	1	1	33.3	6	19	31.7	1	50	19.5	3	4	66.7	6
Total flakes/flake frags	13	100.0	7	3	100.0	6	60	100.0	2	256	100.0	5	6	100.0	5
Items with cortex	4	30.8	...	1	33.3	...	12	20.0	...	45	17.6	...	2	33.3	...
Whole flakes	13	100.0	...	1	33.3	...	26	43.3	...	87	34.0	...	5	83.3	...
Nonlocal items	0	0	0	0	0	0	1	1.7	...	1	0.4	...	0	0	0
Angular debris	0	0	0	0	0	0	0	0	0	9		4	0	0	0

Table 7A.3 - Flaked lithic debitage, Kin Tl'iish - Continued

	Room 3 Total			Room 4 Surface 1 and features			Room 4 Roof fall and features			Room 4 Mixed fills and features			Room 4 Total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags: Grain size															
Medium	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fine	69	26.3	5	3	50.0	2	14	23.3	1	1	100.0	1	18	26.9	1
Very fine	139	53.1	5	3	50.0	4	37	61.7	3	0	0	0	40	59.7	3
Microscopic	54	20.6	3	0	0	0	9	15.0	3	0	0	0	9	13.4	3
Total flakes/flake frags	262	100.0	5	6	100.0	3	60	100.0	3	1	100.0	1	67	100.0	3
Items with cortex	47	17.9	...	1	16.7	...	13	21.7	...	0	0	0	14	20.9	...
Whole flakes	92	35.1	...	3	50.0	...	14	23.3	...	1	100.0	...	18	26.9	...
Nonlocal items	1	0.4	...	0	0	0	0	0	0	0	0	0	0	0	0
Angular debris	9	100.0	4	0	0	0	2	100.0	3	0	0	0	2	100.0	3

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Table 7A.3 - Flaked lithic debitage, Kin Tl'iish - Continued

	Room 5 Surface 1 and features			Room 7 Surface 1 and features			Room 7 Cultural fills and features			Room 7 Mixed fills and features			Room 7 Total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags: Grain size															
Medium	1	1.5	1	0	0	0	0	0	0	0	0	0	0	0	0
Fine	20	30.3	2	4	20.0	2	14	33.3	1	11	14.9	7	29	21.3	3
Very fine	24	36.4	2	6	30.0	6	12	28.6		50	67.6	2	68	50.0	2
Microscopic	21	31.8	1	10	50.0	1	16	38.1		13	17.6		39	28.7	
Total flakes/flake frags	66	100.0	2	20	100.0	2	42	100.0		74	100.0	2	136	100.0	2
Items with cortex	8	12.1	...	2	10.0	...	2	4.8	...	26	35.1	...	30	22.1	...
Whole flakes	15	22.7	...	7	35.0	...	10	23.8	...	11	14.9	...	28	20.6	...
Nonlocal items	2	3.0	...	0	0	0	1	2.4	...	0	0	0	1	0.7	...
Angular debris	3	100.0	8	0	0	0	1	100.0	1	1	100.0	96	2	100.0	48

Table 7A.3 - Flaked lithic debitage, Kin Tl'iish - Continued

	Room 8 Surface 1 and features			Room 8 Mixed fills and features			Room 8 Total			Room 9 Surface 1 and features			Room 10 Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags: Grain size															
Medium	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fine	24	63.2	1	5	15.2	6	29	40.8	2	3	27.3	1	1	20.0	1
Very fine	7	18.4		21	63.6	4	28	39.4	3	3	27.3	0	2	40.0	1
Microscopic	7	18.4	1	7	21.2	1	14	19.7	1	5	45.5	0	2	40.0	1
Total flakes/flake frags	38	100.0	1	33	100.0	3	71	100.0	2	11	100.0		5	100.0	1
Items with cortex	6	15.8	...	7	21.2	...	13	18.3	...	2	18.2	...	0	0	0
Whole flakes	9	23.7	...	6	18.2	...	15	21.1	...	1	9.1	...	3	60.0	...
Nonlocal items	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Angular debris	0	0	0	2	100.0	3	2	100.0	3	0	0	0	0	0	0

Table 7A.3 - Flaked lithic debitage, Kin Tl'iish - Continued

	Room 11 Surface 1 and features			Room 11 Noncultural fills and features			Room 11 Total			Room 13 Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags: Grain size												
Medium	0	0	0	0	0	0	0	0	0	0	0	0
Fine	2	40.0	2	1	16.7	1	3	27.3	1	0	0	0
Very fine	3	60.0	11	5	83.3	2	8	72.7	6	0	0	0
Microscopic	0	0	0	0	0	0	0	0	0	1	100.0	46
Total flakes/flake frags	5	100.0	7	6	100.0	2	11	100.0	4	1	100.0	46
Items with cortex	1	20.0	...	2	33.3	...	3	27.3	...	1	100.0	...
Whole flakes	3	60.0	...	3	50.0	...	6	54.5	...	1	100.0	...
Nonlocal items	0	0	0	0	0	0	0	0	0	0	0	0
Angular debris	0	0	0	0	0	0	0	0	0	0	0	0

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Table 7A.3 - Flaked lithic debitage, Kin Tl'iish - Continued

	Room 13						Pitstructure 1		
	Noncultural fills and features			Total			Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:									
Grain size									
Medium	0	0	0	0	0	0	10	0.9	4
Fine	3	33.3	7	3	30.0	7	115	10.2	3
Very fine	6	66.7	9	6	60.0	9	704	62.7	2
Microscopic				1	10.0	46	294	26.2	1
Total flakes flake frags	9	100.0	8	10	100.0	12	1123	100.0	2
Items with cortex	5	55.6	...	6	60.0	...	134	11.4	...
Whole flakes	6	66.7	...	7	70.0	...	468	41.7	...
Nonlocal items	0	0	0	0	0	0	3	0.3	...
Angular debris	0	0	0	0	0	0	12	100.0	4

Table 7A.3 - Flaked lithic debitage, Kin Tl'iish - Continued

	Pitstructure 1									Pitstructure 2			Pitstructure 3		
	Mixed fills and features			Noncultural fills and features			Total			Surface 1 and features			Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:															
Grain size															
Medium	0	0	0	[illegible]	0.4	1	12	0.7	3	0	0	0	1	1.4	19
Fine	21	18.6	1	48	9.5	2	184	10.6	2	3	16.7	6	14	20.0	23
Very fine	60	53.1	2	326	64.7	3	1040	62.6	2	13	72.2	2	48	68.6	16
Microscopic	32	28.3	1	128	25.4	2	454	26.1	1	2	11.1	1	7	10.0	1
Total flakes/ flake frags	113	100.0	1	504	100.0	3	1740	100.0	2	18	100.0	3	70	100.0	16
Items with cortex	10	8.8	...	88	17.5	...	232	13.3	...	1	5.6	...	23	32.9	...
Whole flakes	48	42.5	...	270	53.6	...	786	45.2	...	6	33.3	...	31	44.3	...
Nonlocal items	0	0	0	3	0.6	...	6	0.3	...	0	0	0	0	0	0
Angular debris	0	0	0	0	0	0	12	100.0	4	0	0	0	10	100.0	26

Table 7A.3 - Flaked lithic debitage, Kin Tl'iish - Continued

	Pitstructure 3						Pitstructure 4								
	Mixed fills and features			Total			Surface 1 and features			Noncultural fills and features			Total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:															
Grain size															
Medium	0	0	0	1	0.3	19	0	0	0	0	0	0	0	0	0
Fine	56	20.7	9	70	20.6	12	4	16.7	4	0	0	0	4	14.3	4
Very fine	147	54.4	3	195	57.4	6	16	66.7	5	4	100.0	3	20	71.4	5
Microscopic	67	24.8	3	74	21.8	3	4	16.7	1	0	0	0	4	14.3	1
Total flakes/ flake frags	270	100.0	4	340	100.0	7	24	100.0	4	4	100.0	3	28	100.0	4
Items with cortex	68	25.2	...	91	26.8	...	8	33.3	...	1	25.0	...	9	32.1	...
Whole flakes	83	30.7	...	114	33.5	...	6	25.0	...	2	50.0	...	8	28.6	...
Nonlocal items	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Angular debris	14	100.0	7	24	100.0	15	0	0	0	0	0	0	0	0	0

Table 7A.3 - Flaked lithic debitage, Kin Tl'iish - Continued

	Pitstructure 5			Nonstructural unit 1			Nonstructural unit 8			Nonstructural unit 5					
	Surface 1 and features			Surface 1 and features			Surface 1 and features			Surface 1 and features			Mixed fills and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:															
Grain size															
Medium	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fine	5	35.7	4	5	10.6	1	2	20.0	2	8	11.1	1	3	15.8	8
Very fine	9	64.3	5	24	51.1	1	5	50.0	17	55	76.4	1	11	57.9	3
Microscopic	0	0	0	18	38.3	1	3	30.0	1	9	12.5	1	5	26.3	1
Total flakes/ flake frags	14	100.0	5	47	100.0	1	10	100.0	9	72	100.0	1	19	100.0	3
Items with cortex	2	14.3	...	4	8.5	...	1	10.0	...	12	16.7	...	6	31.6	...
Whole flakes	3	21.4	...	27	57.4	...	6	60.0	...	16	22.2	...	14	73.7	...
Nonlocal items	0	0	0	0	0	0	0	0	0	1	1.4	...	0	0	0
Angular debris	0	0	0	1	100.0	1	0	0	0	0	0	0	1	100.0	1

Table 7A.3 - Flaked lithic debitage, Kin Tl'iish - Continued

	Nonstructural Unit 5			Nonstructural Unit 6			Other excavated units			Site total		
	Total			mixed fills and features								
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:												
Grain size												
Medium	0	0	0	0	0	0	4	0.2	3	21	0.4	5
Fine	11	12.1	3	35	11.6	3	332	18.2	2	1018	17.0	4
Very fine	66	72.5	2	236	78.4	4	1077	58.9	3	3554	59.2	4
Microscopic	14	15.4	1	30	10.0	2	416	22.7	2	1407	23.5	2
Total flakes/ flake frags	91	100.0	2	301	100.0	3	1829	100.0	3	6000	100.0	3
Items with cortex	18	19.8	...	20	6.6	...	66	20.0	...	1072	17.9	...
Whole flakes	30	33.0	...	103	34.2	...	885	48.4	...	2719	45.3	...
Nonlocal items	1	1.1	...	1	0.3	...	3	0.2	...	17	0.3	...
Angular debris	1	100.0	1	104	100.0	2	14	100.0	17	190	100.0	6

NOTE: ... - Information not available.
frags - Fragments.

Table 7A.4 - Nonflaked lithic tools, Kin Tl'iish

	Modern ground surface			Room 1 Surface 1 and features			Room 1 Surface 2 and features			Room 1 Total			Room 2 Surface 1 and features			Room 3 Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	41	100.0	689	12	100.0	1,643	9	100.0	2,419	21	100.0	1,976	2	100.0	583	8	100.0	687
Tool morpho use																		
Indeterminate	2	4.9	326	1	8.3	7,500	2	22.2	4,000	3	14.3	5,167				1	12.5	910
Miscellaneous	15	36.6	665	2	16.7	88	4	44.4	2,113	6	28.6	1,438	1	50.0	802	3	37.5	210
Hammerstone	9	22.0	490	1	8.3	410				1	4.8	410				2	25.0	1,146
Mano fragment	4	9.8	852	3	25.0	1,318				3	14.3	1,318						
One-hand mano	5	12.2	692	1	8.3	536				1	4.8	536						
Two-hand mano	3	7.3	1,106	4	33.3	1,786	3	33.3	1,772	7	33.3	1,780				1	12.5	886
Metate fragment	1	2.4	1,068										1	50.0	363			
Trough metate	1	2.4	1,458															
Hafted item	1	2.4	492													1	12.5	781
Ornament																		
Blank type																		
Indeterminate																		
Rounded cobble	10	24.4	586	2	16.7	211				2	9.5	211						
Core																		
Flattened cobble	29	70.7	685	8	66.7	2,096	7	77.8	2,750	15	71.4	2,401	1	50.0	802	8	100.0	687
Slab fragment													1	50.0	363			
Thick slab																		
Thin slab	1	2.4	1,458															
Very thin slab	1	2.4	1,068	2	16.7	1,264	2	22.2	1,259	4	19.0	1,261						
Completely modified item																		
Item condition																		
Indeterminate																		
Broken																		
Unidentifiable	7	17.1	978				1	11.1	4,950	1	4.8	4,950	1	50.0	363	1	12.5	910
Identifiable	11	26.8	607	1	8.3	536				1	4.8	536				1	12.5	781
Complete/nearly complete	23	56.1	640	11	91.7	1,744	8	88.9	2,102	19	90.5	1,895	1	50.0	802	6	75.0	635
Production evaluation																		
Indeterminate	9	22.0	643	1	8.3	7,500	2	22.2	2,706	3	14.3	4,304	1	50.0	363	1	12.5	683
Natural (unmodified)	24	58.5	665	4	33.3	740	3	33.3	2,463	7	33.3	1,478	1	50.0	802	5	62.5	630
Minimally modified	5	12.2	830	1	8.3	536				1	4.8	536				1	12.5	781
Well shaped	3	7.3	777	6	50.0	1,454	4	44.4	2,242	10	47.6	1,769				1	12.5	886
Stylized																		

Table 7A.4 - Nonflaked lithic tools, Kin Tl'iish - Continued

	Room 4 Surface 1 and features			Room 5 Surface 1 and features			Room 7 cultural fills and features			Room 8								
										Surface 1 and features			Mixed fills and features			Total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	1	100.0	1,620	3	100.0	2,742	2	100.0	2,395	1	100.0	707	2	100.0	879	3	100.0	822
Tool morpho use																		
Indeterminate																		
Miscellaneous				2	66.7	3,464	1	50.0	3,950									
Hammerstone				1	33.3	1,299												
Mano fragment	1	100.0	1,620										2	100.0	879	2	66.7	879
One-hand mano										1	100.0	707				1	33.3	707
Two-hand mano							1	50.0	840									
Metate fragment																		
Trough metate																		
Hafted item																		
Ornament																		
Blank type																		
Indeterminate																		
Rounded cobble																		
Core																		
Flattened cobble	1	100.0	1,620	3	100.0	2,742	2	100.0	2,395	1	100.0	707	2	100.0	879	3	100.0	822
Slab fragment																		
Thick slab																		
Thin slab																		
Very thin slab																		
Completely modified item																		
Item condition																		
Indeterminate																		
Broken																		
Unidentifiable													1	50.0	793	1	33.3	793
Identifiable							1	50.0	840									
Complete/nearly complete	1	100.0	1,620	3	100.0	2,742	1	50.0	3,950	1	100.0	707	1	50.0	965	2	66.7	836
Production evaluation																		
Indeterminate							1	50.0	840									
Natural (unmodified)	1	100.0	1,620	2	66.7	738				1	100.0	707	1	50.0	793	2	66.7	750
Minimally modified				1	33.3	6,750							1	50.0	965	1	33.3	965
Well shaped							1	50.0	3,950									
Stylized																		

Table 7A.4 - Nonflaked lithic tools, Kin Tl'iish - Continued

	Room 10 Surface 1 and features			Room 13 noncultural fills and features			Pitstructure 1 Surface 1 and features			Pitstructure 1 Mixed fills and features			Pitstructure 1 Noncultural fills and features			Pitstructure 1 Total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	1	100.0	7,250	3	100.0	862	18	100.0	1,832	4	100.0	5,138	3	100.0	797	25	100.0	2,237
Tool morpho use																		
Indeterminate							3	16.7	1,289				1	33.3	1,387	4	16.0	1,313
Miscellaneous	1	100.0	7,250	1	33.3	268	8	44.4	943	2	50.0	8,650	1	33.3	392	11	44.0	2,294
Hammerstone							2	11.1	1,015				1	33.3	613	3	12.0	881
Mano fragment																		
One-hand mano																		
Two-hand mano							3	16.7	678	1	25.0	2,500				4	16.0	1,133
Metate fragment																		
Trough metate				1	33.3	1,768	1	5.6	17,500							1	4.0	17,500
Hafted item				1	33.3	550				1	25.0	750				1	4.0	750
Ornament							1	5.6	1							1	4.0	1
Blank type																		
Indeterminate																		
Rounded cobble							3	16.7	746							3	12.0	746
Core																		
Flattened cobble	1	100.0	7,250	2	66.7	409	13	72.2	1,018	4	100.0	5,138	3	100.0	797	20	80.0	1,809
Slab fragment				1	33.3	1,768												
Thick slab																		
Thin slab																		
Very thin slab							1	5.6	17,500							1	4.0	17,500
Completely modified item							1	5.6	1							1	4.0	1
Item condition																		
Indeterminate																		
Broken																		
Unidentifiable							2	11.1	663	1	25.0	5,300				3	12.0	2,209
Identifiable				1	33.3	1,768	2	11.1	537							2	8.0	537
Complete/nearly complete	1	100.0	7,250	2	66.7	409	14	77.8	2,184	3	75.0	5,083	3	100.0	797	20	80.0	2,411
Production evaluation																		
Indeterminate				1	33.3	1,768	2	11.1	895				1	33.3	1,387	3	12.0	1,059
Natural (unmodified)				1	33.3	268	10	55.6	753	2	50.0	8,650	2	66.7	503	14	56.0	1,845
Minimally modified				1	33.3	550	3	16.7	1,971	1	25.0	750				4	16.0	1,666
Well shaped	1	100.0	7,250				2	11.1	8,872	1	25.0	2,500				3	12.0	6,748
Stylized							1	5.6	1							1	4.0	1

Table 7A.4 - Nonflaked lithic tools, Kin Tl'iish - Continued

	Pitstructure 3									Pitstructure 4								
	Surface 1 and features			Mixed fills and features			Total			Surface 1 and features			Mixed fills and features			Noncultural fills and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	8	100.0	1,896	2	100.0	3,235	10	100.0	2,164	1	100.0	23,750	4	100.0	13,119	2	100.0	10,675
Tool morpho use																		
Indeterminate	1	12.5	158	1	50.0	1,070	2	20.0	614									
Miscellaneous	4	50.0	1[illegible]1	1	50.0	5,400	5	50.0	1,185				1	25.0	3,400			
Hammerstone	1	12.5	3,100				1	10.0	3,100									
Mano fragment																		
One-hand mano																		
Two-hand mano	1	12.5	1,583				1	10.0	1,583				2	50.0	1,539			
Metate fragment										1	100.0	23,750						
Trough metate	1	12.5	9,800				1	10.0	9,800				1	25.0	46,000	2	100.0	10,675
Hafted item																		
Ornament																		
Blank type																		
Indeterminate																		
Rounded cobble																		
Core																		
Flattened cobble	7	87.5	767	2	100.0	3,235	9	90.0	1,315				2	50.0	2,114	2	100.0	10,675
Slab fragment																		
Thick slab	1	12.5	9,800				1	10.0	9,800				1	25.0	46,000			
Thin slab										1	100.0	23,750						
Very thin slab													1	25.0	2,250			
Completely modified item																		
Item condition																		
Indeterminate	1	12.5	158				1	10.0	158									
Broken																		
Unidentifiable				1	50.0	1,070	1	10.0	1,070									
Identifiable	1	12.5	9,800				1	10.0	9,800							1	50.0	8,850
Complete/nearly complete	6	75.0	868	1	50.0	5,400	7	70.0	1,515	1	100.0	23,750	4	100.0	13,119	1	50.0	12,500
Production evaluation																		
Indeterminate																		
Natural (unmodified)	7	87.5	1,940	2	100.0	3,235	9	90.0	2,228									
Minimally modified													2	50.0	24,700	1	50.0	12,500
Well shaped	1	12.5	1,583				1	10.0	1,583	1	100.0	23,750	2	50.0	1,539	1	50.0	8,850
Stylized																		

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Table 7A.4 - Nonflaked lithic tools, Kin Tl'iish - Continued

	Pitstructure 4			Nonstructural Unit 1			Nonstructural Unit 2			Nonstructural Unit 4			Nonstructural Unit 5					
	Total			Surface 1 and features			Surface 1 and features			Surface 1 and features			Surface 1 and features			Mixed fills and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	7	100.0	13,940	1	100.0	622	1	100.0	2,250	6	100.0	711	1	100.0	5,800	1	100.0	543
Tool morpho use																		
Indeterminate										2	33.3	1,124						
Miscellaneous	1	14.3	3,400	1	100.0	622				2	33.3	413	1	100.0	5,800			
Hammerstone										2	33.3	596						
Mano fragment																		
One-hand mano																		
Two-hand mano	2	28.6	1,539				1	100.0	2,250							1	100.0	543
Metate fragment	1	14.3	23,750															
Trough metate	3	42.9	22,450															
Hafted item																		
Ornament																		
Blank type																		
Indeterminate													1	100.0	5,800			
Rounded cobble										2	33.3	596						
Core																		
Flattened cobble	4	57.1	6,394	1	100.0	622	1	100.0	2,250	3	50.0	732				1	100.0	543
Slab fragment										1	16.7	877						
Thick slab	1	14.3	46,000															
Thin slab	1	14.3	23,750															
Very thin slab	1	14.3	2,250															
Completely modified item																		
Item condition																		
Indeterminate																		
Broken																		
Unidentifiable										1	16.7	877						
Identifiable	1	14.3	8,850	1	100.0	622				1	16.7	731	1	100.0	5,800	1	100.0	543
Complete/nearly complete	6	85.7	14,788				1	100.0	2,250	4	66.7	664						
Production evaluation																		
Indeterminate										1	16.7	877	1	100.0	5,800	1	100.0	543
Natural (unmodified)				1	100.0	622				3	50.0	500						
Minimally modified	3	42.9	20,633							2	33.3	944						
Well shaped	4	57.1	8,919				1	100.0	2,250									
Stylized																		

Table 7A.4 - Nonflaked lithic tools, Kin Tl'iish - Continued

	Nonstructural Unit 5			Nonstructural Unit 6 mixed fills and features			Other excavated units			Site total		
	Total											
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	2	100.0	3,172	10	100.0	3,121	13	100.0	360	160	100.0	2,049
Tool morpho use												
Indeterminate							1	7.7	76	15	9.4	1,724
Miscellaneous	1	50.0	5,800	8	80.0	3,625	5	38.5	225	64	40.0	1,724
Hammerstone							1	7.7	616	20	12.5	798
Mano fragment				2	20.0	1,104	1	7.7	618	13	8.1	1,043
One-hand mano							1	7.7	280	8	5.0	623
Two-hand mano	1	50.0	543				3	23.1	654	24	15.0	1,311
Metate fragment										3	1.9	8,394
Trough metate										7	4.4	13,982
Hafted item										4	2.5	643
Ornament							1	7.7	1	2	1.3	1
Blank type												
Indeterminate	1	50.0	5,800							1	0.6	5,800
Rounded cobble							2	15.4	313	19	11.9	544
Core							1	7.7	29	1	0.6	29
Flattened cobble	1	50.0	543	5	50.0	3,632	9	69.2	447	118	73.8	1,599
Slab fragment				1	10.0	649				4	2.5	914
Thick slab										2	1.3	27,900
Thin slab										2	1.3	12,604
Very thin slab				4	40.0	3,101				11	6.9	3,479
Completely modified item							1	7.7	1	2	1.3	1
Item condition												
Indeterminate										1	0.6	158
Broken												
Unidentifiable				1	10.0	649	1	7.7	76	18	11.3	1,287
Identifiable	2	100.0	3,172	4	40.0	3,101	5	38.5	383	32	20.0	1,636
Complete/nearly complete				5	50.0	3,632	7	53.8	383	109	68.1	2,313
Production evaluation												
Indeterminate	2	100.0	3,172	1	10.0	649	3	23.1	118	26	16.3	1,298
Natural (unmodified)				3	30.0	2,769	6	46.2	496	79	49.4	1,195
Minimally modified				2	20.0	4,925	1	7.7	280	22	13.8	4,287
Well shaped				4	40.0	3,101	2	15.4	531	31	19.4	3,398
Stylized							1	7.7	1	2	1.3	1

Table 7A.5 - Taxonomic composition of total faunal assemblage

	Modern ground surface									Room 1 fill								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate																		
Small																		
Medium	1	20,0	20,0				1	16,6	16,6									
Medium or large	1	20,0	20,0				1	16,6	16,6									
Large	3	60,0	60,0	1	100,0	100,0	4	66,6	66,6	1	100,0	100,0				1	100,0	100,0
Total Mammalia	5	100,0	100,0	1	100,0	100,0	6	100,0	100,0	1	100,0	100,0				1	100,0	100,0
Mammalia or Aves																		
Aves:																		
Indeterminate																		
Medium																		
Large																		
Total Aves																		
Reptilia																		
Vertebrate, indeterminate																		
Total assemblage	5		100,0	1		100,0	6		100,0	1		100,0				1		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Room 1 Surface 1 and features									Room 1 Surface 2 and features								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate																		
Small													3	100,0	100,0	3	100,0	100,0
Medium																		
Medium or large																		
Large	1	100,0	33,3				1	100,0	33,3									
Total Mammalia	1	100,0	33,3				1	100,0	33,3				3	100,0	100,0	3	100,0	100,0
Mammalia or Aves																		
Aves:																		
Indeterminate																		
Medium																		
Large																		
Total Aves																		
Reptilia																		
Vertebrate, indeterminate	2	100,0	66,6				2	100,0	66,6									
Total assemblage	3		100,0				3		100,0				3		100,0	3		100,0

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Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Room 2 fill									Room 2 Surface 1 and features								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate	1	100,0	100,0				1	50,0	50,0									
Small																		
Medium																		
Medium or large																		
Large				1	100,0	100,0	1	50,0	50,0	1	100,0	100,0				1	100,0	100,0
Total Mammalia	1	100,0	100,0	1	100,0	100,0	2	100,0	100,0	1	100,0	100,0				1	100,0	100,0
Mammalia or Aves																		
Aves:																		
Indeterminate																		
Medium																		
Large																		
Total Aves																		
Reptilia																		
Vertebrate, indeterminate																		
Total assemblage	1		100,0	1		100,0	2		100,0	1		100,0				1		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Room 3 fill									Room 3 Surface 1 and features								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate										2	14,2	8,6				2	8,6	6,2
Small										7	50,0	30,4	7	77,7	77,7	14	60,8	43,7
Medium																		
Medium or large	1	33,3	33,3				1	33,3	33,3	2	14,2	8,6				2	8,6	6,2
Large	2	66,6	66,6				2	66,6	66,6	3	21,4	13,0	2	22,2	22,2	5	21,7	15,6
Total Mammalia	3	100,0	100,0				3	100,0	100,0	14	100,0	60,8	9	100,0	100,0	23	100,0	71,8
Mammalia or Aves																		
Aves:																		
Indeterminate																		
Medium																		
Large																		
Total Aves																		
Reptilia										1	100,0	4,3				1	100,0	3,1
Vertebrate, indeterminate										8	100,0	34,7				8	100,0	25,0
Total assemblage	3		100,0				3		100,0	23		100,0	9		100,0	32		100,0

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Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Room 4 Fill									Room 4 Surface 1 and features								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate				1	50,0	50,0	1	20,0	20,0									
Small				1	50,0	50,0	1	20,0	20,0				1	100,0	100,0	1	100,0	100,0
Medium																		
Medium or large	1	33,3	33,3				1	20,0	20,0									
Large	2	66,6	66,6				2	40,0	40,0									
Total Mammalia	3	100,0	100,0	2	100,0	100,0	5	100,0	100,0				1	100,0	100,0	1	100,0	100,0
Mammalia or Aves:																		
Aves:																		
Indeterminate																		
Medium																		
Large																		
Total Aves																		
Reptilia:																		
Vertebrate, indeterminate																		
Total assemblage	3		100,0	2		100,0	5		100,0				1		100,0	1		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Room 5 Surface 1 and features									Room 7 Fill								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate	2	40,0	28,5				2	16,6	14,2	1	50,0	33,3				1	33,3	25,0
Small				7	100,0	100,0	7	58,3	50,0									
Medium																		
Medium or large	3	60,0	42,8				3	25,0	21,4									
Large										1	50,0	33,3	1	100,0	100,0	2	66,6	50,0
Total Mammalia	5	100,0	71,4	7	100,0	100,0	12	100,0	85,7	2	100,0	66,6	1	100,0	100,0	3	100,0	75,0
Mammalia or Aves:										1	100,0	33,3				1	100,0	25,0
Aves:																		
Indeterminate																		
Medium																		
Large																		
Total Aves																		
Reptilia:																		
Vertebrate, indeterminate	2	100,0	28,5				2	100,0	14,2									
Total assemblage	7		100,0	7		100,0	14		100,0	3		100,0	1		100,0	4		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Room 7 Surface 1 and features									Room 8 Fill								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate	4	100,0	100,0				4	100,0	100,0									
Small										1	100,0	100,0				1	100,0	100,0
Medium																		
Medium or large																		
Large																		
Total Mammalia	4	100,0	100,0				4	100,0	100,0	1	100,0	100,0				1	100,0	100,0
Mammalia or Aves:																		
Aves:																		
Indeterminate																		
Medium																		
Large																		
Total Aves																		
Reptilia:																		
Vertebrate, indeterminate																		
Total assemblage	4		100,0				4		100,0	1		100,0				1		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Room 8 Surface 1 and features									Room 11 Surface 1 and features								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate	1	100,0	100,0				1	100,0	100,0									
Small																		
Medium										1	100,0	100,0				1	100,0	100,0
Medium or large																		
Large																		
Total Mammalia	1	100,0	100,0				1	100,0	100,0	1	100,0	100,0				1	100,0	100,0
Mammalia or Aves:																		
Aves:																		
Indeterminate																		
Medium																		
Large																		
Total Aves																		
Reptilia:																		
Vertebrate, indeterminate																		
Total assemblage	1		100,0				1		100,0	1		100,0				1		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Room 13 Fill									Pitstructure 1 Fill								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate										7	16,6	14,5	5	11,3	11,1	12	13,9	12,9
Small										20	47,6	41,6	35	79,5	77,7	55	63,9	59,1
Medium																		
Medium or large										11	26,1	22,9				11	12,7	11,8
Large	1	100,0	100,0				1	100,0	100,0	4	9,5	8,3	4	9,0	8,8	8	9,3	8,6
Total Mammalia	1	100,0	100,0				1	100,0	100,0	42	100,0	87,5	44	100,0	97,7	86	100,0	92,4
Mammalia or Aves:																		
Aves:																		
Indeterminate										1	20,0	2,0	1	100,0	2,2	2	33,3	2,1
Medium										1	20,0	2,0				1	16,6	1,0
Large										3	60,0	6,2				3	50,0	3,2
Total Aves										5	100,0	10,4	1	100,0	2,2	6	100,0	6,4
Reptilia:																		
Vertebrate, indeterminate:										1	100,0	2,0				1	100,0	1,0
Total assemblage	1		100,0				1		100,0	48		100,0	45		100,0	93		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Pitstructure 1 Surface 1 and features									Pitstructure 2 Surface 1 and features								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate	15	11,2	8,1	1	5,2	3,1	16	10,3	8,0	1	50,0	25,0				1	50,0	25,0
Small	88	75,8	61,9	17	89,4	53,1	105	77,7	60,3									
Medium																		
Medium or large	8	5,9	5,6				8	5,9	4,5									
Large	7	6,0	4,9	1	5,2	3,1	8	5,9	4,5	1	50,0	25,0				1	50,0	25,0
Total Mammalia	116	100,0	81,6	19	100,0	59,3	135	100,0	77,5	2	100,0	50,0				2	100,0	50,0
Mammalia or Aves:	15	100,0	10,5				15	100,0	8,6	1	100,0	25,0				1	100,0	25,0
Aves:																		
Indeterminate	3	100,0	2,1	13	100,0	40,6	16	100,0	9,1									
Medium																		
Large																		
Total Aves	3	100,0	2,1	13	100,0	40,6	16	100,0	9,1									
Reptilia:																		
Vertebrate, indeterminate:	8	100,0	5,6				8	100,0	4,5	1	100,0	25,0				1	100,0	25,0
Total assemblage	142		100,0	32		100,0	174		100,0	4		100,0				4		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Pitstructure 3 Fill									Pitstructure 3 Surface 1 and features								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate	1	6,6	6,2				1	4,7	4,5	5	15,1	15,1				5	8,0	8,0
Small	7	46,6	43,7	5	83,3	83,3	12	57,1	54,5	3	9,0	9,0	29	100,0	100,0	32	51,6	51,6
Medium																		
Medium or large	2	13,3	12,5				2	9,5	9,0	15	45,4	45,4				15	24,1	24,1
Large	5	33,3	31,2	1	16,6	16,6	6	28,5	27,2	10	30,3	30,3				10	16,1	16,1
Total Mammalia	15	100,0	93,7	6	100,0	100,0	21	100,0	95,4	33	100,0	100,0	29	100,0	100,0	62	100,0	100,0
Mammalia or Aves:																		
Aves:																		
Indeterminate	1	100,0	6,2				1	100,0	4,5									
Medium																		
Large																		
Total Aves	1	100,0	6,2				1	100,0	4,5									
Reptilia:																		
Vertebrate, indeterminate:																		
Total assemblage	16		100,0	6		100,0	22		100,0	33		100,0	29		100,0	62		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Pitstructure 4 Fill									Pitstructure 4 Surface 1 and features								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate										2	15,3	13,3				2	14,2	11,7
Small										1	7,6	6,6	1	100,0	50,0	2	14,2	11,7
Medium																		
Medium or large	1	16,6	14,2				1	12,5	11,1	5	38,4	33,3				5	35,7	29,4
Large	5	83,3	71,4	2	100,0	100,0	7	87,5	77,7	5	38,4	33,3				5	35,7	29,4
Total Mammalia	6	100,0	85,7	2	100,0	100,0	8	100,0	88,8	13	100,0	86,6	1	100,0	50,0	14	100,0	82,3
Mammalia or Aves:										2	100,0	13,3				2	100,0	11,7
Aves:																		
Indeterminate													1	100,0	50,0	1	100,0	5,8
Medium	1	100,0	14,2				1	100,0	11,1									
Large																		
Total Aves	1	100,0	14,2				1	100,0	11,1				1	100,0	50,0	1	100,0	5,8
Reptilia:																		
Vertebrate, indeterminate:																		
Total assemblage	7		100,0	2		100,0	9		100,0	15		100,0	2		100,0	17		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Pitstructure 5 Surface 1 and Features									Nonstructural Unit 1								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate										20	60,6	60,6	5	100,0	100,0	25	65,7	65,7
Small																		
Medium										11	33,3	33,3				11	28,9	28,9
Medium or large										2	6,0	6,0				2	5,2	5,2
Large	1	100,0	50,0				1	100,0	50,0									
Total Mammalia	1	100,0	50,0				1	100,0	50,0	33	100,0	100,0	5	100,0	100,0	38	100,0	100,0
Mammalia or Aves																		
Aves:																		
Indeterminate																		
Medium																		
Large																		
Total Aves																		
Reptilia																		
Vertebrata, indeterminate	1	100,0	50,0				1	100,0	50,0									
Total assemblage	2		100,0				2		100,0	33		100,0	5		100,0	38		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Nonstructural Unit 4									Nonstructural Unit 5								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate																		
Small	1	100,0	100,0				1	50,0	50,0	1	14,2	10,0	1	100,0	100,0	2	25,0	18,1
Medium																		
Medium or large										6	85,7	60,0				6	75,0	54,5
Large				1	100,0	100,0	1	50,0	50,0									
Total Mammalia	1	100,0	100,0	1	100,0	100,0	2	100,0	100,0	7	100,0	70,0	1	100,0	100,0	8	100,0	72,7
Mammalia or Aves										3	100,0	30,0				3	100,0	27,2
Aves:																		
Indeterminate																		
Medium																		
Large																		
Total Aves																		
Reptilia																		
Vertebrata, indeterminate																		
Total assemblage	1		100,0	1		100,0	2		100,0	10		100,0	1		100,0	11		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Nonstructural Unit 6									Other excavated units								
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:																		
Indeterminate										1	2,6	2,6	1	5,2	5,0	2	3,5	3,4
Small	9	75,0	75,0	12	92,3	92,3	21	84,0	84,0	12	31,5	31,5	11	57,8	55,0	23	40,3	39,6
Medium										1	2,6	2,6				1	1,7	1,7
Medium or large	3	25,0	25,0				3	12,0	12,0	13	34,2	34,2				13	22,8	22,4
Large				1	7,6	7,6	1	4,0	4,0	11	28,9	28,9	7	36,8	35,0	18	31,5	31,0
Total Mammalia	12	100,0	100,0	13	100,0	100,0	25	100,0	100,0	38	100,0	100,0	19	100,0	95,0	57	100,0	98,2
Mammalia or Aves																		
Aves:																		
Indeterminate													1	100,0	5,0	1	100,0	1,7
Medium																		
Large																		
Total Aves													1	100,0	5,0	1	100,0	1,7
Reptilia																		
Vertebrata, indeterminate																		
Total assemblage	12		100,0	13		100,0	25		100,0	38		100,0	20		100,0	58		100,0

Table 7A.5 - Taxonomic composition of total faunal assemblage - Continued

	Site total								
	Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:									
Indeterminate	61	16,8	14,5	13	7,8	7,1	74	14,0	12,3
Small	150	41,3	35,7	130	78,7	71,8	280	53,0	46,6
Medium	13	3,5	3,1				13	2,4	2,1
Medium or large	75	20,6	17,8				75	14,2	12,5
Large	64	17,6	15,2	22	13,3	12,1	86	16,2	14,3
Total Mammalia	363	100,0	86,6	165	100,0	91,1	528	100,0	88,0
Mammalia or Aves	22	100,0	5,2				22	100,0	3,6
Aves:									
Indeterminate	5	50,0	1,1	16	100,0	8,8	21	80,7	3,5
Medium	2	20,0	0,4				2	7,6	0,3
Large	3	30,0	0,7				3	11,5	0,5
Total Aves	10	100,0	2,3	16	100,0	8,8	26	100,0	4,3
Reptilia	1	100,0	0,2				1	100,0	0,1
Vertebrata, indeterminate	23	100,0	5,4				23	100,0	3,8
Total assemblage	419		100,0	181		100,0	600		100,0

Table 7A.6 - Taxonomic composition of the identifiable faunal assemblage, Kin Tl'iish

Taxon	Modern ground surface N	% class	% total	Room 1 Surface 2 and features N	% class	% total	Room 2 Fill N	% class	% total
Soricidae shrews									
Leporidae rabbits and hares									
Sylvilagus spp. cottontails									
Sylvilagus auduboni desert cottontail									
Lepus spp. jackrabbits									
Lepus townsendii white-tailed jackrabbit									
Lepus californicus black-tailed jackrabbit									
Rodentia rodents									
Sciuridae squirrels									
Spermophilus lateralis golden-mantled ground squirrel									
Spermophilus variegatus rock squirrel									
Cynomys gunnisoni Gunnison's prairie dog				1 (1)	33,3 (33,3)	33,3 (33,3)			
Thomomys spp. pocket gophers				2 (2)	66,6 (66,6)	66,6 (66,6)			
Peromyscus spp. white-footed mice									
Neotoma spp. wood rats									
Microtus spp. voles									
Carnivora carnivores									
Canis spp. dog, coyote, or wolf									
Equus caballus horse	1 (1)	100,0(100,0)	100,0(100,0)						
Artiodactyla artiodactyls							1 (1)	100,0(100,0)	100,0(100,0)
Cervidae deer									
Odocoileus hemionus mule deer									
Antilocapra americana pronghorn									
Ovis canadensis bighorn									
Total Mammalia	1 (1)	100,0(100,0)	100,0(100,0)	3 (3)	100,0(100,0)	100,0(100,0)	1 (1)	100,0(100,0)	100,0(100,0)
Aves									
Ciconiiformes deep water waders									
Tetraonidae grouse									
Corvus corax common raven									
Total Aves									
Total assemblage	1 (1)		100,0(100,0)	3 (3)		100,0(100,0)	1 (1)		100,0(100,0)

NOTE: Figures in parentheses indicate counts and percentages when bones that compare favorably to that taxon are included.

Table 7A.6 - Taxonomic composition of the identifiable faunal assemblage, Kin Tl'iish - Continued

Taxon	Room 3 Surface 1 and features N	% class	% total	Room 4 Fill N	% class	% total	Room 4 Surface 1 and features N	% class	% total
Mammalia									
Soricidae shrews									
Leporidae rabbits and hares									
Sylvilagus spp. cottontails	4 (5)	50,0 (55,5)	50,0 (55,5)						
Sylvilagus auduboni desert cottontail									
Lepus spp. jackrabbits	2 (2)	25,0 (22,2)	25,0 (22,2)						
Lepus townsendii white-tailed jackrabbit									
Lepus californicus black-tailed jackrabbit									
Rodentia rodents									
Sciuridae squirrels									
Spermophilus lateralis golden-mantled ground squirrel									
Spermophilus variegatus rock squirrel									
Cynomys gunnisoni Gunnison's prairie dog									
Thomomys spp. pocket gophers				1 (1)	50,0 (50,0)	50,0 (50,0)	3 (3)	100,0(100,0)	100,0(100,0)
Peromyscus spp. white-footed mice									
Neotoma spp. wood rats									
Microtus spp. voles									
Carnivora carnivores				1 (1)	50,0 (50,0)	50,0 (50,0)			
Canis spp. dog, coyote, or wolf									
Equus caballus horse									
Artiodactyla artiodactyls	1 (1)	12,5 (11,1)	12,5 (11,1)						
Cervidae deer	1 (1)	12,5 (11,1)	12,5 (11,1)						
Odocoileus hemionus mule deer									
Antilocapra americana pronghorn									
Ovis canadensis bighorn									
Total Mammalia	8 (9)	100,0(100,0)	100,0(100,0)	2 (2)	100,0(100,0)	100,0(100,0)	3 (3)	100,0(100,0)	100,0(100,0)
Aves									
Ciconiiformes deep water waders									
Tetraonidae grouse									
Corvus corax common raven									
Total Aves									
Total assemblage	8 (9)		100,0(100,0)	2 (2)		100,0(100,0)	3 (3)		100,0(100,0)

Table 7A.6 - Taxonomic composition of the identifiable faunal assemblage, Kin Tl'iish - Continued

Taxon	Room 5 Surface 1 and features N	% class	% total	Room 7 Fill N	% class	% total	Pitstructure 2 Fill N	% class	% total
Mammalia:									
Soricidae									
shrews							0 (1)	0,0 (2,2)	0,0 (2,2)
Leporidae									
rabbits and hares	2 (2)	28,5 (28,5)	28,5 (28,5)				4 (4)	10,2 (9,0)	10,0 (8,8)
Sylvilagus spp.									
cottontails	2 (2)	28,5 (28,5)	28,5 (28,5)				6 (6)	15,3 (13,6)	15,0 (13,3)
Sylvilagus auduboni									
desert cottontail	1 (1)	14,2 (14,2)	14,2 (14,2)						
Lepus spp.									
jackrabbits	2 (2)	28,5 (28,5)	28,5 (28,5)				5 (5)	12,8 (11,3)	12,5 (11,1)
Lepus townsendii									
white-tailed jackrabbit							8 (8)	20,5 (18,1)	20,0 (17,7)
Lepus californicus									
black-tailed jackrabbit							0 (1)	0,0 (2,2)	0,0 (2,2)
Rodentia									
rodents							3 (3)	7,6 (6,8)	7,5 (6,6)
Sciuridae									
squirrels							6 (6)	15,3 (13,6)	15,0 (13,3)
Spermophilus lateralis									
golden-mantled ground squirrel									
Spermophilus variegatus									
rock squirrel							0 (1)	0,0 (2,2)	0,0 (2,2)
Cynomys gunnisoni									
Gunnison's prairie dog									
Thomomys spp.									
pocket gophers							3 (3)	7,6 (6,8)	7,5 (6,6)
Peromyscus spp.									
white-footed mice									
Neotoma spp.									
wood rats									
Microtus spp.									
voles									
Carnivora									
carnivores									
Canis spp.									
dog, coyote, or wolf							2 (2)	5,1 (4,5)	5,0 (4,4)
Equus caballus									
horse									
Artiodactyla									
artiodactyls				1 (1)	100,0 (100,0)	100,0 (100,0)	1 (1)	2,5 (2,2)	2,5 (2,2)
Cervidae									
deer									
Odocoileus hemionus									
mule deer							0 (1)	0,0 (2,2)	0,0 (2,2)
Antilocapra americana									
pronghorn							0 (1)	0,0 (2,2)	0,0 (2,2)
Ovis canadensis									
bighorn							1 (1)	2,5 (2,2)	2,5 (2,2)
Total Mammalia	7 (7)	100,0 (100,0)	100,0 (100,0)	1 (1)	100,0 (100,0)	100,0 (100,0)	39 (44)	100,0 (100,0)	97,5 (97,7)
Aves:									
Ciconiiformes									
deep water waders									
Tetraonidae									
grouse									
Corvus corax									
common raven							1 (1)	100,0 (100,0)	2,5 (2,2)
Total Aves							1 (1)	100,0 (100,0)	2,5 (2,2)
Total assemblage	7 (7)		100,0 (100,0)	1 (1)		100,0 (100,0)	40 (45)		100,0 (100,0)

Table 7A.6 - Taxonomic composition of the identifiable faunal assemblage, Kin Tl'iish - Continued

Taxon	Pitstructure 1 Surface 1 and features N	% class	% total	Fill N	% class	% total	Pitstructure 3 Surface 1 and features N	% class	% total
Mammalia:									
Soricidae									
shrews									
Leporidae									
rabbits and hares	1 (1)	5,5 (5,2)	3,7 (3,1)				23 (23)	79,3 (79,3)	79,3 (79,3)
Sylvilagus spp.									
cottontails	6 (7)	33,3 (36,8)	22,2 (21,8)	2 (2)	33,3 (33,3)	33,3 (33,3)	4 (4)	13,7 (13,7)	13,7 (13,7)
Sylvilagus auduboni									
desert cottontail									
Lepus spp.									
jackrabbits	6 (6)	33,3 (31,5)	22,2 (18,7)						
Lepus townsendii									
white-tailed jackrabbit	1 (1)	5,5 (5,2)	3,7 (3,1)				1 (1)	3,4 (3,4)	3,4 (3,4)
Lepus californicus									
black-tailed jackrabbit									
Rodentia									
rodents	1 (1)	5,5 (5,2)	3,7 (3,1)						
Sciuridae									
squirrels									
Spermophilus lateralis									
golden-mantled ground squirrel									
Spermophilus variegatus									
rock squirrel									
Cynomys gunnisoni									
Gunnison's prairie dog	1 (1)	5,5 (5,2)	3,7 (3,1)						
Thomomys spp.									
pocket gophers				3 (3)	50,0 (50,0)	50,0 (50,0)			
Peromyscus spp.									
white-footed mice									
Neotoma spp.									
wood rats							1 (1)	3,4 (3,4)	3,4 (3,4)
Microtus spp.									
voles	1 (1)	5,5 (5,2)	3,7 (3,1)						
Carnivora									
carnivores									
Canis spp.									
dog, coyote, or wolf									
Equus caballus									
horse									
Artiodactyla									
artiodactyls	1 (1)	5,5 (5,2)	3,7 (3,1)	1 (1)	16,6 (16,6)	16,6 (16,6)			
Cervidae									
deer									
Odocoileus hemionus									
mule deer									
Antilocapra americana									
pronghorn									
Ovis canadensis									
bighorn									
Total Mammalia	18 (19)	100,0 (100,0)	66,6 (59,3)	6 (6)	100,0 (100,0)	100,0 (100,0)	29 (29)	100,0 (100,0)	100,0 (100,0)
Aves:									
Ciconiiformes									
deep water waders	0 (4)	0,0 (30,7)	0,0 (12,5)						
Tetraonidae									
grouse									
Corvus corax									
common raven	9 (9)	100,0 (69,2)	33,3 (28,1)						
Total Aves	9 (13)	100,0 (100,0)	33,3 (40,6)						
Total assemblage	27 (32)		100,0 (100,0)	6 (6)		100,0 (100,0)	29 (29)		100,0 (100,0)

Table 7A.6 - Taxonomic composition of the identifiable faunal assemblage, Kin Tl'iish - Continued

Taxon	Pitstructure 4: Fill N	Pitstructure 4: Fill % Class	Pitstructure 4: Fill % Total	Pitstructure 4: Surface 7 and features N	Pitstructure 4: Surface 7 and features % Class	Pitstructure 4: Surface 7 and features % Total	Nonstructural unit 1 N	Nonstructural unit 1 % Class	Nonstructural unit 1 % Total
Mammalia:									
Soricidae									
shrews									
Leporidae									
rabbits and hares									
Sylvilagus spp.									
cottontails									
Sylvilagus audubonii									
desert cottontail									
Lepus spp.									
jackrabbits				1 (1)	100.0 (100.0)	50.0 (50.0)			
Lepus townsendii									
white-tailed jackrabbit									
Lepus californicus									
black-tailed jackrabbit									
Rodentia									
rodents									
Sciuridae									
squirrels									
Spermophilus lateralis									
golden-mantled ground squirrel									
Spermophilus variegatus									
rock squirrel									
Cynomys gunnisoni									
Gunnison's prairie dog									
Thomomys spp.									
pocket gophers									
Peromyscus spp.									
white-footed mice									
Neotoma spp.									
wood rats									
Microtus spp.									
voles									
Carnivora									
carnivores							2 (2)	40.0 (40.0)	40.0 (40.0)
Canis spp.									
dog, coyote, or wolf							3 (3)	60.0 (60.0)	60.0 (60.0)
Equus caballus									
horse									
Artiodactyla									
artiodactyls	2 (2)	100.0 (100.0)	100.0 (100.0)						
Cervidae									
deer									
Odocoileus hemionus									
mule deer									
Antilocapra americana									
pronghorn									
Ovis canadensis									
bighorn									
Total Mammalia	2 (2)	100.0 (100.0)	100.0 (100.0)	1 (1)	100.0 (100.0)	50.0 (50.0)	5 (5)	100.0 (100.0)	100.0 (100.0)
Aves:									
Ciconiiformes									
deep water waders									
Tetraonidae									
grouse				1 (1)	100.0 (100.0)	50.0 (50.0)			
Corvus corax									
common raven									
Total Aves				1 (1)	100.0 (100.0)	50.0 (50.0)			
Total assemblage	2 (2)		100.0 (100.0)	2 (2)		100.0 (100.0)	5 (5)		100.0 (100.0)

Table 7A.6 - Taxonomic composition of the identifiable faunal assemblage, Kin Tl'iish - Continued

Taxon	Nonstructural unit 4 N	Nonstructural unit 4 % Class	Nonstructural unit 4 % Total	Nonstructural unit 5 N	Nonstructural unit 5 % Class	Nonstructural unit 5 % Total	Nonstructural unit 6 N	Nonstructural unit 6 % Class	Nonstructural unit 6 % Total
Mammalia:									
Soricidae									
shrews									
Leporidae									
rabbits and hares									
Sylvilagus spp.									
cottontails									
Sylvilagus audubonii									
desert cottontail									
Lepus spp.									
jackrabbits				8 (1)	100.0 (100.0)	100.0 (100.0)	1 (1)	8.3 (7.6)	8.3 (7.6)
Lepus townsendii									
white-tailed jackrabbit									
Lepus californicus									
black-tailed jackrabbit									
Rodentia									
rodents									
Sciuridae									
squirrels							2 (2)	16.6 (15.3)	16.6 (15.3)
Spermophilus lateralis									
golden-mantled ground squirrel									
Spermophilus variegatus									
rock squirrel									
Cynomys gunnisoni									
Gunnison's prairie dog									
Thomomys spp.									
pocket gophers							9 (9)	75.0 (69.2)	75.0 (69.2)
Peromyscus spp.									
white-footed mice									
Neotoma spp.									
wood rats									
Microtus spp.									
voles									
Carnivora									
carnivores									
Canis spp.									
dog, coyote, or wolf									
Equus caballus									
horse									
Artiodactyla									
artiodactyls									
Cervidae									
deer									
Odocoileus hemionus									
mule deer	8 (1)	100.0 (100.0)	100.0 (100.0)						
Antilocapra americana									
pronghorn							0 (1)	0.0 (7.6)	0.0 (7.6)
Ovis canadensis									
bighorn									
Total Mammalia	8 (1)	100.0 (100.0)	100.0 (100.0)	8 (1)	100.0 (100.0)	100.0 (100.0)	12 (13)	100.0 (100.0)	100.0 (100.0)
Aves:									
Ciconiiformes									
deep water waders									
Tetraonidae									
grouse									
Corvus corax									
common raven									
Total Aves									
Total assemblage	8 (1)		100.0 (100.0)	8 (1)		100.0 (100.0)	12 (13)		100.0 (100.0)

Table 7A.6 - Taxonomic composition of the identifiable faunal assemblage, Kin Tl'iish - Continued

Taxon	Other excavated units N	% class	% total	Site total N	% class	% total
Mammalia						
Soricidae						
shrews				0 (1)	0.0 (0.6)	0.0 (0.5)
Leporidae						
rabbits and hares				50 (50)	[illegible]	[illegible]
Sylvilagus spp.						
cottontails	1 (1)	6.2 (5.2)	6.2 (5.0)	25 (27)	[illegible]	15.4 (14.9)
Sylvilagus audubonii						
desert cottontail				1 (1)	0.6 (0.6)	0.6 (0.5)
Lepus spp.						
jackrabbits	1 (1)	6.2 (5.2)	6.2 (5.0)	18 (19)	11.9 (11.5)	11.1 (10.4)
Lepus townsendii						
white-tailed jackrabbit	1 (2)	6.2 (10.5)	6.2 (10.0)	11 (12)	7.2 (7.2)	6.7 (6.6)
Lepus californicus						
black-tailed jackrabbit				0 (1)	0.0 (0.6)	0.0 (0.5)
Rodentia						
rodents				4 (4)	2.6 (2.4)	2.4 (2.2)
Sciuridae						
squirrels				8 (8)	5.2 (4.8)	4.9 (4.4)
Spermophilus lateralis						
golden-mantled ground squirrel	1 (1)	6.2 (5.2)	6.2 (5.0)	1 (1)	0.6 (0.6)	0.6 (0.5)
Spermophilus variegatus						
rock squirrel				0 (1)	0.0 (0.6)	0.0 (0.5)
Cynomys gunnisoni						
Gunnison's prairie dog				2 (2)	1.3 (1.2)	1.2 (1.1)
Thomomys spp.						
pocket gophers				18 (19)	11.9 (11.5)	11.1 (10.4)
Peromyscus spp.						
white-footed mice	4 (6)	25.0 (31.5)	25.0 (30.0)	4 (6)	2.6 (3.6)	2.4 (3.3)
Neotoma spp.						
wood rats				1 (1)	0.6 (0.6)	0.6 (0.5)
Microtus spp.						
voles				1 (1)	0.6 (0.6)	0.6 (0.5)
Carnivora						
carnivores				3 (3)	1.9 (1.8)	1.8 (1.6)
Canis spp.						
dog, coyote, or wolf	1 (1)	6.2 (5.2)	6.2 (5.0)	6 (6)	3.9 (3.6)	3.7 (3.3)
Equus caballus						
horse				1 (1)	0.6 (0.6)	0.6 (0.5)
Artiodactyla						
artiodactyls	7 (7)	43.7 (36.8)	43.7 (35.0)	15 (15)	9.9 (9.0)	9.2 (8.2)
Cervidae						
deer				1 (1)	0.6 (0.6)	0.6 (0.5)
Odocoileus hemionus						
mule deer				0 (2)	0.0 (1.2)	0.0 (1.1)
Antilocapra americana						
pronghorn				0 (2)	0.0 (1.2)	0.0 (1.1)
Ovis canadensis						
bighorn				1 (1)	0.6 (0.6)	0.6 (0.5)
Total Mammalia	16 (19)	100.0 (100.0)	100.0 (95.0)	151 (165)	100.0 (100.0)	93.2 (91.1)
Aves						
Ciconiiformes						
deep water waders				0 (4)	0.0 (25.0)	0.0 (2.2)
Tetraonidae						
grouse				1 (1)	9.0 (6.2)	0.6 (0.5)
Corvus corax						
common raven	0 (1)	0.0 (100.0)	0.0 (5.0)	10 (11)	90.9 (68.7)	6.1 (6.0)
Total Aves	0 (1)	100.0 (100.0)	0.0 (5.0)	11 (16)	100.0 (100.0)	6.7 (8.8)
Total assemblage	16 (20)		100.0 (100.0)	162 (181)		100.0 (100.0)

Table 7A.7 - Worked nonhuman bone and shell, Kin Tl'iish

	Room 1 N	Room 1 %	Room 7 N	Room 7 %	Room 13 N	Room 13 %
Total tools:	1	100.0	1	100.0	1	100.0
Taxon						
Mammalia, indeterminate						
Mammalia, small						
Mammalia, large	1	100.0			1	100.0
Lagomorpha						
Artiodactyla			1	100.0		
Aves/Mammalia						
Aves						
Unidentifiable shell						
Tool morpho-use						
Indeterminate	1	100.0				
Awl					1	100.0
Piercing tool						
Edged tool			1	100.0		
Tube						
Ornament						
Blank type						
Indeterminate	1	100.0	1	100.0	1	100.0
Complete						
Broken bone						
Split bone						
Cut bone						
Item condition						
Indeterminate						
Broken						
Fragmentary	1	100.0				
Incomplete						
Medial and lateral present						
Distal present			1	100.0		
Distal and medial present						
Complete/nearly complete					1	100.0
Production evaluation						
Indeterminate						
Some evidence	1	100.0				
Not shaped						
Minimally shaped			1	100.0		
Moderately shaped						
Well shaped					1	100.0
Completely shaped						

Table 7A.7 - Worked nonhuman bone and shell, Kin Tl'iish - Continued

	Pitstructure 1		Pitstructure 2		Pitstructure 3	
	N	%	N	%	N	%
Total tools:	20	100.0	1	100.0	2	100.0
Taxon						
Mammalia, indeterminate	2	10.0			1	50.0
Mammalia, small	1	5.0				
Mammalia, large			1	100.0	1	50.0
Lagomorpha	2	10.0				
Artiodactyla	3	15.0				
Aves/Mammalia	4	20.0				
Aves	6	30.0				
Unidentifiable shell	2	10.0				
Tool morpho-use						
Indeterminate	10	50.0			2	100.0
Awl	3	15.0				
Piercing tool	1	5.0				
Edged tool	1	5.0				
Tube	1	5.0				
Ornament	4	20.0	1	100.0		
Blank type						
Indeterminate	11	55.0	1	100.0	2	100.0
Complete	2	10.0				
Broken bone	2	10.0				
Split bone	2	10.0				
Cut bone	3	15.0				
Item condition						
Indeterminate	3	15.0				
Broken						
Fragmentary	3	15.0			2	100.0
Incomplete	3	15.0				
Medial and lateral present	4	20.0				
Distal present						
Distal and medial present	1	5.0				
Complete/nearly complete	6	30.0	1	100.0		
Production evaluation						
Indeterminate	5	25.0				
Some evidence	7	35.0			2	100.0
Not shaped	2	10.0				
Minimally shaped	1	5.0				
Moderately shaped	4	20.0				
Well shaped	1	5.0				
Completely shaped			1	100.0		

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Table 7A.7 - Worked nonhuman bone and shell, Kin Tl'iish - Continued

	Pitstructure 4		Other excavated units		Site total	
	N	%	N	%	N	%
Total tools:	4	100.0	4	100.0	34	100.0
Taxon						
Mammalia, indeterminate			2	50.0	5	1:.7
Mammalia, small			1	25.0	2	5.9
Mammalia, large	2	50.0	1	25.0	7	20.6
Lagomorpha					2	5.9
Artiodactyla	2	50.0			6	17.6
Aves/Mammalia					4	11.8
Aves					6	17.6
Unidentifiable shell					2	5.9
Tool morpho-use						
Indeterminate	3	75.0	3	75.0	19	55.9
Awl					4	11.8
Piercing tool			1	25.0	2	5.9
Edged tool	1	25.0			3	8.8
Tube					1	2.9
Ornament					5	14.7
Blank type						
Indeterminate	2	50.0	1	25.0	20	58.8
Complete	1	25.0			3	8.8
Broken bone			1	25.0	3	8.8
Split bone	1	25.0	2	50.0	5	14.7
Cut bone					3	8.8
Item condition						
Indeterminate	2	5.0			5	14.7
Broken						
Fragmentary			1	25.0	7	20.6
Incomplete					3	8.8
Medial and lateral present	1	25.0	3	75.0	8	23.5
Distal present					1	2.9
Distal and medial present	1	25.0			2	5.9
Complete/nearly complete					8	23.5
Production evaluation						
Indeterminate	3	75.0			8	23.5
Some evidence	1	25.0	4	100.0	15	44.1
Not shaped					2	5.9
Minimally shaped					2	5.9
Moderately shaped					4	11.8
Well shaped					2	5.9
Completely shaped					1	2.9

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Table 7A.8 - Vegetal remains from rooms, Kin Tl'iish

Taxon	Provenience									
	Room 1						Room 2 Surf 1		Room 3	
	Surf 1			Surf 2					Level 1	Surf 1
Family / Genus species / Plant part	Floor	Feature 119	Feature 156	Floor	Feature 153	Feature 25	Floor	Feature 23		Floor
Compositae										
Artemisia sp.										
wood					<1g/C		1g/C		<1g/C	
Elaeagnaceae										
Sheperdia argentea										
wood										
Cupressaceae										
Juniperus sp.										
wood	<1g/C									6g/C
Fagaceae										
Quercus gambelii										
fruit										
cupule										
wood	<1g/C									
Gramineae										
Phragmites sp.										
culm					<1g/C					
Zea mays										
fruit	<1g/C									
cob										
cupule										
Leguminosae										
Phaseolus sp.										
cotyledon					1/C					
seed		1/C								
Pinaceae										
Pinus sp.										
wood			3g/C			4g/C	1g/C			4g/C
Pinus edulis										
seed										
wood	2g/C			1g/C	4g/C	6g/N		16g/N	1g/C	
Pinus ponderosa										
wood	7g/C									
Rosaceae										
wood					1g/C					<1g/C
Cercocarpus montanus										
wood										
Salicaceae										
wood										
Populus sp.										
wood	5g/C		<1g/C		1g/C					<1g/C
Gymnospermae										
wood	1/N									

Table 7A.8 - Vegetal remains from rooms, Kin Tl'iish - Continued

Taxon	Provenience									
	Room 3			Room 4		Room 5				
	Surf 1			Fill	Surf 1	Fill	Surf 2			
							Floor	Feature 37		
Family / Genus species / Plant part	Feature 13	Feature 14	Feature 38		Feature 49			Fill	Strat 1	Strat 2
Compositae										
Artemisia sp.										
wood						7g/C	<1g/C		4g/C	
Elaeagnaceae										
Sheperdia argentea										
wood									2g/C	
Cupressaceae										
Juniperus sp.										
wood		1g/C		1g/C	1g/N					
Fagaceae										
Quercus gambelii										
fruit										
cupule									<1g/C	
wood	1g/C		1g/C	1g/C						
Gramineae										
Phragmites sp.										
culm				1g/C						
Zea mays										
kernel										
cob					9X/C					
cupule					7/10X/C					
Leguminosae										
Phaseolus sp.										
cotyledon										
seed										
Pinaceae										
Pinus sp.										
wood	1g/C			<1g/C						
Pinus edulis										
seed										
wood	1g/C	1g/C		10g/C	7g/C				17g/C	1g/C
Pinus ponderosa										
wood				<1g/C					47g/C	2g/C
Rosaceae										
wood	<1g/C			2g/C				1g/C	2g/C	<1g/C
Cercocarpus montanus										
wood				2g/C	<1g/C	4g/C				
Salicaceae										
wood	<1g/C									
Populus sp.										
wood	1g/C			<1g/C	<1g/C	2g/C			4g/C	2g/C
Gymnospermae										
wood										

Table 7A.8 - Vegetal remains from rooms, Kin Tl'iish - Continued

Taxon: Family / Genus species / Plant part	Provenience: Room 5, Surf 1, Feature 57	Room 5, Surf 1, Feature 58	Room 5, Surf 1, Feature 80	Room 7, Strat 2 Feature 19 Level 1	Room 7, Level 1	Room 7, Surf 1	Room 8 Surf 1	Room 9 Surf 1 Feat 46	Room 10 Surf 1 Feat 76	Room 13 Surf 1 Feat 147
Compositae										
Artemisia sp.										
wood		1g/C	<1g/C	<1g/C						
Elaeagnaceae										
Sheperdia argentea										
wood			1g/C							
Cupressaceae										
Juniperus sp.										
wood							<1g/C			
Fagaceae										
Quercus gambelii										
fruit						4/14X/N		1g/C		
cupule										
wood								<1g/C		
Gramineae										
Phragmites sp.										
culm										
Zea mays										
fruit				<1g/C						
cob				1X/C						
cupule				5/C						
Leguminosae										
Phaseolus sp.										
cotyledon										
seed									1/C	
Pinaceae										
Pinus sp.										
wood	<1g/C			<1g/C				<1g/C, 1g/P		
Pinus edulis										
seed						2/N				
wood			1g/C				1g/C			
Pinus ponderosa										
wood				<1g/C				7g/N		
Rosaceae										
wood					1g/C					
Cercocarpus montanus										
wood										
Salicaceae										
wood										
Populus sp.										
wood	1g/C		1g/C	<1g/C	1g/C		<1g/C	<1g/C		
Gymnospermae										
wood					1g/C					24g/N

NOTES: In the body of the table, numerals to the left of the bar indicate the number of items present, except in those cases where the items have been reported as a weight. In this latter case, the numeral is followed by the abbreviation "g," indicating the number of grams of material present.

C - Charred.
N - Noncharred.
X - Fragments present; no count of whole items possible.
Strat - Stratum.
Surf - Surface.

Table 7A.9 - Vegetal remains from pitstructures, Kin Tl'iish

Taxon: Family / Genus species / Plant part	Provenience: Pitstructure 1, Fill	Pitstructure 1, Surface 1, Floor	Surface 1, Pi 82	Surface 1, Feature 6, Stratum 1	Surface 1, Feature 6, Stratum 2	Surface 1, Feature 7	Surface 1, Feature 65	Surface 1, Feature 88	Surface 1, Feature 90
Cheno-ams									
fruit							2/N		
Chenopodiaceae									
Atriplex sp.									
wood		<1g/C							
Compositae									
Artemisia sp.									
fruit									
wood	<1g/C	<1g/C		1g/C	3g/C		1/C	<1g/C	
Cupressaceae									
Juniperus sp.									
wood	<1g/C				<1g/C	2g/C			
Fagaceae									
Quercus gambelii									
wood	2g/C	1g/C		1g/C			<1g/C		
Gramineae									
Zea mays									
ear									
fruit			<1g/C						<1g/C
cob				1X/C					
Pinaceae									
Pinus sp.									
wood	6g/C	3g/C, <1g/N		1g/C		1g/C			
Pinus edulis									
wood				<1g/C	1g/C				
Pinus ponderosa									
wood	17g/C	3g/C, 1g/N		8g/C	<1g/C	2g/C		1g/C	<1g/C
Rosaceae									
wood	1g/C			1g/C			<1g/C	<1g/C	
Cercocarpus montanus									
wood					<1g/C				
Salicaceae									
Populus sp.									
wood	2g/C			1g/C			<1g/C		<1g/C
Solanaceae									
Physalis sp.									
seed							1/C		
Dicotyledoneae									
fruit							2/C		
wood									
Gymnospermae									
wood	2g/C, 5g/N	1g/N							

Table 7A.9 - Vegetal remains from pitstructures, Kin Tl'iish - Continued

Taxon: Family / Genus species / Plant part	Provenience: Pitstructure 1, Feature 91	Pitstructure 1, Feature 92	Pitstructure 1, Feature 94	Pitstructure 2, Surface 1, Floor	Pitstructure 2, Surface 1, Feature 98	Feature 98, PL 2	Feature 98, PL 3	Feature 98, PL 4	Feature 98, PL 5	Feature 99, Stratum 1
Cheno-ams										
fruit										
Chenopodiaceae										
Atriplex sp.										
wood										
Compositae										
Artemisia sp.										
fruit										
wood					<1g/C					<1g/C
Cupressaceae										
Juniperus sp.										
wood					2g/C		<1g/C	1g/C		
Fagaceae										
Quercus gambelii										
wood										1g/C
Gramineae										
Zea mays										
ear										
fruit	<1g/C									
cob										
Pinaceae										
Pinus sp.										
wood										
Pinus edulis										
wood	3g/C <1g/P					1g/C				
Pinus ponderosa										
wood			1g/C	4g/C	3g/C		<1g/C		1g/C	3g/C
Rosaceae										
wood					<1g/C					
Cercocarpus montanus										
wood		<1g/C								
Salicaceae										
Populus sp.										
wood				1g/C	1g/C					2g/C
Solanaceae										
Physalis sp.										
seed										
Dicotyledoneae										
fruit										
wood										
Gymnospermae										
wood										

Table 7A.9 - Vegetal remains from pitstructures, Kin Tl'iish - Continued

Taxon: Family / Genus species / Plant part	Provenience: Feature 99, Stratum 2	Pitstructure 3 fill	Pitstructure 4, Feature 109	Pitstructure 4, Surface 1, Feature 82	Pitstructure 4, Surface 1, Feature 108	Pitstructure 5, Surface 1, Floor	Pitstructure 5, Surface 1, PL 8
Cheno-ams							
fruit							
Chenopodiaceae							
Atriplex sp.							
wood							
Compositae							
Artemisia sp.							
fruit							
wood		1g/C				<1g/C	
Cupressaceae							
Juniperus sp.							
wood					<1g/C		
Fagaceae							
Quercus gambelii							
wood	<1g/C						
Gramineae							
Zea mays							
ear							
fruit							
cob							
Pinaceae							
Pinus sp.							
wood		<1g/C					
Pinus edulis							
wood		6g/C				16g/C	4g/C
Pinus ponderosa							
wood		6g/C	1g/C				
Rosaceae							
wood							
Cercocarpus montanus							
wood							
Salicaceae							
Populus sp.							
wood	1g/C	2g/C					
Solanaceae							
Physalis sp.							
seed							
Dicotyledoneae							
fruit							
wood				1g/C			
Gymnospermae							
wood							

NOTES: In the body of the table, numerals to the left of the bar indicate the number of items present, except in those cases where the items have been reported as a weight. In this latter case, the numeral is followed by the abbreviation "g," indicating the number of grams of material present.

C - Charred.
N - Noncharred.
P - Partially charred.
X - Fragments present; no count of whole items possible.
PL - Point-located item.

Table 7A.10 - Vegetal remains from nonstructural units and other excavated units, Kin Tl'iish

Taxon: Family / Genus species / Plant part	NonsU 1 Surf 1 Feat 1	NonsU 2 Surf 1 Feat 88	NonsU 4 Surf 1 Feat 96: Strat 1	NonsU 4 Surf 1 Feat 96: Level 1	NonsU 5: Level 1	NonsU 5 Surf 1: Floor	NonsU 5 Surf 1: Feat 42	NonsU 6 Fill	Trench 17	RDA 11	6- by 6-m excavation units: 96S/90E	6- by 6-m excavation units: 96S/98E	6- by 6-m excavation units: 94S/98E
Compositae													
Artemisia sp.													
wood								<1g/C					
Cupressaceae													
Juniperus sp.													
wood						<1g/C		1g/C	17g/N	2/N			
Fagaceae													
Quercus gambelii													
wood						<1g/C		1g/C					
Gramineae													
Zea mays													
cob	1X/C							1X/C					
cupule	1/C												
Liliaceae													
Yucca sp.													
epidermis				n.a.									
Pinaceae													
Pinus sp.													
wood	1g/C				1g/C			2g/C		1g/C		1g/C	
Pinus edulis													
wood						1g/C	1g/C	2g/C			1g/C		
Pinus ponderosa													
wood		<1g/C				<1g/C							8g/C
Rosaceae													
wood						<1g/C		1g/C		<1g/C			
Cercocarpus montanus													
wood								<1g/C					
Salicaceae													
Populus sp.													
wood						3g/C	5g/C	1g/C					
Gymnospermae													
wood			1g/C			1g/C	4g/C						

NOTES: In the body of the table, numerals to the left of the bar indicate the number of items present, except in those cases where the items have been reported as a weight. In this latter case, the numeral is followed by the abbreviation "g," indicating the number of grams of material present.

C - Charred.
N - Noncharred.
X - Fragments present; no count of whole items possible.
n.a. - Not applicable.

Feat - Feature.
Surf - Surface.
NonsU - Nonstructural unit.
Strat - Stratum.
RDA - Recent disturbance area.

Table 7A.11 - Remains from bulk soil samples from rooms, Kin Tl'iish

Taxon: Family / Genus species / Plant part	Room 1 Surface 2 Feature 140: BS 45	Room 5: Stratum 1 upper control	Room 5: Stratum 10 lower control	Room 5: Surface 2 Feature 37: BS 2	Room 7 Stratum 1 Feature 19, Level 1: BS 8	Room 7 Stratum 1 Feature 19, Level 1: BS 10	Room 7 Stratum 1 Feature 19, Level 2: BS 9	Room 7 Stratum 1 Feature 19, Level 2: BS 13	Room 13 Level 1 Feature 162: BS 48
Amaranthaceae									
Amaranthus sp.									
seed	2/N				1/C		1/C		
Chenopodiaceae									
Chenopodium sp.									
fruit		1/C							4/C
Compositae									
Artemisia sp.									
wood	<1g/C	1g/C	<1g/C					<1g/C	<1g/C
Fagaceae									
Quercus gambelii									
wood	<1g/C			<1g/C		<1g/C	<1g/C	<1g/C	<1g/C
Gramineae									
Zea mays									
cupule	2X/C				1/C	1/C	2/2X/C		2/C
Pinaceae									
Pinus sp.									
wood		<1g/C						<1g/C	<1g/C
Pinus edulis									
wood				<1g/C					
Pinus ponderosa									
wood				1g/C					
Rosaceae									
wood	1g/C	1g/C		<1g/C					<1g/C
Salicaceae									
wood									<1g/C
Populus sp.									
wood	<1g/C	1g/C		1g/C				<1g/C	<1g/C
Solanaceae									
Physalis sp.									
seed									1/C
Dicotyledoneae									
seed		1/N							
Gymnospermae									
wood			<1g/C		<1g/C		<1g/C		

NOTES: In the body of the table, numerals to the left of the bar indicate the number of items present, except in those cases where the items have been reported as a weight. In this latter case, the numeral is followed by the abbreviation "g," indicating the number of grams of material present.

BS - Bulk sample.
C - Charred.
N - Noncharred.
X - Fragments present; no count of whole items possible.

Table 7A.12 - Remains from bulk soil samples from pitstructures, Kin Tl'iish

Taxon	Provenience							
	Pitstructure 1				Pitstructure 2 Surface 1			Pitstructure 4 Surface 1 Feature 136
	Stratum 2	Surface 1			Feature 99 Stratum 2		Feature 144	
		Feature 6		Feature 65				
Family Genus species Plant part		Stratum 1	Stratum 2					
	BS 3	BS 4	BS 5	BS 17	BS 36	BS 37	BS 49	BS 43
Cheno-ams								
fruit			1/C				8/C	
Chenopodiaceae								
Chenopodium sp.								
seedling							1/C	
fruit		1/N			3/C		45/2X/C	
Compositae								
Artemisia sp.								
wood	<1g/C	<1g/C	<1g/C	<1g/C	1g/C	<1g/C	1g/C	
Cupressaceae								
Juniperus sp.								
scale					5/C			
wood							<1g/C	5g/C
Juniperus osteosperma								
scale		1/C	15/C					
Cyperaceae								
fruit							3/C	
Fagaceae								
Quercus gambelii								
wood		<1g/C	<1g/C	<1g/C	<1g/C	<1g/C	<1g/C	
Gramineae								
Zea mays								
fruit	<1g/C	<1g/C	<1g/C	<1g/C			1g/C	
cob			1X/C					
cupule	1/5X/C	8/C	10/24X/C	4/5X/C				
Loasaceae								
Mentzelia sp.								
seed				2/N				
Pinaceae								
Pinus sp.								
bark					<1g/C			
wood	<1g/C	<1g/C	<1g/C					<1g/C
Pinus edulis								
needle		1/C	2X/C	2X/C		2X/C	2X/C	2X/C
wood	1g/C							
Pinus ponderosa								
needle					1/C	2X/C		
wood		<1g/C	1g/C		<1g/C	<1g/C		
Portulacaceae								
Portulaca sp.								
seed	1/C						2/C	
Rosaceae								
wood		<1g/C	<1g/C		<1g/C	<1g/C		<1g/C
Cercocarpus montanus								
wood	<1g/C							
Salicaceae								
Populus sp.								
wood		<1g/C	<1g/C		<1g/C	<1g/C	<1g/C	
Solanaceae								
Nicotiana attenuata								
seed	3/N	61/N	27/N	[illegible]/N		2/N		1/N
Dicotyledoneae								
bark					<1g/C			
wood	<1g/C							

NOTES: In the body of the table, numerals to the left of the bar indicate the number of items present, except in those cases where the items have been reported as a weight. In this latter case, the numeral is followed by the abbreviation "g," indicating the number of grams of material present.

BS - Bulk soil sample.
C - Charred.
N - Noncharred.
X - Fragments present, no count of whole items possible.

Table 7A.13 - Remains from bulk soil samples from nonstructural units, Kin Tl'iish

Taxon	Provenience											
	Nonstructural Unit 4 Surface 1									Nonstructural Unit 5		
	Feature 16					Feature 17				Level 1	Surface 1 Feature 42	
Family Genus species Plant part	Lower fill											Lower fill
	BS 27	BS 28	BS 29	BS 30	BS 31	BS 32	BS 33	BS 34	BS 35	BS 19	BS 20	BS 21
Amaranthaceae												
Amaranthus sp.												
seed		2/C										
Capparidaceae												
Cleome serrulata												
seed			1/C									
Cheno-ams												
fruit			1/C									
Chenopodiaceae												
Chenopodium sp.												
fruit		1/C					1/C					
Compositae												
Artemisia sp.												
wood			1g/C	<1g/C			<1g/C		<1g/C	<1g/C	<1g/C	
Cupressaceae												
Juniperus sp.												
wood		<1g/C		<1g/C	<1g/C			<1g/C	<1g/C		1g/C	
Cyperaceae												
fruit									1/C			
Fagaceae												
Quercus gambelii												
cupule				2/8X/C								
wood		<1g/C	<1g/C				<1g/C		<1g/C		<1g/C	
Gramineae												
Phragmites sp.												
culm									<1g/C			
Zea mays												
fruit			1g/C				<1g/C	<1g/C		<1g/C		
cob							1X/C					
cupule		[illegible]	[illegible]/C		<1g/C		[illegible]/C	10X/C	1/XX/C		2/C	
Leguminosae												
Phaseolus sp.												
cotyledon					[illegible]/C							
Pinaceae												
Pinus sp.												
bark					<1g/C		<1g/C		<1g/C			
wood		<1g/C	5g/C							<1g/C		
Pinus edulis												
needle		1/C	1XX/C	1/C	8X/C							
wood				1g/C	1g/C	1g/C		1g/C				
Pinus ponderosa												
needle			2X/C		1/C							
wood			1g/C	<1g/C	5g/C		<1g/C			1g/C		
Rosaceae												
wood			<1g/C		<1g/C		<1g/C	1g/C	<1g/C	<1g/C	<1g/C	
Salicaceae												
Populus sp.												
wood	<1g/C	<1g/C	1g/C	<1g/C	<1g/C	<1g/C			<1g/C	<1g/C	<1g/C	
Solanaceae												
Nicotiana attenuata												
seed		2/N										
Physalis sp.												
seed		4/C	1/5X/C		1/C					1/C		
Solanum sp.												
seed			2/C									
Dicotyledoneae												
leaf				1/C		1/C						
wood									<1g/C			<1g/C
Gymnospermae												
wood			<1g/C			<1g/C	<1g/C					<1g/C

NOTES: In the body of the table, numerals to the left of the bar indicate the number of items present, except in those cases where the items have been reported as a weight. In this latter case, the numeral is followed by the abbreviation "g," indicating the number of grams of material present.

BS - Bulk soil sample.
C - Charred.
N - Noncharred.
X - Fragments present, no count of whole items possible.

Table 7S.17 - Miscellaneous items recovered from Kin Tl'iish

Provenience	Material description
Grid square 86S/98E, Stratum 3	Fossil shell
Grid square 96S/80E, mgs	Fossil shell
Grid square 98S/76E, Stratum 1	Calcite Fossil shell Hematite
Grid square 98S/76E, Stratum 2	Fossil shell
Grid square 112S/72E, mgs	Quartz
Grid square 122S/93E, Level 1	Pebble/gravel
Room 1, segment 1, Surface 1, Feature 153, west half	Limonite
Room 2, NW quadrant, Surface 1,	Crushed rock
Room 2, SE quadrant, Surface 1	Siltstone
Room 2, SW quadrant, Surface 1	Mineral, indeterminate
Room 3, SE quadrant, Surface 1, Feature 12, Stratum 2	Earthen construction material Calcite
Room 5, SE quadrant, Surface 2, Feature 32, full cut	Siltstone
Room 5, SW quadrant, Surface 1	Sandstone
Room 6, segment 1, full cut	Azurite
Room 7, segment 5, Level 1	Azurite
Pitstructure 1, segment 3, Stratum 1	Mollusc shells (2)
Pitstructure 1, segment 3, Stratum 2	Earthen construction material Fossil shell
Pitstructure 1, segment 5, full cut	Earthen construction material
Pitstructure 1, segment 1, Surface 1	Earthen construction material
Pitstructure 1, segment 2, Surface 1, Feature 53, N half, Stratum 3	Pebble/gravel
Pitstructure 1, segment 5, Surface 1, Feature 6, Stratum 1	Calcite
Pitstructure 1, segment 5, Surface 1, Feature 6, Stratum 2	Calcite
Pitstructure 1, segment 5, Surface 1, Feature 64, full cut	Calcium carbonate
Pitstructure 4, segment 2, Level 1	Siltstone
Pitstructure 4, segment 1, Surface 1, Feature 108, full cut	Fossil shell Limonite
Nonstructural Unit 5, segment 2, Surface 1, Feature 42, full cut	Calcite
Nonstructural Unit 6, segment 5, Level 1	Limestone
Nonstructural Unit 6, segment 5, Level 2	Mollusc shell

NOTE: (n) - Number of items.
N - north.
SE - southeast.
SW - southwest.
NW - northwest.

APPENDIX 7B

HUMAN REMAINS FROM KIN TL'IISH

Ann Lucy Wiener

The remains of a minimum of 6 individuals (5 adults and 1 adolescent) were recovered during excavations at Kin Tl'iish. These are listed by age, sex, and provenience in table 7B.1 and a list of the elements recovered is provided in the inventory at the end of this appendix (table 7B.2) The 2 individuals in Burials 29 and 30 (Features 19 and 162) were found in their primary burial contexts; their skeletons are nearly complete and both are fairly well preserved. These burials intruded into the postoccupational fill in the roomblock and postdate the main occupation at Kin Tl'iish.

The remaining four individuals are from Feature 2 (fig. 7.47) and are represented by a large assemblage of fragmentary human bones scattered throughout the postoccupational fill in Rooms 1, 3, and 5, and in the upper fill of Room 7. It is apparent that this scatter of bone had been disturbed from original burial contexts during prehistoric remodeling of the habitation site.

Burial Features

Feature 2 (Burials 31-1, 31-2, 31-3, and 31-4)

Several age- and sex-diagnostic skeletal elements provide the basis for determining the minimum number of individuals represented in this scattered burial (fig. 7.47). The elements assignable to discrete individuals are listed in the human bone inventory. Many bones were too fragmentary to be identified as to element, age, or sex; some bones, although recognizable as specific skeletal elements, could not be confidently assigned to one individual or another. Except for the adolescent (Burial 31-4), specific ages could not be determined. The lack of advanced degenerative arthritic developments in joints and in the vertebral column suggests that these were young to middle-aged adults, probably no older than age 35 at death. No evidence of gross pathologies or anomalies was observed in the Feature 2 assemblage; any such evidence would have undoubtedly been obscured by the fragmentary condition of the bones.

Feature 19 (Burial 29)

The remains of an adult female, probably between 20 and 25 years old at death, were found in a grave that intruded into the postoccupational fill and the floor of Room 7 (figs. 7.28, 7.44, and 7.45). Grave fill stratification indicated that the grave was covered in a sandstone capping, which may have overlain a covering of wood and earth on the body. The individual was interred in a semiflexed position, supine, and the face was oriented northeast. No grave goods were found with the burial.

The skeleton is complete except for the lumbar vertebrae, sacrum, sternum, and manubrium. Partially remodeled (healed) lesions of cribra orbitalia are evident in the eye orbits, indicative of the nonacute dietary anemia. Enamel

Table 7B.1 - Summary of individuals, Kin Tl'iish

Burial No.*	Feature No.	Age	Sex	Provenience
29	19	20-25	Female	Room 7
30	162	24-28	Female	Room 13
31-1	2	Adult	Female	Room 5
31-2	2	Adult	Female	Room 1
31-3	2	Adult	Male	Rooms 1 and 7
31-4	2	12-13	Indeterminate	Room 1

*Burial numbers are assigned on a project-wide basis.

hypoplasia was noted on the mandibular incisors. Hypoplastic defects document an instance of physiological stress, such as illness or nutritional deficiency, that temporarily arrested enamel matrix formation in these teeth during the first few years of life.

Dental attrition ranges from slight to moderate wear except for the third molars, which are virtually unworn. The right maxillary third molar is impacted, and both the upper and lower second molars in the right side of the mouth exhibit carious lesions. No antemortem tooth loss is evident.

Except for the missing elements previously mentioned, the postcranial skeleton is complete, but many bones are broken and demineralized from contact with water, and some exhibit gnawing marks from rodents. No pathology or anomaly was observed in the postcranial skeleton.

Feature 162 (Burial 30)

The skeleton of an adult female was found in a grave that intruded into the fill of Room 13 (figs. 7.35, 7.36). The well-preserved skeleton was found in an extended position, face-up, with the body oriented north-south. No grave goods were found in the feature. The skeleton is complete except for portions of the hands and all the bones of the feet. No cut or gnawing marks or pathological conditions were evident on the distal tibiae or fibulae that would account for loss of the feet during life, which suggests that their absence is due to rodent or predator disturbance after interment. Since the burial is in the upper fill levels of the room, these elements were probably transported to other locations on the site. As is evident in the inventory of skeletal remains, there has been considerable mixing and scattering of human bone throughout the site.

Diagnostic elements of the skeleton are clearly female, and examination of the pubic symphysis indicates an age of 24 to 28 years at death. Several anomalous, although probably asymptomatic, irregularities are evident in the dentition and the postcranial skeleton of this individual.

Only 1 of 4 third molars (the right maxillary third molar) appears to have erupted in the mouth of this individual. This tooth grew with the chewing surface of the crown facing out into the cheek, rather than in the normal tooth row. The absence of the other third molars appears to be due to agenesis of the teeth. In the same area of the mouth, the right maxillary first premolar is misoriented; the crown is rotated 90° from its normal position.

The patellae are of abnormal configuration, with the appearance of having had a bite taken out of their lateral facets. According to Miles (1975:6), this is referred to as bipartite patellae, in which the bones grow from 2 growth centers within their cartilaginous molds, instead of from the normal single growth center.

The sacrum exhibits a condition known as sacral spina bifida occulta. This term refers to a defective condition in any or all of the vertebral arches of the sacrum. Absence of properly united vertebral arches (in the sacrum or any other part of the vertebral column) results in exposure of the spinal cord meninges, which are normally protected within the bony canal of the vertebral column. Of the several types of spina bifida, occulta implies that there was no protrusion of the spinal column through the abnormal opening, a condition with potentially fatal complications.

In this individual, the first 2 segments of the sacrum are partially, but asymmetrically, united by unalined vertebral arches. The unions of the second and third and the third and the fourth sacral segments are normal, with the arches closed, but the fourth and fifth segments are ununited at the arches, forming an abnormal extension of the sacral hiatus.

Spina bifida occulta is thought to be due to a combination of environmental and genetic factors. Its frequency decreases in older age groups, indicating that the condition may in some cases be due to developmental retardation (Sutow and Pryde 1956:217). The occurrence of spina bifida occulta has been known to reach high frequencies in groups with high levels of inbreeding (Bennett 1972:438). Spina bifida occulta has been observed in many skeletal populations, and seems to be fairly common among the Anasazi of the Mesa Verde Region. The condition has also been observed in project area burials from Rio Vista Village (Site 5MT2182) (Wilshusen, comp., 1984) and Rabbitbrush Pueblo (Site 5MT4480) (Kuckleman and Harriman 1984).

Enamel hypoplasia in the anterior dentition indicates metabolic disturbances during childhood, perhaps due to illness or malnutrition and physiological stress associated with weaning. Partially remodeled lesions of cribra orbitalia in the eye orbits document a past condition of dietary anemia. Both of these conditions are nearly universal among the DAP skeletal assemblage.

Slight developments of degenerative osteoarthritis are evident at the joint surfaces of the knees and elbows and in the lower thoracic and lumbar vertebrae.

Inventory of Human Remains

A summary of the human bone recovered from Kin Tl'iish is presented in table 7B.2. This data is organized by provenience units; however, Feature 2 is actually assigned to the Roomblock 1 provenience, and the room assignments for that feature in the table are horizontal approximations of the locations of the skeletal elements.

Table 7B.2 - Inventory of human remains, Kin Tl'iish

Provenience	PL No.	Element	Comments
Room 1			
Feature 2			
Burial 31-2	5	Cervical vertebra	3rd or 4th
	18	Humerus R	
	28	Radius R	Proximal half only
	22	Radius L	Central shaft
	1	Femur R	Pieces of proximal shaft (2)
	9	Femur L	Shaft and distal end fragments
Burial 31-3	47	Humercus R	Distal 1/4 extremely robust
Burial 31-4	4, 14	Cranial fragments	PL 4 immature
	7, 11	Mandibular fragments and dentition	Root of 11, crown of 12; R PM1 has minimal attrition and shows wear facets
	16	Clavicle L	
	36, 37	Humerus R	PL 36 is the distal 1/2; PL 37 is fragments of PL 36
	15	Humerus L	
	17	Ulna L	Proximal 1/3
	21	Ulna	Shaft fragments
	23	Ulna L	Distal fragments
Segment 1	2, 19, 14, 45, 53	Unidentifiable fragments	
	3	Terminal phalange	Finger

NOTES: Feature 2 is assigned to Roomblock 1 and PL numbers apply to this provenience only. Refer to figure 48 for PL locations (PL's 28, 42, 43, and 44 were not mapped).

(N) - Number of items.
R - Right.
L - Left.

Table 7B.2 - Inventory of human remains, Kin Tl'iish - Continued

Provenience	PL No.	Element	Comments
Room 1			
Feature 2 (continued)	4, 10, 12, 24, 25, 33	Long bone fragments	
	6	Rib fragment R	
	8	Vertebra fragment	Spinous process
	20, 35	Cranial fragments	
Segment 6		Thoracic vertebrae (2)	
		Rib fragment	
Segment 10		Tibia L	Central shaft
		Phalange fragment	Triquetral R
		Tooth	Premolar fragment
	13	Unidentifiable fragments	
Room 3			
Feature 2			
Surface 1		Phalange	Finger
Segment 3	30	Phalange	Finger
	34	Long bone fragments	
Room 5			
Feature 2			
Burial 31-1	51	Clavicle R	Acromial portion
	38	Rib	
	40	Rib L	
	50	Rib fragments	
	355	Ribs (2)	
	43	Sternum	
	356	Cervicle vertebra	
		Cervicel vertebra	Axis fragment also

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Table 7B.2 - Inventory of human remains, Kin Tl'iish - Continued

Provenience	PL No.	Element	Comments
Room 5			
Feature 2 (continued)	48	Thoracic vertebrae (2)	
		Thoracic vertebrae	10th, 11th, or 12th
	46	Pubis fragment	
	52	Innominate L	
	42	Humerus R	Lateral portion broken
	49	Radius R	
	29	Ulna L	Proximal end only
	39	Talus R	
	44	Navicular L	
	353	Cuneiform	
	354	Metatarsals L:4th, 2nd	
	49	Navicular R, lunate R	
Surface 1		Unidentifiable fragments	
Room 7			
Feature 2			
Burial 31-3		Femur R	Shaft fragment
Segment 5		4th metatarsal	
Feature 19			
Burial 29		Cranium	Back of cranial vault and base are fragmentary; maxilla broken along palatine suture. Partially healed cribra orbitalia
		Mandible	Complete except for coronoid processes and right mandibular condyle

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Table 7B.2 - Inventory of human remains, Kin Tl'iish - Continued

Provenience	PL No.	Element	Comments
Room 7 Feature 19 (continued)		Maxillary dentition R:I1,I2,C,PM1,PM2, M1,M2,M3 L:I1,I2,C,PM1,PM2, M1,M2,M3	R M1 is carious and M3 is impacted
		Mandibular dentition R:I1,I2,C,PM1,PM2, M1,M2,M3 L:I1,I2,C,PM1,PM2, M1,M3	Enamel hypoplasia on incisors. RM2 is carious; LM2 lost post-mortem
		Clavicle R and L	R shaft fragment; united sternal epiphysis. L central shaft only
		Ribs R and L	Fragmentary
		Vertebrae	Cervical and thoracic fragments
		Innominate R and L	Fragmentary
		Scapula R and L	Fragments
		Humerus R and L	Shafts and fragments of articular ends; R is rodent gnawed
		Radius R and L	Proximal 2/3 only
		Ulna R and L	Proximal 2/3 only
		Carpals R(5), L(2)	
		Metacarpals R(2), L(4)	
		Phalanges R(1), L(12)	Hand
		Femur R and L	R trochanters missing and head fragmentary. L ends fragmentary
		Tibia R and L	R distal end missing; proximal end damaged. L proximal end broken
		Fibula R and L	R Shaft only

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Table 7B.2 - Inventory of human remains, Kin Tl'iish - Continued

Provenience	PL No.	Element	Comments
Room 7 Feature 19 (continued)		Patella R	
		Tarsals r(6), L(6)	
		Metatarsals R(1), L(5)	
		Phalanges R(1), L(8)	Foot
Room 13 Feature 162 Burial 30		Cranium and mandible	Complete; excellent preservation. Partially healed cribra orbitalia
		Maxillary dentition R:I1,I2,C,PM1,PM2, M1,M2,M3 L:I1,I2,C,PM1,PM2, M1,M2	Enamel hypoplasia on R and L I1,I2,C,PM1, and PM2. R PM1 misoriented and M3 is heterodontic. Agenesis of L M3
		Mandibular dentition R:I1,I2,C,PM1,PM2, M1,M2 L:I1,I2,C,PM1,PM2, M1,M2	Enamel hypoplasia on R and L I1,I2,C,PM1, and PM2. Agensis of M3's
		Sternum	
		Clavicle L	
		Ribs R and L	
		Vertebrae: Cervical 1st-7th Thoracic 1st-10th Lumbar 1st-5th	Slight osteophytosis on thoracic 10th and lumbar 3rd and 4th
		Innominate R and L	
		Sacrum	Sacral spina bifida occulta
		Scapula R and L	
		Humerus R and L	
		Radius R and L	

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Table 7B.2 - Inventory of human remains, Kin Tl'iish - Continued

Provenience	PL No.	Element	Comments
Room 13 Feature 162 (continued)		Ulna R and L	Slight osteoarthritis is at elbow
		Carpals R(2), L(5)	
		Metacarpals R(2), L(2)	
		Phalanges R(2), L(1)	Hand
		Femur R and L	Slight osteoarthritis at lateral condyles
		Tibia R and L	
		Fibula R and L	
		Patella R and L	Bilateral bipartite patellae

Chapter 8

EXCAVATIONS AT POZO HAMLET (SITE 5MT4613), A BASKETMAKER III — PUEBLO I HABITATION

ABSTRACT

Pozo Hamlet (Site 5MT4613) was recorded in 1978 by the Dolores Archaeological Program survey crew as a possible Basketmaker III-Pueblo I habitation.

Test excavations at Pozo Hamlet exposed a Sagehen Phase transitional pitstructure that exhibited both Sagehill Subphase (A.D. 700-800) and Tres Bobos Subphase (A.D. 600-700) construction traits. Architectural remodeling of the pitstructure and an adobe cap on the hearth indicate a probable shift from year-round to seasonal use. Four small, nonmasonry storage rooms were located southwest of the pitstructure; refuse in the fill of these rooms indicates that they had fallen into disuse prior to abandonment of the site. The construction of Montezuma County Main Canal 2 would have destroyed any additional features or architecture located north of the pitstructure.

When Pozo Hamlet was abandoned, the roof of the pitstructure was razed and 2 of the support posts were removed; the remaining structural debris that had collapsed onto the floor was burned. The absence of trash deposits overlying the burned roof fall in Pitstructure 1 indicates that the inhabitants not only abandoned the site but the immediate area as well.

Chapter 8

EXCAVATIONS AT POZO HAMLET (SITE 5MT4613), A BASKETMAKER III — PUEBLO I HABITATION

G. Charles Nelson

INTRODUCTION

Site Setting

Pozo Hamlet is located in Montezuma County, Colorado, approximately 1.75 km west-northwest of the town of Dolores. The site is in the NE 1/4 of the SE 1/4 of sec. 7, T37N, R15W. The Universal Transverse Mercator grid coordinates for this location are 4,150,380 mN, 717,480 mE, zone 12.

Pozo Hamlet is located on the south side of the Dolores River near the southern limit of the McPhee Reservoir pool line. Within the DAP (Dolores Archaeological Program) spatial systematics (Kane 1983), the placement of the site is within the Dolores Locality of the Escalante Sector of the Yellowjacket District of the Mesa Verde Region (fig. 8.1). This site will be impacted by the high water line for the pool area and by the Dolores Tunnel, which is located less than 80 m west of the site and for which the site was named. Loosely translated, the Spanish word "pozo" mean spit, shaft, or tunnel.

Topography

Pozo Hamlet is located on an alluvial fan approximately 10 m above the flood plain of the Dolores River. The fan is on the south bank of the river at an elevation of 2103 m (6900 ft) above sea level (fig. 8.2). The site is situated near the western limit of the alluvial fan on one of several small hillocks that extend from the flood plain to the canyon wall (fig. 8.3). Prehistorically the site probably extended north to the edge of the fan; however, the northern edge of the fan was removed during the construction of Montezuma County Main Canal 2. Construction efforts appear to have cut approximately 20 m into the toe of the fan. Disturbance extends to a depth of 1.5 m on the site. Any shallow prehistoric remains in that portion of the site have been lost.

Geology

The alluvial fan consists of light brown, lightly compacted Cheyenne sandy loam (Leonhardy and Clay 1984a). These sediments are overlain by approximately 25 cm of light brown to brown silt loam that appears to have washed down from the canyon wall to the south and west. The canyon wall is an erosional feature formed by the downcutting of the Dolores River through the Dakota and Burro Canyon Formations (Leonhardy and Clay 1984b). The flood plain to the north and east of the site is composed primarily of boulders, cobbles, gravels, and sand deposited by the Dolores River. This area is normally moist and boggy because it is close to the river and because the water table is very high. The soils in the alluvial fan are well drained because of the slope, soil type, and elevation above the river. This indicates that the fan and the land on the dip slope above are suitable for cultivation. Shuster's (1983) experimental garden study substantiates the agricultural potential of the area for dry farming or kitchen gardening.

Flora

The vegetation on the site has been altered due to recent agricultural activities on the fan. A variety of plants that thrive in disturbed areas was noted: sagebrush (*Artemisia*), rubber rabbitbrush (*Chrysothamnus nauseosus*), aster (*Aster*), bindweed (*Convolvulus arvensis*), sunflower (*Helianthus*), and thistle (*Cirsium*). In addition, Benz et al. (1981) noted willow (*Salix*) and grasses (*Bouteloua*) growing along the bank of the canal.

Pozo Hamlet is situated in an area of transition between 2 vegetation zones. To the south on the slope of the canyon wall is a pinyon-juniper woodland zone; to the north and east, in the flood plain, the riparian grassland/shrubland vegetation zone is present. Benz et al. (1981:table 1.4.1) identified typical flora within the vegetation zones surrounding Pozo Hamlet and the alluvial fan on which

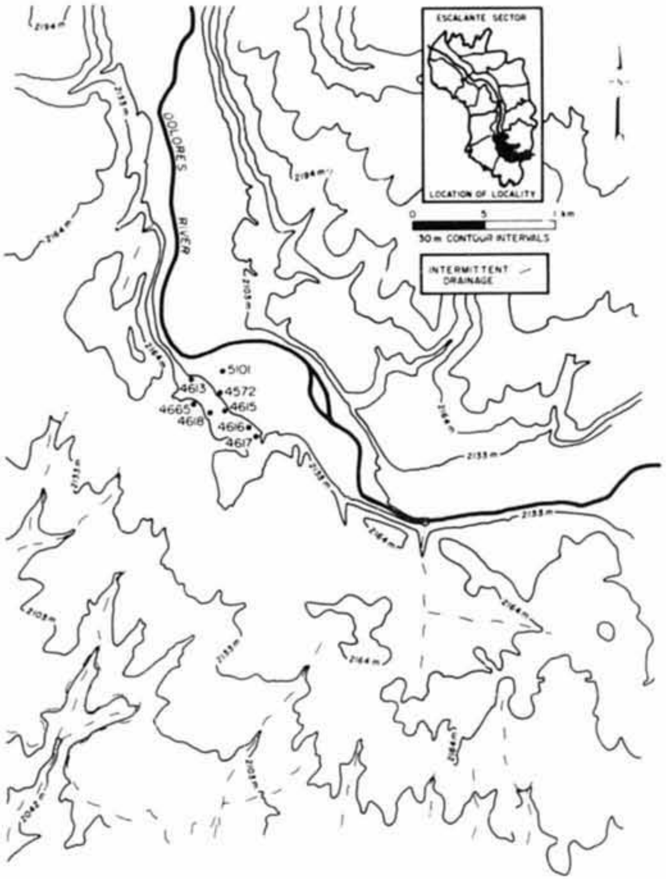

Figure 8.1 - Locations of Pozo Hamlet and surrounding sites in the Dolores Locality of the Escalante Sector

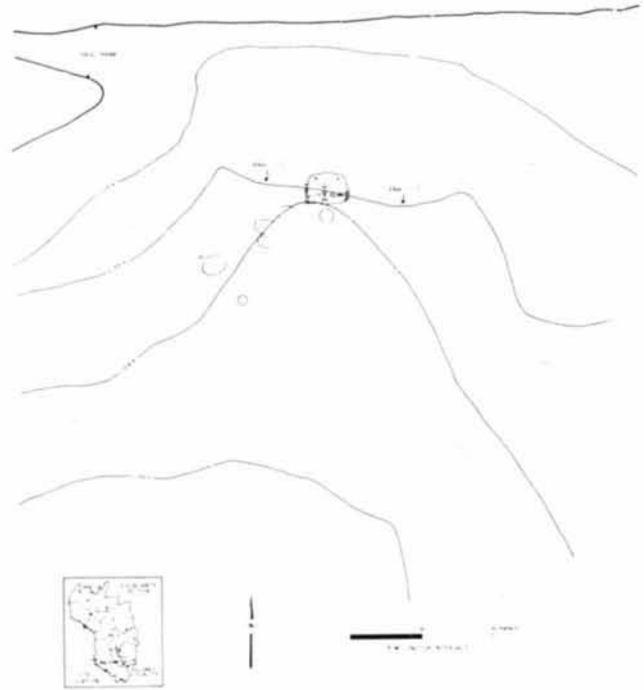

Figure 8.2 - Topographic map of Pozo Hamlet

it is located. Common in the pinyon-juniper woodland zone are pinyon pine *(Pinus edulis)*, Utah juniper *(Juniperus osteosperma)*, Gambel oak *(Quercus gambelii)* and understory plants such as sagebrush *(Artemisia)*, cliff fendlerbush *(Fendlera rupicola)*, wild onion *(Allium)*, and pricklypear *(Opuntia)*. The riparian grassland/shrubland vegetation zone along the flood plain is highly disturbed; only a portion of the typical vegetation is present. Still remaining are narrowleaf cottonwood *(Populus angustifolia)*, inland boxelder *(Acer negundo)*, willow *(Salix)*, wild rose *(Rosa)*, and sedge *(Carex)*.

Fauna

Excavation crew members observed the following mammals in the vicinity of Pozo Hamlet: black-tailed jackrabbit *(Lepus californicus)*, cottontail *(Sylvilagus)*, gopher *(Thomomys)*, ground squirrel *(Spermophilus)*, mouse *(Peromyscus)*, muskrat *(Ondatra zibethicus)*, coyote *(Canis latrans)*, and mule deer *(Odocoileus hemionus)*. The partial remains of an American elk *(Cervus elaphus)* were found adjacent to the site. The lack of skeletal material indicates that it may have been merely disposed of

Figure 8.3 - Pozo Hamlet prior to excavation, looking west. Note the Montezuma County Main Canal 2 and the service road to the right (DAP 104603).

at that location. Some of the birds that were observed are the black-billed magpie *(Pica pica)*; common crow and raven *(Corvus)*; Cooper's hawk *(Accipiter cooperii)*; golden eagle *(Aquila chrysaetos)*; marsh hawk *(Circus cyaneus)*; turkey vulture *(Cathartes aura)*; pinyon jay *(Gymnorhinus cyanocephalus)*; mourning dove *(Zenaida macroura)*; mallard and teal *(Anas)*; American wigeon *(Anas americana)*; American coot *(Fulica americana)*; and belted kingfisher *(Megaceryle alcyon)*.

The number of water birds in the area is greater than would be expected in this habitat. This is attributed to gravel quarrying activities along this section of river bottom. Open pits containing standing water are present along the banks of the river. These pits are surrounded by American bulrush *(Scirpus americanus)*, cattail *(Typha latifolia)*, willow *(Salix)*, and grasses *(Bouteloua)*. The water-filled pits contain some fish and aquatic plants. The cover, feed, and bodies of still water draw the waterfowl population, which in turn draws animals and birds of prey to this habitat. During the fall migratory season, the area draws a larger, more varied waterfowl population; some of the species remain until cold winter temperatures force them elsewhere.

Climate

Climatic conditions in the region are semiarid. Although the Cortez weather station is lower in altitude than Pozo Hamlet, it is the nearest constantly operating recording station. The mean annual temperature is 9.2° (Benz et al. 1981:fig. 1.4.5); the average number of killing-frost-free growing days is 129 (Martin 1930). Annual precipitation recorded at the Dolores weather station measures just over 460 mm. Shuster (1983) indicates that the climate within the project area varies from the recorded weather information because of microenvironments created by the Dolores River canyon. The mean annual temperature is lower, and there are fewer killing-frost-free growing days. In addition, the location of the site in proximity to the north-facing canyon wall reduces the amount of direct sunlight reaching the site. This might have retarded production of certain domestic plants such as corn *(Zea)*, especially in the spring and late summer months.

Pozo Hamlet is situated such that the gathering of foodstuffs could be accomplished easily from the 2 vegetation zones. Microenvironmental factors suggest that agricultural activities in the immediate vicinity of the site would have been marginal; although small, kitchen gardens could have been maintained. Intensive cultivation would have been feasible on the ridge south and west of the habitation.

Cultural Setting

Cultural data on the occupation and use of the alluvial fan and the surrounding flood plain, canyon wall, and dip slope above the site have been recorded on DAP survey records. These records indicate that the area was in use from the Archaic (5000 B.C.-A.D. 500) to the present. Survey crews have noted at least 3 prehistoric sites on the

fan in addition to Pozo Hamlet (Ives 1978). The historic town of Big Bend (Site 5MT4572) is known to have been located less than 100 m east of Pozo Hamlet (fig. 8.1). More recently the fan has been used for agricultural purposes.

Other sites located on the alluvial fan are 5MT4615, 5MT4616, and 5MT4617 (fig. 8.1). Site 5MT4615 is located 500 m southeast of Pozo Hamlet along the west edge of the canal. Survey records indicate that this is a multicomponent site covering about 3000 m^2. Ceramic and lithic (projectile point) typologies indicate that this site has a possible Archaic component and a Pueblo II-Pueblo III habitation. Site 5MT4616 is located 700 m southeast of Pozo Hamlet on the west site of the canal. Survey records indicate that this site had an artifact scatter of 4550 m^2. In addition to the artifacts, a rubble mound measuring 5 by 7 m is present. The rubble consists of unshaped sandstone slabs and cobbles. Ceramic dating and the presence of rubble indicate the site is a Pueblo I-Pueblo II habitation. Site 5MT4617 is located 800 m southeast of Pozo Hamlet on the west side of the canal. Survey records indicate this site is a lithic and ceramic scatter covering a 2500 m^2 area. Ceramic dating and the presence of metates suggest that this site is a Basketmaker III-Pueblo I habitation. The similarity of the survey records for Site 5MT4617 to those for Pozo Hamlet suggests that these sites might have been contemporaneous.

Sites in the area, but not on the alluvial fan, are 5MT-4618, 5MT4665, and 5MT5101 (fig. 8.1). Site 5MT4618 is located 500 m south-southeast of Pozo Hamlet. The site is located upslope on the canyon wall. It consists of a small, 11- by 11-m rock shelter and the surrounding area. The shelter is a multicomponent habitation and/or storage site. Ceramic dating indicates that the shelter was used during the Basketmaker III, Pueblo I, Pueblo II, and Pueblo III periods. Site 5MT4665 is located upslope from Pozo Hamlet along the canyon rim approximately 250 m to the south. The artifact scatter covers about 3000 m^2. The ceramic assemblage indicates that this is a multicomponent, limited activity site used by Pueblo II and post-Anasazi (Ute and Hopi) peoples. Most post-Anasazi sites in the project area also contain Pueblo II material.[1] Site 5MT5101 is located on the flood plain 100 m northwest of Pozo Hamlet. The site is a 3150 m^2 lithic scatter of indeterminate nature; the lack of ceramic artifacts precludes dating the site.

The long use of the alluvial fan suggests that the surrounding area was a viable location over a long period of time. The present-day locations of the pinyon-juniper woodland and the riparian grassland/shrubland zones are assumed to be similar to the prehistoric situation. The fan was recognized as an advantageous location at least as early as the Archaic period.

Investigative Strategy

Pozo Hamlet has undergone a great deal of disturbance during the historic period. The most serious impact to the site was the construction of Montezuma County Main Canal 2 in 1889 (Duranceau 1980). This is the primary water source for Narraguinnep Reservoir. The canal right-of-way follows the 6900 ft contour (2103 m above sea level) that passes through the site. The leveling of the edge of the alluvial fan removed all prehistoric remains north of Pitstructure 1 to an approximate depth of 1.5 m. The historic town of Big Bend was located less than 100 m east of the site; some disturbance undoubtedly occurred during the lifetime of the town. More recently, extensive plowing and grazing have taken place, disturbing at least the upper 25 cm of sediment. Oil drilling activities have also been conducted in the area; a well head is located 31 m south-southeast of Pitstructure 1.

Research Objectives

Pozo Hamlet was selected for investigation primarily to collect archaeological data from the southern portion of the project area. The immediate proximity of the site to the construction for the Dolores Tunnel provided an opportunity for preliminary archaeological excavation in the area. Initially, a Track 2 investigation (Knudson et al. 1981) was implemented due to the scarcity of surface indications of structures or features. The initial subsurface investigation (trenching and blading) was conducted to define any spatial relationships of cultural materials. Intensive excavation of any cultural unit encountered was to be conducted for the purpose of recovering datable material (i.e., wood suitable for tree-ring dating samples, charred material for archaeomagnetic samples, and diagnostic ceramics). Structures were to be tested using trenches, and augering was to be conducted to define the gross structural characteristics and to determine what cultural information might be available.

Investigative Methods

Pozo Hamlet was recorded by DAP survey personnel in 1978 (Ives 1978). The site was identified as a Basketmaker III-Pueblo I habitation on the basis of ceramic dating. Following the Bureau of Reclamation decision to place the Dolores Tunnel in the vicinity, 2 magnetometer surveys were conducted on the site. Three anomalies of possible archaeological significance were noted during the second survey (appendix 8B), but subsequent investigations indicated that the tested area was devoid of culturally significant material or features.

Initial operations at Pozo Hamlet followed guidelines provided in the DAP field manual (Kane, Hewitt et al.

[1] C. Dean Wilson, DAP, personal communication.

1981). The site grid system was established independent of the magnetometer grid units. The 100S/100E coordinate was established at the northwest corner of the observable artifact scatter, and the site was marked off in 16- by 16-m squares. This gridded area was rectangular, measuring 56 m east to west and 48 m north to south. The grid was used for the surface collection of artifacts and to draft the site topographic map. The 16- by 16-m grid squares could be divided into 4- by 4-m surface collection units, and the grid lines could be divided into 8-m lengths to facilitate the recording of elevations every 8 m for the topographic map (fig. 8.4).

A preliminary mapping station was assigned to grid coordinate 132S/132E. This coordinate was chosen because it was near the center of the grid and because it was one of the highest points within the gridded area. From this station all initial elevations could be recorded. Normally a site datum should be established away from the gridded area. However, in this instance the well head near 137S/140E was selected because it was the most permanent location at the site.

Following a 100-percent collection of surface artifacts, backhoe trenches were excavated to examine the stratigraphy of the alluvial fan and to determine if any cultural horizons existed below the modern ground surface; the placement of the trenches was determined by the distribution of surface artifacts. In preparation for blading the site, 2- by 2-m test excavation units were planned. Time

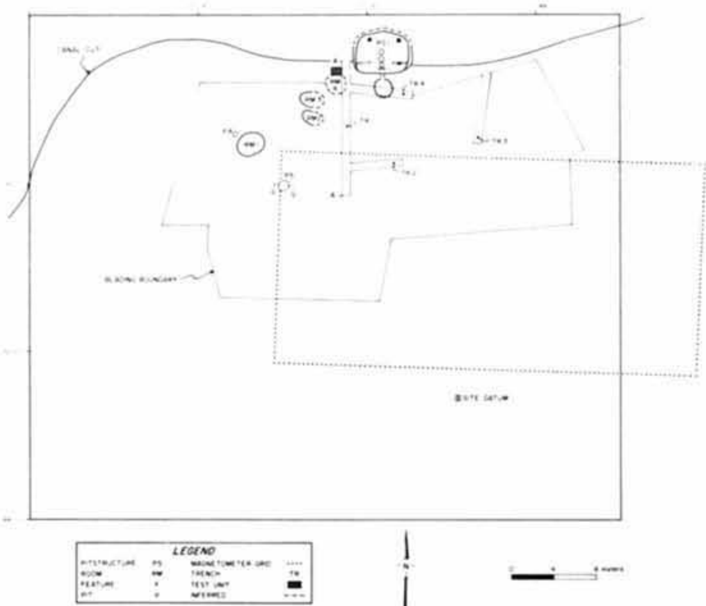

Figure 8.4 - Major cultural units and site sampling plan, Pozo Hamlet.

factors limited the blading to depths that the stratigraphy observed in the backhoe trenches indicated might yield cultural material. Intensive manual excavation was to be implemented only if trenching or blading exposed human remains, datable cultural material, or cultural remains with significant spatial characteristics.

PRELIMINARY OPERATIONS

Surface Artifact Collections

The collection of surface artifacts was accomplished using 16- by 16-m base squares that were divided into 4- by 4-m grid squares. Artifacts from 184 4- by 4-m squares south of the 104S line were collected; only 4 units north of the 104S line were selected for artifact collection. The base squares were marked off using ropes and crew members walked transects to locate and flag surface artifacts in the 16- by 16-m squares. The base squares were then marked off into 4- by 4-m units, and the artifacts were collected.

The area north of the 104S line was collected in three 4- by 16-m segments and one 4- by 8-m segment (fig. 8.5). These segments encompassed the canal cut and a portion of the graded area to the north of the cut. The artifacts on and below the canal cut are assumed to have been washed down from the modern ground surface to the south or eroded from a buried cultural horizon. This artifact assemblage was deemed to be of importance only when compared to the artifacts found along the top of the canal cut. Since the slope of the cut created additional surface area in these grid units, they were not included in artifact distribution and density studies.

Composition of Collections

The surface artifact assemblage contains ceramics, flaked lithic tools and debitage, and nonflaked lithic tools (figs. 8.5, 8.6, 8.7, and 8.8). Flaked lithic debitage is the most numerous artifact type, followed by ceramics and flaked lithic tools. Nonflaked lithic tools are the least numerous (refer to modern ground surface totals in appendix 8A tables).

The ceramic assemblage from the site surface (including the 1978 survey collection) consists of 72 analyzable sherds. More sherds were collected in the field, but their sizes were too small for laboratory analysis. Temper types indicate that all of the sherds originated from within the Mesa Verde Region; and most (70 out of the 72) originated from the Dolores Manufacturing Tract and are believed to have been locally manufactured. The 2 sherds that were not locally manufactured are assigned to the San Juan and Cahone Manufacturing tracts to the south and west of the project area (Blinman 1982a). Two of the gray ware sherds and all four white ware sherds are from bowls; the remainder of the gray ware sherds are from jars. Temporally diagnostic ceramics include Chapin Gray, Late Pueblo Gray, and Piedera Black-on-white. Late Pueblo Gray is defined by the presence of crushed

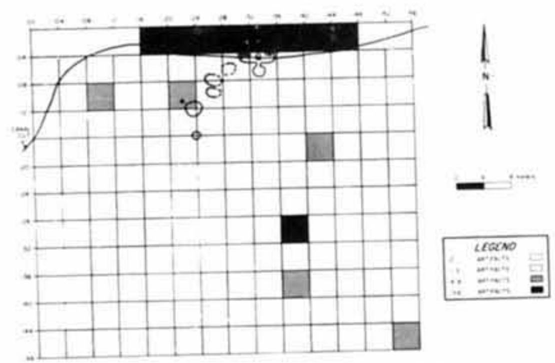

Figure 8.5 - Surface distribution of total artifact assemblage, Pozo Hamlet.

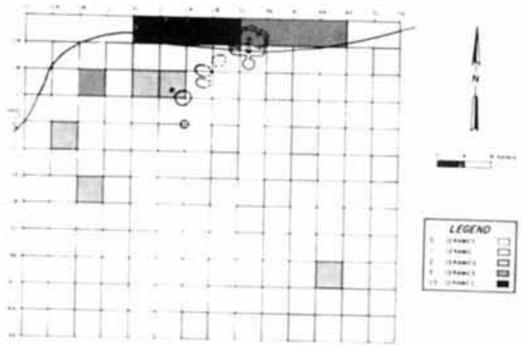

Figure 8.6 - Surface distribution of ceramic artifacts, Pozo Hamlet.

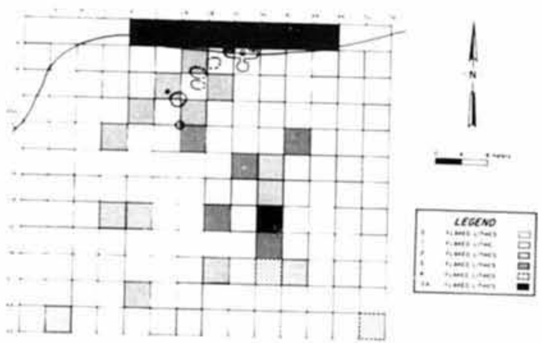

Figure 8.7 - Surface distribution of flaked lithic artifacts, Pozo Hamlet.

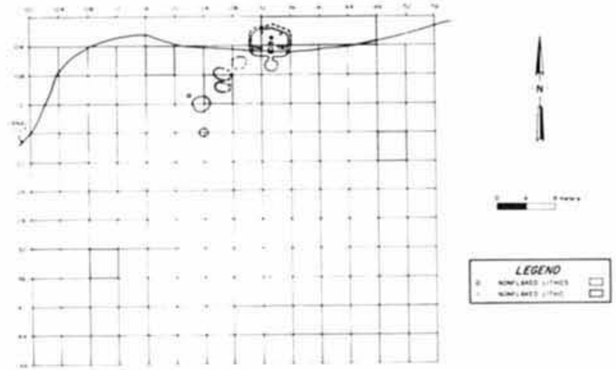

Figure 8.8 - Surface distribution of nonflaked lithic tools, Pozo Hamlet.

sherd in the temper and is usually considered to be common only after A.D. 875; however, the remainder of the assemblage, and the lack of neckbanded types (Moccasin Gray and Mancos Gray) and red wares suggest a date range of from A.D. 700 to 825 (Blinman 1982b).

The flaked lithic tool assemblage contains 17 items. Materials used in the manufacture of these items are Burro Canyon or Dakota orthoquartzites and cherts and Morrison Formation orthoquartzite and hornfels derived from river gravels that can be obtained in the flood plain adjacent to the site. Within this assemblage, 10 of the 17 items are from the Burro Canyon or Dakota Formations; of those 10 items, 2 are chert and the remaining 8 are orthoquartzite. The chert items are the distal portions of a thick biface and a uniface. Two of the eight orthoquartzite tools (a spokeshave and the proximal end of a thin biface) reflect reduction technology; the remaining six orthoquartzite tools are unworked flakes. The assemblage of flaked lithic items also contains 1 uniface manufactured from Morrison orthoquartzite and 3 utilized flakes of Morrison hornfels.

Flaked lithic debitage makes up the majority of the surface artifact assemblage (140 items). There are 4 items of medium-grained material, 63 items of fine-grained material, 45 items of very fine grained material, and 28 items of microscopic-grained material, of which 3 pieces are nonlocal. The fine-grained materials appear to dominate the flaked lithic debitage assemblage.

Nonflaked lithic tools comprise the smallest assemblage of surface artifact. Of the 10 items collected, 5 have been identified as definite tools. This tool assemblage consists of one hammerstone and one trough metate fragment, both of sandstone, and three abrading/grinding stones of igneous material. The hammerstone and 2 of the abrading/grinding stones were complete; the largest abrading/grinding stone was fragmentary.

Distributional/Associational Patterning

Although the surface artifacts collected from north of the canal cut were not used for artifact distribution studies, the heavy concentrations of ceramic and flaked lithic materials were deemed to be of associational importance. Clearing for the canal right-of-way had removed the prehistoric surface in the northern portion of the site and had removed fill and destroyed walls in the north half of Pitstructure 1 (fig. 8.4). Originally, the artifacts north of the canal cut were thought to have been introduced from the undisturbed surface or eroded from some buried cultural horizon. When preliminary investigations exposed the partially burned pitstructure in the canal cut, the reason for the high density of cultural material became apparent. The center of the pitstructure corresponded to the heavy artifact concentration, indicating that these items probably came from the fill of Pitstructure 1.

Disturbance noted over the remainder of the site (south of the 104S line) is primarily related to plowing and grazing activities. However, at least casual removal of surface artifacts by the residents of nearby Big Bend and intentional robbing of rubble to be reused in the construction of buildings in the town might have occurred.

Roper's (1976) study on the displacement of artifacts as a result of prolonged plowing suggests that one can expect to recover items that weigh up to 37 g as far as 1.9 m from their original location, and that the direction of displacement will follow the orientation of the furrows. These figures were taken into consideration at Pozo Hamlet due to the extensive agricultural use evident in the area. While displacement of artifacts within the 4- by 4-m squares might affect density studies at that level, the patterning would be altered very little within the 2464 m² gridded area. The concentrations may have lost their original associations with subsurface features, but in the case of Pozo Hamlet they would be just to the east or west (the direction of the plowing) of their original subsurface association.

In the gridded portion of the site south of the 104S line, ceramics and flaked lithic artifacts from the surface exhibit patterns that suggest a relationship to subsurface features. Two concentrations were observed (figs. 8.5, 8.6, and 8.7). The northernmost concentration is interpreted as being associated with the rooms southwest of the Pitstructure 1. The concentration is attributed to the secondary use of these rooms as middens, not to their original storage function. In the artifact concentration centered around these subsurface features, flaked lithic materials are present, but their heaviest distribution is in an area 16 m southeast of the rooms. Ceramic distribution is heaviest around the rooms, although ceramic artifacts are present in the concentration southeast of the rooms. Based on the artifact assemblages within these concentrations, the trash deposits in the rooms resulted from domestic activities, while the concentration of flaked lithic material to the southeast indicates economic activity.

The heavy artifact concentration southeast of the rooms might be associated with a midden or with sheet trash in that general area. Similar distributions have been interpreted as midden or sheet trash at Tres Bobos Hamlet (Brisbin and Varien 1981) and at Apricot Hamlet (Montgomery 1982), both of which are Sagehen Phase sites in the project area. Perhaps some subsurface feature similar to the borrow area at Tres Bobos Hamlet was present at Pozo Hamlet. Artifacts would accumulate in this type of depression, which would account for the high artifact density.

An alternative interpretation is that, based on the distinct boundary of the concentration and its distance from the pitstructure and surface rooms, this area might have been associated with additional structures. At Chindi Hamlet (Tucker 1983), another Sagehen Phase site, some of the nonmasonry storage rooms were alined roughly east to west, but others were scattered west and southwest of the pitstructure. These rooms were not all contemporaneous; some were filled with trash. The same is true of the pitstructures. A high density of artifacts, especially flaked lithic material, was located south of the main occupation area, such as at Pozo Hamlet. Similar concentrations were noted near some of the rooms in the northern portion of the site. By analogy, this suggests that a larger habitation than is evident might have existed at Pozo Hamlet; additional rooms might have existed both to the south near the artifact concentration, and to the north where the destruction of a portion of the site precludes investigation.

Surface Evidence of Features and Structures

Backhoe trenches were dug at Pozo Hamlet to provide stratigraphic control for any further testing that would be required to define the origins of datable cultural material and for the collection of data relative to the spatial systematics set forth by the migitation design (Knudson et al. 1981).

Building rubble was not present on the modern ground surface. Magnetometer results indicated no subsurface structures in the areas tested, and no observable mounds or depressions indicated the location of structures or features. Therefore, surface artifact density and distribution were used as the basis for the selection of trench locations.

The largest and most varied assemblage of surface artifacts was located near the canal cut. Because of this variety, it was decided to concentrate on this area. A backhoe trench was dug perpendicular to the canal cut to determine if a cultural horizon existed below the modern ground surface. Eventually, 4 trenches were dug; the average width was 0.65 cm, and the deepest trench was 1.5 m below the modern ground surface. These trenches were numbered 1 through 4 (fig. 8.4).

Trench 1 extended 13 m along the 129E line in a southerly direction from the base of the canal cut. The profile exposed in the trench (fig. 8.9) exhibited 2 strata. The sediment in Stratum 1 was a lightly compacted, red-brown loess containing roots from modern flora. It was a combination of slump and water-laid (redeposited eolian) deposits. Stratum 3 was a lightly compacted, light brown silt loam; it has been extensively disturbed by rodent activity. This stratum of sterile sediment forms the alluvial fan on which Pozo Hamlet is located (Leonhardy and Clay 1984a). Following the preliminary stratigraphic investigation of the sediments, the trench was extended an additional 13 m to the south. South of the 104S line Stratum 1 exhibited the same characteristics as those described for the control section of the trench, although it

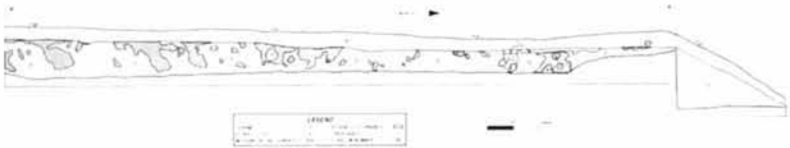

Figure 8.9 – Stratigraphic profile of trench 1, Pozo Hamlet. Location of profile is shown in figure 8.4.

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exhibited a more consistent depth below the modern ground surface (20 to 25 cm) due to plowing activities. Stratum 3 also appeared the same as that found in the control section. This indicated that these strata were probably continuous throughout the site.

However, an additional stratum (Stratum 2) was detected. Its center was located approximately 2.5 m south of the 104S line at a depth of 20 cm below the modern ground surface. Stratum 2 was a 5-cm-thick band of cultural fill extending 1.85 m north to south. The contact with Stratum 1 was highly disturbed by plowing; the contact with Stratum 3 exhibited heavy rodent disturbance. Stratum 2 consisted of moderately compacted, dark brown to black silty clay loam containing significant amounts of charcoal and scattered artifacts.

A 1- by 2-m test unit was excavated to further investigate Stratum 2 (fig. 8.4). The upper 20 to 25 cm of plow zone was removed from the test unit, and the cultural fill was excavated to its contact with Stratum 3, at which point a shallow depression was identified. Stratum 2 characteristics in the test unit were consistent with those observed in the profile. The exposed contact with Stratum 3 was brown to black in color and exhibited greater compaction than the overlying cultural deposit. This greater compaction is attributed to a higher clay content in Stratum 3 and to the use of this surface over an extended period. The limited scope of the test exposed only 1 m along the northern edge of the depression. The compacted surface of the depression rises approximately 5 cm to the north and ends abruptly at the contact with Stratum 1. Following more intensive excavation in the area of Rooms 1, 2, and 3, this depression and the cultural material were identified as the remains and fill of Room 4.

Following the excavation and examination of trench 1, further stratigraphic observation in the area was decided to be necessary. Additional testing was hoped to yield information as to the limits of the prehistoric cultural remains. Since cultural material had been exposed in the northern portion of trench 1, an area to the south was tested. Backhoe trench 2 extended approximately 5 m from the east wall of trench 1 near its southern end (fig. 8.4). The average depth of trench 2 was 90 cm below the modern ground surface. Stratum 1 (plow zone) and Stratum 3 were exposed. To recheck the stratigraphy in the canal cut, trench 3 was dug 12 m east of trench 1 (fig. 8.4). Again, only Strata 1 and 3 were exposed.

Since no additional cultural material was encountered in trenches 2 and 3, a fourth trench was excavated. Trench 4 was begun at the east wall of trench 1, approximately 2 m south of the canal cut (fig. 8.4). It extended 6 m to the east, paralleling the canal cut, and was excavated to a depth of 80 cm below the modern ground surface. At approximately 2 m into the trench, a large disturbance was observed for 1.5 m in both the north and the south walls. The base of the trench was cleaned and examined at this point, and the perimeter of the disturbance could be traced across the trench. The depth of the trench was extended to 1.2 m, and then to 1.5 m, at which point the sterile silt loam of Stratum 3 was exposed. The profile indicated that the disturbed area was a large, pitlike feature, 1.60 m in diameter and at least 1.5 m deep. It had a flat base with vertical walls. The fill below Stratum 1 was a light brown silty loam with inclusions of sherds, lithic artifacts, chunks of adobe, and flecks of charcoal. The fill was removed from the portion of the disturbance north of the trench. A tunnel opening was exposed at the base of the wall in the northernmost extreme of this circular feature. Trench 4 had bisected the ventilator shaft of Pitstructure 1.

Following these test excavations, the plow zone south of the 104S line was removed. This bladed area (fig. 8.4) extended 37.0 m east to west, and 19.5 north to south. Because of the plow zone disturbance, cultural features were consistently detected at approximately 25 cm below the modern ground surface. The blade exposed a large, irregular stain centered near 108S/127E. The stain was dark brown to black in color with sherds and lithic material scattered throughout a silty clay loam matrix. More intensive testing defined portions of nonmasonry Rooms 2 and 3 within the limits of the stain. A more curvilinear stain exhibiting a similar composition was exposed near 112S/121E. Excavation of this stain revealed nonmasonry Room 1. Feature 4, a small circular stain, was exposed approximately 50 cm northwest of Room 1; it was not investigated further. The only other feature exposed during the blading was Feature 5, which was characterized by an oxidized ring at the level of detection. Originally thought to be a hearth, excavation yielded a bell-shaped burned pit with heavily oxidized walls.

Distribution and Patterning

Testing with the backhoe encountered Room 4 in trench 1 and the ventilator shaft of Pitstructure 1 in trench 4. Blading operations south of the canal cut revealed Rooms 1, 2, and 3 and Features 4 and 5. As indicated by the truncated upper fill of Room 4, plowing south of 104S destroyed any prehistoric occupation surfaces that might have existed except those within structures with floors deeper than 25 cm below the modern ground surface. North of the canal cut, all cultural remains at a depth of less than 1.5 m below the modern ground surface have been destroyed or displaced by the construction of Montezuma County Main Canal 2.

All evidence of surface features and structures was southwest of Pitstructure 1. Room 1 was located 12.5 m to the southwest; Rooms 2, 3, and 4 were clustered within a

distance not greater than 7 m from Pitstructure 1. Although Feature 4 was outside the limits of Room 1, the feature might have been associated with the use of the structure. Feature 5 was an isolated pit approximatley 12 m south-southwest of Pitstructure 1.

Contemporaneity is suspected for all the features and structures because of the similarity of ceramic material collected and observed during the preliminary operations conducted at Pozo Hamlet. The presence of the ventilator shaft of Pitstructure 1, the existence of 4 surface rooms assumed to be nonmasonry in construction, and the lack of red wares suggest that this site was an early Anasazi habitation.

INTENSIVE EXCAVATIONS

Intensive excavations were conducted at Pitstructure 1, a domestic structure; Rooms 1, 2, 3, and 4, storage structures located southwest of the pitstructure; and Nonstructural Unit 1, the area south of the 104S line. The nonstructural unit includes the midden fills of the 4 surface rooms; Feature 4, a small, untested feature; and Feature 5, a bell-shaped pit with burning.

General Excavation Procedures

Pitstructure 1 was initially tested with a north-south backhoe trench that passed near the center of the pitstructure. Upon examination of the stratigraphy in the pitstructure fill, it was decided to excavate the entire structure. It was hoped that some of the burned timbers in the roof fall would be suitable for tree-ring dating.

Excavation and mapping of the floor deviated from the procedures that are recommended in the DAP field manual (Kane, Hewitt et al. 1981). The floor was excavated as a single unit rather than being divided into the suggested 1- by 1-m squares. Following the exposure and mapping of the floor and floor features and the removal of point-located floor artifacts, a 2- by 2-m grid was plotted on the floor. This grid consisted of an extension of the site grid system. As a result of the extensive rodent disturbance in the lower fill of the pitstructure, and because of the high priority assigned to the investigation of spatial relationships and the collection of temporally significant data, the collection of materials for pollen and macrobotanical analyses was not implemented.

All 4 surface rooms had trash fills. Due to the heavy rodent disturbance, the excavation priorities to collect spatially and temporally significant data, and the lack of stratification, the screening of these fills as suggested in the field manual was not implemented. Except for Room 4, the rooms were initially investigated using 25-cm-wide trenches that bisected the stains exposed during the blading procedures. The midden in all of the rooms was found to have been deposited directly onto the floors. As explained for Pitstructure 1, the fill in each was investigated as a single excavation unit. To be considered a floor artifact, an item had to be on or near the floor and oriented in such a way to the floor as to suggest its use or storage there. In the case of rodent disturbance, the proximity of the artifact to the floor was the major criterion.

As discussed in the section on preliminary operations, much of Nonstructural Unit 1 was initially bladed. The sole purpose of this mechanized removal of the plow zone was to define the gross spatial characteristics of structures and surface features. The midden in this unit was manually tested in conjunction with the surface room investigation. The only other manual excavation in the nonstructural unit was the investigation of Feature 5, a bell-shaped pit.

Pitstructure 1

Dimensions (variation in dimensions is due to destruction):

Southwall	
length:	4.31 m
greatest height:	1.19 m
West wall	
existing length:	2.25 m
inferred length:	3.10 m
greatest height:	1.09 m
North wall	
existing wall:	0 m
inferred length:	5.30 m
greatest height:	0 m
East wall	
existing length:	2.80 m
inferred length:	3.33 m
greatest height:	1.52 m
Floor area	
main chamber:	16.87 m²
Bench surface area	
existing area:	1.57 m²
inferred area:	3.28 m²
Total roofed area	
main chamber:	20.61 m²

Pitstructure 1 was generally rectangular in plan, although the south, west, and east walls bowed slightly outward (fig. 8.10). In the center of the north wall this bowing was more pronounced.

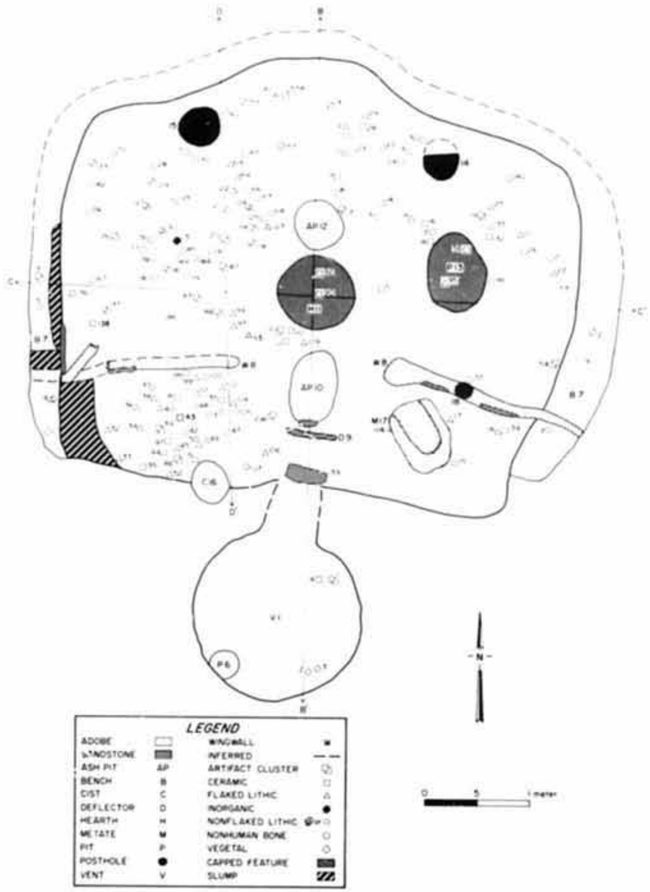

Figure 8.10 - Map of Pitstructure 1, Pozo Hamlet. Profiles B and C are shown in figure 8.12; Profile D is shown in figure 8.13. Refer to tables 8.1 and 8.2 for artifact and feature descriptions, respectively.

Portions of a bench were present along the east and west walls. Along the east wall the bench extended north for 2.45 m; a 2.20-m section remained along the west wall. Beyond these points the bench had been destroyed (fig. 8.11). Pitstructure 1 is inferred to have had a three-quarter bench.

Construction of the walls, the bench, and the floor of Pitstructure 1 appeared to be a continuous process. The walls, the bench surfaces, and the floor of the pitstructure were excavated from the sterile sediments into which the structure had been dug (fig. 8.12). Further manipulation was in evidence along the south wall and the remnant of the east wall. The face of the south wall undulated with small, irregular, high and low areas. Originally, these undulations were thought to be the result of differential erosion of the wall; however, scorching and staining in the undulations indicated they had been present before the pitstructure burned. The surface of the wall was slightly more compacted than the fill within the pitstructure or the natural sediments surrounding the structure. The heat from the burning of the roof might have produced a crust of fire-hardened residue or plaster. However, the compacted surface was probably the result of manually striking the face of the wall. This might have been done to stabilize the wall and prevent slumping of loose soil. The east wall of the pitstructure was heavily eroded and exhibited severe rodent disturbance. The wall appeared to have been compacted, but no plaster was observed during the excavation. Heavy erosion and rodent disturbance in the west wall destroyed any evidence of surface manipulation.

In addition to the bench and ventilation system, the pitstructure exhibited east and west wingwalls, a deflector located south of the wingwall, an inferred four-post roof-support system, a central hearth, and several other floor features.

Stratigraphy

The Pitstructure 1 fill stratigraphy was examined in a north-south backhoe trench that was dug into the canal cut just west of the center of the structure. Three strata were observed in the profile (fig. 8.13). Stratum 1 was divided into Stratum 1 and Stratum 1a.

Stratum 1 was a light brown, loosely compacted loess exhibiting no discernible structure. This stratum was probably slopewash from the top of the canal cut. Heavy rodent and root disturbance was present. Few artifacts were found in Stratum 1, indicating that the surface artifacts collected from north of the canal cut might have originated further upslope along the top of the cut or to the south. However, it was more reasonable to assume that the true origin of these items was the fill of Pitstructure 1, and that they had been moved laterally along the bank when the structure was truncated.

Stratum 1a was a light brown, lightly compacted silt loam exhibiting little structure. The stratum was composed of wind- and water-carried sediments with no readily observable depositional episodes or laminae. This homogeneous deposit had been heavily disturbed by rodent activity and contained no artifacts. The deposit was

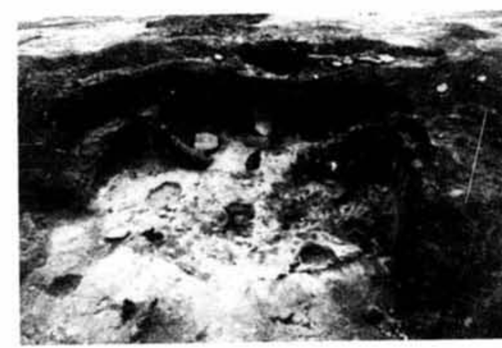

Figure 8.11 - Pitstructure 1, Pozo Hamlet (DAP 104628).

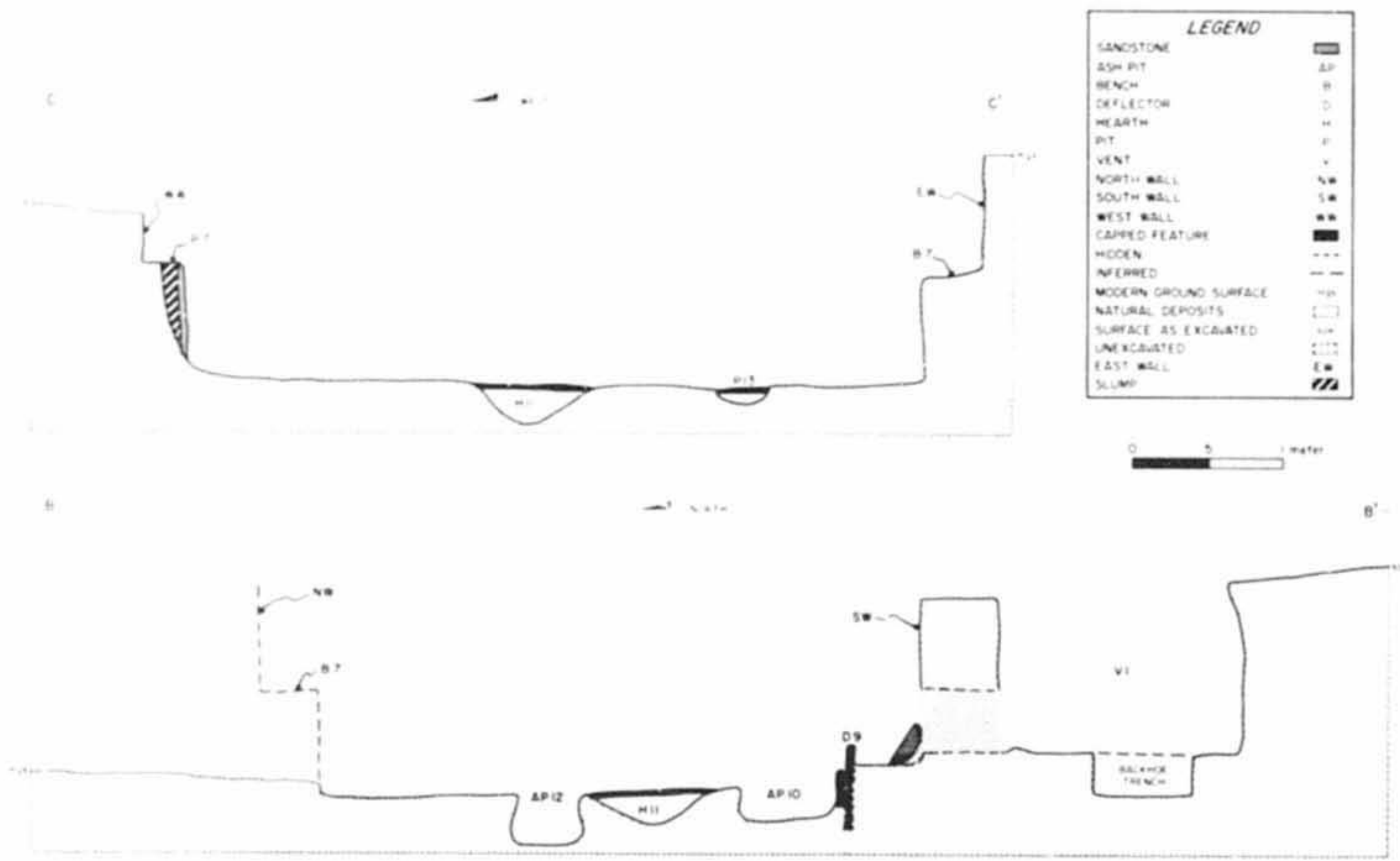

Figure 8.12 - Architectural profiles of Pitstructure 1, Pozo Hamlet. Refer to figure 8.10 for profile locations.

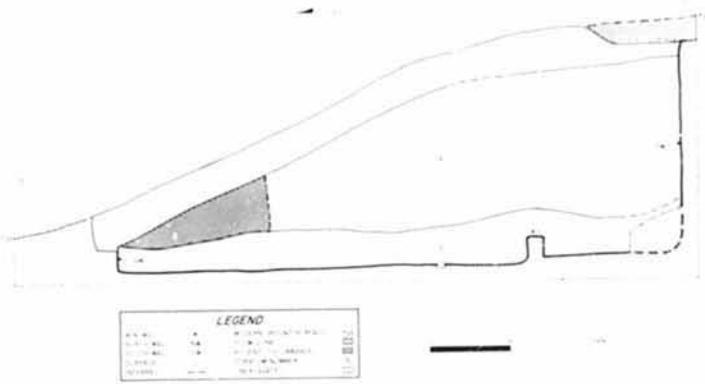

Figure 8.15 - Stratigraphic profile of Pitstructure 1, Pozo Hamlet. Refer to figure 8.10 for profile location.

wedge-shaped; it was thickest (97 cm) near the south wall of the structure, and it pinched out near the north wall. This indicates that prior to the truncation of the pitstructure, this homogeneous silt loam deposit made up the majority of the upper fill and that the overlying Stratum 1 was deposited as a result of the construction of the canal.

Stratum 2 was a mottled orange, brown, and black silty clay loam. Structure and compaction varied due to pockets of granular material. This stratum contained many artifacts and a large amount of building material. The presence of the building material within this stratum immediately led to its identification as Pitstructure 1 roof fall. Stratum 2 directly overlay the floor of the structure. It was 35 cm thick near the south wall and near the east wingwall, but narrowed to 15 cm near the north wall. The narrowing of the stratum near the north wall is attributed to the same processes that truncated the northern portion of the structure.

Roof Fall

Following the removal of Strata 1 and 1a with a backhoe, the roof fall was excavated manually. Stratum 2 contained chunks of oxidized and reduced adobe, portions of burned timbers and smaller closing material, flecks and chunks of charcoal, cobbles, and sandstone slabs.

The adobe was in the form of small concentrations of unburned granules or melt, and in chunks ranging from gravel to fist size. Some of the larger chunks contained casts from vegetal material such as reeds or twigs and small timbers. Charred and noncharred wood collected from the roof fall was identified as *Pinus ponderosa*. Several pieces of the burned timbers were collected for tree-ring analysis. These samples ranged from 4 to 13 cm in diameter.

The timbers were located only in the southern half of the structure with the majority distributed near the wingwall. The north half of the roof fall stratum contained roof debris; however, it was devoid of timbers. Indications were that the roof had been partially dismantled before the remaining material was burned. The largest timbers were found south of the wingwall and none had a length greater than 1 m. Also the lack of a sterile stratum between the roof fall and the floor indicated that the burning of the partially dismantled roof took place during the abandonment of the pitstructure or shortly thereafter.

Roof fall artifacts. – The Stratum 2 artifact assemblage contains 86 sherds, 10 flaked lithic tools, 14 pieces of flaked lithic debitage, 3 nonflaked lithic tools, and 15 fragments of nonhuman bone. The total artifact count of 128 items appears to be small; however, the dominance of certain ceramic vessel forms and flaked lithic tool types seems significant.

Ceramic artifacts. – The majority of the sherds recovered from roof fall originated within the Mesa Verde region (78 out of 86 sherds; appendix XX). Temper in 1 gray ware sherd and 1 white ware sherd could not be classified, and these sherds are assigned to the Indeterminate Culture Category. The remaining 6 non-Mesa Verde sherds are from a white ware bowl and contain sand temper. These sherds are listed as originating in the Kayenta or Cibola regions of the Southwest. Of the Mesa Verde ceramics, 71 of the sherds contain a distinct variety of crushed igneous rock temper that defines the Dolores Manufacturing Tract. These are probably locally manufactured wares. Sandstone temper was found in 2 sherds and the remaining 6 sherds contain a distinct variety of crushed igneous rock. The former sherds are inferred to have originated within the Sandstone Tract to the west and southwest of the project area, and the latter sherds are believed to have originated to the south of the project area in the San Juan Tract (Blinman 1982a).

Pottery types present in the roof fall include Chapin Gray, Early Pueblo Gray, Chapin Black-on-white, Painted White, and Early Pueblo White. All of the Chapin Gray sherds are jar rims, all of the Chapin Black-on-white sherds are from bowls, and all of the other rim (specifiable) white ware sherds were also from bowls. These types can occur at any time within the A.D. 600 to 900 time range, but they are usually associated with red wares after about A.D. 760 (Blinman 1982b). The contents of the roof fall assemblage are similar to the site surface collection except for the surface occurrence of Piedra Black-on-white. This type is believed to occur in the Dolores area after A.D. 760 (Blinman 1984).

Flaked lithic tools. – There are 10 flaked lithic tools from the roof fall of Pitstructure 1 (appendix XX). These items had been manufactured from the following materials: hornfels, which is found in river cobbles and gravels along the flood plain of the Dolores River; chert and chalcedony from the Burro Canyon or Dakota Formations, which outcrop along the Dolores River valley; quartzite, also from the Burro Canyon or Dakota Formations; and nonlocal chalcedony items. Within this collection, 6 of the 10 tools were manufactured from hornfels. These items are 3 unused cores, 2 used cores or cobble tools, and 1 flaked axe that exhibits both unidirectional and bidirectional flaking along the edge. The single chert/chalcedony tool manufactured from Burro Canyon or Dakota Formation material was identified as the distal portion of a well-shaped, corner-notched projectile point. The point had a resinous residue on the proximal end of the fragment. Those tools manufactured from the Burro Canyon/Dakota quartzites are a thin, side-worked uniface that was facially unworked and that retained no cortex, and a thin biface with a completely worked circumference. It had no haft element, and had been secondarily thinned. The one tool of nonlocal chalcedony was identified as the distal fragment of a high-input biface that showed good symmetry and exhibited bidirectional flaking on all remaining edges.

Although 78.6 percent of the total lot weight, or 60 percent of the flaked lithic tool total, is from hornfels, note that 5 of the 6 items of hornfels (50 percent of the item total) are cores and possible hammerstones. Half of the items in the assemblage were identified as cores and hammerstones; the remaining 5 items exhibit technological reduction in the form of edge production. Within this higher input category, 3 of the 5 tools (60 percent of the total) were manufactured from material found in the Burro Canyon and/or Dakota Formations.

Flaked lithic debitage. – The flaked lithic debitage collected from the roof fall of Pitstructure 1 consists of 14 pieces. This assemblage consists of 10 whole flakes from very fine-grained material, 3 of which exhibit cortex; 3 whole fine-grained flakes, 1 of which exhibits cortex; and 1 microscopic-grained flake.

Nonflaked lithic tools. – The nonflaked lithic tool assemblage from the roof fall contains a mano, a two-hand mano exhibiting a single use surface and identified as having been used with a trough metate, and a fragment from the open end of a trough metate. The two-hand mano is nearly complete. It had been shaped by battering or pecking a piece of coarse, well-cemented sandstone. The other mano is nearly complete; it is an unshaped cobble of coarse, igneous material exhibiting horizontal striations produced by grinding. Both of the manos exhibit a flattened cross section. The metate fragment is from a minimally shaped, very thin slab of medium, well-cemented sandstone. A combination of flaking, battering, pecking, and grinding was used to shape the metate.

Although the artifact assemblage from the roof fall contained only 128 items, proportions within the ceramic assemblage and within the flaked lithic tool assemblage may be important. The large numbers of jar sherds (72 percent) and cores (50 percent) are indicative that the pitstructure roof was being used for temporary storage. The presence of corn in the roof fall also adds credence to this inference. The presence of broken tools may be the result of casual discard, while the flaked lithic debitage may be the result of on-the-spot production of a flaked tool.

Nonhuman bone. – The nonhuman bone assemblage recovered from the roof fall consists of 1 item from a medium Mammalia, 8 items from large Mammalia, 3 items from *Lepus* spp., and 1 item each from Cervidae, *Lepus*, and *Sylvilagus*. The medium Mammalia bone and 2 of the large Mammalia bones have been culturally modified (refer to the worked nonhuman bone table in appendix XX).

Floor 1

Dimensions

Main chamber floor	
north length	4.80 m
south length	3.60 m
east length	3.34 m
west length	3.38 m
Area	
north of wingwall	13.37 m²
south of wingwall	3.50 m²
total area	16.87 m²

The floor of Pitstructure 1 was basically rectangular. Its depth below the modern ground surface ranged from 0.40 m in the north to 1.52 m near the southwest corner. The floor was sloped and stepped from south to north.

Like the walls, the floor was compacted; however, this is attributed to use, as opposed to a construction step. The depth of the compaction was approximately 0.5 cm near the center of the room, thinning near the walls. North of the wingwall, the floor was moderately compacted near the center of the main chamber and less compacted along the walls. The floor south of the east wingwall exhibited light compaction in isolated areas. Due to heavy rodent disturbance most of this portion of the floor was no longer intact. The floor south of the west wingwall exhibited no compaction. It was observed during this examination that this portion of Pitstructure 1 had 2 floors. However, it was determined that the presence of the upper floor was related to the partial collapse of the bench south of the west wingwall. Nowhere else in the structure was there evidence of a second floor. When the bench slumped, the inhabitants spread the collapsed soil over the floor rather than removing it from the structure. Beneath the collapsed sediments the original floor was slightly compacted. It is assumed that the area south of the west wingwall was used for the same activities before and after the collapse. The only determination that could be made was that the collapse took place during the use of the pitstructure and not after abandonment.

The floor did not appear to be plastered. However, some adobe had been applied around the base of the deflector slab (Feature 9) and along the base of the north face of the east wingwall (Feature 8). A small amount of adobe plaster or wash was likely applied to pits for stability. If the local sediments had been used for this plaster, they have since been absorbed into the surrounding fill and floor through the actions of both water saturation and mixing by rodents.

The color of the floor ranged from grayish brown near the walls and south of the wingwall to black in the center of the main chamber. The blackened floor area near the center is attributed to contact with charred roof material. The area along the northern edge of the floor was lightest in color. This is attributed to a combination of disturbance and the small amount of burned roof debris in the fill directly above the northern portion of the floor.

Due to rodent disturbance, Floor 1 was not completely intact. However, the presence of roof fall in contact with the floor indicated that artifact material on that floor would be found in situ. Due to the sealed nature of this cultural deposit, important information concerning economic and domestic activities might be recovered at Pozo Hamlet. Assuming that all features and structures at Pozo Hamlet belong to a single occupation, datable material collected from the roof fall helps to establish a date not only for the activities that took place in Pitstructure 1, but also for related activities that might have taken place on the rest of the site.

Excavation of the floor was accomplished using trowels and other small hand tools. Because of the possibility that additional datable material was present, a balk of fill had been left on the floor during the removal of the upper fill with the backhoe. This balk was removed in small sections to expose the floor. The floor artifacts were then point located and collected.

Due to rodent disturbance, assignment of artifacts to floor contexts was left to the discretion of the individual excavators. If artifacts found in disturbed areas of the floor seemed to be associated with nearby floor artifacts, the item was normally point located. The artifacts were assigned to roof fall if they were similar to items in that fill above the floor. If doubt existed as to the proper context, the items were point located as part of the floor assemblage.

Floor artifacts – Listed on table 8.1 are 140 point-located artifacts or artifact clusters. The first 4 entries are from the floor of the ventilator shaft (Feature 1). The remaining point-located items were collected from the floor of the main chamber. Seven artifacts collected from the surface of the bench (Feature 7) were point located in a separate sequence. Only the artifacts collected from the main chamber will be discussed in this section. Those items from the ventilator shaft and the bench will be discussed in those feature descriptions.

Ceramic artifacts – The 53 ceramic point locations on the floor of the main chamber of Pitstructure 1 represent a total of 121 sherds. Temper within 1 sherd could not be classified, but the remainder of the sherds are attributed to the Mesa Verde Culture Category. All but 1 of the Mesa Verde sherds contain the crushed igneous rock temper that is characteristic of the Dolores Manufacturing Tract, and these are interpreted as locally manufactured wares. The remaining sherd contains the variety of

Table 8.1 – Point-located artifacts, Floor 1, Pitstructure 1, Pozo Hamlet

PL No.	Material class	Item description
5	Ceramic	DL Early Pueblo Gray jar sherd
6	Nonhuman bone	Mammalia, large
7	Ceramic	DL Early Pueblo Gray jar sherds (4)
8	Nonflaked lithic	Not culturally modified
9	Ceramic	DL Early Pueblo Gray jar sherd
10	Flaked lithic	Debitage
11	Nonhuman bone	*Lepus*
12	Flaked lithic	Debitage
13	Ceramic	DL Early Pueblo Gray jar sherds (2)
14	Flaked lithic	Debitage
15	Flaked lithic	Debitage
16	Ceramic	DL Early Pueblo Gray jar sherd
17	Nonhuman bone	*Sylvilagus*
18	Ceramic	DL Early Pueblo Gray jar sherd
19	Ceramic	DL Early Pueblo Gray jar sherds (3)
20	Flaked lithic	Debitage
21	Nonhuman bone	Mammalia, large – punch/pressure flaker
22	Flaked lithic	Debitage
23	Ceramic	DL Early Pueblo Gray jar sherd
24	Ceramic	DL Early Pueblo Gray jar sherd
25	Flaked lithic	Utilized flake
26	Ceramic	DL Early Pueblo Gray jar sherd
27	Flaked lithic	Used core
28	Ceramic	DL Early Pueblo Gray jar sherd
29	Flaked lithic	Debitage
30	Nonhuman bone	Mammalia, small
31	Flaked lithic	Debitage
32	Flaked lithic	Debitage
33	Flaked lithic	Debitage
34	Flaked lithic	Utilized flake
35	Ceramic	DL Early Pueblo Gray jar sherd
36	Flaked lithic	Thick biface
37	Nonflaked lithic	Polishing stone
38	Flaked lithic	Thin uniface
39	Ceramic	DL Chapin Gray jar sherds (3)
40	Flaked lithic	Cobble tool
41	Ceramic	DL Early Pueblo Gray jar sherd
42	Nonflaked lithic	Polishing stone
43	Ceramic	DL Early Pueblo Gray jar sherd
44	Flaked lithic	Thick uniface
45	Flaked lithic	Utilized flake
46	Ceramic	DL Chapin Gray jar sherds (4)
47	Ceramic	DL Chapin Gray jar sherds (2)
48	Flaked lithic	Debitage
49	Flaked lithic	Thick biface
50	Flaked lithic	Unused core
51	Flaked lithic	Thick uniface
52	Flaked lithic	Uniface fragment
53	Ceramic	DL Chapin Black-on-white bowl sherd
54	Ceramic	DL Early Pueblo Gray jar sherds (2)
55	Nonhuman bone	Cervidae – edged tool
56	Ceramic	DL Polished White bowl sherd

Table 8.1 - Point-located artifacts, Floor 1, Pitstructure 1, Pozo Hamlet - Continued

PL No.	Material class	Item description
57	Ceramic	DL Early Pueblo Gray jar sherd
		DL Painted White bowl sherds (3)
		IN Early Pueblo Gray jar sherd
		DL Chapin Gray seed jar sherds (2)
58	Ceramic	DL Chapin Gray seed jar sherds (5)
59	Ceramic	DL Early Pueblo Gray jar sherds (5)
60	Flaked lithic	Debitage
61	Flaked lithic	Debitage
62	Flaked lithic	Debitage
63	Flaked lithic	Debitage
64	Flaked lithic	Debitage
65	Ceramic	DL Early Pueblo Gray jar sherd
66	Ceramic	DL Early Pueblo Gray jar sherd
67	Ceramic	DL Early Pueblo Gray jar sherd
68	Flaked lithic	Thick biface
69	Flaked lithic	Debitage
70	Ceramic	DL Early Pueblo Gray jar sherd
71	Flaked lithic	Utilized flake
72	Flaked lithic	Debitage
73	Ceramic	DL Early Pueblo Gray jar sherds (3)
74	Nonflaked lithic	Not culturally modified
75	Ceramic	DL Early Pueblo Gray jar sherds (2)
76	Nonflaked lithic	Minimally altered item
77	Vegetal	*Zea mays* cupule, charred
		Zea mays cob fragments, charred (5)
78	Ceramic	SJ Chapin Gray bowl sherd
79	Nonflaked lithic	Not culturally modified
80	Ceramic	DL Early Pueblo Gray jar sherd
81	Nonhuman bone	Mammalia, large (3)
82	Vegetal	Twined item made from 2-ply cordage, (*Yucca*) fiber; RV 1
83	Ceramic	DL Early Pueblo Gray jar sherds (2)
84	Flaked lithic	Debitage
85	Ceramic	DL Painted White bowl sherd
86	Nonflaked lithic	Two-hand mano
87	Ceramic	DL Early Pueblo Gray jar sherds (4)
88	Ceramic	DL Early Pueblo Gray jar sherds (2)
89	Ceramic	DL Early Pueblo Gray jar sherd
90	Ceramic	DL Early Pueblo Gray jar sherds (2)
91	Ceramic	DL Early Pueblo Gray jar sherd
		DL Chapin Black-on-white bowl sherd
92	Ceramic	DL Early Pueblo Gray jar sherd
93	Flaked lithic	Debitage
94	Flaked lithic	Debitage
95	Flaked lithic	Debitage
96	Nonflaked lithic	Hammerstone
97	Ceramic	DL Early Pueblo Gray jar sherd
98	Ceramic	DL Early Pueblo Gray jar sherd
99	Flaked lithic	Debitage
100	Nonflaked lithic	Two-hand mano
101	Flaked lithic	Unused core
102	Flaked lithic	Cobble tool
103	Flaked lithic	Debitage

Table 8.1 - Point-located artifacts, Floor 1, Pitstructure 1, Pozo Hamlet - Continued

PL No.	Material class	Item description
104	Flaked lithic	Debitage
105	Nonhuman bone	*Sylvilagus*
106	Flaked lithic	Debitage
107	Nonflaked lithic	Hammerstone
108	Ceramic	DL Early Pueblo Gray jar sherds (12); vessel 1
		DL Early Pueblo Gray jar sherds (3)
		DL Chapin Gray jar sherd; vessel 1
109	Flaked lithic	Utilized flake
110	Ceramic	DL Polished White jar sherd
111	Ceramic	DL Early Pueblo Gray jar sherd
112	Ceramic	DL Early Pueblo Gray jar sherds (4)
113	Flaked lithic	Used core
114	Nonflaked lithic	Trough metate (Feature 1)
115	Nonflaked lithic	Two-hand mano
116	Flaked lithic	Unused core
117	Flaked lithic	Used core
118	Ceramic	DL Early Pueblo Gray jar sherds (3)
119	Nonhuman bone	Artiodactyla (5)
		Mammalia, large
120	Ceramic	DL Painted White bowl sherds (3)
121	Nonhuman bone	Artiodactyla (2)
122	Nonhuman bone	*Lepus* (5)
		Sylvilagus
123	Flaked lithic	Debitage (3)
124	Flaked lithic	Debitage (33)
125	Ceramic	DL Early Pueblo Gray jar sherd
126	Ceramic	DL Early Pueblo Gray jar sherds (7)
127	Flaked lithic	Debitage (3)
128	Flaked lithic	Debitage
129	Ceramic	DL Early Pueblo Gray jar sherds (2)
130	Flaked lithic	Debitage (11)
131	Inorganic	Limonite
132	Ceramic	DL Early Pueblo Gray jar sherd
133	Flaked lithic	Debitage
134	Ceramic	DL Early Pueblo Gray jar sherd
135	Ceramic	DL Early Pueblo Gray jar sherd
136	Nonflaked lithic	Bead
137	Nonhuman bone	Mammalia, large (6)
		Artiodactyla (3)
		Lepus - tool fragment
138	Nonhuman bone	Mammalia, medium
139	Nonflaked lithic	Trough metate
140	Nonflaked lithic	Lapstone
141	Vegetal	Indeterminate charred plant material (not mapped)

RV numbers are assigned to worked vegetal materials on a site-wide basis. PL numbers not listed represent items later determined not to be associated with the floor. Refer to figure 8.10 for artifact locations.

DL - Dolores Manufacturing Tract
SJ - San Juan Manufacturing Tract
IN - Indeterminate affiliation
(N) - Number of items

crushed igneous rock temper that is used to identify ceramics from the San Juan Tract. Vessels with this temper are believed to have been manufactured to the south of the project area.

Pottery types present on the floor include Chapin Gray (A.D. 600-925), Early Pueblo Gray (A.D. 600-950), Chapin Black-on-white (A.D. 600-800), Painted White (A.D. 600-800), and Polished White (beginning about A.D. 700) (Blinman 1984). Red ware sherds are again absent, and this assemblage is contemporary with that of the roof fall.

Some of the Chapin Gray sherds were derived from a partial seed jar (7 sherds, PL 58) and a cooking or storage jar (13 sherds, PL 108); other jar sherds were not attributed to specific vessels. All but 2 of the white ware sherds, including the San Juan Tract sherd, were from bowls; the 2 other white ware sherds were from jars. For all sherds from all wares, 101 (83.5 percent) sherds were from jars, 7 sherds (5.8 percent) could be identified as coming from seed jars, and 13 sherds (10.7 percent) came from bowls.

Flaked lithic tools. Twenty point-located flaked lithic tools are from the floor of Pitstructure 1. Of the 20 tools, 19 are complete. Sixteen tools (80 percent) are manufactured from locally available hornfels. The hornfels tools consist of 3 utilized flakes, 3 cores, 2 used cores, 2 cobble tools, 2 thick unifaces, 1 thin uniface, 2 thick bifaces, and 1 uniface fragment. The 4 remaining flaked lithic tools are one used core of Morrison orthoquartzite, 1 utilized flake of orthoquartzite from the Burro Canyon or Dakota Formation, 1 thick biface manufactured from an unspecified chert, and 1 utilized flake of nonlocal obsidian.

Most of the flaked lithic tools (12 of the 20) were located south of the west wingwall. The remaining tools were scattered across the floor. One core and one used core were located south of the east wingwall. From north of the wingwalls, 3 utilized flakes, 1 biface, 1 used core, and 1 core were collected.

Within the flaked lithic tool assemblage 13 items were identified as low-production-input tools, and 8 tools exhibit production input but no facial thinning in their manufacture. Ten of the 13 low-input items were manufactured from hornfels, and 6 of the 8 higher-input items were made from hornfels. The only high-input item not of hornfels is a chert biface (PL 68). The majority of flaked lithic tools from both the floor and the roof fall are low-input items made from hornfels.

Flaked lithic debitage. A total of 78 pieces of flaked lithic debitage was point located on Floor 1. This assemblage consists of 6 fine-grained items, 70 very fine grained items, and 2 microscopic-grained items. The proportion of item count to lot weight found in the flaked debitage clusters indicates that the majority of items within the clusters are small flakes. Four clusters of very small flakes were located west of an ash pit (Feature 12) within an area of approximately 65 cm (fig. 8.10).

Nonflaked lithic tools. A total of 15 nonflaked lithic items was point located on the floor of the main chamber. Within the nonflaked lithic assemblage, 3 items (PL's 8, 74, and 79) were indentified as culturally introduced; however, no further identification could be made. A broken cobble (PL 76) was considered questionable as a nonflaked lithic tool. Including the broken cobble, 12 nonflaked lithic items were defined as tools.

Within the tool assemblage 7 items were produced from well cemented sandstone slabs or cobbles, 2 tools were produced from mafic-silicic cobbles, 2 tools were produced from felsic-silicic cobbles, and 1 tool was from a microcrystalline cobble. All tools, except the broken cobble and a metate fragment (PL 139), were complete or nearly so. Within the assemblage of nonflaked lithic tools only the 3 manos (PL's 86, 100 and 115), the 2 metates (PL's 114 and 139), and a bead (PL 136) exhibited modification in the form of flaking, pecking or grinding. The 2 hammerstones (PL's 96 and 107), 1 lapstone (PL 140), and 2 polishing stones (PL's 42 and 37) had been used without modification.

Only 5 of the 12 point-located nonflaked lithic tools were found north of the wingwall. These are a two-hand mano (PL 86), a hammerstone (PL 96), the lapstone (PL 140), the bead (PL 136), and the minimally altered cobble (PL 76). The remaining point-located nonflaked lithic tools were found south of the wingwall. South of the east wingwall the one complete metate and an accompanying mano (PL 115) were located. These 2 in situ artifacts were designated Feature 17. A broken metate (PL 139) was found leaning against the ventilator tunnel (Feature 1) opening (fig. 8.14). This item might have been reused as

Figure 8.14 – In situ metate (Feature 17) and possible ventilator tunnel cover, Pitstructure 1, Pozo Hamlet (DAP 104630).

a ventilator tunnel cover. The 4 tools found south of the west wingwall are 1 two-hand mano (PL 100), a hammerstone (PL 107), and 2 polishing stones (PL's 37 and 42).

Nonhuman bone. The nonhuman bone assemblage collected from the floor of Pitstructure 1 contained 35 pieces. The readily identifiable items are 1 punch/pressure flaker (PL 21) and long bones from large mammals (PL 119 and PL 121). The punch/pressure flaker was found near the east wall. The long bone fragments from large mammals were found just west of an ash pit (Feature 12). The remaining bone fragments were scattered, exhibiting no observable significant position or association. A single rodent bone (PL 105) was recovered from south of the wingwall; it appears to be intrusive.

Vegetal material. Point-located vegetal material includes 5 corn cob fragments (PL 77) and charred pieces of twined *Yucca* fiber (PL 82, RV 1). Both the corn cob fragments and the twined material were collected from the northwest quadrant of the floor.

Inorganic items. The only point-located inorganic item is a limonite nodule (PL 131). Its use, if any, is unknown.

Features. – Fourteen features were exposed during the excavation of Pitstructure 1. All of the features were tested or fully excavated. A feature summary is presented in table 8.2. Because of heavy rodent disturbance, flotation sampling was not implemented.

Ventilation system (Feature 1). The ventilation system was dug into natural sediments approximately 55 cm south of Pitstructure 1 (fig. 8.10). The circular ventilator shaft was connected to the main chamber by a 53-cm-long tunnel. Although the tunnel was not excavated, certain attributes were observable. The tunnel opening in the south wall of the pitstructure was rectangular, approximately 42 cm wide and 45 cm in height. The base of the tunnel opening was set approximately 8 to 10 cm above the floor (fig. 8.15). The tunnel opened into the shaft with a width of 55 cm and a height of 45 cm.

Although the walls of the shaft exhibited no manipulation, they probably had been compacted for stabilization. A portion of the tunnel wall exposed during the excavation of the shaft exhibited slight reddening and compaction. The oxidation may have been the result of a construction technique using fire and heat to stabilize the tunnel walls. However, the oxidation might also have been produced when the pitstructure was burned. The

Table 8.2 – Feature summary, Floor 1, Pitstructure 1, Pozo Hamlet

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/Height (cm)
1	Ventilation system	Complex	Complex	207	167	124
	Tunnel	Rectangular	Rectangular	53	42	45
	Shaft	Round	Cylindrical	154	167	124
6	Unburned pit	Round	Basin	25	25	11
7	Bench	U-shaped	Rectangular	440	43	76
8	Wingwall	Complex	Rectangular	295	10	79
9	Deflector	Rectangular	Rectangular	43	4	19
10	Ash pit	Oval	Basin	63	50	20
11	Hearth	Round	Basin	78	73	23
12	Ash pit	Round	Bell	47	44	17
13	Unburned pit	Oval	Basin	76	54	14
14	Posthole	Round		30	30	
15	Posthole	Round		25	25	
16	Floor cist	Round	Basin	46	39	13
17	In situ metate (PL 114)	n.a.	n.a.	64	45	10
18	Posthole	Round		14	14	

Refer to figure 8.10 for feature locations.
– Information not available
n.a. – Not applicable

Figure 8.15 – Ventilation system, Pitstructure 1, Pozo Hamlet (DAP 104632).

floor of the shaft was constructed in the same manner as the walls. Although the surface undulated because of rodent disturbance, remnants of compacted areas were observed. This suggests that the floor was compacted for stability. The construction of the ventilator shaft roof could not be determined.

Fill. In the discussion of trench 4 in the section on preliminary operations, it was explained that not all of the strata in the ventilator shaft fill were clearly definable. However, the 4 most obvious strata were defined in hopes of documenting any possible postabandonment events. Stratum 1, a light brown to reddish silt loam, made up the majority of the fill. It extended from the base of the plow zone to 1 or 2 cm above the floor of the ventilator shaft; it contained a few inclusions of charcoal, adobe, and artifacts. However, moderate amounts of cultural material were noted in Strata 2 and 3, and in the portion of Stratum 1 just above the base of the shaft.

Primarily, Strata 2 and 3 were lenses attributed to erosional deposition and rodent disturbance. These 2 strata are thought to be noncultural due to the lenslike pattern and the adjacent rodent disturbance. Stratum 4 was the thin, 1- to 2-cm deposit of red sand on the floor of the ventilator shaft. This thin band has been interpreted to be wind-blown material that collected on the floor during the use of the ventilation system.

Few artifacts were found in the upper fill; the majority was found near the bottom. The artifact assemblage from the postabandonment fill of the ventilator shaft contains 38 sherds, 5 flaked lithic tools, 6 pieces of flaked lithic debitage, and 11 nonflaked lithic tools.

All sherds collected from the fill are from the Mesa Verde Culture Category. A variety of crushed igneous rock temper that defines the Dolores Manufacturing Tract was found in 31 (87.1 percent) of the sherds. These items were probably manufactured locally. Within the Dolores Tract materials, 3 sherds are from Chapin Gray jars, 1 sherd is from a Chapin Gray seed jar, and 27 sherds are from Early Pueblo Gray jars. Another variety of crushed rock temper was found in 4 sherds (10.5 percent of the ceramic assemblage), identifying them as having originated in the San Juan Manufacturing Tract, south of the project area. Three San Juan Tract sherds are from Chapin Gray seed jars, and one sherd is from an Early Pueblo Gray jar. Two Chapin Gray jar sherds (6.5 percent) contain conglomerate temper. Lucius (1981a) suggests that vessels with this temper type are from the Cabone Tract west of the project area. One Early Pueblo Gray jar sherd (1.2 percent) contains a crushed quartz temper that Lucius (1981a) suggests is found in the Animas Tract, east of the project area.

Thirty-four of the sherds (93.6 percent) collected from the fill of the ventilator shaft were portions of jars, and four sherds (6.4 percent) were portions of seed jars. The vessels from which these sherds came were either Chapin Gray or Early Pueblo Gray. Chapin Gray is present in the project area from A.D. 600 to 925, and Early Pueblo Gray is common from A.D. 600 to 950 (Blinman 1984).

Five flaked lithic tools were collected from the fill of the ventilator shaft. Two of these items are used cores; 1 is of hornfels and 1 is of chert from the Morrison Formation. The 3 remaining items in the assemblage were manufactured from material from either the Burro Canyon or the Dakota Formation. Two of these tools were made from Burro Canyon Chert-chalcedony; one is a thick multiple-edge uniface and the other is the distal portion of a projectile point. The third tool of Burro Canyon or Dakota material is a utilized flake of orthoquartzite.

The flaked lithic debitage assemblage from the fill contains 6 items. Within this collection are 2 whole, medium-grained flakes, 1 whole, fine-grained flake, 2 very fine-grained flakes, 1 of which is whole, and 1 whole microscopic-grained flake.

The nonflaked lithic tool collection from the fill of the ventilator shaft consists of 10 items. Of the 10, 6 are metates. Only one metate is complete. It could not be determined if any of the remaining 5 metate fragments are from the same items. All 6 metates were produced from slabs of either medium- or coarse-grained sandstone. The whole metate does not fit the DAP definition of slab, basin, or trough forms. Three of the fragments are from the open ends of trough metates, 1 fragment is from the closed end of a trough metate, and 1 fragment could not be identified as to metate type or section.

The remaining 4 tools in the nonflaked lithic tool collection were all from cobbles. These consisted of 1 mano of coarse-grained, well-cemented sandstone, 1 mano of coarse-grained felsic-silicic material, 1 hammerstone of coarse-grained, mafic material, and 1 flat-surface abrading grinding stone of medium-grained, felsic-silicic material. The manos are not typical one-hand or two-hand manos, but they do exhibit minimal shaping and striations from grinding. The hammerstone and abrading grinding stone were both used in natural cobble form.

The processes involved in the introduction of the artifacts into the fill of the ventilator shaft were probably varied. The ceramic material appears to have been both thrown into the shaft during abandonment activity and washed into the shaft after abandonment. It is believed that the flaked lithic tools and debitage were introduced by the same processes. The presence of the 5 metate fragments and the 1 whole metate in the lower fill of the ventilator shaft suggests intentional dumping. The possibility of the metates collapsing into the ventilator shaft sometime after abandonment also exists. Due to the absence of structural remains from the roof of the shaft, determining whether the material collected from the fill had been part of the roof or was lying upon it is impossible.

Floor. Artifacts that were point located on the floor of the ventilator shaft (table 8.3) are not considered to be associated with the use of the feature. The shaped sandstone slab (PL 3) might have been associated with the structural members of the ventilator shaft roof. The fragmentary condition of the slab prevents further analysis.

Unburned pit (Feature 6). The only feature exposed in the ventilator shaft was a small, burned pit of indeterminate function. The pit was a circular basin dug into the floor near the southwest wall of the ventilator shaft. The fill was light brown, lightly compacted silt containing no inclusions. In contrast, the fill of the ventilator shaft and the nearby rodent runs at least had inclusions of charcoal flecks. This suggests that the clean fill in the pit was cultural. This small pit might have been used as a pot rest, or it could have been a socket in which the base of a small ladder was lodged.

Bench (Feature 7). The dimensions listed in table 8.2 for this feature are existing dimensions. The 440-cm length is the sum of the length remaining along the east wall (180 cm) and the length along the west wall (260 cm). The 43-cm width was the greatest width exhibited by the east bench. The greatest width exhibited by the west bench was 20 cm. The narrow west bench width is attributed to the partial collapse of the bench north and south of the west wingwall. The bench height is an average of the east (73 cm) and west (79 cm) bench measurements.

As mentioned in the discussion of the construction of Pitstructure 1, the bench, walls, and floor are assumed to have been sculpted from the sterile alluvial sediments as one step in the construction of the pitstructure. This step was presumably followed by manually compacting all surfaces. Following the compaction of the bench, a thin (4 mm) coat of plaster is assumed to have been applied. The only evidence of plaster was found on the vertical face of the bench along the east wall of the structure. The plaster appears to have been smeared over the compacted sterile soil and then smoothed for aesthetic purposes. The existing plaster was hard to the touch and exhibited extensive fracture lines. The hardness is due, in part, to the burning of the razed roof. However, it is felt that if the base material used in the plaster is the silt loam found on the site, a bonding agent would probably have been added to preserve the plaster. Material can either be added to increase bondable surface area within the mortar or to act chemically with existing particles to cement them together or fill the spaces between particles to cement them together (Tipps 1978; also Breternitz 1975 and Goulding 1976).

The west bench exhibited problems that might have been created by moisture. The west bench was only 20 cm wide due to the collapse. An early collapse of the bench is suggested by the presence of an upright slab just north of the west wingwall where it abuts the west bench (fig. 8.10). This slab was approximately 70 cm high, 65 cm long, and 5 cm thick. A cross section of the bench at the

Table 8.3 – Point-located artifacts, Feature 1, Pitstructure 1, Pozo Hamlet

PL No.	Material class	Item description
1	Nonhuman bone	*Lepus* (2)
2	Nonflaked lithic	Not culturally modified
3	Nonflaked lithic	Shaped stone slab
4	Ceramic	DL Early Pueblo Gray jar sherd

Refer to figure 8.10 artifact locations.
(N) – Number of items.
DL – Dolores Manufacturing Tract.

north edge of the slab (fig. 8.12) exposed a wedge of clean fill behind the slab. Three additional sandstone slabs were found lying on the floor north of the upright slab. The linear arrangement of these slabs on the floor, coupled with the evidence of slumping north of the upright slab, indicates that the 3 slabs had once been upright along the face of the west bench. These slabs had been mortared into place following a partial collapse of the original bench. This appears to have been done not only to restore the original lines of the bench, but also to stabilize the bench against further deterioration. These slabs were probably upright when the pitstructure was abandoned and burned, since scorching was present only on the underside of the stone.

Note that the bench south of the west wingwall was also partially collapsed, as discussed in the Floor 1 description. This portion of the bench had never been reconstructed. The heavy concentration of artifacts on the floor near the slump indicates that the collapse and restoration of the portion north of the wingwall might have taken place quite some time before the abandonment of the structure.

The surface of the bench exhibited severe erosion and extensive rodent disturbance. Due to the disturbance, plastering of the bench surface cannot be documented. However, the presence of plaster on the face of the east bench suggests that the same material was probably applied to this surface as well.

Features such as stringer sockets were not found on the bench surface. By analogy, however, they are likely to have been present. Stringer sockets were observed in Pitstructure 1 at Tres Bobos Hamlet (Brisbin and Varien 1993), Pitstructure 2 at Windy Wheat Hamlet (Brisbin 1984), Pitstructure 1 in Area 1 of Rio Vista Village (Wilshusen 1984), as well as other Sagehen Phase Pitstructures in the project area. Their absence in Pitstructure 1 at Pozo Hamlet may be due to their obliteration by erosion and rodent activity. They may have been overlooked due to the fast pace set to complete the testing.

A list of the point-located artifacts or artifact clusters on the bench appears in table 8.4. A total of 6 ceramic artifacts was recovered from the bench. Three sherds from the east bench (PL 2) are from an Early Pueblo Gray jar; those from the west bench (PL 3) are from a Chapin Gray jar.

Only one flaked lithic tool (see PL 8) was found on the bench. The tool is a utilized flake of hornfels.

The other item in PL 8 is a piece of debitage of very fine-grained material. This item is not associated with the utilized flake other than in their proximity.

The nonflaked lithic tools point located on the bench are all complete items. All the tools are from cobbles, and only 1, an abrading grinding stone (PL 9), exhibits modification. A mano (PL 6) found on the west bench is an unmodified cobble of coarse-grained, felsic, silicic material. An abrading grinding stone (PL 7) was found on the east bench south of the wingwall. This abrading grinding stone is from a cobble of coarse-grained, mafic material. Another abrading grinding stone (PL 9) was found on the east bench. This item was produced from a cobble of igneous material.

Table 8.4. Point-located artifacts, Feature 7, Pitstructure 1, Pozo Hamlet

PL No.	Material class	Item description
1	Vegetal	*Phragmites* stem (< 1 g)
		Juniperus wood, charred (< 1 g)
		Zea mays fruit, charred (11.2 g)
2	Ceramic	DL Early Pueblo Gray jar sherds (3)
3	Ceramic	DL Chapin Gray jar sherds (3)
6	Nonflaked lithic	Mano
7	Nonflaked lithic	Abrading grinding stone
8	Flaked lithic	Debitage
		Utilized flake
9	Nonflaked lithic	Abrading grinding stone

PL numbers not listed represent items later determined not to be associated with the surface. Refer to figure 8.10 for artifact locations.
DL = Dolores Manufacturing Tract
(g) = Weight in grams
(N) = Number of items

Charred vegetal material found on the west bench near the southwest corner of the pitstructure consisted of 11.2 g of corn kernels, fragments of *Juniperus* wood, and part of a *Phragmites* stem. The *Juniperus* and *Phragmites* might have been part of the pitstructure roofing material.

Although stringer sockets were not found on the bench surface, the possibility still exists that the bench surface was used as a foundation for small roof stringers around the edge of the main roof construction. A secondary use of the bench is indicated by the presence of 3 complete nonflaked lithic tools and 1 complete flaked lithic tool. The tools do not appear to be associated with each other or with artifacts or features on the floor. This lack of association rules out processing and manufacturing activities; however, these portions of the bench were probably used for temporary storage of such items. The missing portion of the bench was probably used for similar purposes.

Data from 2 project-area habitations presumed to be contemporaneous with Pozo Hamlet suggest that Pitstructure 1 varies slightly from the normal architectural style of Sagehen Phase pitstructures. Pitstructure 3 at Windy Wheat Hamlet (Brisbin 1984) and Pitstructure 2 at Aldea Sierritas (Kuckelman 1983) have ventilators like that in Pitstructure 1 at Pozo Hamlet, but they exhibit a marked absence of benches. The earlier Tres Bobos Subphase (A.D. 600–700) pitstructures frequently exhibit three-quarter benches; however, these pitstructures have an antechamber incorporated into their architectural style. The Dos Casas Subphase (A.D. 760–850) pitstructures such as Pitstructures 1 and 2 at Windy Wheat Hamlet and Pitstructure 1 in Area 1 at Rio Vista Village (Fields and Nelson 1986) are described as having three-quarter benches and ventilator shafts. However, ceramic dating suggests that Pozo Hamlet is earlier than the Dos Casas Subphase. The point to be made is that Sagehen Phase pitstructures with benches tend to have three-quarter benches; therefore, Pitstructure 1 at Pozo Hamlet is inferred to have had a three-quarter bench.

Wingwall, Feature 5. The wingwall consisted of an east and a west section. These sections exhibited a large amount of deterioration from erosion and collapse. However, enough remained to enable close approximations to be drawn as to their original characteristics and placement. The east and west wingwall sections were separate constructions; they were not associated with the construction of the outer walls, the bench, or the floor of the pithouse.

The east wingwall abutted the bench 1 m north of the southeast corner of the pitstructure (fig. 8.10). An extension of the wingwall was constructed on top of the bench, abutting the east wall of the structure. The east wingwall angled slightly to the north, extending 1.5 m into the center of the main chamber. The greatest height, measured near the abutment with the east bench, was 1 m above the floor. The height of the small extension over the bench averaged 20 cm from the bench surface. The thickness of the east wingwall ranged from 30 cm near the wall of the pithouse to approximately 18 cm at the southeast main support post (Feature 18).

The west wingwall exhibited more severe deterioration. However, from the remains it was noted that the design and placement were equivalent to the east wingwall. Although much of the west wingwall had collapsed, a remnant remained near its abutment with the west bench, 90 cm north of the south wall of the structure. An extension of the wingwall over the west bench to the west wall was suggested by a mass of adobe that had fallen northward onto the bench surface. Although this section of fallen material was not intact, the original position of the extension was estimated. Similar to the east wingwall, the west section angled slightly to the north as it extended into the main chamber. The exact length was not established due to severe collapse; however, an estimated length of 150 to 160 cm has been recorded.

The east wingwall and the remnants of the west wingwall showed evidence of similar construction techniques. The wingwall exhibited a composite construction of upright sandstone slabs, adobe, and plaster. Each section incorporated a roof support post in its construction.

In the case of the east wingwall, 2 small slabs, approximately 40 cm high, 30 cm long, and 5 cm thick, were set into shallow sockets in the floor. These slabs became part of the south face of the wingwall. Adobe was then added to the north face of the slabs to an average thickness of 10 cm. The southeast support post (Feature 18) was located approximately 70 cm west of the bench. The post was then incorporated into the adobe construction. The only evidence of plaster was found on the north face of the east wingwall.

The east wingwall appeared to have been hardened by fire. However, like the plaster on the face of the east bench and wingwall, a binding agent had probably been incorporated into the adobe. The over-the-bench extension of the east wingwall was constructed by molding a low wall of the same adobe material. In the small extension no evidence of a core of small slabs similar to those exposed in the main section of the floor of the pitstructure was found.

Although the west wingwall was severely damaged, the presence of an upright slab near the bench and a cross section of the feature near its abutment with the bench indicate that the construction was similar to that of the east wingwall. A support post was not readily observable in the west wingwall. However, given the relative symmetry exhibited in the position and construction techniques of the east and west section, a support post had presumably been incorporated into the west wingwall in a location that corresponds to that of Feature 18 in the east wingwall.

The wingwall sectioned off approximately 3.5 m² of floor space at the southern end of the pitstructure. Artifacts recovered from between the wingwall and the south wall of the structure indicate that this area served as a location for specialized activities. This interpretation will be discussed following the feature descriptions.

Deflector (Feature 9). The deflector consisted of a rectangular sandstone slab set into the floor at an unknown depth. This was located 45 cm north of the ventilator tunnel opening and 1 m south of the capped hearth (Feature 11). An ash pit (Feature 10) is immediately north of the deflector (fig. 8.10).

The construction of the deflector is complex, in that a smaller sandstone slab, 20 cm high, 18 cm wide, and 5 cm thick, was set into the floor north of the deflector, forming the south wall of the adjacent ash pit. Although this feature was not dismantled for examination, the deflector slab and the smaller slab might have been set into adobe mortar along the south edge of the ash pit simultaneously. The purpose of the smaller slab appears to have been to stabilize the deflector. It is also possible, however, that this complex arrangement is not the original construction; the small slab might have been added following a partial toppling of the deflector due to the deterioration of the southern edge of the ash pit.

Ash pit (Feature 10). The ash pit was an oval basin located immediately north of the deflector (Feature 9). The capped hearth (Feature 11) was 15 cm north of the ash pit, near the center of the main chamber.

The pit was dug into the sterile silt loam beneath the floor of the pitstructure. The contact between the pit fill and the silt loam exhibited light compaction and a moderate amount of mixing, a result of rodent activity. The sides of the pit exhibited increasing compaction from the base to the rim. No plaster was observed around the rim of the pit. However, some plaster or an earth wash might have been applied to the rim. It was noted that the blackening on the floor of the main chamber did not continue beneath the rim of the pit.

The fill was unstratified sand and ash containing a few large chunks of charcoal. The matrix of the fill consisted of approximately 80 percent sand and 20 percent ash. If stratification had been present at one time, it has been totally obliterated by rodents. It is also probable that the large chunks of charcoal might have been introduced from the roof fall by the same rodent activity.

The only artifacts collected from the unscreened fill are 2 sherds from Early Pueblo Gray jars and 3 very fine grained pieces of flaked lithic debitage.

Feature 10 is considered to be an ash pit due to its location. Hayes and Lancaster (1975) suggest that this location of a pit for collection of hearth debris is common. They indicate that the typical use-related fill is ash and charcoal. The fill of Feature 10 contained some ash and few charcoal chunks; however, the majority of the fill consisted of sand. Sand was not present on the floor or in the fill in the vicinity of the pit. The blackening observed on the floor did not continue down the sides of the pit. It is felt that the fill was culturally introduced. The large amount of sand suggests the pit might have been filled with nonuse-related material during a period of disuse.

Hearth (Feature 11). The hearth was a circular basin located near the center of the main chamber. It was 20 cm north of one ash pit (Feature 10) and 5 cm south of a second ash pit (Feature 12).

The hearth was dug into the floor of the structure. No plaster was present around the rim of the pit. Compaction was light at the base of the pit but increased to moderate along the sides and heavy around the rim. The hardness of the rim may be due to heat. It is also inferred that, despite the lack of evidence, a small amount of plaster or earth wash had been applied to the pit for stability.

The pit fill is believed to have been culturally deposited although not associated with its use as a hearth. The fill below a depth of 3 cm was an unstratified mixture of approximately 80 percent clean ash and 20 percent sand. Above the ash and sand fill, a hard, 3-cm-thick cap of clay loam had been applied. The cap had been smoothed and made level with the surface of the pitstructure. The only observable oxidation in the hearth was located around the rim. This oxidation was slight, disappearing immediately below the rim.

Although the fill was 80 percent ash, there was a noted absence of charcoal. The lack of charcoal and other burned material and the presence of a cap over the pit indicate that the hearth was not in use at the time of abandonment. Under normal use conditions the charcoal content of the hearth fill would have been much greater. The slight amount of oxidation suggests that the hearth was either used periodically or had been used for only a short period of time before it was capped. It is inferred that this feature had functioned during the early years of use of the pithouse and had later fallen into disuse. The capping of this central feature and the lack of a replacement may also indicate that a shift might have occurred in the type of activities that took place in the structure. If a shift in use of the structure had taken place, the

capping of the hearth would suggest periodic use, since year-round occupation would require a more extensive use of the feature, especially for heating and cooking during the winter months.

Ash pit (Feature 12). This bell-shaped feature was located near the center of the structure, just north of the capped hearth. The feature was constructed by digging a small pit into the floor of Pitstructure 1. Like the hearth and the other ash pit, this pit exhibited an increase in compaction from its base up the side wall to the rim. A plaster or earth wash could have been applied to the rim and to the upper portions of the walls, stabilizing the integrity of the pit. The rim and the upper walls exhibited a slight blackening. This could be the result of either charring when the roof was burned, or intentional burning in the pit itself.

The fill in Feature 12 exhibited 3 strata. Stratum 1, the upper 13 cm of fill, consisted of possible roof fall material. It was mottled in color and contained charcoal, ash, and vegetal material. Stratum 2 was a 5-cm-thick deposit of compact, light brown sandy loam containing charcoal inclusions. Two sandstone slabs formed the base of Stratum 2. They extended almost to the walls of the pit. The lower surface of the bottom slab showed slight burning. Stratum 3, the lowest fill episode, consisted of approximately 80 percent sand and 20 percent ash, and contained few artifact inclusions. A homogeneous sand and ash fill extended to within 3 or 4 cm of the base of the pit; the lower 4 cm of Stratum 3 graded to gray ash with small flecks of charcoal.

All of the artifacts collected from Feature 12 are from Stratum 3. The assemblage contains 6 Early Pueblo Gray jar sherds and 1 medial fragment from a utilized flake of hornfels.

This feature might have originally been an ash pit. This inference is based on the proximity of the pit to the hearth and the lens of ash at the base of the pit. The presence of the ashy sand in the lower pit fill overlaid by the slabs indicates that the pit was remodeled to serve another function. It is suspected that Stratum 2 was intentionally deposited over the sandstone slabs as a filler. If Stratum 1 was roof fall, it can only be said that the upper 13 cm of the original pit was open and in use preceding the abandonment of the structure. Equally possible is that Stratum 1 was the remains of material that had been burned in the pit during the late use of the structure. Although oxidation was not observed, the charring on the upper walls may indicate that the pit served a secondary function as a small hearth or warming pit.

Unnamed pit (Feature 13). This feature was a modified oval basin located approximately 65 cm east-northeast of the capped hearth. The upper 6 cm of the walls were vertical, but below the 6-cm depth the pit resembled a typical basin.

The feature was dug into the floor of the structure. As in many of the other features described thus far, the compaction of the walls and rim increased from the base to the rim. No plaster was observed on the rim, although it is hypothesized that a thin wash was applied to the rim and upper walls for stability. Like the hearth, this feature was capped. The cap was flush with the pitstructure floor and consisted of 3 to 4 cm of heavily compacted sandy clay. Beneath the cap, the pit was filled with clean sand.

The fill of this feature was not associated with the use of the pit. Hayes and Lancaster (1975) describe pits in Mesa Verde pitstructures that are in the same general location and exhibit the same general physical characteristics. These pits were filled with alternating layers of sand and charcoal. Due to this fill, these features were interpreted as warming pits. In the case of Feature 13, such an inference can be made; however, the feature is not formally recorded as a warming pit.

Floor cist (Feature 16). This small cist was probably a circular basin; the original configuration has been destroyed by rodents and erosion. The cist is located 55 cm west of the ventilator tunnel opening.

The cist was dug into both the floor and south wall of the pitstructure. Because of severe deterioration, no evidence of compaction or other manipulation that might have been part of the construction of the feature was present.

The cist fill was a combination of roof fall, ash, and loose silt with artifact inclusions. The mixed fill is likely to have been the product of rodent activity. Due to the disturbance, it is inferred that the artifacts recovered from the fill were not associated with the use of the pit. These artifacts are 2 Chapin Gray bowl sherds, 1 thin biface with no haft element, 1 fragment of a cobble, 1 fragment of a mano or grinding stone, and 5 nonhuman bone fragments, 4 of which were scorched.

Although neither the fill nor the artifacts proved useful in determining the function of the cist, its location was significant. The small feature had a limited access because it was partially constructed in the south wall. It was also in an area south of the west wingwall that contained a high density of complete tools of varied types and functions. Since no evidence of production or use of the tools in the area was found, it is inferred that the tools were being stored in that area, and that Feature 16 was used for storage. The artifacts found in the cist had probably been introduced from the floor around the cist and from the roof fall. No inference can be made as to what had been stored in the cist.

In situ metate: Feature 17. This trough metate (PL 114) was assumed to be in situ for 2 reasons. Situated with the trough facing up, the topside was scorched from the burning of the razed roof remains. The underside showed no evidence of scorching. A two-handed mano (PL 115) was on the floor at the heel, or closed end, of the metate. This feature was located south of the east wingwall. The open end of the metate was angled to the northwest, with the heel to the southeast.

The presence of the upright, in situ metate with its accompanying mano indicates this feature was in a use-associated position. The metate and the surrounding vicinity may have comprised a food processing area. A used core (PL 117) located nearby could have been used to initially break or crush the whole kernels of grain before grinding or to resurface the metate.

Postholes: Features 14, 15, and 18. Three out of four postholes were located and tested. The only posthole not encountered was that for the southwest main roof support post. Only Feature 18, the socket for the southeast support post, still contained remnants of the post. Neither Feature 14, the northeast main roof support post socket, nor Feature 15, the northwest main roof support socket, contained pieces of rotted or charred posts. The construction of the east wingwall incorporated the support post into the pitstructure partition. The post was 14 cm in diameter and set into the adobe of the wingwall 70 cm west of the bench (fig. 8.10). The post was completely enclosed by the adobe. Pieces of the post were collected for tree-ring analysis. How deep the post was set or whether it was socketed in the floor is not known.

The diameters of the other 2 postholes (Features 14 and 15) averaged twice that of Feature 18. The fill in these 2 main support postholes was similar. Both fills contained gravel, small cobbles, and small slabs in a matrix of sandy silt. The depths at which the posts had been set into the floor are unknown because the excavation of these postholes was terminated at a depth of 70 cm below the floor. The fill to this depth was consistent. It is inferred that the fill continued to the base of the holes.

The 14-cm diameter of the in situ post of Feature 18 indicates the probable size of the posts that were absent from Features 14 and 15. Based on the absence of the northeast and northwest main support posts, and the large diameter of the postholes it is assumed the posts had been removed and that the postholes had been enlarged to make removal easier. The lack of charcoal in the fill indicates that the fill was present before the roof was burned. The sand in the fills had probably been used to stabilize the posts. That the sand was introduced from the floor in the vicinity of the postholes is equally probable. The other features that are thought to have been open at abandonment contained silt and burned material.

The post from the fourth posthole is believed to have been incorporated into the west wingwall. The post had been located approximately the same distance from the west bench as Feature 18 was located from the east bench. This probable location from the missing support post would complete a rectangular pattern of posts indicated by Features 14, 15, and 18. A rectangular pattern for the roof frame can be extrapolated from the pattern exhibited by the three support postholes.

Discussion

In summary, Pitstructure 1 had a ventilation system with a rather large shaft. The structure exhibited portions of what has been interpreted as a three-quarter bench, and it had a slab and adobe wingwall, a deflector near the south wall, an ash pit with clean fill, a capped hearth, an inferred four-post roof support system, and a floor artifact assemblage that had been sealed by roof fall. The pitstructure exhibited minor remodeling, as evidenced by slabs along the west bench face. The capping of the hearth suggests a possible change either in the function of the structure or in the presumed year-round use of a pitstructure as a habitation center.

The majority of in situ floor artifacts has been associated with use and storage activities; the others were probably present as a result of incidental discard. Seven activity areas were defined in Pitstructure 1. A lithic storage area was identified south of the west wingwall, and a mealing area was located south of the east wingwall. The bench surface and the roof are considered to have functioned as storage areas. Domestic activities are inferred to have occurred around the hearth and in conjunction with the ventilator shaft. A flaked lithic tool processing area was identified west of one of the ash pits (Feature 12). The roof of Pitstructure 1 was used for domestic and economic activities, since numerous flaked and nonflaked lithic tools were recovered from the roof fall stratum.

Rooms

Four small, nonmasonry surface rooms were detected and tested at Pozo Hamlet. Rooms 1, 2, and 3 were found as a result of the mechanized blading south of Pitstructure 1 (fig. 8.16). Room 4 was discovered and tested during the backhoe excavation of trench 1. These rooms were located southwest of Pitstructure 1 (fig. 8.4). Room 1 was circular, Rooms 2 and 3 were oval, and Room 4 is inferred to have been oval. All of the surface rooms exhibited basinlike floor profiles. Due to plowing activities the depths of the floor below the prehistoric ground surface could not be determined.

Construction

All 4 rooms are inferred to have been constructed in the same manner. These rooms are defined as nonmasonry,

Figure 8.16 – Rooms 1, 2, and 3 after blading and prior to excavation, Pozo Hamlet (DAP 104824)

based on the absence of building stone in the general area surrounding the rooms and within their respective fills. No postholes were found in the tested portions of the structures or around their perimeters. The lack of building stone and postholes indicates that the walls of these small rooms were probably self-supporting constructions of brush and adobe. Wormington (1947:61) suggests that the walls of early surface rooms resembled a truncated pyramid.

The floors of these rooms were constructed by digging a shallow basin into the natural sediment. These floors exhibited severe rodent disturbance. However, undisturbed areas in all 4 rooms indicate that the floors had been slightly compacted. Whether the compaction was a construction technique or the result of the use of the rooms could not be determined. None of the rooms exhibited features in the portions that were tested.

These 4 rooms are inferred to have been storage rooms, presumably for food. Wormington (1947:61) suggests that surface granaries from the pre-Pueblo period are found west and north of pitstructures. Although Rooms 1, 2, 3, and 4 were not due west of Pitstructure 1, they were located in a westerly direction from the pitstructure. Martin and Plog (1973:232) state, "habitation rooms tend to be larger than storage rooms," and Bullard (1962) suggests that storage rooms are usually devoid of floor features such as hearths and bins. The small rooms at Pozo Hamlet did not exhibit these features in the tested portions. It is doubtful that these surface rooms ever served as habitations.

Fill

The unstratified fill in each of the rooms was gray to dark brown silt loam, exhibiting light to moderate compaction. The fills contained inclusion of ash, small bits of charcoal, a few small chunks of adobe, and moderate amounts of artifacts. The inclusions and artifacts were mixed throughout the tested portions of the rooms. The unstratified fill continued to the floors. Although extensive rodent disturbance is thought to be responsible for much of the mixing, the lack of stratification is likely the result of a continuous dumping of refuse. The darker colors and the compaction of the fill are attributed to the presence of charcoal and unknown amounts of decaying organic material. It is not known if the adobe found in the fill was from the roofs of the rooms. The scarcity of adobe and the lack of structural material indicate that the superstructures over the floors had been either partially dismantled or allowed to disintegrate. If the local sediments were used without a binding agent, they would likely have been melted into the fill and surrounding area. The base of the trash fill was in contact with the floor, indicating that the rooms were probably used as trash receptacles shortly after their abandonment as storage facilities.

Room 1

Dimensions:

North-to-south axis	2.30 m
East-to-west axis	2.36 m
Depth of floor	0.20 m
Floor area	4.06 m

This structure is assumed to be a noncontiguous storage room; it contained few features and few surface artifacts (figs. 8.17 and 8.18). Extensive rodent activity in the trash fill probably had disturbed any floor associated artifacts. Thus, following the excavation of a test trench passing near the center of of the structure (refer to the discussion of preliminary operations), the fill was removed as a single unit.

Fill – The fill in Room 1 was identified as trash. The base of the trash deposit was in direct contact with the floor of the room. No apparent artifact concentrations were within the fill. The assemblage contains 76 sherds, 18 flaked lithic tools, 30 pieces of flaked debitage, 2 nonflaked lithic tools, and 6 nonhuman bones (appendix 8A).

Ceramic artifacts. The ceramic assemblage from the fill contains 76 sherds. Analysis of temper types indicates that all but 1 of the sherds were from the Mesa Verde Culture Category. Within this culture category, 69 sherds contain a crushed igneous rock temper, indicating that the vessels had been produced in the local Dolores Manufacturing Tract. One sherd contains quartz sand temper, which identifies these pieces as having been made in the Cibola or Kayenta area. Five sherds contain another variety of crushed igneous rock temper from the San Juan Manufacturing Tract, to the south of the project area. One sherd contains conglomerate temper, indicating that the vessel had been manufactured in the Cabone Tract west of the project area.

Of the 76 ceramic items, 70 (92.1 percent) are Early Pueblo Gray jar sherds. The handle from an Early Pueblo Gray jar and one sherd from the rim of a Chapin Gray vessel were the only other jar sherds. The following bowl sherds made up the rest of the assemblage: 1 sherd each from a Chapin Gray bowl, a Chapin Black-on-white bowl, a Painted White bowl, and a Polished White bowl.

According to Blinman (1984), Chapin Gray has a date range of A.D. 600 to 925. Early Pueblo Gray was common in the project area between A.D. 840 and 950. Chapin Black-on-white was present from A.D. 600 to 800. Both Polished White and Painted White were present from A.D. 600 to 900.

Flaked lithic tools. A total of 18 flaked lithic tools was collected from the fill of Surface Structure 1. All are complete except for 1 proximal portion of a utilized flake of hornfels and 1 medial portion of a thick end-worked uniface. Twelve of the 18 items collected were utilized flakes. Most of the tools were identified as having been made from local material. Of the 18 tools, there are 3 items of hornfels, 6 items of Morrison orthoquartzite, 2 items of Burro Canyon Dakota orthoquartzite, 4 items of orthoquartzite from unspecified formations, 1 item of Morrison chert, 1 item of chalcedony from an unspecified formation, and 1 item of mafic material.

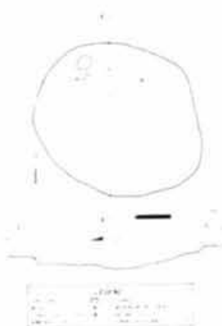

Figure 8.17. Map and architectural profile of Room 1, Pozo Hamlet.

Figure 8.18. Room 1, Pozo Hamlet (DAP 104623).

The flaked lithic tools exhibiting low-production-input technology make up the majority of the assemblage. These include the 12 utilized flakes, 2 unused cores, and 1 cobble tool. These 15 low-input tools (83 percent) are suggestive of short-term use and a disposable nature.

Flaked lithic debitage. A total of 30 pieces of flaked debitage was collected from the fill of Room 1. They have been identified as 10 fine-grained items, 17 very fine-grained items, and 3 microscopic-grained items.

Nonflaked lithic tools. The 2 nonflaked lithic items collected from the fill of Room 1 are one nearly complete mano and one partial, flat-surface abrading grinding stone. The mano was manufactured from a coarse-grained, well-cemented sandstone cobble. Production techniques such as shaping could not be identified. The partial abrading grinding stone was of a medium-grained, poorly cemented sandstone. It had been used in its natural form.

Nonhuman bone. Six nonhuman bones from the following taxa were recovered from the fill of Room 1: *Sylvilagus*, Sciuridae, medium Mammalia, and medium Aves.

The majority of the artifact assemblage from the fill of Room 1 is comprised of ceramic trash, flaked lithic tools, and waste flakes. The ceramic artifacts are much the same as those from the Pitstructure 1 fill and floor assemblages. The flaked lithic tools are primarily low-input items with limited use lives.

Floor 1. — As mentioned, few floor artifacts were anticipated, and they were also expected to be difficult to delineate from the fill assemblage due to rodent activity. The items that were point located (fig. 8.17) were designated floor artifacts because of their orientation to and contact with the floor, although it is doubtful that these artifacts were associated with the floor or the activities for which the structure was intended.

Although metate fragment (PL 1) was encountered trough down and not in a use-associated position, it had been produced from a thin slab of medium-grained, well-cemented sandstone. Although a cobble fragment (PL 2) had been deposited on the floor through cultural processes, it exhibited no evidence of having been used as a tool. One utilized flake of Burro Canyon Dakota orthoquartzite, 1 fine-grained waste flake, and 2 very fine-grained flakes comprise PL 3.

Rooms 2 and 3

Dimensions

Room 2:	
North-to-south axis	1.35 m
Inferred east-to-west axis	2.20 m
Depth of floor	0.20 m
Inferred floor area	2.31 m
Room 3:	
North-to-south axis	1.48 m
Inferred east-to-west axis	2.43 m
Depth of floor	0.20 m
Inferred floor area	3.10 m

Rooms 2 and 3 are adjacent to each other on a north-south line. Room 3 is situated immediately to the north of Room 2 (figs. 8.19 and 8.20). The fills of these 2 oval structures were excavated as a single collection unit. A dark, irregular stain encircling the 2 structures was detected during the blading of the area south of Pitstructure 1 (fig. 8.16). The stain measured approximately 5 m north to south and up to 4 m east to west. Due to the irregular outline it was decided to excavate a small, 25-cm-wide test trench that bisected the stain. The trench was excavated down to the contact between the dark fill and the light brown natural sediments below. Rodent disturbance made it difficult to define the limits of the contact.

The fill to the west of the trench was removed to define the cultural context of the deposit. During the excavation of the fill it was realized that 2 structures were present.

Fill. — The fill of Rooms 2 and 3 was similar to that in Room 1. The silt loam matrix contained ash, charcoal, small bits of adobe, and a moderate amount of artifacts. As in the fill of Room 1, the artifacts collected from the tested portions of Rooms 2 and 3 were scattered throughout the fill. The artifact assemblage collected from the fill in the western portions of Room 2 and 3 contains 69 sherds, 18 flaked lithic tools, 32 waste flakes, 1 minimally altered cobble, and 4 nonhuman bones (appendix 8A).

Ceramic artifacts. Only 1 sherd (a portion of an Early Pueblo Gray jar) in this assemblage was unclassifiable. A variety of crushed igneous rock temper was found in 64 sherds (92.7 percent), suggesting that they are from locally produced Dolores Manufacturing Tract vessels. The following is an inventory of the Dolores Tract ceramics: 3 Chapin Gray jars sherds, 59 Early Pueblo Gray jar sherds, 1 Chapin Black-on-white bowl sherd, and 1 Polished White bowl sherd. One Early Pueblo White bowl sherd contains quartz sand temper, indicating that the vessel was from either the Cibola or the Kayenta area. One Early Pueblo Gray jar sherd contains another variety of crushed rock temper from the San Juan Tract south of the project

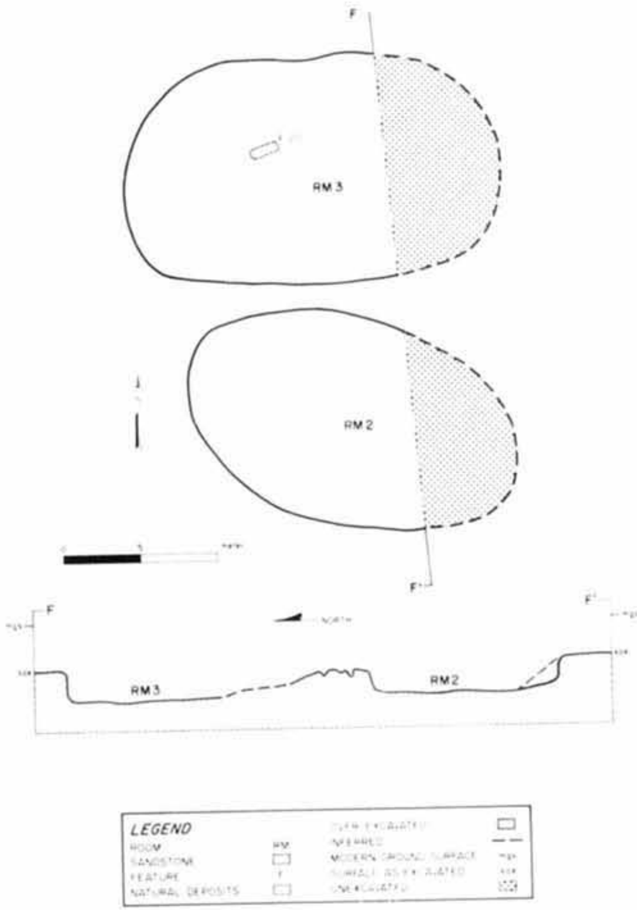

Figure 8.19 - Map and architectural profile of Rooms 2 and 3, Pozo Hamlet

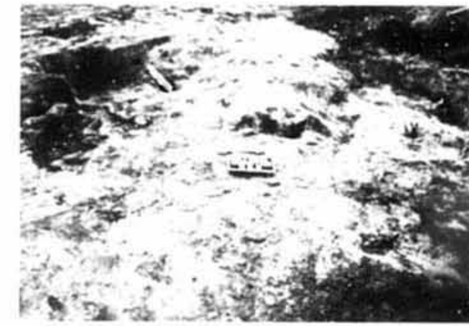

Figure 8.20 - Rooms 2 and 3, Pozo Hamlet (DAP 110122)

area. One red ware jar sherd containing quartz sand temper has been identified as Tallahogan Red from the Kayenta area. A Slipped Red jar sherd contains crushed igneous rock temper, indicating that it probably originated in the Blanding Tract in southeast Utah.

Blinman (1984) suggests the following date ranges for the individual ceramics from the fill. The Blanding Tract red ware sherd could have come from any of the San Juan Red Ware types, and its date range within the project area is estimated to be A.D. 750-1000. The Tallahogan Red sherd dates to at least A.D. 660-780 in its area of manufacture (Daifuku 1961), and the Cibola or Kayenta Early Pueblo White bowl sherd could date anytime within the Anasazi occupation of the project area. Chapin Gray vessels were present in the project area from A.D. 600 to after A.D. 930, Chapin Black-on-white dates from A.D. 600 to 800, and Early Pueblo Gray dates to after A.D. 600 and occurs in trace quantities at least through A.D. 1150.

Flaked lithic tools. A total of 18 flaked lithic tools come from the fill of Rooms 2 and 3. Three of the flaked tools are fragmentary; these are 2 utilized flakes of Burro Canyon/Dakota chert-chalcedony and 1 medial portion of a thin, side-worked uniface of the same material. The complete tools are 1 unused core of an unspecified orthoquartzite, 1 used core of hornfels, and 1 of Burro Canyon/Dakota chert-chalcedony; 1 cobble tool of hornfels and 1 Morrison orthoquartzite; 2 utilized flakes of Morrison orthoquartzite, 1 of Burro Canyon/Dakota orthoquartzite, 3 of unspecified orthoquartzites, and 2 of Burro Canyon/Dakota chert-chalcedony; 1 partially worked, thick biface of hornfels; and 1 thin, side-worked uniface of Burro Canyon/Dakota orthoquartzite.

Of the 18 flaked lithic tools, 15 (83.3 percent) were identified as tools that either had been used without modification of the raw material, or that exhibited low-production-input technology. These are thought to be limited-use, disposable items. The percent of disposable tools is equal to that of the items analyzed from Room 1. Had the remainder of the fill been removed from Rooms 2 and 3, the ratio of disposable ·tems to items exhibiting a greater amount of productic   nput would not have varied.

Flaked lithic debitage. There are 32 pieces of flaked lithic debitage from the fill of Rooms 2 and 3. These are 13 items of fine-grained material, 16 items of very fine grained material, and 3 items of microscopic-grained material.

Nonflaked lithic tools. The only nonflaked lithic item collected is a nearly complete cobble. The cobble is questionable as a tool; it exhibits no alteration or use wear.

Nonhuman bone. Nonhuman bone was also collected from the fill of the Rooms 2 and 3. One bone was recovered from each of the following taxa: *Castor canadensis*, Carnivora, large Mammalia, and Mammalia or Aves.

Floors - The floors in Rooms 2 and 3 were shallow basins. As was the case in Room 1, floor artifacts would be difficult to distinguish from fill artifacts because these surfaces had not been sealed by natural sediments before the pits were used as trash receptacles. The excavation of the floors of Rooms 2 and 3 did not expose any clearly definable floor artifacts.

The floors in the investigated portions of the rooms exhibited severe rodent disturbance. The disturbance resulted in frequent undulations in the surface. However, undisturbed remnants of the floor exhibited a slight compaction. The compaction of the floors might have been a construction technique, and the compaction might have been increased from the use of the rooms. The undisturbed portions of floor were brown and much of the dark color was probably due to staining produced by charcoal and decayed organic material present in the overlying trash fill.

Features. Floor features were not found in the excavated portion of Room 2. However, there might have been features in the untested eastern portion of floor. Only one possible feature was located in the tested portion of Room 3.

Upright sandstone slab (Feature 20). This upright slab was set into the floor of Room 3 approximately 80 cm east of the western limit of the floor and 55 cm south of the northern limit of the floor (fig. 8.19). The slab is 19 cm long, 12 cm high, and 6 cm thick. The depth at which the slab was set into the floor was not investigated, but the position and orientation of the slab were solid, indicating that it was set fairly deep. Disturbed fill surrounded the slab. The depth of the fill was not investigated; however, the function of the upright slab was not determined due to the lack of further testing.

Room 4

Dimensions:

Inferred length	2.00 m
Inferred width	1.75 m
Depth of floor	0.05 m
Inferred area	3.50 m²

As stated in the preliminary operations discussion, Room 4 was not identified until after the testing of Rooms 1, 2, and 3. The preliminary test of Room 4 was accomplished during the backhoe excavation of trench 1 (fig. 8.4). The test unit was a 1- by 2-m square adjacent to the west wall of trench 1. The gray to dark brown fill was removed as a single unit. At a depth of 30 cm beneath the modern ground surface, a dark brown, slightly compacted floor was exposed. This compact surface exhibited small fracture lines, indicating a clay content that was absent in the other room floors.

Fill. The fill of Room 4 was similar to the fill in Rooms 1, 2 and 3. It was unstratified, gray to dark brown silt loam with inclusions of ash, charcoal, artifacts and adobe. The fill had been severely mixed by rodent disturbance and the artifacts had been distributed evenly throughout the deposit. The artifact assemblage from the fill contains 8 sherds, 9 flaked lithic tools, 21 pieces of flaked lithic debitage, and 2 nonflaked lithic tools (appendix 8A).

Ceramic artifacts. The 8 sherds collected from the fill are from Mesa Verde Culture Category vessels. A variety of crushed igneous rock temper was found in all 8 of the sherds. Vessels containing this temper are assumed to be from locally manufactured Dolores Tract vessels. These are 6 Early Pueblo Gray jar sherds, 1 Chapin Black-on-white bowl sherd, and 1 Early Pueblo White bowl sherd.

According to Blinman (1984), Early Pueblo Gray was common from A.D. 600 to 950 in the project area. Chapin Black-on-white appeared between A.D. 600 and 800, and Early Pueblo White was common from A.D. 600 to 950.

Although the ceramic assemblage from Room 4 is small, the proportion of jar sherds may be of importance. Jar sherds make up 75 percent of the ceramic collection. When this is compared to the fills from the other three rooms, the high percentage of Early Pueblo Gray jar sherds is striking.

Flaked lithic tools. The 9 flaked lithic tools collected from the fill of Room 4 are all complete. Seven of the tools are of hornfels. These tools are 4 utilized flakes, 1 cobble tool, 1 thin, side-worked biface, and 1 partially worked, thick biface. There is also 1 utilized flake of Morrison chert and 1 Burro Canyon Dakota orthoquartzite, partially worked, thin biface with no haft element. More than half (66 percent) of the assemblage was identified as low-production, expedient tools. These were limited-use, disposable items.

Flaked lithic debitage. There are 21 pieces of flaked lithic debitage from the fill of Room 4. These are 1 medium-grained flake, 9 fine-grained flakes, 7 very fine-grained flakes, and 4 microscopic-grained flakes.

Nonflaked lithic tools. There are 2 nonflaked lithic tools from the fill of Room 4. One item is a nearly complete, curved-surface abrading grinding stone; it is a course-grained, feldspathic cobble that has not been culturally modified. The other item is a shaped sandstone slab of course-grained, well-cemented sandstone.

Interpretation

The inference expressed in the introduction to the rooms—that the 4 structures were initially used as storage facilities—is based on their general location (Wormington 1947) and the absence of typical domestic floor features (Martin and Plog 1973). These rooms were not located

directly west of Pitstructure 1 such as at Tres Bobos Hamlet (Brisbin and Varien 1981); nor were they oriented in a row along a north-south axis. However, similar arrangements of pitstructures and surface rooms have been documented by Hayes and Lancaster (1975) at Site 1676 at Mesa Verde and by Tucker (1983) at Chindi Hamlet. Roberts (1929:91) also suggests that storage facilities at Shabik'eshchee Village exhibit no particular orientation to the pitstructures.

A secondary use of the surface rooms at Pozo Hamlet is indicated by the unstratified trash fills over the shallow floors. The condition of the tools during the use of the area as a midden is unknown. However, the midden fills suggest that the rooms were not in use during the later year of occupation at Pozo Hamlet. It is also inferred that other storage facilities must have been in use at the time that Rooms 1, 2, 3, and 4 were being filled with trash. At Tres Bobos Hamlet and Chindi Hamlet, some rooms were trash filled while others were not.

Nonstructural Unit 1

Nonstructural Unit 1 is the designation given to that area of the site outside of Pitstructure 1 and other than the floors in Rooms 1, 2, 3, and 4. This designation formally includes Feature 4, a small unexcavated feature assumed to be a pit, and Feature 5, a bell-shaped pit that exhibited burning. Although the trash deposit in each of the 4 surface rooms was discussed in the room descriptions, this material has actually been assigned to the nonstructural unit. Also, part of Nonstructural Unit 1 is the possible sheet trash located 16 m southeast of Pithouse 1. The only investigation accomplished in this area was the surface artifact collection. The heavily disturbed construction area north of Pitstructure 1 has been assigned to the nonstructural unit as well.

Surface

Dimensions:

North-to-south	40 m
East-to-west	20 m
Inferred area	570 m²

The prehistoric ground surface had been destroyed by modern agricultural activities. The removal of the plow zone exposed features outside the structures. The area exposed by the removal of the plow zone was approximately 570 m², although the extent of this unit is inferred to be much greater. No features were detected south or southeast of the pitstructure. Feature 4, inferred to be a small pit, was located approximately 50 cm northwest of Room 1 (fig. 8.4). Feature 5, a bell-shaped pit, was located south of Room 1. The midden deposits were located in the rooms southwest of Pitstructure 1. The possible sheet trash was 16 m southeast of Pitstructure 1 (fig. 8.5).

Surface artifacts.—A cursory artifact collection was conducted in the bladed portion of Nonstructural Unit 1. The assemblage consists of 3 sherds, 3 flaked lithic tools, 5 pieces of flaked debitage, and 1 nonflaked lithic tool (appendix 8A). The grab sample method of artifact collection employed during the blading of Nonstructural Unit 1 renders interpretation of the items impossible.

Ceramic artifacts. The 3 sherds collected during the blading are 2 Unclassifiable Gray jar sherds and 1 Early Pueblo Gray jar sherd from the Dolores Manufacturing Tract.

Flaked lithic tools. The flaked lithic tools collected during the blading are 1 complete cobble tool of hornfels, 1 medial portion from a partially worked, thick biface of local Burro Canyon Dakota chert-chalcedony, and 1 complete, used core of an unspecified orthoquartzite.

Inferred pit, Feature 4. Feature 4 was observed as a stain of dark brown fill on the bladed surface. The stain was circular, with a diameter of 40 cm. The feature was tested with a probe. At a depth of approximately 8 cm a stone slab was encountered. By probing around the edge of the fill, the slab was determined to be slightly smaller than the diameter of the feature. Whether Feature 4 continued beneath the slab is not known. The function of the feature was not identified.

Flaked lithic debitage. The flaked lithic debitage collected during blading consists of 1 medium-grained flake, one fine-grained flake, 2 very fine-grained flakes, and 1 microscopic-grained flake.

Nonflaked lithic tool. The only nonflaked lithic tool collected during blading was an incomplete anvil stone from a cobble.

Features.—Only 2 features were detected in Nonstructural Unit 1.

Bell-shaped pit, Feature 5. The original depth of this circular, bell-shaped feature is not known due to the plowing activity on the site. The pit had been dug into the natural sediment. The floor was flat and moderately compacted; the walls exhibited even greater compaction. As a result of a fire in the pit, the walls were heavily oxidized. This oxidation extended 5 to 7 cm into the surrounding sediment. Whether these walls had been plastered to the full depth of the oxidation was not determined. However, plastering and firing the walls was a construction technique. The natural sediment (silt loam) into which the pit had been dug was loosely compacted; it might have been necessary to plaster and fireharden the walls to assure the stability of the pit. The uniform thickness of the oxidized walls adds weight to the probability that the pit had been plastered. There is a slight possibility that the oxidized wall might have been produced during a spectalized use of the pit. The pit probably had been roofed to protect the contents and deter rodents. However, because of a lack of evidence, the type of roof it would have had is impossible to determine. A moderate amount of adobe in the lowest stratum of fill suggests that adobe was probably incorporated into the roof construction.

The fill of the pit was found to be stratified (fig. 8.21). Four strata were identified in the fill. Stratum 1 was a lightly to moderately compacted, light brown to reddish-brown sandy loam. It exhibited extensive rodent disturbance and contained few burned adobe inclusions. Stratum 2 was a moderately compacted, light brown sandy loam with no inclusions. Stratum 3 was a moderately compacted, light brown to brown loam with no inclusions. Stratum 4 was a moderately compacted light brown to brown loam with a large amount of burned adobe, moderate amounts of small sandstone slabs and chunks, and a moderate amount of rodent disturbance.

The only artifacts collected during the excavation of Feature 5 are 4 sherds (appendix 8A). Of the 4 ceramic items, 1 sherd is from an Early Pueblo Gray jar, 2 sherds are from Cortez Black-on-white jars, and 1 sherd is from a La Plata Black-on-white bowl. The Early Pueblo Gray jar sherd contains Dolores Tract crushed igneous rock temper. The 2 Cortez Black-on-white sherds contain Dolores Tract crushed igneous rock and crushed sherd temper. The La Plata Black-on-white sherd contains quartz sand temper and exhibits mineral paint, identifying it as having originated in the Cibola Culture Category.

Blinman (1984) offers time ranges for these ceramic types within the project area. Early Pueblo Gray was common from A.D. 600 to 950 and Cortez Black-on-white was present from A.D. 890 to 1000. Breternitz et al. (1974) suggest that La Plata Black-on-white is equivalent to the Chapin Black-on-white in the Mesa Verde region, except for the sand temper. Chapin Black-on-white was present in the project area from A.D. 600 to 800.

Located at the base of the pit was a thin band of ash that separated the base from the fill strata. This band of ash was no more than 3 cm thick in any given place. The thickest concentration was in the center. Whether the ash was associated with the use of the pit is not known. Beneath the ash, the base of the pit appeared blackened; however, there was no sign of scorching. The blackening might have been a stain from organic residues in the ash. Material for 2 flotation samples was taken from the fill and the base of the pit. Macrobotanical remains from these samples include 11 charred seeds and/or fruits of *Amaranthus*, *Chenopodium*, and *Portulaca*, one noncharred *Nicotiana attenuata* seed, and charred fragments

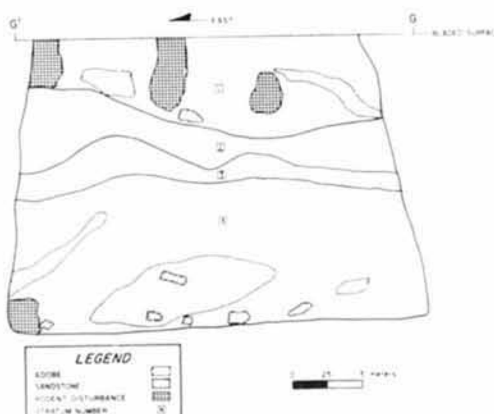

Figure 8.21. Stratigraphic profile of Feature 5, Nonstructural Unit 1, Pozo Hamlet. Refer to figure 8.4 for profile location.

of *Pinus* spp., Salicaceae, and indeterminate Dicotyledoneae and Gymnospermae wood.

The fill in the pit is not believed associated with its use, but neither is it considered trash fill. The only material that might have been associated with the use of the pit was the thin band of ash covering the base. There are 3 possible uses for this burned feature. Martin and Plog (1973) suggest that form follows function in the use of pits; they provide a diagram of a bell-shaped Ootam roasting or cooking pit with fired adobe walls and indicate that although it is an Upper Pima pit, the shape is found universally (1973:fig. 20). The bell shape also suggests a storage function. Winter (1976:28) describes bell-shaped pits (many having basal diameters of 1 to 1.7 m) in formative sites in the Valley of Oaxaca as being used primarily for food storage. At Cerro Colorado, a Basketmaker III site in New Mexico, Bullard (1962:46) identifies 11 bell-shaped pits, which ranged from 70 to 205 cm in diameter and from 70 to 170 m deep, as having been used for storage. The measurements of Feature 5 fall within these ranges. Initially it was thought that Feature 5 was a kiln. However, the walls would have required a steady supply of oxygen to produce the reddening. Investigation of the walls found no ventilation system to introduce the air. Brew (1946:246) suggests that gray and white wares were not fired with free access to oxygen, and the strongly oxidized atmosphere that occurred in the pit would not be an appropriate firing atmosphere for the ceramics at Pozo Hamlet.

The even thickness of the oxidation on pit walls is believed to be a construction feature, and Winter's (1976) and Bullard's (1962) hypothesis for storage is felt to be most applicable to Feature 5.

The only material collected for archaeomagnetic dating at Pozo Hamlet was taken from the walls of Feature 5. The sample yielded date ranges of A.D. 1000-1030 and A.D. 1125-1350. However, the dating curve for the period between A.D. 600 and 800 has not been fully substantiated in the project area (Hathaway et al. 1983). This suggests that the dates from this sample are questionable.

Sheet Trash Area

The artifact concentration approximately 16 m southeast of Pitstructure 1 is probably sheet trash. Middens are generally in the area south of the pitstructures.

SITE SYNTHESIS

Chronology

Both absolute and relative dating methods were used in the interpretation of Pozo Hamlet. Charred material for archaeomagnetic dating was collected from Feature 5 in Nonstructural Unit 1, and ceramic dating and architecture characteristics were taken into consideration. These relative dating methods can be useful in the interpretation of cultural processes that took place during the occupation and use of the structures. The comparison of fills is helpful in the interpretation of changes in the use and importance of structures and features. Ceramic dating is useful in identifying contemporaneous features, structures, and fills. The stratigraphy exhibited by the fills is helpful in the interpretation of both abandonment and postabandonment processes.

Archaeomagnetic Dating

Material for the only archaeomagnetic sample from Pozo Hamlet was collected from Feature 5 in Nonstructural Unit 1. The sample yielded 2 date ranges (A.D. 1000-1030 and A.D. 1125-1375), both of which are much later than would be expected from the ceramic assemblage.

Ceramic Dating

The ceramic types recovered from Pozo Hamlet represent at least 2 temporally distinct uses of the site. Gray ware sherds consist of Chapin Gray, Early Pueblo Gray, and Late Pueblo Gray; both neckbanded and corrugated gray wares are absent. The possible occurrence range of the 3 gray ware types is broad (A.D. 600-950), but the absence of the later gray ware types from the total site sample of almost 500 sherds is significant and defines a time range of A.D. 600-760 (Blinman 1984:80-81).

White ware ceramic types include Chapin Black-on-white, La Plata Black-on-white, Piedra Black-on-white, Cortez Black-on-white, Painted White, and Polished White. All types except Cortez Black-on-white are compatible with the date range suggested by the gray wares, and the co-occurrence of large numbers of Chapin Black-on-white with only a trace of Piedra Black-on-white suggests a range of A.D. 700-750 (Blinman 1984:66-67). However, the presence of 2 sherds of Cortez Black-on-white can be explained by activity at the site between A.D. 880 and 1050 (Blinman 1984:69-75). If this later occupation were extensive, neckbanded or corrugated gray wares would be present, and these sherds are clearly unrelated to the use of the pitstructure. They may, however, be related to Feature 5 of Nonstructural Unit 1, when 1 of the 2 possible interpretations of the archaeomagnetic date is A.D. 1000-1030.

The 2 red ware sherds found at the site appear to be associated with the earlier occupation. The Slipped Red sherd is an untypable red ware sherd that could have been derived from an Abajo Red-on-orange, Bluff Black-on-red, or Deadmans Black-on-red vessel. By its association with Chapin Gray and Chapin Black-on-white, it probably is from an Abajo Red-on-orange jar; Abajo Red-on-orange is the most common red ware type at other DAP sites dating between A.D. 760 and 790. This range is slightly later than would be expected from the other wares, and if their date range is correct (A.D. 700-750), then Pozo Hamlet may mark the earliest known occurrence of San Juan wares in the DAP area. The other red ware sherd is a fragment of a Tallahogan Red jar. Tallahogan Red is a Kayenta red ware that is dated to A.D. 660-780 at Jeddito 264 in northeastern Arizona (Daifuku 1961:48). This is perfectly compatible with the remainder of the ceramics associated with the early occupation.

Architecture

The architecture of Pozo Hamlet was observed in Pitstructure 1 and in the 4 nonmasonry surface structures. The architectural characteristics exhibited in Pitstructure 1 varied from those expected in a typical Sagehen Phase pitstructure. The pitstructure exhibited both Basketmaker III and Pueblo I traits. The surface rooms exhibited architectural traits that are common for the Basketmaker III period.

Pitstructure 1. – The floor of the pitstructure was approximately 1.50 m below the disturbed modern ground surface. Structural elements include a ventilation system, an inferred four-post roof-support system, an inferred three-quarter bench, a wingwall of upright slabs and adobe, and a deflector that was located south of the wingwall near the ventilator tunnel in the south wall.

This assemblage of structural elements is considered transitional. In comparison to Brew's (1946:154) taxonomy, Pitstructure 1 at Pozo Hamlet exhibits a mixture of architectural traits from both a Type I Basketmaker III pitstructure and a Type II Basketmaker III-Pueblo I pitstructure. The Type I pitstructure is usually no deeper than 0.75 m. It exhibits an antechamber, a four-post roof-support system, a three-quarter bench, wingwalls of upright slabs and adobe, and a deflector between the antechamber passageway in the south wall and the hearth. The deflector is normally placed at some distance from the south wall to enable easy access to the antechamber. Brew's Type II pitstructure is deeper than 0.75 m. It exhibits a ventilation system instead of an antechamber and a four-post roof-support system. A bench is usually not present. The wingwalls are either upright slabs and adobe or post and adobe construction. The deflector is normally south of the wingwalls near the ventilator tunnel opening in the south wall. The major difference between Pitstructure 1 at Pozo Hamlet and Brew's Type II pitstructure is the presence of a bench in Pitstructure 1. Bullard (1962:148) states that the bench is clearly an Anasazi architectural trait, and that it occurs in 30 to 40 percent of Basketmaker III and Pueblo I domestic pithouses. Gladwin (1945) suggests that benches may be correlated with the depth of pithouses; however Bullard (1962:146) states that, in the Anasazi area as a whole, no consistent correlation between pithouse depth and presence of a bench is apparent. Thus, if the bench is a structural variation, it may not be useful as a temporal indicator.

Pitstructure 1 is considered to be an anomaly when the architectural characteristics are compared to those recognized as temporal indicators within the project area pitstructure seriation (Hewitt et al. 1983). The architectural style is a combination of styles that have been recognized in pitstructures of both the Sagehill Subphase (A.D. 700-780) and the Tres Bobos Subphase (A.D. 600-700) of the Sagehen Phase (A.D. 600-850). The project area Sagehen Phase corresponds to the Basketmaker III-Early Pueblo I period. Pitstructure construction from the Sagehill Subphase usually exhibits a depth of more than 1 m. The structural elements include a ventilation system, a four-post roof-support system, the absence of a bench, an earthen wingwall, if any, and a slab deflector south of the wingwall near the ventilator opening in the south wall. The Tres Bobos Subphase pitstructures are similar; however, benches are normally absent. Pitstructure 1 at Pozo Hamlet is considered to be a combination of the styles from both the Sagehill and Tres Bobos Subphases.

Surface structures. – The noncontiguous surface rooms at Pozo Hamlet were all similar in construction. The floors were circular to oval basins that were no deeper than 20 cm and measured up to 2.5 m in diameter. No postholes were found within the rooms.

The rooms resemble circular or oval surface rooms that Bullard (1962:46) identifies as Basketmaker III storage facilities (refer also to Wormington 1947:61). Few of these rooms exhibited postholes or other floor features. Spatially, the structures were scattered among the pithouses (Bullard 1962:46).

The surface rooms at Pozo Hamlet exhibited structural characteristics thought to be temporal indicators within the project area. Kane (1983) suggests that Tres Bobos Subphase surface structures are usually small, circular rooms with beehive-shaped roofs and no internal domestic features. The Tres Bobos Subphase structures are usually noncontiguous. The Sagehill Subphase surface rooms were constructed in an manner similar to the Tres Bobos Subphase structures. The Sagehill Subphase rooms are subrectangular and can incorporate domestic features. Bullard (1962:175) suggests that the normal location for habitation rooms is behind the pitstructure; however, surface storage rooms can also be scattered between the pithouses such as at Shabik'eshchee Village (Roberts 1929:pl. 1) or to the west and north of the pitstructure (Wormington 1947:61). Surface rooms probably existed north of Pithouse 1 at Pozo Hamlet. However, since that portion of the site has been destroyed, whether the inferred rooms contained domestic features or exhibited post-supported roofs cannot be determined. According to Bullard, the existing rooms at Pozo Hamlet exhibit Basketmaker III-early Pueblo I characteristics. This is in agreement with Kane (1983); the structural elements exhibited by these rooms have been documented in the project as late as A.D. 760.

Temporal Interpretation

Architectural and ceramic dating indicates that Pozo Hamlet may be culturally transitional. According to the architecture, Pitstructure 1 is believed to date from A.D. 660 to 760. Since most of the architectural characteristics are those attributed to Sagehill Subphase pitstructures, the date range of A.D. 700 to 760 is felt to be more realistic. The surface rooms also place the site between A.D. 600 and 760. The ceramic material from the surface rooms, particularly the Chapin Black-on-white, suggests a date range of A.D. 600 to 7?0 (Blinman 1984). The Cortez Black-on-white sherds are considered to be intrusive. Ceramic dating methods suggest that a possible date range for the occupation of Pozo Hamlet is A.D. 700-750.

Intrasite Temporal Indicators

Ceramic dating and observation of the nature of and stratigraphy in the various fills have been used to determine the contemporaneity of structures and features. The only fills believed to be midden were found in the 4 surface rooms. Except for the roof fall (Stratum 2) in Pitstructure 1, the fill of that structure was natural sediment. The majority of the fill in Feature 5 is also thought to have been deposited by natural processes. The lack of midden in proveniences other than the room suggests that the rooms were not in use as storage facilities when the site was abandoned. However, the midden is believed to have been deposited by the inhabitants of Pozo Hamlet. The lack of midden in the pitstructure suggests that few Anasazi were using the area around Pozo Hamlet after the abandonment of the site.

The fills in the domestic features (the hearth, 1 ash pit, and the possible warming pit) indicate that these features were not in use upon the abandonment of the pitstructure. The hearth and the possible warming pit were capped with adobe, suggesting disuse; the ash pit was filled with sand. Bullard (1962:160) indicates that pits that were plastered over or filled with sand were probably not in use. Bullard (1962:155) also suggests that hearths are standard features in pithouses and surface living rooms and that the absence of a hearth indicates seasonal occupation during warm months of the year. Ceramic dating indicates that the structures, their floors, and all cultural (midden) fills are contemporaneous and fall within a time range of A.D. 700-750.

Integration of Spatial and Temporal Units

General Setting According to Program Systematics

Dating of Pozo Hamlet places the habitation in the Sagehill Subphase (A.D. 700-780) of the Sagehen Phase. The structures and the activities that took place on the site have been assigned to a single element. Remodeling was evident in Pitstructure 1. The midden fill in the surface rooms is evidence for their disuse sometime before the abandonment of the site. Other rooms might have been in use to the north of the pitstructure while Rooms 1, 2, 3, and 4 were being filled. However, the destruction of this portion of the site during the construction of Montezuma County Main Canal 2 rendered investigation impossible.

Element 1

Hayes and Lancaster (1975:182) suggest that early Mesa Verde Region pitstructures were the center for the domestic activities of a nuclear or extended family. The dwelling at Pozo Hamlet and the associated storage rooms, use areas, and features have been assigned to Household Cluster 108.

Household Cluster 108. – It is assumed that all the structures found at Pozo Hamlet were used by a single family unit. During the early use of the site, Pitstructure 1 and Rooms 1, 2, 3, and 4 were used simultaneously. The midden fill in the storage rooms indicates that their use as storage facilities was discontinued, while the use of the pitstructure continued until the abandonment of the site. The filling and capping of the pitstructure floor features well into the use of the structure indicates a shift in the use of the pitstructure from a year-round habitation to a seasonal occupation unit.

Material culture of Element 1. – A total of 497 sherds, 104 flaked lithic tools, 334 pieces of flaked lithic debitage, 43 nonflaked lithic tools, and 84 pieces of nonhuman bone were collected during the investigation of Pozo Hamlet. These items are presented in table form in appendix 8A.

Ceramic artifacts. – The assemblage of 496 sherds consisted of 2 gray ware bowl sherds (0.4 percent), 420 gray ware jar sherds (84.1 percent), 15 sherds (2.5 percent) from other gray ware vessels (i.e., seed jars and jar handles), 55 white ware bowl sherds (11.9 percent), 4 white ware jar sherds (1.2 percent), and 2 red ware jar sherds (0.1 percent).

Gray ware jars and white ware bowls make up the vast majority (96.0 percent) of the ceramic assemblage at Pozo Hamlet, but these 2 classes are not evenly distributed across the excavated portions of the site. The midden fills of the surface rooms and the modern ground surface account for 34.8 and 15.? percent of the gray ware jar sherds, while only 15.1 and 9.4 percent of the white ware bowl sherds occur in the same proveniences. This distribution is reversed in the pitstructure proveniences, in which roof fall and noncultural fills account for 21.8 and 45.3 percent of the jars and bowls, respectively, and the floor and cultural fill of one feature account for 27.2 and 28.3 percent, respectively. This disproportionate concentration of white ware bowl sherds in the pitstructure proveniences may be the result of differential breakage rates in which middens accumulate higher proportions of cooking jars than serving containers, based on observations that serving vessels are liable to be broken slightly less frequently than cooking jars (Foster 1960; David 1972). Thus, if the pitstructure proveniences contain some de facto refuse (Schiffer 1972) as well as trash from the filling of the depression after abandonment, a higher proportion of bowl sherds would be expected there than in the midden or surface collections, which are unlikely to include de facto refuse.

Temper and paste characteristics are used to assign sherds to regions of origin (culture categories and manufacturing tracts; Lucius 1981b). The vast majority of the sherds (91.7 percent) are assigned to the Dolores Manufacturing Tract and are probably locally made. A few sherds (3.6 percent) have a crushed igneous rock temper that is attributed to the San Juan Tract to the south of the Dolores area, and 1 sherd is assigned to the Animas Tract to the east. Both the Cahone and Sandstone Tracts are to the west-southwest of the Dolores area, and together contribute 6 sherds to the assemblage. The single Slipped Red sherd is believed to have been manufactured in the Blanding Tract in southwest Utah. Seven sherds are believed to have been made outside of the Mesa Verde region, 1 in the Kayenta region, 1 in the Cibola region, and 5 in one or the other of the 2 latter regions. Temper could not be identified in 8 sherds, and their areas of origin are unknown.

Flaked lithic tools. – The flaked lithic tools assemblage is summarized in appendix 8A. Except for 1 item of obsidian, 2 items of chalcedony, and 1 item of chert, all of the tools are of local raw material. There appears to be a correlation between material types from the modern ground surface and those from the midden fill in the rooms. Of the modern ground surface collection, 23.5 percent of the tools are of hornfels, and 33.7 percent of the tools from the room fills are of hornfels.

Dorsal face evaluation of the 104 flaked lithic tools indicates that 57.7 percent of the flaked lithic tools are either utilized flakes or tools with only marginal flaking; 16.3 percent of the items have some facial thinning, and only 7.7 percent of the tools are facially thinned. The percent of tools found to be complete is high (69.8 percent). Hornfels was found to be used in 41.3 percent of the flaked lithic tools. The high percentage of low-input tools, the prevalent use of immediately available hornfels material, and the large percentage of complete items suggest that an expedient tool technology was being implemented. This would indicate that the inhabitants of Pozo Hamlet were producing tools as they were needed, and the items were being disposed of following use or excess wear. In this case, tools would be produced from whatever materials were on hand or easily obtainable. One highly stylized item (a biface fragment) and one well-shaped item (a corner-notched projectile point) were collected from the roof fall of Pitstructure 1. The items were both fragmentary. The materials from which these tools were made were nonlocal, and the high-production input is atypical of the general pattern found among the other flaked lithic tools from Pozo Hamlet.

Flaked lithic debitage. – The flaked lithic debitage recovered from Pozo Hamlet is summarized in appendix 8A. A total of 334 items was collected. Of that total, 2.4 percent are medium-grained items and 13.2 percent are microscopic-grained items. Very fine grained material, largely hornfels, makes up 57.4 percent of the total collection. This high percentage is due to a disproportionately high number of hornfels waste flakes (74 out of 82) in Pitstructure 1. Of the 14 waste flakes collected from the roof fall in Pitstructure 1, 10 (71.4 percent) are hornfels, indicating that tool processing probably occurred in Pitstructure 1. This is further supported by the high percentage of flake lithic tools of hornfels.

Nonflaked lithic tools. – The nonflaked lithic tools are summarized in appendix 8A. Of the 42 tools, 27 (64.3 percent) are complete or nearly so, and 28 (66.7 percent) of the tools had been used in their natural form or at least exhibited no characteristics that would indicate shaping or other reductive techniques. The Pitstructure 1 floor and roof fall yielded 30 nonflaked lithic tools. Most of the metates and metate fragments (72.7 percent) were collected from the pitstructure floor, features, and the roof fall. In addition, pitstructure proveniences yielded 50 percent of the manos and mano fragments from Pozo Hamlet.

The high percentages of low-input tools and complete items further suggest the prevalence of expedient tool use. The high proportion of metates, metate fragments, manos, and mano fragments from the pitstructure suggests that the structure was the primary food processing area.

Applicability of Site Data to the Dolores Archaeological Program Research Design

Due to the Track 2 level of investigation, many of the pertinent questions outlined in the DAP research design (Kane, Lipe et al. 1981) cannot be answered or can only be approached through inference.

Economy and Adaptation

Resource use. – Indications as to the use of available resources are sketchy at best. The only flotation samples collected were from the bell-shaped pit (Feature 5). Only a gross representation of vegetal material was collected from Pitstructure 1. Lithic material is the most completely represented resource.

Vegetal material collected from the roof fall in Pitstructure 1 indicates that ponderosa pine (*Pinus ponderosa*) was used in the construction of the structure. Fragments of sagebrush wood (*Artemisia*) and reed culms (*Phragmites*) were collected from the bench; these might have been part of the roof also. No vegetal material was recovered from the surface rooms to indicate what types of materials were used in the construction.

Corn was the only cultigen recovered from Pitstructure 1. The absence of beans and squash is likely due to the nature of the abandonment of the structure and the poor preservation. The only other evidence of potential food resources came from the flotation samples collected from Feature 5, a possible storage cist in Nonstructural Unit 1. A limited quantity of charred *Chenopodium*, *Amaranthus*, and *Portulaca* seeds and fruits was retrieved from the fill of the feature. Although the fill is not believed to be directly associated with the feature, most of the contents probably relate to the occupation of the site. These 3 taxa of ruderal plants are common in disturbed habitats and are documented in the ethnographic literature as valuable food resources.

The variety of botanical taxa illustrates exploitation of the 2 immediately surrounding vegetation zones, the riparian woodland and the pinyon-juniper woodland. The ruderal plant remains from Feature 5 could have been growing in cultivated fields, in the disturbed area around the site, or within the outer perimeters of either vegetation zone. The mixture of cultivated and ruderal plant remains suggests a mixed agricultural-gathering subsistence strategy for plant food resources.

The presence of nonhuman bone in the midden fills and on the pithouse floor indicates that the faunal population was exploited. Only 6 bone fragments could be identified as bird; almost all represent mammals. Both large and small mammal bones were recovered; most common are those of artiodactyls and rabbits. A list of the faunal remains from Pozo Hamlet is presented in appendix 8A. The presence of bone tools in the pithouse indicates that the fauna in the area were being exploited for tool material as well as for food. The presence of 4 bear bones in the Pitstructure 1 assemblage is notable. Very few bear bones have been recovered from the project area. While an interpretation cannot be made as to the reason for their presence at Pozo Hamlet, bear has been ethnographically linked to ceremonial and medicinal activities (Tyler 1975; White 1942, 1947).

The 2 main lithic resources represented at Pozo Hamlet are the crushed igneous rock temper in the ceramic artifacts and the hornfels from which many of the flaked lithic items were made. It is not known if the inhabitants of the site manufactured pottery. However, the majority of the sherds at Pozo Hamlet contained temper that can be found along the Dolores River bottom. Much the same is true for the flaked lithic artifacts. Although material from the Burro Canyon or Dakota Formation and the Morrison Formation is readily available in the canyon walls, the gravels and cobbles from the river bottom appear to have been the most utilized. The raw materials used in the grinding tools were well-cemented sandstone slabs and cobbles. This material is easily obtained from Dakota Formation outcrops and lower slopes along the wall of the river valley.

Economic processes. – The material collected from the site suggests that the following took place at Pozo Hamlet: hunting and its related lithic industry, gathering and its related processing and storage activities, and farming with its related processing and storage activities. The presence of a large number of disposable tools indicates that the lithic industry consisted of expedient manufacture, use, and discard. This low-input industry is inferred to have been related to the onsite processing of foodstuffs. The large proportion of jars parallels the suggestion that onsite food processing and storage was a primary activity at Pozo Hamlet. Pitstructure 1 appears to be the center for these activities based on the disproportionately large amount of manos and metates. Pitstructure 1 is also thought to be the center for the expedient flaked tools industry because of the presence of a disproportionately large number of stored tools and cores of hornfels and because the flaked lithic debitage of hornfels seems to dominate the assemblage almost to the exclusion of other lithic material.

The final use of Pitstructure 1 appears to have been seasonal in nature due to the permanent cap on the hearth. Ballard (1962:158) suggests that filling or capping of a hearth may indicate periodic use of a structure during warm months of the year. The presence of slight oxidation beneath the adobe cap suggests that the pitstructure had been a year-round dwelling sometime early in its history.

Food storage is inferred to have been the primary purpose for the four surface rooms southwest of the pitstructure. The storage capacities of the rooms cannot be determined, although floor areas have been inferred. Interior capacities of the rooms could be misleading if used for demographic or consumption computations. No macrobotanical remains were collected that suggested at what stage of procurement or processing the foodstuffs had been stored in the rooms.

Paleodemography

During the Basketmaker III period or early Sagehen Phase (A.D. 600-775), the typical habitation was occupied by a single household group that used a pitstructure as the focus of domestic activities. Lightly constructed surface storage rooms were located nearby (Birkedal 1976).

Because of the disturbance or destruction of large portions of the site, food storage volumes were not calculated and are not available for computation of the site population. Whether the 4 storage structures were the only rooms used contemporaneously for food storage cannot be determined. Following a review of Casselberry (1974), Narroll (1962), Cook (1972), and Hill (1970), Casselberry's formula (1974:117-122) appears to best incorporate the available data from Pozo Hamlet. Using his formula of allotting one-sixth of the total roofed area per person, Pitstructure 1 has the capacity for 4.97 persons. This is computed using the total floor area of 29.84 m². In his discussion, the average household size at Broken K Pueblo was 5 to 6 individuals. Netting's (1982:641) ethnographic studies suggest that agricultural households average 4 to 5 individuals. An estimate that the household at Pozo Hamlet consisted of 4 to 6 individuals for the period of time the pitstructure was in use as a year-round habitation is in agreement with the Casselberry figure. The lack of roofed-area data and food storage volume data leaves the site population indeterminate for the period during which the site is inferred to have experienced seasonal use.

Social Organization

The presence of a single pithouse suggests that the level of social organization at Pozo Hamlet was most likely the nuclear family. This parallels the suggestion made by Bullard (1962:102). The nuclear family unit is typical of Sagehen Phase (A.D. 600-850) habitations investigated within the project area (Kane 1981). At least 1 other site, located approximately 700 m to the southeast, may be contemporaneous with Pozo Hamlet. It is not known whether the inhabitants of Pozo Hamlet were related to the inhabitants of the site to the southeast. Other small, contemporaneous family units may have existed on the alluvial fan. There could have been a dispersed community present in the immediate area.

The pithouse features indicate the possibility that the nuclear family at Pozo Hamlet had discontinued their use of Pitstructure 1 as a year-round dwelling but did not move from the area. It is suspected that a new dwelling had been constructed nearby, and that use of Pitstructure 1 continued on a seasonal basis or for food processing.

Pozo Hamlet is contemporaneous with widely dispersed, nuclear, and extended family habitations on the project area. These dispersed communities were harvesting cultigens as well as hunting and gathering for subsistence. Contact between these family units is probable (Kane 1981).

Extraregional Relationships

Evidence of extraregional relationships is expressed by the presence of a few sherds and fewer flaked lithic tools in the artifact assemblage. Tempering material found in a small percentage of sherds indicates they are from vessels that were manufactured in either the Cibola or the Kayenta Culture Category. A few sherds are from vessels that were from the San Juan Manufacturing Tract south of the project area. The eastern area of the Mesa Verde region is represented by 1 sherd from a vessel manufactured in the Animas area. Sherds from vessels manufactured west of the project area, in the Blanding Tract, are also present.

Two partial flaked lithic tools of nonlocal material were recovered from the roof fall in Pitstructure 1. Both items exhibited high-production-input technology. One item was highly stylized and the other was very well shaped. The amount of input suggests that these items were made elsewhere, since most of the flaked lithic tool assemblage consists of local material that exhibits very little production input. This nonlocal material is thought to have originated south of the Mesa Verde Region.

The presence of a small number of nonlocal ceramic artifacts and flaked lithic tools suggests that there had been at least indirect contact with peoples not only outside the project area but outside the Mesa Verde Region. Whether the artifacts were obtained through direct contact with other peoples cannot be determined; however, the small amount of nonlocal material suggests that they were obtained through exchange networks rather than organized trade.

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APPENDIX 8A

MATERIAL CULTURE TABLES

Table PA.1 - Ceramic data summary, Pozo Hamlet

Culture category: Tract / Ware / Type	Modern ground surface N	%wt	Room 1 fill N	%wt	Rooms 2 and 3 fill N	%wt	Room 4 fill N	%wt
Mesa Verde:								
Dolores Tract								
Gray Ware								
Chapin Gray	2	2.3	2	1.5	3	6.8		
Early Pueblo Gray	63	88.4	64	91.4	59	81.6	6	77.2
Late Pueblo Gray	2	3.3						
White Ware								
Chapin B/W			1	1.6	1	1.4	1	14.2
Cortez B/W								
Painted White			1	0.9				
Polished White	3	3.6	1	0.2	1	6.5	1	8.7
San Juan Tract								
Gray Ware								
Chapin Gray								
Early Pueblo Gray			5	3.0	1	0.8		
White Ware								
Chapin B/W								
Piedra B/W	1	1.4						
Painted White								
Animas Tract								
Gray Ware								
Early Pueblo Gray								
Canone Tract								
Gray Ware								
Chapin Gray								
Early Pueblo Gray	1	0.6	1	0.9				
Sandstone Tract								
Gray Ware								
Early Pueblo Gray								
Blanding Tract								
Red Ware								
Slipped Red					1	0.3		
Cibola:								
White Ware								
La Plata B/W								
Kayenta:								
Red Ware								
Tallahogan Red					1	0.5		
Cibola or Kayenta:								
Gray Ware								
Early Pueblo Gray			1	0.4				
White Ware								
Early Pueblo White					1	0.6		
Indeterminate:								
Gray Ware								
Unclassifiable Gray					1	1.4		
White Ware								
Unclassifiable White								
Total ceramics	72	100.0	76	100.0	69	100.0	8	100.0
Total wt (g)	244.2		655.8		515.6		38.1	
Vessel form:								
Gray Ware								
Bowl	2	3.0	1	0.9				
Jar	66	91.6	71	95.2	64	90.6	6	77.2
Other			1	1.1				
White Ware								
Bowl	4	5.4	3	2.8	3	8.5	2	22.8
Jar								
Red Ware								
Jar					2	0.9		

Table PA.1 - Ceramic data summary, Pozo Hamlet - Continued

Culture category: Tract / Ware / Type	Nonstructural Unit 1 fill and features N	%wt	Other excavated units N	%wt	Site total N	%wt
Mesa Verde:						
Dolores Tract						
Gray Ware						
Chapin Gray					37	20.2
Early Pueblo Gray	1	11.2	3	76.6	377	63.6
Late Pueblo Gray					2	0.1
White Ware						
Chapin B/W					8	3.5
Cortez B/W	2	43.9			2	0.8
Painted White					11	2.3
Polished White					18	2.9
San Juan Tract						
Gray Ware						
Chapin Gray					4	0.4
Early Pueblo Gray					8	0.4
White Ware						
Chapin B/W					5	1.7
Piedra B/W					1	0.1
Painted White					1	
Animas Tract						
Gray Ware						
Early Pueblo Gray					1	0.1
Canone Tract						
Gray Ware						
Chapin Gray					2	0.5
Early Pueblo Gray					2	0.1
Sandstone Tract						
Gray Ware						
Early Pueblo Gray					2	0.2
Blanding Tract						
Red Ware						
Slipped Red					1	<0.1
Cibola:						
White Ware						
La Plata B/W	1	44.8			1	0.8
Kayenta:						
Red Ware						
Tallahogan Red					1	<0.1
Cibola or Kayenta:						
Gray Ware						
Early Pueblo Gray					1	<0.1
White Ware						
Early Pueblo White					4	0.3
Indeterminate:						
Gray Ware						
Unclassifiable Gray			2	23.4	7	1.5
White Ware						
Unclassifiable White					1	0.4
Total ceramics	4	100.0	5	100.0	497	100.0
Total wt (g)	113.8		58.6		6,681.0	
Vessel form:						
Gray Ware						
Bowl					6	0.8
Jar	1	11.2	5	100.0	422	84.1
Other					15	2.5
White Ware						
Bowl	1	44.8			49	11.3
Jar	2	43.9			3	1.2
Red Ware						
Jar					2	0.1

Table 8A.2 - Flaked lithic tools, Pozo Hamlet

	Modern ground surface			Room 1					
				Floor 1			Fill		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	17	100.0	33	1	100.0	5	18	100.0	103
Tool morpho-use									
Indeterminate	2	11.8	14						
Utilized flake	9	52.9	19	1	100.0	5	12	66.7	71
Core							2	11.1	142
Used core, cobble tool							1	5.6	444
Thick uniface							1	5.6	110
Thin uniface	1	5.9	175						
Specialized form	1	5.9	17						
Thick biface	2	11.8	81				2	11.1	87
Thin biface	1	5.9	4						
Projectile point	1	5.9	1						
Grain size									
Medium							1	5.6	171
Fine	7	41.2	8	1	100.0	5	2	11.1	38
Very fine	7	41.2	67				12	66.7	113
Microscopic	3	17.6	10				3	16.7	85
Item condition									
Broken									
Indeterminate	1	5.9	24						
Distal present	5	29.4	13						
Proximal present	3	17.6	2				1	5.6	36
Medial/lateral present							1	5.6	110
Complete/nearly complete	8	47.1	57	1	100.0	5	16	88.9	107
Dorsal face evaluation									
Core							2	11.1	142
Unworked with cortex	5	29.4	62				10	55.6	91
Unworked without cortex	7	41.2	7	1	100.0	5	3	16.7	16
Edged with cortex	1	5.9	138				2	11.1	274
Edged without cortex	1	5.9	24						
Primarily thinned	1	5.9	24				1	5.6	70
Secondarily thinned	2	11.8	3						
Well shaped									
Highly stylized									

Table 8A.2 - Flaked lithic tools, Pozo Hamlet - Continued

	Room 1			Rooms 2 and 3 fill			Room 4 fill		
	Total								
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	19	100.0	98	18	100.0	91	9	100.0	122
Tool morpho-use									
Indeterminate									
Utilized flake	13	68.4	65	10	55.6	44	5	55.6	116
Core	2	10.5	142	1	5.6	181			
Used core, cobble tool	1	5.3	444	4	22.2	201	1	11.1	246
Thick uniface	1	5.3	110						
Thin uniface				2	11.1	4'	1	11.1	61
Specialized form									
Thick biface	2	10.5	87	1	5.6	139	1	11.1	137
Thin biface							1	11.1	69
Projectile point									
Grain size									
Medium	1	5.3	171	1	5.6	200			
Fine	3	15.8	27	1	5.6	18	2	22.2	99
Very fine	12	63.2	113	9	50.0	136	7	77.8	128
Microscopic	3	15.8	85	7	38.9	28			
Item condition									
Broken									
Indeterminate									
Distal present									
Proximal present	1	5.3	36	1	5.6	21			
Medial/lateral present	1	5.3	110	2	11.1	42			
Complete/nearly complete	17	89.5	101	15	83.3	103	9	100.0	122
Dorsal face evaluation									
Core	2	10.5	142	3	16.7	100			
Unworked with cortex	10	52.6	91	2	11.1	123	6	66.7	138
Unworked without cortex	4	21.1	13	8	44.4	24	1	11.1	61
Edged with cortex	2	10.5	[illegible]	3	16.7	274	1	11.1	137
Edged without cortex				2	11.1	41	1	11.1	69
Primarily thinned	1	5.3	70						
Secondarily thinned									
Well shaped									
Highly stylized									

Table RA.2 - Flaked lithic tools, Pozo Hamlet - Continued

	Pitstructure 1								
	Main Chamber								
	Floor 1 and features			Fill*			Total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	23	100.0	315	15	100.0	296	38	100.0	308
Tool morpho-use									
Indeterminate	1	4.3	203	1	6.7	5	2	5.3	104
Utilized flake	7	30.4	61	1	6.7	25	8	21.1	57
Core	3	13.0	1,006	3	20.0	304	6	15.8	655
Used core, cobble tool	5	21.7	417	4	26.7	749	9	23.7	565
Thick uniface	2	8.7	272	1	6.7	33	3	7.9	192
Thin uniface	1	4.3	366	1	6.7	7	2	5.3	187
Specialized form				1	6.7	450	1	2.6	450
Thick biface	3	13.0	193				3	7.9	193
Thin biface	1	4.3	29	1	6.7	12	2	5.3	21
Projectile point				2	13.3	2	2	5.3	2
Grain size									
Medium	1	4.3	45				1	2.6	45
Fine				4	26.7	368	4	10.5	368
Very fine	20	87.0	357	7	46.7	418	27	71.1	373
Microscopic	2	8.7	37	4	26.7	10	6	15.8	19
Item condition									
Broken									
Indeterminate	1	4.3	203				1	2.6	203
Distal present				3	20.0	3	3	7.9	3
Proximal present									
Medial/lateral present	1	4.3	17				1	2.6	17
Complete/nearly complete	21	91.3	335	12	80.0	369	33	86.8	347
Dorsal face evaluation									
Core	6	26.1	736	7	46.7	558	13	34.2	640
Unworked with cortex	9	39.1	200	1	6.7	450	10	26.3	225
Unworked without cortex	4	17.4	77	2	13.3	16	6	15.8	56
Edged with cortex	4	17.4	183				4	10.5	183
Edged without cortex				1	6.7	33	1	2.6	33
Primarily thinned				1	6.7	1	1	2.6	1
Secondarily thinned				1	6.7	12	1	2.6	12
Well shaped				1	6.7	2	1	2.6	2
Highly stylized				1	6.7	5	1	2.6	5

* This column contains roof fall.

Table RA.2 - Flaked lithic tools, Pozo Hamlet - Continued

	Other excavated units			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	3	100.0	522	104	100.0	195
Tool morpho-use						
Indeterminate				4	3.8	59
Utilized flake				45	43.3	55
Core				9	8.7	488
Used core, cobble tool	2	66.7	700	17	16.3	469
Thick uniface				4	3.8	172
Thin uniface				6	5.8	115
Specialized form				2	1.9	234
Thick biface	1	33.3	166	10	9.6	136
Thin biface				4	3.8	29
Projectile point				3	2.9	1
Grain size						
Medium				3	2.9	139
Fine	1	33.3	555	18	17.3	132
Very fine	1	33.3	845	63	60.6	236
Microscopic	1	33.3	166	20	19.2	38
Item condition						
Broken						
Indeterminate				2	1.9	114
Distal present				8	7.7	4
Proximal present				5	4.8	13
Medial/lateral present	1	33.3	166	5	4.8	75
Complete/nearly complete	2	66.7	700	84	80.8	210
Dorsal face evaluation						
Core	1	33.3	555	19	18.3	498
Unworked with cortex				33	31.7	138
Unworked without cortex	1	33.3	166	27	26.0	32
Edged with cortex	1	33.3	845	12	11.5	268
Edged without cortex				5	4.8	41
Primarily thinned				3	2.9	32
Secondarily thinned				3	2.9	6
Well shaped				1	1.0	2
Highly stylized				1	1.0	5

[illegible]

	Modern ground surface			Room 1 Floor 1			Room 1 Fill			Room 1 Total			Rooms 2 and 3 fill			Room 4 fill		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:																		
Grain size																		
Medium	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fine	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Very fine	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Microscopic	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total flakes/ flake frags	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Items with cortex	[illegible]	[illegible]	...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	...	[illegible]	[illegible]	...	[illegible]	[illegible]	...	[illegible]	[illegible]	...
Whole flakes	[illegible]	[illegible]	...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	...	[illegible]	[illegible]	...	[illegible]	[illegible]	...	[illegible]	[illegible]	...
Nonlocal items	[illegible]	[illegible]	...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Angular debris	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: ... = information not available.

[illegible]

	Pitstructure 1, Main Chamber, Floor 1 and features			Pitstructure 1, Main Chamber, Fill*			Pitstructure 1, Main Chamber, Total			[illegible]			[illegible]		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:															
Grain size															
Medium	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Fine	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Very fine	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Microscopic	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total flakes/ flake frags	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Items with cortex	[illegible]	[illegible]	...	[illegible]	[illegible]	...	[illegible]	[illegible]	...	[illegible]	[illegible]	...	[illegible]	[illegible]	...
Whole flakes	[illegible]	[illegible]	...	[illegible]	[illegible]	...	[illegible]	[illegible]	...	[illegible]	[illegible]	...	[illegible]	[illegible]	...
Nonlocal items	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Angular debris	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* This column includes roof fall.

Table PA.4 - Nonflaked lithic tools, Pozo Hamlet

	Modern ground surface			Room 1 Floor 1			Room 1 Fill		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	5	100.0	1,006	1	100.0	27,300	2	100.0	602
Tool morpho use									
Indeterminate									
Miscellaneous	3	60.0	683				1	50.0	47
Hammerstone	1	20.0	1,454						
Mano fragment							1	50.0	1,156
Two-hand mano									
Metate fragment									
Trough metate	1	20.0	1,524	1	100.0	27,300			
Ornament									
Blank type									
Rounded cobble									
Flattened cobble	4	80.0	876				2	100.0	602
Slab fragment									
Thick slab									
Thin slab	1	20.0	1,524	1	100.0	27,300			
Very thin slab									
Completely modified item									
Item condition									
Broken									
Unidentifiable	2	40.0	1,662						
Identifiable				1	100.0	27,300	1	50.0	47
Complete/nearly complete	3	60.0	568				1	50.0	1,156
Production evaluation									
Indeterminate	1	20.0	1,524				1	50.0	1,156
Natural (unmodified)	4	80.0	876				1	50.0	47
Minimally modified				1	100.0	27,300			
Well shaped									

Table 8A.4 - Nonflaked lithic tools, Pozo Hamlet - Continued

	Room 1 Total			Rooms 2 and 3 fill			Room 4 fill		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	3	100.0	9,501	1	100.0	47	2	100.0	201
Tool morpho use									
Indeterminate									
Miscellaneous	1	33.3	47	1	100.0	47	2	100.0	201
Hammerstone									
Mano fragment	1	33.3	1,156						
Two-hand mano									
Metate fragment									
Trough metate	1	33.3	27,300						
Ornament									
Blank type									
Rounded cobble									
Flattened cobble	2	66.7	602	1	100.0	47	1	50.0	362
Slab fragment									
Thick slab									
Thin slab	1	33.3	27,300						
Very thin slab							1	50.0	40
Completely modified item									
Item condition									
Broken									
Unidentifiable									
Identifiable	2	66.7	13,674						
Complete/nearly complete	1	33.3	1,156	1	100.0	47	2	100.0	201
Production evaluation									
Indeterminate	1	33.3	1,156						
Natural (unmodified)	1	33.3	47	1	100.0	47	1	50.0	362
Minimally modified	1	33.3	27,300						
Well shaped							1	50.0	40

Table 8A.4 - Nonflaked lithic tools, Pozo Hamlet - Continued

	Pitstructure 1 Main Chamber								
	Floor 1 and features			Fills*			Total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	18	100.0	4,010	13	100.0	8,307	31	100.0	5,811
Tool morpho use									
Indeterminate	2	11.1	2,175				2	6.5	2,175
Miscellaneous	6	33.3	824	1	7.7	89	7	22.6	719
Hammerstone	2	11.1	498	1	7.7	429	3	9.7	475
Mano fragment	2	11.1	1,277	3	23.1	2,533	5	16.1	2,031
Two-hand mano	3	16.7	1,612	1	7.7	1,470	4	12.9	1,577
Metate fragment				1	7.7	33,000	1	3.2	33,000
Trough metate	2	11.1	27,250	6	46.2	10,900	8	25.8	14,988
Ornament	1	5.6	1				1	3.2	1
Blank type									
Rounded cobble	4	22.2	402	1	7.7	429	5	16.1	407
Flattened cobble	10	55.6	1,553	4	30.8	1,665	14	45.2	1,585
Slab fragment				2	15.4	5,000	2	6.5	5,000
Thick slab				1	7.7	22,650	1	3.2	22,650
Thin slab	1	5.6	51,500	3	23.1	20,867	4	12.9	28,525
Very thin slab	2	11.1	1,771	1	7.7	3,150	3	9.7	2,231
Completely modified item	1	5.6	1	1	7.7	2,500	2	6.5	1,251
Item condition									
Broken									
Unidentifiable	3	16.7	2,450	3	23.1	5,100	6	19.4	3,775
Identifiable	1	5.6	154	3	23.1	16,700	4	12.9	12,564
Complete/nearly complete	14	77.8	4,620	7	53.8	6,084	21	67.7	5,108
Production evaluation									
Indeterminate	4	22.2	1,261	3	23.1	5,100	7	22.6	2,906
Natural (unmodified)	7	38.9	1,091	4	30.8	8,917	11	35.5	3,937
Minimally modified	4	22.2	14,540	5	38.5	11,110	9	29.0	12,634
Well shaped	3	16.7	444	1	7.7	1,470	4	12.9	702

* This column contains roof fall.

Table 8A.4 - Nonflaked lithic tools, Pozo Hamlet - Continued

	Other excavated units			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	1	100.0	2,550	43	100.0	5,039
Tool morpho use						
Indeterminate				3	7.0	1,465
Miscellaneous	1	100.0	2,550	14	32.6	720
Hammerstone				4	9.3	720
Mano fragment				6	14.0	1,885
Two-hand mano				4	9.3	1,577
Metate fragment				1	2.3	33,000
Trough metate				10	23.3	14,872
Ornament				1	2.3	1
Blank type						
Rounded cobble				5	11.6	407
Flattened cobble	1	100.0	2,550	23	53.5	1,298
Slab fragment				2	4.7	5,000
Thick slab				1	2.3	22,650
Thin slab				6	14.0	23,821
Very thin slab				4	9.3	1,683
Completely modified item				2	4.7	1,251
Item condition						
Broken						
Unidentifiable				8	18.6	3,747
Identifiable	1	100.0	2,550	7	16.3	11,450
Complete/nearly complete				28	65.1	3,949
Production evaluation						
Indeterminate	1	100.0	2,550	10	23.3	2,558
Natural (unmodified)				18	41.9	2,626
Minimally modified				10	23.3	14,101
Well shaped				5	11.6	570

Table 8A.5 - Taxonomic composition of the faunal assemblage, Pozo Hamlet

Taxon	Indeterminate			Identifiable			Total		
	N	% class	% total	N	% class	% total	N	% class	% total
Mammalia:									
Mammalia, indeterminate	2	5.7	4.9				2	2.6	2.4
Mammalia, small	7	20.0	17.1				7	9.2	8.3
Mammalia, medium	3	8.6	7.3				3	4.0	3.6
Mammalia, medium or large	2	5.7	4.9				2	2.6	2.4
Mammalia, large	21	60.0	51.2				21	27.6	25.0
Lepus spp.									
jackrabbits				11	26.8	25.6	11	14.5	13.1
Sylvilagus spp.									
cottontails				7	17.1	16.3	7	9.2	8.3
Sciuridae									
squirrel				2	4.9	4.7	2	2.6	2.4
Spermophilus variegatus									
rock squirrel				1	2.4	2.3	1	1.3	1.2
Castor canadensis									
beaver				1	2.4	2.3	1	1.3	1.2
Carnivora									
carnivores				1	2.4	2.3	1	1.3	1.2
Ursus spp.									
bear				3	7.3	7.0	3	4.0	3.6
Ursus americanus									
black bear				1	2.4	2.3	1	1.3	1.2
Artiodactyla									
artiodactyl				12	29.3	27.9	12	15.8	14.3
Cervidae									
deer family				2	4.9	4.7	2	2.6	2.4
Total Mammalia	35	100.0	85.4	41	100.0	95.3	76	100.0	90.4
Aves or Mammalia	2	100.0	4.9				2	100.0	2.4
Aves:									
Aves, indeterminate	3	75.0	7.3				3	50.0	3.6
Aves, medium	1	25.0	2.4				1	16.6	1.2
Branta canadensis									
Canada goose				2	100.0	4.7	2	33.3	2.4
Total Aves	4	100.0	9.7	2	100.0	4.7	6	100.0	7.2
Total assemblage	41		100.0	43		100.0	84		100.0

Table 8A.6 - Worked nonhuman bone, Pozo Hamlet

	Pitstructure 1						Site total	
	Floor 1 and features		Fill*		Total			
	N	%	N	%	N	%	N	%
Total tools:	4	100.0	7	100.0	11	100.0	11	100.0
Taxon								
Mammalia, small	1	25.0			1	9.1	1	9.1
Mammalia, medium			1	14.3	1	9.1	1	9.1
Mammalia, large	1	25.0	6	85.7	7	63.6	7	63.6
Lepus	1	25.0			1	9.1	1	9.1
Cervidae	1	25.0			1	9.1	1	9.1
Tool morpho-use								
Indeterminate	1	25.0	2	28.6	3	27.3	3	27.3
Awl	1	25.0	4	57.1	5	45.5	5	45.5
Edged tool	1	25.0	1	14.3	2	18.2	2	18.2
Punch/pressure flaker	1	25.0			1	9.1	1	9.1
Blank type								
Indeterminate	2	50.0	4	57.1	6	54.5	6	54.5
Broken bone	2	50.0	1	14.3	3	27.3	3	27.3
Split bone			2	28.6	2	18.2	2	18.2
Item condition								
Broken								
Proximal present			1	14.3	1	9.1	1	9.1
Medial and lateral present	1	25.0	1	14.3	2	18.2	2	18.2
Distal present			1	14.3	1	9.1	1	9.1
Complete/nearly complete	3	75.0	4	57.1	7	63.6	7	63.6
Production evaluation								
Indeterminate			1	14.3	1	9.1	1	9.1
Some evidence	1	25.0	2	28.6	3	27.3	3	27.3
Minimally shaped	3	75.0			3	27.3	3	27.3
Moderately shaped			2	28.6	2	18.2	2	18.2
W[illegible] shaped			1	14.3	1	9.1	1	9.1
[illegible]etely shaped			1	14.3	1	9.1	1	9.1

* This column includes roof fall.

APPENDIX 8B

ADDITIONAL MAGNETOMETER DATA FOR POZO HAMLET

The initial magnetic reconnaissance of Pozo Hamlet was conducted by the Nebraska Center for Archaeophysical Research in May, 1980. Data recovered during this survey indicated that no anomalies of archaeological significance were detected (Bennett and Weymouth 1982). However, the grid stakes associated with this survey were removed during the winter and a second survey was initiated in June, 1981. Two 20- by 20-m blocks, oriented east-west, were surveyed (fig 8.4), and three anomalies of archaeological interest were noted (table 8B.1, fig. 8B.1). Two of these anomalies (S3a and F3a) were within the bladed portion of the site, but no cultural features were recorded in association with them. The third anomaly (I4a) was not investigated.

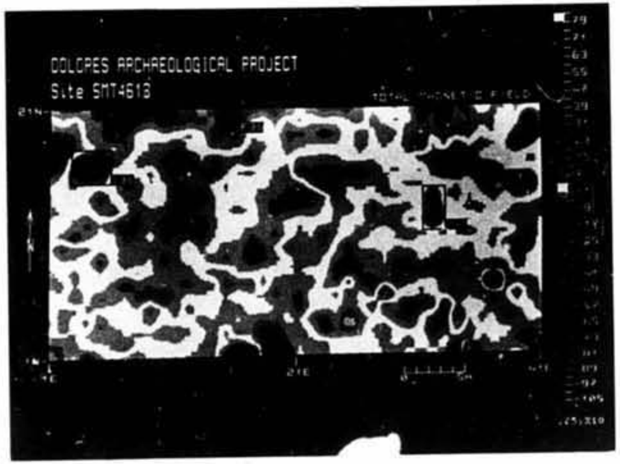

Figure 8B.1 - Subsurface magnetic field, Pozo Hamlet. ... refer to the magnetometer grid units.

Table 8B.1 - Magnetic anomalies with possible archaeological affiliations at Pozo Hamlet

Anomaly & priority*	Location of center†	Possible source	Statistics§	Comments
S3a	16N/4E	Structure	A = 23 xA = 2	Possibly a burned surface structure
F3a	20N/15E	Feature	A = 20 xA = 0.75	This may be a burned feature or surface structure
I4a	13N/32E	Anomaly of interest	A = 12 xA = 2	

* Each anomaly is assigned a priority between 1 and 5, with 1 indicating the clearest and most identifiable anomalies (definite pitstructures or kivas) and 5 indicating the least identifiable anomalies (activity areas, middens, etc.). Anomalies with the same priority are distinguished by lowercase a, b, etc.
† See figure 8.1.
§ A = magnitude (gamma/4 units); xA = area inside half-width contour (m^2).

NOTE: Each anomaly is assigned a letter designaton that indicates the possible source (S = structure, F = Feature, I = area of interest). Refer to figures 4 and 8.1 for locations of anomalies. Data in this table were provided by Huggins (1983), Spectrum Geophysics, Fort Worth, Texas.

Chapter 9

EXCAVATIONS AT POCO TIEMPO HAMLET (SITE 5MT2378), A BASKETMAKER III HABITATION

ABSTRACT

Poco Tiempo Hamlet (Site 5MT2378) is a single-component Basketmaker III habitation consisting of five noncontiguous surface rooms and one pitstructure with an antechamber. Intensive excavations were conducted at Poco Tiempo Hamlet by the Dolores Archaeological Program in 1983. Among the reasons for excavating the site is the fact that it lay within the right-of-way for the Dove Creek Canal Reach 1. The site is located on a rolling plain 2 km west of the Dolores River and 9.5 km northwest of the town of Dolores in Montezuma County, Colorado. Situated around the rooms and pitstructure are numerous extramural features, including postholes, storage cists, and food-processing facilities. Evidence of a ramada was indicated by a posthole pattern east of one of the surface rooms. An area of sheet trash on a fairly steep slope in the southeast portion of the site was identified as the midden. Based on architectural style and ceramic and archaeomagnetic dating, it is estimated that Poco Tiempo Hamlet was occupied between A.D. 680 and 720; the site has been assigned to the Sagehill Subphase (A.D. 700-780) of the Sagehen Phase (A.D. 600-850).

Chapter 9

EXCAVATIONS AT POCO TIEMPO HAMLET (SITE 5MT2378), A BASKETMAKER III HABITATION

Joel M. Brisbin

INTRODUCTION

Excavations at Poco Tiempo Hamlet were conducted from 11 to 30 July 1983. During the 3 weeks spent at the site, the University of Colorado crew consisted of Joel Brisbin (crew chief), G. Charles Nelson (assistant crew chief), and for varying lengths of time, the following 8 crew members: Maureen Cavanaugh, Gay Ives, Darby Hutchinson, Tim Hovezak, Leslie Sesler, Andrea Tucker, Phyllis Wolf, and Mark Varien. Poco Tiempo Hamlet falls entirely within the right-of-way for one of the main canals (Reach 1) that will transport water from the McPhee Reservoir to the dryland farming areas around Dove Creek, Colorado. The imminent destruction of the site and its identification as a Basketmaker III site based on surface evidence made Poco Tiempo Hamlet desirable for complete excavation. The site is located in the SE 1/4 of the SE 1/4 of sec. 27, T38N, R16W. The Universal Transverse Mercator grid coordinates for the site location are 4,154,720 mN, 712,550 mE, zone 12.

Site Setting

Environmental Setting

The environmental descriptions that follow are based on observations made during excavation. The conditions observed do not necessarily reflect those that occurred prehistorically (Petersen et al. 1984). Most resources in the vicinity of the site are assumed to have been present prehistorically.

Climate. – The contemporary climate in the Koskie Locality is essentially semiarid; however, as a result of diverse topography, the climate can exhibit large variations within short distances. In general, the area around Poco Tiempo Hamlet experiences low precipitation and low humidity, a wide daily temperature range, abundant sunshine, and moderate westerly winds. Precipitation occurs predominantly in the winter months, late summer, and early autumn. Summer precipitation usually occurs as isolated thunderstorms that can often be severe. Mean annual precipitation (precipitation data are from Siemer [1977]) has been recorded as 457.2 mm by the U.S. Weather Service station in Dolores, located 9.5 km southeast of Poco Tiempo Hamlet, and as 388.6 mm by the U.S. Weather Service station in Yellow Jacket, 10 km west of the site. The latter weather station also has recorded a mean July temperature of 21.1° C and a mean January temperature of -4.4° C (Siemer 1977). Petersen (1984a) has used information from these weather stations to determine an annual average of frost-free days (133 at the Yellow Jacket station) and killing-frost-free days (128 at the Dolores station).

Flora. – Table 9.1 is a list of plants common to the vicinity of Poco Tiempo Hamlet. Since the land on which the site is located is currently under cultivation, no naturally occurring species could be identified within the site boundaries.

Fauna. – The list in table 9.2 is an estimate of those animals that inhabited the area around Poco Tiempo Hamlet prehistorically. The estimates are based on surrounding vegetation and the Colorado Division of Wildlife latilong studies (Bissell 1978; Kingery and Graul 1978; Hammerson and Langlois 1981). A complete list of species for the project area is provided in Petersen et al. (1984).

Geology and Soils. – Poco Tiempo Hamlet is located at the southern end of a dip slope on a system of north-south oriented ridges and knolls at the extreme western edge of Koskie Locality in the Yellowjacket Sector (fig. 9.1). The drainage is to the south-southwest, not to the east, as in the greater portion of the Sagehen Flats Locality (the Sagehen Flats Locality is discussed and illustrated in Kane [1984]). The site is located on the top and southeast face of a hillock incorporated into this larger system of ridges, at an elevation of 2117 m (fig. 9.1). This location might have been selected as a compromise between the need for a permanent water source and the desire to avoid the colder temperatures of the flood plain.

Table 9.1 - Flora commonly occurring in the area surrounding Poco Tiempo Hamlet

Scientific name	Common name
Trees	
Pinus edulis	Pinyon pine
Juniperus spp.	Juniper
Quercus gambelii	Gambel oak
Shrubs	
Fendlera rupicola	Cliff fendlerbush
Rosa woodsii	Wood's rose
Amelanchier utahensis	Utah serviceberry
Herbs	
Aster sp.	Aster
Ranunculus sp.	Buttercup
Oenothera caespitosa	Evening primrose
Linum sp.	Flax
Erigeron coulteri	Coulter's fleabane
Sphaeralcea coccinea	Scarlet globemallow
Castilleja sp.	Indian paintbrush
Lupinus sp.	Lupine
Calochortus gunnisonii	Mariposa lily
Cryptantha bakeri	Baker's cryptantha
Sisymbrium sp.	Tumble mustard
Opuntia sp.	Pricklypear
Yucca baccata	Broadleaf yucca
Chrysothamnus nauseosus	Rubber rabbitbrush
Artemisia tridentata	Big sagebrush
Melilotus officinalis	Yellow sweetclover
Cirsium arvense	Canada thistle
Convolvulus arvensis	Bindweed
Lactuca serriola	Prickly lettuce
Astragalus sp.	Milkvetch
Eriogonum heracleoides	Wild buckwheat
Achillea millefolium ssp. *lanulosa*	Western yarrow
Grasses	
Bromus tectorum	Cheatgrass brome
Agropyron hymenoides	Crested wheatgrass
Oryzopsis hymenoides	Indian ricegrass
Hordeum jubatum	Foxtail barley
Agropyron smithii	Western wheatgrass

The system of ridges has resulted from, and now facilitates, arroyo cutting. These arroyos channel water from the uplands to the north into the canyon system to the south and west during periods of heavy runoff. During the summer there is no flowing water, but the arroyo and canyon bottoms often remain damp.

The drainage patterns in the immediate vicinity of Poco Tiempo Hamlet are not conducive to flood water farming (unless the canyon bottom west of the site was so used). However, dryland farming, using summer rainfall and the southern exposure, is successfully used today. The soils in this area are predominantly Gladel-Pulpit loam. Taxonomically, this soil is an Aridisol, typical of arid climates, low soil moisture, and wide annual soil temperature ranges. The Gladel-Pulpit series consists of moderately deep, well-drained soils, suitable for use as grazing land and dry or irrigated cropland. Big sagebrush (*Artemisia tridentata*), pinyon pine (*Pinus edulis*), juniper (*Juniperus* spp.), western wheatgrass (*Agropyron smithii*), and Indian ricegrass (*Oryzopsis hymenoides*) are native to these soils (Petersen 1984b).

Of the lithic resources available within a 5-km radius of Poco Tiempo Hamlet, Dakota Sandstone is most abundant. This formation outcrops in arroyo cuts and occasionally on the sides of ridges. At Poco Tiempo Hamlet, Dakota Sandstone was found in every surface collection

Table 9.2 - Fauna expected in the vicinity of Poco Tiempo Hamlet

Scientific name	Common name
Mammalia	
Soricidae	Shrews
Chiroptera	Bats
Leporidae	Rabbits and hares
Eutamias	Chipmunks
Ammospermophilus leucurus	White-tailed antelope squirrel
Marmota flaviventris	Yellow-bellied marmot
Spermophilus	Ground squirrels
Cynomys gunnisoni	Gunnison's prairie dog
Thomomys	Pocket gophers
Heteromyidae	Pocket mice and kangaroo rats
Reithrodontomys megalotis	Western harvest mouse
Peromyscus	White-footed mice
Onychomys leucogaster	Northern grasshopper mouse
Neotoma	Wood rats
Microtus	Voles
Erethizon dorsatum	Porcupine
Canis latrans	Coyote
Vulpes vulpes	Red fox
Vulpes macrotis	Kit fox
Urocyon cinereoargenteus	Gray fox
Bassariscus astutus	Ringtail
Procyon lotor	Raccoon
Mustela frenata	Long-tailed weasel
Taxidea taxus	Badger
Spilogale putorius	Spotted skunk
Mephitis mephitis	Striped skunk
Felis rufus	Bobcat
Odocoileus hemionus	Mule deer
Antilocapra americana	Pronghorn
Aves	
Anatidae	Ducks and geese
Accipitridae	Hawks and eagles
Falco	Falcons
Centrocercus urophasianus	Sage grouse
Tympanuchus phasianellus	Sharp-tailed grouse
Lophortyx gambelii	Gambel's quail
Meleagris gallopavo	Turkey
Grus canadensis	Sandhill crane
Porzana carolina	Sora
Charadriiformes	Shorebirds
Columbidae	Pigeons and doves
Geococcyx californianus	Roadrunner
Strigidae	Typical owls
Phalaenoptilus nuttallii	Poor-will
Chordeiles minor	Common nighthawk
Trochilidae	Hummingbirds
Melanerpes lewis	Lewis' woodpecker
Picoides villosus	Hairy woodpecker
Picoides pubescens	Downy woodpecker
Passeriformes	Perching birds
Corvidae	Jays, magpies, and crows
Reptilia	
Squamata	Lizards and snakes
Amphibia	
Scaphiopus multiplicatus	New Mexico spadefoot
Bufonidae	True toads

Figure 9.1. Topographic map of Poco Tiempo Hamlet.

unit and in much of the cultural fill excavated from rooms and features. The sandstone was usually unworked; only an occasional piece was scabbled on the edges to produce a more regular shape. Except for those used in the wing wall in the main pitstructure, no shaped sandstone slabs were found in situ. Many of the tabular pieces of sandstone might have been incorporated into the superstructure of the surface rooms to the north and southwest of the pitstructure. Smaller pieces of sandstone that show signs of burning were found in situ in some of the features at the site.

Outcrops of lithic material suitable for flaked stone tools are available in the project area, but not within the Poco Tiempo Hamlet catchment area. Clay resources are common; for example, Mancos Shale, found nearby, contains clays suitable for pottery manufacturing. Quarry sites, however, have not been identified.

Historical Land Use

Land to the north, west, and east of the site is currently under intensive wheat, bean, and alfalfa cultivation. However, the southern ends of the small, north-south ridges have had little agricultural use. In these areas, the natural vegetation has been left intact as an erosion control mechanism. Modern farming began in this area around 1948[1]. The cultivation has retarded the growth of climax species in this area; thus the sagebrush, pinyon pine, and juniper are not present. Plow scars visible at the contact between the Ap and B soil horizons were oriented southwest to northeast across the portions of the site exposed by excavation.

[1] William A. Lucius, DAP, personal communication.

Investigative Strategy

Research Objectives

Although Poco Tiempo Hamlet was investigated as a result of the impending construction of the Dove Creek Canal Reach 1, interest in conducting intensive excavations there (Kindblom et al. 1984) at the site was heightened by its identification as a single-component Basketmaker III habitation. Prior to work at Poco Tiempo Hamlet, only 2 Basketmaker III sites had been extensively excavated within the project area. These other 2 sites are Tres Bobos Hamlet (Site 5MT4545) (Brisbin and Varien 1986), an early Basketmaker III site that is 1.54 km east of Poco Tiempo, and Chindi Hamlet (Site 5MT4684) (Lucker 1985), a middle Basketmaker III site that is 4.18 km east of Poco Tiempo (fig. 9.1). The addition of information from Poco Tiempo Hamlet to the DAP data base was desirable, and it was hoped that the site would date to the later portion of the Basketmaker III period. Based on architectural characteristics and on ceramic and archaeomagnetic dating, Poco Tiempo Hamlet appears to fall within the desired range; no tree-ring or radiocarbon dates exist to substantiate this estimate.

Investigative Methods

Investigative methods generally followed Kane and Robinson (1984). Site limits at Poco Tiempo Hamlet were loosely defined on the basis of the surface artifact and rubble scatter. Surface artifacts were collected from 8- by 8-m grid units, and their distribution was noted in an attempt to predict the locations of subsurface remains. Sandstone rubble concentrations were also examined for this purpose. Auger testing was conducted in the rubble to locate surface rooms, and backhoe trenches were excavated to search for an associated pitstructure. Finally, the surface of the site was mechanically bladed to reveal remaining structures and extramural features. Excavations within the structures were conducted with shovels and trowels, except in the case of the pitstructure, where upper fill was removed using a backhoe. Feature fill was screened through one-quarter-inch mesh when it was anticipated that the deposits would contribute information about the activities that took place at the site. Cultural units at the site were mapped, and artifacts on surfaces within these units were assigned PL (point location) numbers and were also mapped. Tree-ring, pollen, and BS (bulk soil), and crystal samples were collected at this site. However, the single tree-ring sample did not yield a date, and the pollen samples were not submitted for analysis. Results of macrobotanical analyses are reported in appendix 9A.

PRELIMINARY OPERATIONS

From the surface, Poco Tiempo Hamlet appeared as a diversified scatter of cultural debris dominated by a north-northeast/south-southwest-trending area along the crest of a small north-south ridge. This scatter also extended down the east slope of the ridge. The extent of the scatter and the cultural features identified at the site are illustrated in figure 9.2. Because the site is on land that has been farmed for many years, no definite architectural features could be recognized from surface mounds or depressions. For this reason, it was hoped that density and distribution of the cultural debris would help in locating cultural features below the plow zone. The site as it appeared prior to excavation is shown in figure 9.3, and figure 9.4 is a view of the site following excavation.

Surface Artifact Collections

The surface collection had to be oriented to the 30-m (?) right-of-way that had been acquired by the Bureau of Reclamation for the Dove Creek Canal Reach 1. Fortunately, this right-of-way easement encompassed virtually the whole site. A series of fifteen 8- by 8-m grid units was laid over most of the site. All surface material from these units was collected; the artifact counts for each collection unit are shown in figure 9.5. The ceramics collected from the surface indicated that Poco Tiempo Hamlet is a Sagehen Phase (A.D. 600-700) site assignable to either the Dos Casas (A.D. 725-800) or Sagehill (A.D. 700-750) subphase. The artifacts collected from the unit [illegible] surface are listed in appendix 9A.

The patterns observed in the surface artifact distribution are consistent with those expected for Anasazi habitations in the Southwest, despite site disturbance by historic plowing activities. Artifact concentrations are more dense in the southeast portion of the site, coincident with the location of the midden, and artifacts are least dense in the area between the surface rooms and the pitstructure (Kane and Robinson 1984:9).

To locate surface architecture, the distribution of sandstone on the top of the ridge was examined. This concentration of debris indicated that surface rooms were probably located along the top of the ridge; an indication that later proved to be accurate. Three backhoe trenches were excavated and auger testing was conducted in an effort to find an associated pitstructure. However, the pitstructure was not located down the slope; it had been constructed on the ridge top, much closer to the rooms than is usual. The final step in defining the surface rooms and outlying features was to strip off the plow zone across the entire site within the right-of-way. This readily disclosed all structures and prehistoric extramural surface features at Poco Tiempo Hamlet.

Overall, the intensive surface collection was only moderately helpful in defining specific subsurface cultural

Figure 9.3 - Poco Tiempo Hamlet prior to excavation (DAP 140818).

Figure 9.4 - Poco Tiempo Hamlet following excavation, looking south (DAP [illegible]).

areas. However, the plotting of surface building rubble helped locate the surface rooms. The best overall method of surface investigation was stripping the site of its 20- to 30-cm plow zone with a maintainer. This method clearly defined undisturbed subsurface features, which included surface rooms and extramural features (e.g., processing areas and posthole patterns). These showed up as dark stains in the orange-yellow Gladel-Pulpit loam, the predominant soil at the site.

INTENSIVE EXCAVATIONS

As rooms and exterior features were defined during the use of the maintainer, they were marked and, in some cases, mapped while the soil was damp and their outlines were clear. Excavation began in the pitstructure and the surface rooms and was expanded to encompass the exterior features.

Room 1

Dimensions:

North-south axis	2.26 m
East-west axis	2.03 m
Floor area	4.40 m

Room 1 is located 5 m north and slightly east of Pitstructure 1 and 1.5 m east of Room 2. Room 1 is roughly circular (figs. 9.6, 9.7, and 9.8) and the floor exhibits a basin-shaped profile.

Stratigraphy

Overlying Room 1, as well as the rest of the site, was a 20- to 30-cm-deep plow zone stratum. This zone was a brown loess interspersed with decomposing organic matter. After the plow zone had been removed, Room 1 was visible as a dark circular stain.

The remaining fill within Room 1 varied from 3 cm on the north and east sides to 18 cm on the south and west sides (fig. 9.6). This fill consisted of burned structural remains (sandstone slabs, charcoal, and bits of adobe) interspersed with a light brown loam interpreted to be a postabandonment deposit.

Human Burial 49 (Feature 2). - Feature 2, a human burial, was intrusive to the room fill. Figure 9.9 shows this burial in relationship to the room, and figure 9.10 is a close-up view of the feature. When the burial pit was dug into the postabandonment fill of Room 1, it cut slightly into Surface 1. Redeposited structure fill was encountered in the pit around the skeletal remains. The sandstone slabs shown in figure 9.9 are part of the collapsed structural debris from the room. Feature 2 is a primary inhumation of an adult male 40 to 50 years of age at the time of death. The burial pit had been dug into postabandonment room fill. The individual was lying on his back with the legs flexed at the knees. The body was oriented east-west, and the head faced north. The tip of a projectile point was found near the ribs. The point was probably deposited as a result of rodent disturbance, as part of the burial pit fill, or as an item buried with the individual. No evidence exists to indicate that the individual had been injured by the point, although the ribs were very fragmented and such evidence might have been lost. The skeleton was in very poor condition due to plowing, site investigation by blading, and rodent activity.

The age of the individual (40 to 50 years) was determined by evidence of advanced degenerative aging characteristics in the joints and vertebral column, by cranial and postcranial features, and by robusticity. At death the individual had retained very few teeth; well worn stubs of the upper premolars and the lower incisors and canines are all that remain of functional dentition, and extensive recession of the alveolar bone had occurred. The exposure of the pulp cavities of these very worn teeth had resulted in several infectious abscesses and generalized periodontal disease. The loss during life of all of the molars (the grinding teeth) and much of the anterior dentition could certainly be considered a factor in shortening the individual's life expectancy. The lumbar vertebrae of this individual exhibit advanced osteophyte formation (bony growth between the vertebral discs and bodies) as well as sacralization of the fifth lumbar vertebra. The thoracic and cervical vertebrae exhibit slight to moderate degeneration. Generalized arthritis and degeneration is evident at the hip, knee, wrist, shoulder, and ankle joints, but the evidence suggests that it was not very advanced.

The sternum and manubrium are fused, which is indicative of advanced age. The costal notch at the left lateral aspect of the manubrium, the area of attachment for the cartilaginous medial end of the first rib, is greatly hypertrophied. The left first rib exhibits a deformity, the result of a fracture and the subsequent mending process in which 2 or possibly 3 portions of the rib healed in misalinement. The hypertrophy of the manubrium probably indicates ossification of the first costal cartilage as a result of this trauma. While this condition probably resulted in some deformity of the chest, disability is not suggested.

Surface 1

Surface 1 is slightly basin shaped in profile and slopes down from east to west. The floor had been excavated into the B horizon but the original depth of the floor from the prehistoric ground surface is unknown because of historic plowing. Room 1 obviously burned; oxidation was evident over all but the eastern edge of the floor.

Artifacts. - Only two small debitage flakes (Pl. 1) were found on Surface 1.

Features. - The hearth (Feature 3) was the only floor feature in Room 1. This roughly D-shaped basin had been

Descriptions of Human Burials 44 (Room [illegible]) and 49 ([illegible]) [illegible] provided by Ann Walker Stodder.

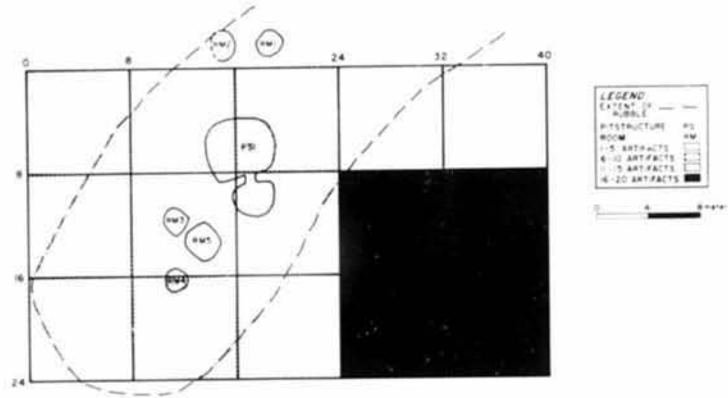

Figure 9.5 - Distribution of surface-collected artifacts, Poco Tiempo Hamlet.

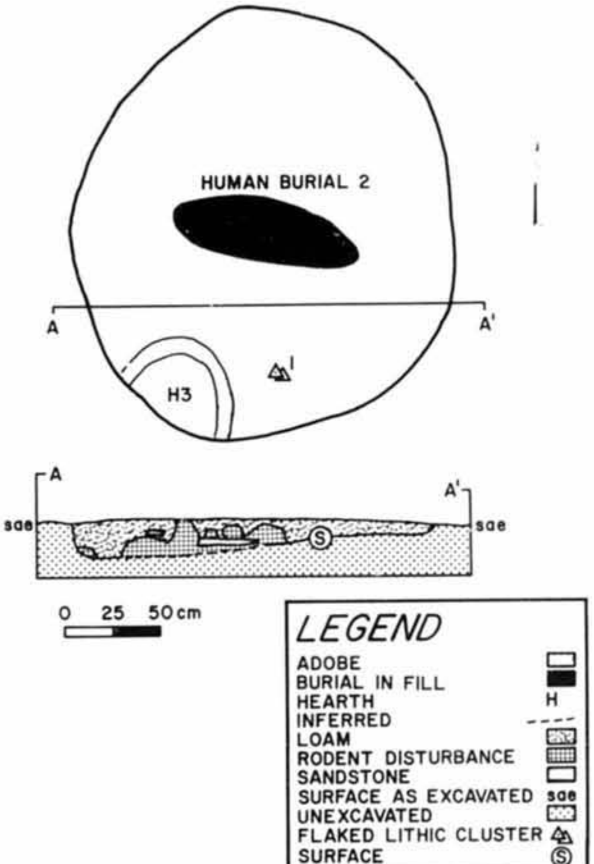

Figure 9.6. Map and stratigraphic profile, Room 1, Poco Tiempo Hamlet.

Figure 9.7. Room 1 during excavation, Poco Tiempo Hamlet (DAP [illegible]).

Figure 9.9. Burial 4? (Feature 2), Room 1, Poco Tiempo Hamlet (DAP [illegible]).

Figure 9.8. Room 1 following excavation, Poco Tiempo Hamlet (DAP [illegible]).

Figure 9.10. Close-up of Burial 4? (Feature 2), Room 1, Poco Tiempo Hamlet (DAP [illegible]).

excavated along the wall at the southwestern side of the room. A 7-cm-wide and 5-cm-high clay and adobe coping had been applied to the rim except where the south wall of the room formed the south edge of the hearth. The hearth measures 57 cm east-west, 51 cm north-south, and 10 cm deep. It contained a primary deposit of ash that had been heavily disturbed by rodents. However, some of the fill had not been disturbed and from this portion a bulk soil sample was taken (appendix 9A). Macrobotanical remains identified in this sample are charred and include remnants of dicotyledon, gymnosperm, and sagebrush (*Artemisia*) wood, and a pinyon pine (*Pinus edulis*) needle. Sagebrush and pinyon pine may have been fuels used in the hearth in Room 1. The pinyon pine needle may indicate that small limbs were used.

Interpretations

The presence of a hearth makes interpretation of Room 1 difficult. Most small, noncontiguous, Basketmaker III period surface rooms found in association with pitstructures are considered to have been storage facilities. An example of this is Tres Bobos Hamlet (Brisbin and Varien 1981), where all 14 of the noncontiguous surface rooms are storerooms. The presence of a hearth in a room that would otherwise be interpreted as having been used for storage suggests that Room 1 was probably used for food processing and that it was probably associated with Room 2, which is apparently a storage facility. This interpretation will be addressed further in the site synthesis.

Room 2

Dimensions

North-south axis	[illegible] m
East-west axis	2.00 m
Floor area	[illegible] m

This small oval structure (figs. 9.11, 9.12, and 9.13) is located 1.5 m west of Room 1. The floor is relatively flat

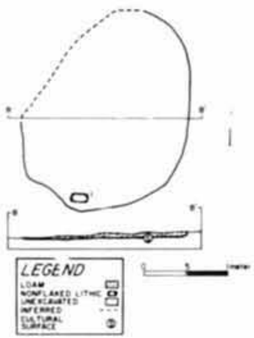

Figure 9.11 Map and stratigraphic profile, Room 2, Poco Tiempo Hamlet

Figure 9.13 Room 2 following excavation, Poco Tiempo Hamlet (DAP [illegible])

Figure 9.12 Room 2 during excavation, Poco Tiempo Hamlet (DAP [illegible])

Stratigraphy

The plow zone over this room cut into the floor along the west side and left only 5 cm of fill over the rest of the room. The small amount of remaining fill consisted of a light brown postabandonment loess with a few small charcoal inclusions.

Surface 1

Surface 1 in Room 2 is roughly oval and fairly flat. Its actual excavated prehistoric depth is unknown due to plowing. The floor is use compacted B horizon with no further elaboration in preparation.

Artifacts. – A two-hand mano found in the southwest portion of the room near the wall is the only artifact found on Surface 1.

Features. – No features were noted within the confines of Room 2, but 5 postholes (Features 57, 64, 67, 76, and 78) are in a north-south arc outside the east wall (fig. 9.2). Description of these postholes and their dimensions are provided in the discussion of Nonstructural Unit 1. The postholes were dug into the sterile B horizon, and only Feature 64 contained a footer stone. Their pattern suggests 2 possibilities. The first is that Room 2 was surrounded by postholes and that they held the posts for the walls of the room. The alternative explantion is that Room 2 and an area directly to the west shared a common roof. This explanation is suggested by a series of 6 postholes (Features 61, 62, 63, 71, 72, and 73) in the area west of Room 2 that may have functioned to support an isolated ramada or that, if extended to the east, could have functioned in conjunction with the 5 postholes on the east edge of Room 2 to support a ramada that extended over Room 2. Even though the plow zone reached floor level on the west edge of Room 2, if postholes had been present on this side, they would not have been totally obliterated.

Therefore, Room 2 was probably a discretely enclosed unit but may have shared a common roof with the ramada area to the west. A schematic drawing of these 2 possibilities is shown in figure 9.14. Unfortunately, neither scenario can be proven.

Interpretations

Because of its small size and the lack of features, it is inferred that the primary function of Room 2 was that of storage.

Figure 9.14 Artist's reconstructions of Room 2 and ramada, Poco Tiempo Hamlet. The upper sketch shows western postholes used in ramada construction and eastern postholes used to form east wall of Room 2. The lower sketch shows all postholes used in ramada construction, with the ramada extending over Room 2.

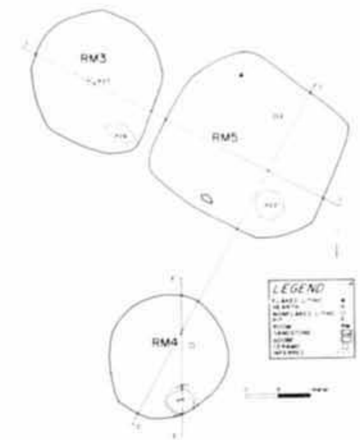

Figure 9.15 Map of Rooms 3, 4, and 5, Poco Tiempo Hamlet. Architectural profiles C and D and stratigraphic profile E are shown in figure 9.16.

Room 3

Dimensions

North-south axis	2.20 m
East-west axis	2.00 m
Floor area	3.10 m

Room 3 is part of a cluster of three rooms (fig. 9.15) that are southwest of the pitstructure. Room 3 is 3.5 m from the pitstructure and only 0.25 m from the northwest edge of Room 5 (fig. 9.2).

Stratigraphy

Room 3 ranged from 26 cm deep along the north and east walls to 19 cm deep along the west and south walls. The fill consisted of a compacted, postabandonment brown loess mixed with sandstone slab construction material (fig. 9.16). These slabs were particularly evident in the south half of the room (fig. 9.17).

Surface 1

The Room 3 floor is use compacted and somewhat basin shaped in profile (fig. 9.16). It had been excavated into native soil. No cultural items were found on the floor of Room 3.

Features. – Two features were encountered on Surface 1 (fig. 9.18). Feature 27 is a small, circular unburned pit in the center of the room. The pit measurements are an average of 7 cm in diameter and 7 cm deep. The fill was brown loam with charcoal inclusions. The actual use of this feature is unknown, but its shape and position within the room suggest it might have been a posthole for a central roof support. If so, the roof and walls would probably have had a tipi shape. Feature 26 is a somewhat square, basin-shaped pit in the southeast portion of the room. This unburned pit measures 38 cm on a side and 5 cm deep. The fill varied little from that of the rest of the room and the purpose of the feature was not determined. It might have been an unfinished feature.

Interpretations

Based on its small size and lack of artifacts, Room 3 may have functioned as a storeroom.

Room 4

Dimensions

North-south axis	1.80 m
East-west axis	1.80 m
Floor area	3.20 m

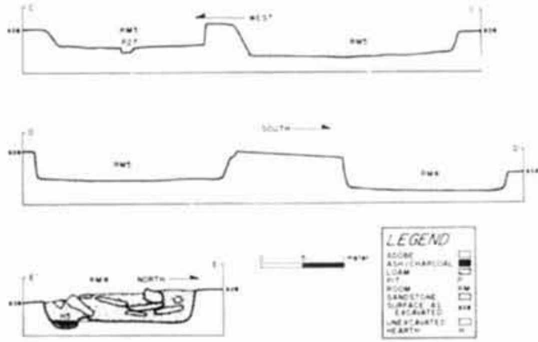

Figure 9.16. Architectural profiles of Rooms 3, 4, and 5 and stratigraphic profile of Room 4, Poco Tiempo Hamlet. Refer to figure 9.15 for profile locations.

Figure 9.17. Room 4 during excavation, Poco Tiempo Hamlet (DAP [illegible]).

Figure 9.18. Room 4 following excavation, Poco Tiempo Hamlet (DAP [illegible]).

Room 4 is located 2 m south of Room 3 and less than 2 m southeast of Room 5. The floor is almost round in plan with fairly straight sides (figs. 9.15, 9.16, and 9.19).

Stratigraphy

The 30 to 40 cm of fill in this room consisted largely of sandstone slabs that were probably used in the wall and roof construction. Most of these stones, based on their position in the fill (fig. 9.20), had been set vertically around the periphery of the room. Those located higher in the fill had probably been used in the roof. Also present, and probably representative of roof and wall closing material, were bits and pieces of charred sagebrush (*Artemisia*) wood. Other macrobotanical specimens recovered from the roof fall are yucca (*Yucca*) leaf, gymnosperm wood, goosefoot (*Chenopodium*) fruit, a pinyon pine (*Pinus edulis*) needle, and tobacco (*Nicotiana attenuata*) seeds. All but the tobacco are charred. This assemblage could represent wood and brush incorporated into the superstructure of Room 4. The stones, sagebrush, and charcoal were embedded in a silt loam matrix that apparently was the mud that at one time had covered the walls and roof. This sediment was intermixed with increasing quantities of lighter, postabandonment silt as the deposit approached the modern ground surface.

Figure 9.19. Room 4 following excavation, Poco Tiempo Hamlet (DAP [illegible]).

Figure 9.20. Room 4 during excavation, Poco Tiempo Hamlet (DAP [illegible]).

Surface 1

In cross section, this is a flat-bottomed floor that curves sharply upward at the floor/wall junctures. The floor is the base of a depression that had been dug into the sterile B horizon. Surface 1 is use compacted but not prepared.

Artifacts. — One Early Pueblo Red bowl sherd (PL 1) was the only cultural item lying on Surface 1.

Features. — A D-shaped hearth (Feature 5) with a basin profile had been constructed against the south wall. The hearth was 33 cm diameter and 9 cm deep. A remnant of a raised adobe rim is present along the north part of the hearth. At one time, this coping probably extended around the rim of the feature. The interior of the hearth was lined with redeposited native earth and a bulk soil sample (BS 26) collected from the ash contained charred remains of gymnosperm, dicotyledon, rosaceous (*Rosaceae*), sagebrush (*Artemisia*), pine (*Pinus*), and pinyon pine (*Pinus edulis*) wood; cheno-am (*Chenopodium*-*Amaranthus*, indistinguishable) fruits; corn (*Zea mays*) kernels and cupules; and groundcherry (*Physalis*) seeds. It appears that the various woods represented were the primary fuels used in this hearth. The corn was represented by a fruit and a cupule, which could have been intrusive; the presence of corn may also suggest that cobs were sometimes used as fuel. Bulk soil sample 24, from the floor of Room 4, produced only the woody parts of sagebrush and gymnosperm. These could have come from the hearth or they may be closing material from the Room 4 superstructure. The only oxidation found in the room was on the wall behind the hearth.

Interpretations

Room 4 has been tentatively identified as a food processing room because of the presence of a hearth. Without the hearth, its small size and lack of artifacts would define it as a storage room. The topic of room function will be discussed in more detail in the site synthesis.

Room 5

Dimensions:

North-south axis	2.80 m
East-west axis	3.10 m
Floor area	6.60 m

Room 5 (fig. 9.21) is the easternmost room in the southern cluster of 3 rooms. Unlike Rooms 3 and 4, which are round, Room 5 is relatively square; it is also larger. These differences are illustrated in figures 9.15 and 9.16.

Stratigraphy

The fill throughout the room was a reddish-brown sandy clay loam that was extremely compact and had an irregular chunky structure. The fill was lightly flecked with charcoal. Except for an ash lens, the post-abandonment fill was composed of wind- and water-laid deposits and collapsed structural material. The ash lens began in the area of the floor just north of the center of the room and curved upwards to the southwestern edge of the room. The largest accumulation of wall slabs also was found sloping into the room in this area immediately above the ash lens. Some of these stones can be seen in figure 9.22.

Surface 1

Like the other floors, this surface was fairly flat, use compacted, and built on top of the sterile B horizon. Feature 22 and artifact locations are illustrated in figure 9.15.

Artifacts. — The 2 artifacts found on Surface 1 are a piece of debitage (PL 1) and a one-hand mano (PL 2). Both items were in the northern half of the room.

Figure 9.21 - Room 5 following excavation, Poco Tiempo Hamlet (DAP 139519)

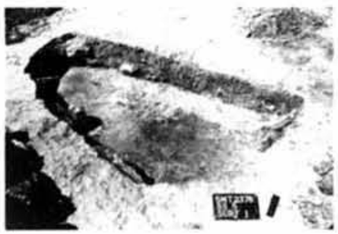

Figure 9.22 - Room 5 during excavation, Poco Tiempo Hamlet (DAP 139505)

Features. – A round, basin-shaped hearth (Feature 22) is the only feature on Surface 1. This hearth is in the southeast corner, about 40 cm away from either wall. The walls of the hearth and an area immediately around the rim were oxidized. Apparently the hearth was emptied before abandonment because the fill consisted entirely of postabandonment wind- and water-laid deposits. The bottom of the feature was lined with a very sandy sediment and was not oxidized.

Interpretations

Interpretations for Room 5 are difficult. The size and shape of the room distinguish it from Rooms 3 and 4. The 2 artifacts recovered from Surface 1 might have been part of a food processing assemblage and the presence of the hearth supports this interpretation of room function. Because of its larger size, Room 5 also may have served as a seasonal domicile.

Pitstructure 1

Dimensions:

Main chamber	
North-south axis	4.30 m
East-west axis	4.50 m
Floor area	19.70 m
Antechamber	
North-south axis	2.60 m
East-west axis	3.30 m
Floor area	7.20 m
Total floor area (main chamber and antechamber)	26.90 m

Pitstructure 1 is located between the northern and southern clusters of rooms (fig. 9.2). It is a typical Basketmaker III pitstructure with a D-shaped main chamber and an antechamber (figs. 9.23 and 9.24).

Stratigraphy

The shape of this pitstructure was discernible from the surface after the plow zone had been removed (fig. 9.25). The fill in both portions of the structure was fairly homogeneous postabandonment fill (fig. 9.26). Nothing indicated that the pitstructure had burned. In general, the fill was a light to dark brown loam. The lower fill (Stratum 2) contained a terminal phalanx not associated with the human burial. Feature 1 was also contained in this stratum. Near the floor some structural debris in the form of sandstone chunks or slabs was found. These might have been part of the walls and roof. Macrobotanical remains in the fill have been identified as charred sagebrush (*Artemisia*), juniper (*Juniperus*), and pine (*Pinus*) wood; a pinyon pine (*Pinus edulis*) needle; a tobacco (*Nicotiana attenuata*) seed; broadleaf yucca (*Yucca baccata*) seeds and fruits; and corn (*Zea mays*) cupules. These materials were probably used in roof and wall construction. The tobacco seed and corn cupule are probably not construction material unless they had been incorporated unintentionally into the closing material.

Burial 48 (Feature 1). – A primary human burial was encountered against the north wall of the pitstructure in Stratum 2, just below the plow zone. A projectile point was found near the skull; it might have been part of the burial offerings. Sandstone chunks and a yellow sandy sediment were encountered immediately around the remains; this material was probably used to fill the burial pit at the time of inhumation.

The remains are those of an adult male, 35 to 40 years of age at the time of death.[1] The individual had been

[1] See footnote

Figure 9.23 - Pitstructure 1, Poco Tiempo Hamlet, looking north (DAP 146626)

Figure 9.25 - Stain indicating location of Pitstructure 1, Poco Tiempo Hamlet (DAP 139021)

Figure 9.24 - Pitstructure 1, Poco Tiempo Hamlet, looking west (DAP 146630)

buried on his back in a flexed position, with the arms crossed over the abdomen; the body was oriented roughly east-west, and the head faced northwest (fig. 9.27). The bones were damaged by plowing, but most skeletal elements are present.

The individual is robust, but exhibits signs of degenerative aging processes. The maxilla and mandible show marked recession of the alveolar bone, and the dentition is very worn, with minimal portions of the crown surfaces remaining on the anterior teeth. The remaining molars have advanced carious decay. Enamel hypoplasias, transverse groove defects in the teeth, are visible on the remaining crown portions of the maxillary lateral incisors and on the maxillary canines. These defects, common in this population, record a disease episode (or other physiological stress) during the early years of the individual's life (between the ages of 2 and 4 years) of sufficient severity to have temporarily arrested the development of the dental enamel matrix.

Osteoarthritis is evident in the bones of the ankle, and in the lower back (the lumbar vertebrae, the lower thoracic vertebrae, and the sacroiliac articular surface).

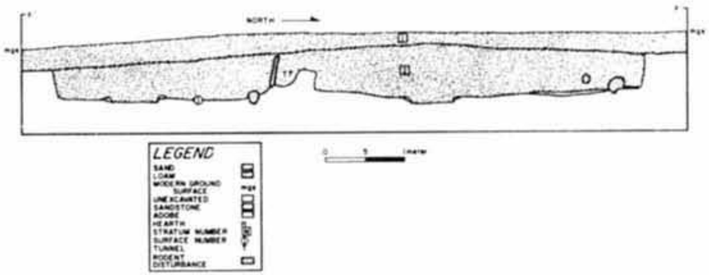

Figure 9.26 - Stratigraphic profile, Pitstructure 1, Poco Tiempo Hamlet. Profile location is shown in figure 9.29.

Figure 9.27 - Burial 48 (Feature 1), Pitstructure 1, Poco Tiempo Hamlet (DAP 139411).

In summary, the individual exhibits the osseous evidence of common degenerative aging, not markedly advanced, and evidence of a childhood stress incident common among the Dolores Anasazi population.

Wall Construction

When the main chamber of Pitstructure 1 was initially constructed, a stratum of unconsolidated sands and gravels was encountered in an area along the west wall, north wall, and the northern half of the east wall. Because this stratum, unlike the Gladel-Pulpit loam stratum, was unstable, reinforcement was apparently needed. To accomplish this, the walls in the affected area were cut back 20 to 70 cm and to within 20 cm of the floor (fig. 9.28) in preparation for the construction of a leaner shelf (Feature 106). The heaviest back cutting was along the west wall. At that time, a series of 16 upright posts were set into postholes (Features 80 through 95) along the top of the north and west shelf (fig. 9.29). No posts were used at one part of the north shelf or along the eastern portion of the shelf; rather, in this area a series of 15 vertically placed slabs were set flush with the face of the shelf. Once the posts and slabs were in place, sediment and cultural refuse were packed between the posts and behind the vertical slabs, thus raising the height of the shelf's surface with replacement material that was more stable. The upright posts along the western and northern sides, where the walls may have been least stable, probably acted as reinforcement bars and the vertically placed slabs probably served as retainers. When this new fill had been packed into place, the vertical face was plastered. Whether the 16 posts that formed the inner core of the western wall extended above prehistoric ground surface and formed part of the upper walls is not known.

Surface 2

A most unusual aspect of the aforementioned stabilizing construction is the area referred to as Surface 2 (fig. 9.29). This is a curvilinear trench, 5 to 20 cm deep, dug in the floor of the base of the shelf. It is speculated that this trench was dug to obtain packing material for construction of Feature 106 and thus stabilizing the west, north, and east walls. This idea is reinforced by the presence of building material (scrap rock and piles of clay) that was found in the northeastern section of the trench (fig. 9.30). After the trench was backfilled, Surface 1 of the main chamber was constructed on top of it. Features in this portion of Surface 1 truncated some of the clay piles left over from construction.

Features. – At the southwestern end of this trench (Surface 2), 3 oval unburned pits (Features 101, 102, and 103) were encountered that had been filled with dark loamy sediment and construction material. What purpose these

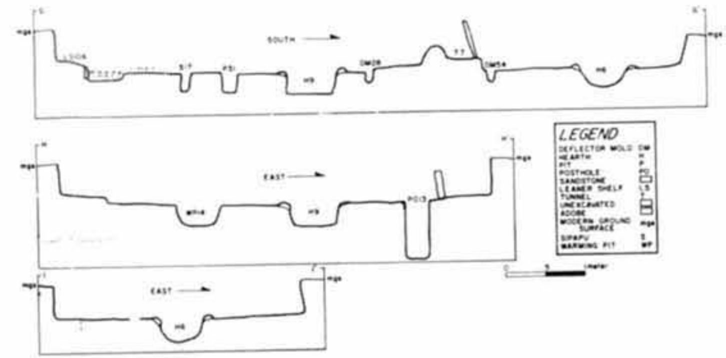

Figure 9.28 - Architectural profiles, Pitstructure 1, Poco Tiempo Hamlet. Profile locations are shown in figure 9.29.

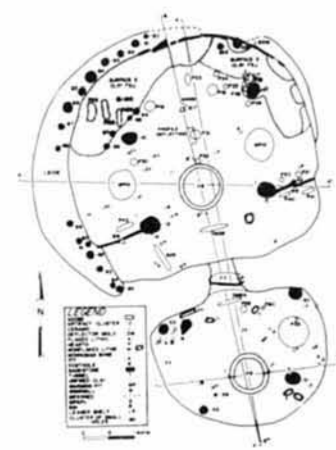

Figure 9.29 - Map of Pitstructure 1, Poco Tiempo Hamlet. Stratigraphic profile F is shown in figure 9.26, architectural profiles G, H, and I are shown in figure 9.28. For artifact and feature descriptions refer to tables 9.4 and 9.5, and 9.3 and 9.6, respectively.

Figure 9.30 - Main chamber of Pitstructure 1, showing scrap rock and clay in Surface 2 trench, Poco Tiempo Hamlet (DAP 139619).

features served is unknown. Table 9.3 is a list of these features and their dimensions, and figure 9.29 shows their locations.

Surface 1

Pitstructure 1 had been dug into sterile B horizon to a depth of at least 50 cm. For the most part, this native B horizon was an orange clay loam (Gladel-Pulpit loam), but extremely sandy pockets are present.

The floors in the main chamber and the antechamber are slightly basin shaped. In the main chamber, the floor

Table 9.3 – Feature summary, Surface 2, main chamber, Pitstructure 1, Poco Tiempo Hamlet

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
101	Unburned pit	Oval	Basin	39	16	6
102	Unburned pit	Oval	Complex	37	11	8
103	Unburned pit	Oval	Basin	30	8	5

Refer to figure 9.29 for feature locations

south of the wingwall is slightly higher and flatter than elsewhere in the structure (fig. 9.28). A 1- to 4-cm-thick layer of sand had been placed on the surface in all areas of the pitstructure except south of the wingwall. This sand was invariably deepest along the walls and thinnest in the central areas around the hearths. Bulk soil samples (BS 7, 22, and 23) were taken from Surface 1 and contained fragments of gymnosperm, sagebrush (*Artemisia*), and juniper (*Juniperus*) wood; pine (*Pinus*) bark and wood; and cheno-am (*Chenopodium*-*Amaranthus*, indistinguishable) fruit. All of these fragments are charred, but how they relate to the structure is unknown. A bulk soil sample (BS 36) collected from the floor of the antechamber contained charred remains of dicotyledon, gymnosperm, sagebrush, and juniper wood; cheno-am fruit; grass (Gramineae) cupules; and uncharred tobacco (*Nicotiana attenuata*) seeds.

Artifacts. – Recovered from the surface in the main chamber are 24 artifacts; 34 items were present in the antechamber. These items are listed in tables 9.4 and 9.5. The artifact locations are plotted in figure 9.29. These artifacts are inferred to be items that were discarded during the abandonment of the pitstructure and unusable material that accumulated while the pitstructure was in use.

Nonflaked lithic tools recovered from the main chamber are 2 abrading stones (PL's 2 and 24), 1 hammerstone (PL 22), and 1 minimally altered river cobble (PL 1). All of these items are probably multifunctional, low-production-input tools and cannot readily be associated with a specific activity. The only observation that can be made is that all were within 1 m of the hearth. The nonflaked lithic tools from the antechamber are quite similar. There are 2 hammerstones (PL's 7 and 16), 2 abrading stones (PL's 21 and 22), 1 mano (PL 2), 1 basin metate (PL 24), 1 unmodified river cobble (PL 23), and 2 generalized tool fragments (PL's 1 and 13). The mano and a thin slab (PL 1) were grouped together in the southeast corner and might have been in their place of storage. The basin metate was leaning against the wall in the northwest corner, also indicating storage. All nonflaked lithic tools were situated around the walls; this might have been done to make space in the central area.

Of the 9 flaked lithic artifacts found in the main chamber, 4 are low-production-input tools (2 utilized flakes, 1 cobble tool, and 1 uniface) and 5 are pieces of flaked lithic debitage and angular debris. Except for the cobble tool, the tools are multifunctional cutting tools. The inventory of flaked lithic items from the antechamber is similar to that from the main chamber. There are 3 low-production-input cutting/scraping tools (1 utilized flake, 1 uniface, and 1 biface), 1 cobble tool, and 1 piece of flaked lithic debitage. There was no artifact clustering indicative of a specific activity or activity area.

In the main chamber, only 3 nonhuman bones were found; all 3 are worked. One of these is the distal end of a bone awl (PL 10), and one is a broken bone tube bead (PL 11). The only whole bone tool is an awl/flesher combination tool (PL 6) found north of the east wingwall. Another broken bone awl (PL 5) was found along the east wall of the antechamber. Surprisingly, no scrap bone was found on Surface 1 in either the main chamber or the antechamber.

Of the 31 sherds recovered from the floor of Pitstructure 1, none can be reassembled into a complete vessel. Of the 3 sherd clusters (PL's 6, 15, and 20 in the antechamber), only 1 (PL 6) represents a sizable portion of a vessel. One sherd (PL 20) in the main chamber is relatively large, but does not even approach being a complete vessel. The cluster representing a large sherd might have been a piece of a whole vessel that had been kept in the structure to be used as a shallow tray; however, this is only speculation.

Interpretations. From the artifact assemblage, most material goods were obviously removed from Pitstructure 1 when the occupants left. What was left behind are broken items, nonportable items, or low-production-input tools that could be replaced with minimal effort. Materials not present are daily-use items such as matting and basketry (these are considered perishable items, and even if they had been present they may not have been preserved), high-production-input bifacial tools, jewelry, and usable ceramics items. The paucity of goods makes it impossible to identify the activities that were carried out in the structure or the specific areas in which any activities took place. The material present is diversified enough to suggest that a variety of domestic activities that required cutting, scraping, grinding, and pounding tools did take place in the structure.

Table 9.4 – Point-located artifacts, Surface 1, main chamber, Pitstructure 1, Poco Tiempo Hamlet

PL No.	Material class	Item description
1	Nonflaked lithic	Minimally altered item
2	Nonflaked lithic	Curved-surface abrading stone
3	Flaked lithic	Debitage
4	Flaked lithic	Debitage
5	Ceramic	DI Early Pueblo Gray jar sherd
6	Nonhuman bone	Mammalia, large – complex awl
7	Flaked lithic	Utilized flake
8	Ceramic	DI Early Pueblo Gray jar sherd
9	Ceramic	Unfired clay (242.2 g)
10	Nonhuman bone	Mammalia, large – awl fragment
11	Nonhuman bone	Mammalia, large – bead fragment
12	Flaked lithic	Utilized flake
13	Flaked lithic	Thick, side-worked uniface
14	Flaked lithic	Debitage
15	Ceramic	DI Chapin Gray seed jar sherd
16	Ceramic	DI Early Pueblo Gray jar sherd
17	Flaked lithic	Cobble tool
18	Ceramic	DI Early Pueblo Gray jar sherd
19	Flaked lithic	Angular debris
20	Ceramic	DI Early Pueblo Gray jar sherd
21	Ceramic	DI Chapin Gray jar sherd
22	Nonflaked lithic	Hammerstone
23	Flaked lithic	Debitage
24	Nonflaked lithic	Flat-surface abrading stone

Refer to figure 9.29 for artifact locations
(g) - Weight of items
DI - Dolores Manufacturing Tract

The most interesting aspect of this assemblage is the similarity of the items in the main chamber to those in the antechamber. This and the presence of a well-structured central hearth in each chamber suggest that Pitstructure 1 was occupied by 2 groups. This interpretation will be elaborated upon in the site synthesis.

Features. – The features identified on Surface 1 of Pitstructure 1 are listed in tables 9.6 and 9.7 and shown in figure 9.29.

Features sealed prior to abandonment (Features 7, 15, 28, 29, 33, 36, 39, 40, 41, 43, 54, and 66). Twelve features assigned to Surface 1 had been abandoned and sealed over or truncated prehistorically. Features 28, 29, 40, 41, and 43 are oblong grooves in the floor and were designed to hold the bases of upright slabs. Feature 29 at one time held a slab that, if in place, would have formed a corner bin south of the western wingwall. Feature 28 is the groove (deflector mold) for a slab deflector between the hearth and the entryway in the main chamber. The antechamber also had a deflector mold (Feature 54). As in Feature 28, the slab had been removed prehistorically and the groove was filled. Evidence suggests that at some time during the use of the structure, the entryway between the 2 chambers was sealed. This closure probably negated the need for deflector slabs and these might have been removed at this time. The sealing of Features 40 and 41 (unburned pits) also was the result of a remodeling episode. These 2 slab molds are directly south of the 2 existing slabs of the east wingwall. Apparently, at some time during the use of the structure the eastern wingwall was moved 15 to 20 cm to the north. Feature 43 (unburned pit) is just north of the west wingwall and is parallel to that feature. It might have been the foundation trench

Table 9.5. Point-located artifacts, Surface 1, antechamber, Pitstructure 1, Poco Tiempo Hamlet

PL No.	Material class	Item description
1	Nonflaked lithic	Generalized tool fragment
2	Nonflaked lithic	Mano
3	Ceramic	DL Early Pueblo Gray jar sherd
4	Ceramic	DL Early Pueblo Gray jar sherd
5	Nonhuman bone	Mammalia, large - jaw fragment
6	Ceramic	DL Early Pueblo Gray jar sherds (3)
7	Nonflaked lithic	Hammerstone
8	Flaked lithic	Partially worked thick biface
9	Flaked lithic	Utilized flake
10	Flaked lithic	Debitage
11	Flaked lithic	Thick multiple-edge-worked uniface
12	Ceramic	CA Early Pueblo Gray jar sherd
13	Nonflaked lithic	Generalized tool fragment
14	Flaked lithic	Cobble tool
15	Ceramic	DL Chapin Gray jar sherd
16	Nonflaked lithic	Hammerstone
17	Ceramic	DL Chapin Gray seed jar sherd DL Early Pueblo Gray jar sherds (2)
18	Ceramic	DL Chapin Gray seed jar sherd DL Early Pueblo Gray jar sherd
19	Ceramic	DL Chapin Black-on-white bowl sherd
20	Ceramic	DL Early Pueblo Gray jar sherds (3)
21	Nonflaked lithic	Flat-surface abrading stone
22	Nonflaked lithic	Flat-surface abrading stone
23	Nonflaked lithic	Not culturally modified
24	Nonflaked lithic	Basin metate

Refer to figure 9.29 for artifact locations.
(N) - Number of items
CA - Cahone Manufacturing Tract
DL - Dolores Manufacturing Tract

for an upright slab step. It also might have been a slab that, in association with the one assumed to have been in Feature 29, formed a corner bin prior to the construction of the west wingwall.

Pitstructure 1 contained 2 warming pits (Features 14 and 15), 1 on either side of the hearth. Feature 15 is much shallower than Feature 14 and had been partially filled with sand and capped with adobe so that it was flush with the floor. Whether the 2 warming pits were contemporaneous or whether one replaced the other at some time is not known.

Feature 60 is a very small unburned pit in the antechamber. The lower fill was loosely compacted sandy loam; the upper fill was sand resembling that spread across the antechamber floor. It is inferred that the sand had been placed in the pit to cover it, and that it was no longer in use when the structure was abandoned.

Three additional features that had been decommissioned prehistorically are sand-filled pits (Features 33, 36, and 39) in the northeastern quadrant of the main chamber. All were filled with a clean tan sand. Features 33 and 36 were capped with a thin layer of adobe, and Feature 39 was partially truncated by the northeast main support posthole (Feature 11).

The tunnel or crawlway (Feature 7) between the main chamber and the antechamber is rather irregular in shape, and it had undergone modification during the use of the pitstructure. The walls are relatively vertical, except near the base on the west side, where it belled out about 12 cm. From side to side (east-west), the floor was basin shaped. A mound separated the main chamber floor from the north end of the feature; this mound dropped off to the south, but the base of the feature remained higher than the floor of either chamber. Near the entrance to the antechamber, a 58- by 46- by 4-cm sandstone slab had

Table 9.6. Feature summary, Surface 1, main chamber, Pitstructure 1, Poco Tiempo Hamlet

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
7	Tunnel or crawlway	Rectangular	Rectangular	62	40	40
8	Wingwall	Complex	Irregular	176	[illegible]	63
9	Hearth	Round	Basin	67	66	26
10	Posthole	Oval	Cylindrical	34	33	78
11	Posthole	Round	Cylindrical	32	28	65
12	Posthole	Oval	Cylindrical	38	34	73
13	Posthole	Oval	Cylindrical	42	32	72
14	Warming pit	Round	Basin	60	58	27
15	Warming pit	Round	Basin	62	51	4
16	Unburned pit	Round	Basin	20	20	3
17	Sipapu	Complex	Triangular	18	10	20
18	Unburned pit	Round	Basin	21	20	10
19	Unburned pit	Oval	Cylindrical	17	12	17
20	Unburned pit	Round	Basin	9	8	3
21	Unburned pit	Round	Basin	9	9	8
28	Deflector mold	Oval	Basin	58	10	13
29	Bin	Square		100	100	
30	Unburned pit	Round	Basin	13	12	30
31	Unburned pit	Oval	Basin	24	22	27
32	Unburned pit	Round	Basin	9	9	4
33	Unburned pit	Oval	Basin	24	13	7
34	Unburned pit	Oval	Basin	18	11	7
35	Unburned pit	Round	Cylindrical	10	10	16
36	Unburned pit	Round	Rectangular	15	15	12
39	Unburned pit	Round	Basin	12	12	4
40	Unburned pit	n/a	n/a	28	9	3
41	Unburned pit	n/a	n/a	13	9	9
42	Posthole	Round	Cylindrical	10	10	20
43	Unburned pit	Oval	Rectangular	36	10	12
80	Posthole	Round	Cylindrical	11	11	9
81	Posthole	Round	Cylindrical	18	19	16
82	Posthole	Round	Cylindrical	17	15	17
83	Posthole	Round	Cylindrical	15	18	24
84	Posthole	Round	Cylindrical	24	24	29
85	Posthole	Round	Cylindrical	16	16	14
86	Posthole	Round	Cylindrical	20	23	13
87	Posthole	Round	Cylindrical	12	12	7
88	Posthole	Round	Cylindrical	12	12	10
89	Posthole	Round	Cylindrical	15	12	8
90	Posthole	Round	Cylindrical	15	13	7
91	Posthole	Round	Cylindrical	16	10	15
92	Posthole	Round	Cylindrical	19	19	18
93	Posthole	Round	Cylindrical	15	15	11
94	Posthole	Round	Cylindrical	17	17	4
95	Posthole	Round	Cylindrical	13	13	8
96	Posthole	Round	Cylindrical	10	10	19
97	Posthole	Round	Cylindrical	10	10	8
98	Posthole	Round	Cylindrical	10	17	15

Table 9.6 - Feature summary, Surface 1, main chamber, Pitstructure 1, Poco Tiempo Hamlet - Continued

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/ height (cm)
99	Posthole	Round	Cylindrical	14	15	25
100	Posthole	Round	Cylindrical	14	12	14
104	Posthole	Round	Cylindrical	10	11	9
105	Posthole	Round	Cylindrical	20	19	20
106	Leaner shelf	Crescent shaped	Rectangular	900	60	20
108	Cluster of small holes	Round	Cylindrical	2	2	11

Refer to figure 9.29 for feature locations.
n.a. - Not applicable.
- - Information not available.

Table 9.7 - Feature summary, Surface 1, antechamber, Pitstructure 1, Poco Tiempo Hamlet

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/ height (cm)
6	Hearth	Round	Basin	62	60	26
50	Posthole	Round	Cylindrical	25	26	63
51	Posthole	Oval	Cylindrical	33	29	62
52	Posthole	Round	Cylindrical	25	21	62
53	Posthole	Oval	Cylindrical	20	18	58
54	Deflector mold	Oval	Basin	46	10	14
55	Unburned pit	Round	Basin	60	60	8
56	Posthole	Round	Cylindrical	9	9	22
59	Unburned pit	Round	Basin	13	13	3
60	Unburned pit	Round	Cylindrical	5	5	10

Refer to figure 9.29 for feature locations.

been placed in the tunnel and sealed into place, thus effectively blocking direct access between the main chamber and antechamber. The feature had been prehistorically filled with a moderately compact clay loam containing jacal and carbonate flecks, and artifacts. This feature was probably sealed when the antechamber was converted into a living room. Two manos (PL's 1 and 2) were found at the base of the feature.

Features in use at abandonment (Features 6, 8 through 14, 16 through 21, 30, 31, 32, 34, 35, 42, 50 through 53, 55, 56, 59, 80 through 100, 104, and 105). Figure 9.31 is a plan of Pitstructure 1 showing the features in use at the time of abandonment. This map shows the outline of the major wall construction (Feature 106) but not the postholes within this feature. This plan provides a more realistic view of what Pitstructure 1 might have looked like during its final period of occupation.

Aside from the 16 postholes used in the construction of the leaner shelf (Feature 106), 12 additional postholes (tables 9.6 and 9.7) were found in the main chamber of Pitstructure 1. Four of these (Features 96, 97, 98, and 99) are small and were excavated into Surface 1 along the edge of the patch that filled in the construction trench (Surface 2). What function the posts served is not known. They might have been the uprights for some kind of screen, but this is only speculation. Three other small postholes (Features 100, 104, and 105) are located in the fill of the construction trench and the function of the

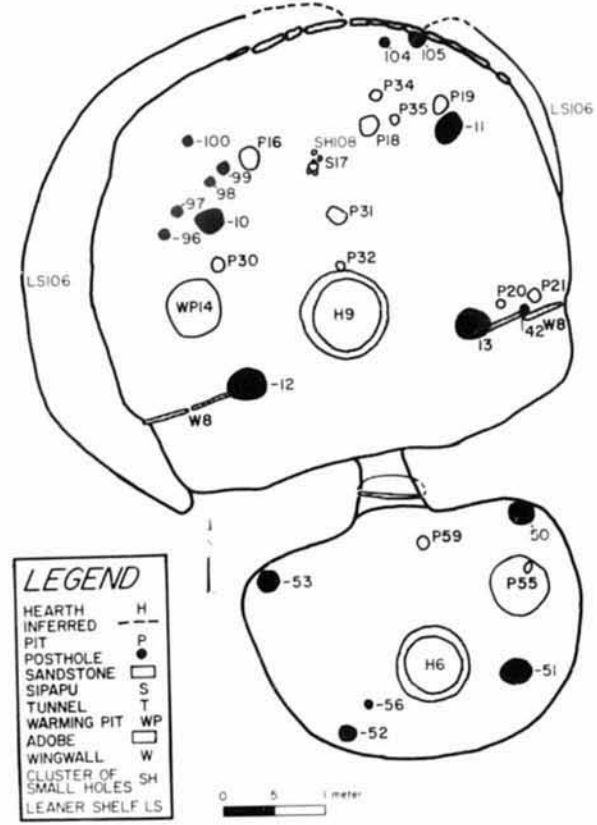

Figure 9.31 - Features inferred to have been in use at time of abandonment, Pitstructure 1, Poco Tiempo Hamlet.

posts they held is unknown. Feature 105, against the northeast wall, may have provided additional support to the reinforced wall. Another small posthole (Feature 42) is located in the space between the 2 upright slabs that make up the eastern wingwall. This posthole is assumed to have held a post that was part of the wingwall construction. There are 5 postholes in the antechamber. One of these (Feature 56) is small and is located midway between the hearth and the southwest main support post. It contained bits and pieces of a rotted pine (*Pinus*) post, but the function this post served is unknown. Features 50, 51, 52, and 53 are the postholes for the main support posts. These postholes and the 4 similarly arranged in the main chamber (Features 10, 11, 12, and 13) held the main supports for the roof of Pitstructure 1. All of the main support postholes in Pitstructure 1 were identically constructed. A tabular sandstone footer was placed horizontally at the bottom of each posthole to help distribute the weight of the walls and roof. The posts were then set in place and packed into position using loamy earth and occasional sandstone spalls. The postholes in the main chamber average 71 cm deep while the average depth of those in the antechamber is 61 cm. The additional weight carried by the supports in the larger main chamber probably required the greater depth for stability. Wood assumed to be remains from the post in Feature 10 was identified as juniper (*Juniperus*).

Twelve of the features in use at abandonment are sand-filled pits (Features 14, 16, 17, 18, 19, 20, 21, 30, 32, 34, 35, and 108). All were filled with a light brown sand as were the capped sand-filled pits. Features 18, 19, 34, and 35 are unburned pits clustered in the northeast quadrant of the main chamber. Other unburned pits include Features 16 and 30 in the northwest quadrant, Feature 32 at the north edge of the central hearth, and Features 20 and 21 along the north edge of the east wingwall. Feature 17 is on the main axis north of the hearth and is referred to as the sipapu. Several small paho (prayer stick) marks (Feature 108) are located either in the sand fill of the sipapu or near the edge. Refer to Brisbin (1984a) for a discussion of the paho marks; speculations about sand-filled pits will not be reviewed here. Similar sand-filled pits have been found in pitstructures throughout the Northern San Juan from Basketmaker III through Pueblo I times. Their exact function has not been identified, but speculation and detailed discussion have been presented in other DAP reports (Brisbin 1983, 1984a, 1984b; Wilshusen 1984). Another sand-filled pit, one that has a definable nature, is Feature 14. This warming pit is west of the hearth and is in a position similar to that of the defunct east warming pit (Feature 15). These warming pits are fairly common in project area pitstructures and sometimes exhibit slight oxidation on top of the sand fill. Most features referred to as warming pits are fairly shallow circular basins (like Feature 15). Feature 14 differed from other warming pits in that it is relatively deep.

Feature 55 is a large, unburned circular basin that contained a layer of light brown sand along the sides and bottom. Feature 55 is similar to the east warming pit in the main chamber and it [illegible] served the same function.

Feature 31 is an unburned pit of indeterminate function. This basin-shaped feature is located between the hearth and sipapu on the main axis of the pitstructure. It was obviously open at the time of abandonment because it contained the same dark brown silt loam that filled the rest of the pitstructure. From what has been observed in other DAP pitstructures, this feature probably contained sand at some point in its uselife.

The wingwall (Feature [illegible]) was constructed of 4 upright slabs, 2 on each side of the structure. Each half of the wingwall extended from a structure wall to a southern main support post (fig. [illegible]). From remaining evidence, it appears that the slabs had been covered with adobe during the use of the structure. In the area south of the wingwall, it is common to find evidence of [illegible] areas such as in situ manos and metates and large [illegible] tools in storage. However, these items were not present in Pitstructure 1.

The main chamber hearth (Feature [illegible]) was centered slightly north of the gap between the east and west halves of the wingwall. This feature was well constructed. It has almost vertical sides, a nearly flat base, and a well-formed clay coping around the rim. The hearth in the antechamber (Feature [illegible]) was constructed in a manner similar to the hearth in the main chamber, although Feature [illegible] is basin shaped rather than flat bottomed. The fills of Features [illegible] and [illegible] were fairly typical of fills found in pitstructure hearths in the project area and indicated something about the way the hearths were used. Contrary to what is sometimes thought, a fire was seldom built on the bottom of these hearths. In actuality, the bottom of a newly constructed hearth was first covered with a layer of sand several centimeters thick. Oxidation of the sidewalls rarely extends below the initial sand layer. After the initial fire was built above the sand layer, subsequent fires were built on the sand and [illegible] throughout the uselife of the hearth.

The plans and profiles of the hearths in the main chamber and the antechamber are shown in Figure [illegible]. The [illegible] effect can be seen in the 2 profiles. The sand and ash lenses (particularly the sand) probably acted as a heat-retaining mechanism. Macrobotanical remains common to Features [illegible] and [illegible] largely consist of [illegible] (*[illegible]*), indistinguishable [illegible] [illegible], sagebrush (*Artemisia*), Gambel oak (*Quercus gambelii*), and rose/serviceberry (Rosaceae) wood, and corn (*Zea mays*) cupules. Small-scale remains recovered from Feature [illegible] include juniper (*Juniperus*) wood, pinyon pine (*Pinus edulis*) seeds and needles, fragments of corn cobs, numerous goosefoot (*Chenopodium*) seeds, and a purslane (*Portulaca*) seed. Remains from Feature [illegible] include an indeterminate composite (Compositae) fruit, a Utah juniper (*Juniperus osteosperma*) seed, a bean (*Phaseolus*) cotyledon, mountain mahogany (*Cercocarpus*) wood, and pine (*Pinus*) bark and wood. Since Gambel oak and sagebrush wood were found in both hearths, it may indicate that these types of wood were preferred fuel sources.

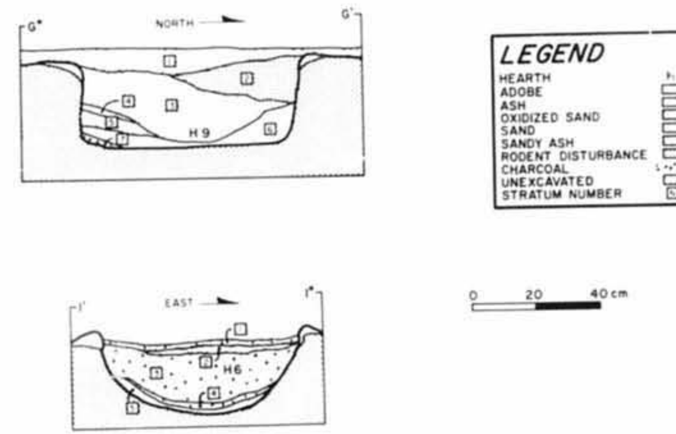

Figure [illegible]. Stratigraphic profiles of Features [illegible] and [illegible] (hearths), Pitstructure 1, Poco Tiempo Hamlet. Profile locations are shown in Figure [illegible].

Feature [illegible] is a small basin south of the deflector mold (Feature [illegible]). The plan and profile of this unburned pit indicate that it may have functioned as a pot rest.

Interpretations

The most striking feature pattern in Pitstructure 1 is the similar assemblage of features found in both the main chamber and the antechamber. Both contained a hearth and features interpreted as warming pits, which are features normally found only in the main chamber. Also, the 2 chambers had similar artifact assemblages. These similarities and the fact that the entryway between the 2 chambers was sealed strongly suggest that 2 households had occupied the pitstructure. This aspect of a dual household will be discussed again under "Social Organization" in the site synthesis.

Architectural Synthesis

Two aspects of the architectural remains at Poco Tiempo Hamlet need to be reviewed. One is the actual mode of construction, particularly of the surface rooms. The other aspect concerns functional interpretations of these [illegible] rooms and the pitstructure.

Archaeological evidence indicates that 2 slightly different construction modes were used for the surface rooms. Rooms 1 and 2, which are interpreted as being somewhat earlier than Rooms 3, 4, and 5, appear to have been constructed of jacal - a fairly flimsy framework of poles and brush covered with mud; very few stone slabs are used in such a construction. From the few slabs found in the fill it was impossible to tell if those present had been incorporated into the brush walls or if they had been used in the roof. In fact, no evidence was available to indicate whether the roofs of the structures were dome shaped or flat. In addition, the floors in Rooms 1 and 2 were much shallower and more circular than those in Rooms 3, 4, or 5.

The main difference between Rooms 1 and 2 and the later group of rooms (Rooms 3, 4, and 5) is depth and the use of stone. The later rooms on the whole were definitely deeper and contained more construction stone in their fills. The positions of the stone slabs in Rooms 3, 4, and 5 indicated they had been used along the south and west walls of each room rather than around the entire periphery. Whether the stones were horizontally coursed (i.e., masonry) in these areas, or placed vertically along the base of the walls is not possible to tell. The relative lack of stone in the earlier rooms may be due to recent agricultural activities. Rooms 1 and 2, being very shallow, may have had many of their construction slabs ripped out and fragmented during historic plowing, whereas the stones in Rooms 3, 4, and 5 were deep enough not to be affected by the plow. The plow zone actually reached the floor at the western edge of Room 2 and came within 5 cm of the floor at the east edge of Room 1. In Rooms 3, 4, and 5, the plow zone was no closer to a floor than 19 cm (in Room 3).

Because of the depth of Rooms 3, 4, and 5 and the seemingly greater amount of stone used in the construction, these rooms are tentatively suggested to be of more substantial construction than Rooms 1 and 2. This situation may represent an ongoing trend in surface structure construction, where rooms initially were built predominantly of jacal, and by the middle of the 10th century they usually were of full-coursed masonry.

The construction of the superstructure covering the pitstructure seems to be fairly consistent with others in the Northern San Juan during the Basketmaker III period. The main chamber and antechamber each contained 4 postholes that held the primary roof supports. These uprights, in turn, were the base for the horizontally placed secondary beams that formed the framework for the roof. The walls probably consisted of a series of poles anchored along the edge of the pit and leaning against the secondary roof beams. The framework was probably then covered with various layers of small poles, brush, and mud. Of course, this scenario is based only on the presence of the 8 primary postholes. No evidence remained for the rest of this reconstruction.

Of more importance than construction techniques is the issue of structure function. The presence of hearths in Rooms 1, 4, and 5 is most unusual. It would seem that a room whose primary function was storage would not be equipped with a hearth, but at Poco Tiempo Hamlet, hearths were encountered in 3 rooms that stylistically would be considered storerooms. Interpretations of these rooms as smokehouses or sweatlodges has been ruled out for lack of evidence in the case of smokehouses and for lack of a sufficient number of people to warrant 3 contemporary sweatlodges. Because heat is a well-documented form of preserving perishable foodstuffs, it is speculated that the hearths in these small rooms functioned as food processing areas, particularly Rooms 1 and 4. However, Room 5, because its size and shape differ markedly from Rooms 1 and 4, is tentatively identified as a seasonal living room.

The functional evidence in Pitstructure 1 is also unusual. The similarity in artifact and feature complements in the main chamber and the antechamber suggests that both functioned as domiciles during the later occupation at the site. Ritual activities are indicated in the main chamber by the presence of a sipapu (Feature 17) and a cluster of small holes (Feature 108). Features that would indicate ritual activities have not been identified in the antechamber.

Nonstructural Unit 1

Nonstructural Unit 1 is an administrative designation for the use areas that are outside of the rooms or the pitstructure at Poco Tiempo Hamlet. Artifacts recovered from Nonstructural Unit 1 are listed in appendix 9A and the 31 identified features are shown in figure 9.2 and listed in table 9.8. Most of these features are clustered into 3 distinct groups; discussions of these features are oriented to these groups.

The first group of features (Features 45, 57, 61 through 64, 67, 70 through 76, and 78) is located at the north end of the site, in the area of Rooms 1 and 2. Thirteen features in this group are postholes and a possible function for 11 of these is discussed in the description of Room 2. In that discussion, a scenario was presented suggesting that these 11 postholes (Features 57, 61, 62, 63, 64, 67, 71, 72, 73, 76, and 78) were the foundations for upright posts that supported a ramada-type roof and that it extended far enough east to cover Room 2 (figs. 9.14 and 9.33). Some supportive evidence for this is the presence of "footer" slabs found in the bottom of 5 of these features. All postholes across the proposed south side of this ramada and the central posthole on the north side contained these load-bearing stones. The distribution of the postholes containing stones seems odd unless they were part of a single structure; in addition, their construction and placement indicate the presence of a structure of considerable weight. If this inferred construction of the ramada is correct, the 2 central posts on the south side and the single central post on the north side were the midpoint of the long axis and would carry twice the load of either the west or east walls. Two other postholes (Features 70 and 74) were probably indirectly associated with the 11 postholes just described. Feature 70 is located 1 m north of Feature 71 on the west end of the north wall and Feature 74 is in a similar position south of the west end of the south wall. With posts set into these 2 holes, a pole could have been placed across the roof of the ramada, forming a convenient rack.

Feature 75 is located inside the posthole arrangement referred to as the ramada. No oxidation was noted in this pit and the fill was all postabandonment, water-deposited sediment. Thus, no evidence suggests its function.

Table 9.8.—Feature summary, Nonstructural Unit 1, Poco Tiempo Hamlet

Feature No.	Type	Plan	Profile	Length (cm)	Width (cm)	Depth/height (cm)
4	Unburned pit	Round	Basin	66	64	*6
23	Hearth	Round	Basin	64	60	15
24	Posthole	Oval	Cylindrical	24	20	53
25	Large cist	Round	Bell	150	150	123
37	Large cist	Oval	Bell	120	85	*35
38	Unburned pit	Oval	Basin	79	50	50
44	Posthole	Oval	Cylindrical	28	24	48
45	Borrow area	Oval	Basin	*216	*197	*60
46	Slab-lined pit	Round	Basin	90	90	24
47	Large cist	Round	Bell	120	120	92
49	Hearth	Round	Basin	32	30	10
57	Posthole	Round	Cylindrical	*23	*22	*26
61	Posthole	Round	Cylindrical	18	18	*13
62	Posthole	Round	Cylindrical	20	20	*23
63	Posthole	Round	Cylindrical	*24	*22	*8
64	Posthole	Round	Cylindrical	*24	*24	*22
65	Small cist	Oval	Bell	54	51	36
66	Small cist	Oval	Bell	63	51	34
67	Posthole	Round	Cylindrical	*11	*10	*12
68	Posthole	Round	Cylindrical	19	19	18
69	Unburned pit	Round	Basin	110	98	30
70	Posthole	Round	Cylindrical	16	14	10
71	Posthole	Oval	Cylindrical	29	23	26
72	Posthole	Oval	Cylindrical	30	22	15
73	Posthole	Round	Cylindrical	25	23	29
74	Posthole	Round	Cylindrical	17	17	25
75	Unburned pit	Round	Complex	54	41	39
76	Posthole	Round	Cylindrical	15	15	Varies
77	Posthole	Round	Cylindrical	25	23	40
78	Posthole	Round	Cylindrical	10	10	25
107	Posthole	Oval	Cylindrical	36	34	35

*Existing dimensions; complete dimensions not available.
Refer to figure 9.2 for feature locations.

Feature 45 is a large borrow pit. Sediment used to make adobe may have been mined from this area, possibly to repair various structures at Poco Tiempo Hamlet. The base of the feature was somewhat irregular; areas from which earth had been removed were evident as basinlike depressions. After use as borrow pit was discontinued, an average of 20 cm of water-laid deposits collected in the bottom. At this time it became a trash repository and the upper 40 cm of dark loamy sediment was interspersed with cultural material, such as sherds, nonflaked lithic tools, rocks, bone scraps, and flaked lithic debitage.

The second cluster of features is 5 m downslope and northeast of Pitstructure 1. Of the 6 features in this group (Features 37, 38, 44, 65, 66, and 77), Features 37, 65, and 66 are bell-shaped cists (fig. 9.34) with no evidence of oxidation. Each contained a bottom lens of water-deposited sediments that was overlain by an ashy sand lens. The waterlaid deposit at the bottom indicated that the original use of these features had been discontinued, but the overlying lens suggested that the site was still occupied.

Feature 38, a basin-shaped pit located northeast of Features 37, 65, and 66, contained the same ashy sand as the upper strata in the 3 bell-shaped cists. No oxidation

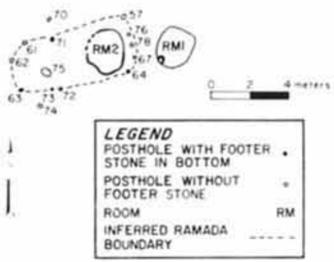

Figure 9.33 - Postholes associated with inferred ramada, Nonstructural Unit 1, Poco Tiempo Hamlet

Figure 9.34 - Features 37, 66, and 67 (cists) from left to right, Nonstructural Unit 1, Poco Tiempo Hamlet (DAP 1466-33)

was present; however, if light oxidation had been present in this or any of the 3 cists, it could have easily eroded because these 4 features were constructed in one of the sandy strata found in isolated pockets throughout the site. A bulk soil sample (BS 46) collected from Feature 37 contained gymnosperm, sagebrush (*Artemisia*), and juniper (*Juniperus*) wood; a goosefoot (*Chenopodium*) fruit; a tobacco (*Nicotiana attenuata*) seed, and corn (*Zea mays*) cupules. The gymnosperm and juniper are noncharred fragments and probably represent washed-in material rather than in situ deposits. The function of this pit is unknown.

Features 44 and 77 are postholes in the southern portion of this feature cluster. Both postholes contained rotted fragments of juniper; the only tree-ring specimen for Poco Tiempo Hamlet was recovered from Feature 44. The postholes were 1.5 m apart on a southwest-northeast axis. It is possible that a rack of some kind once stood in this area. The post from Feature 44 was 15 cm in diameter. Two such posts with a connecting cross piece would form a stout rack.

In conclusion, it is thought that the features in this group were interrelated and form the nucleus of a food processing area. The 3 bell-shaped cists were probably used for temporary storage of whatever was being processed. The poor preservation, however, allows no more than speculation.

The third group of features (Features 4, 23, 24, 68, and 107) is southeast of Rooms 4 and 5. Feature 4 is an unburned pit containing primary ash fill, sandy sediment, and refuse; however, no oxidation was visible. It might have been a parching pit where hot ashes were brought in rather than being produced in the pit. A bulk soil sample (BS 13) from this feature contained charred remains of gymnosperm, sagebrush, pine (*Pinus*), and rose family (*Rosaceae*) wood, corn cupules, and a cheno-am (*Chenopodium-Amaranthus*, indistinguishable) fruit. Vegetal samples indicated the presence of pine, sagebrush, juniper, and gymnosperm wood. The corn was probably the material being processed, and the remaining bits and pieces of woody material in the ash and sand are assumed to be remains of fuel woods that were brought to Feature 4 to supply the heat for parching or roasting. The hearth (Feature 23) is oxidized and was filled with primary refuse and ash. It is possible that this was the source of the ash in Feature 4. A bulk soil sample (BS 33) from this hearth contained charred remains of gymnosperm, sagebrush, and juniper wood, pine bark and wood, and corn cupules. The 2 postholes south of Feature 4 (Features 68 and 107) are 1.5 m apart, as are the 2 found in the second feature group described. Again, a rack of some sort is inferred. A single posthole (Feature 24) near Feature 23 is either an isolated feature of unknown use or 1 posthole in another set of 2, the second of which was not identified.

This third cluster of interrelated features again defines a food processing area. In this case, the presence of a hearth and an ash-filled pit may indicate a roasting or parching area. The postholes by the pit could have held uprights for a drying rack.

A pair of large bell-shaped storage cists (Features 25 and 47) is located just south of the speculated ramada. The interior walls of both features had been oxidized by intense heat. This was presumably done to dry the walls and make them more impermeable to moisture and rodents. Stratigraphic profiles (fig. 9.35) are provided to illustrate the fill sequence in these features. Both features had fallen into disuse before the site was abandoned; the cists were then apparently used as trash receptacles. The trash fill of Feature 25 contained numerous artifacts and

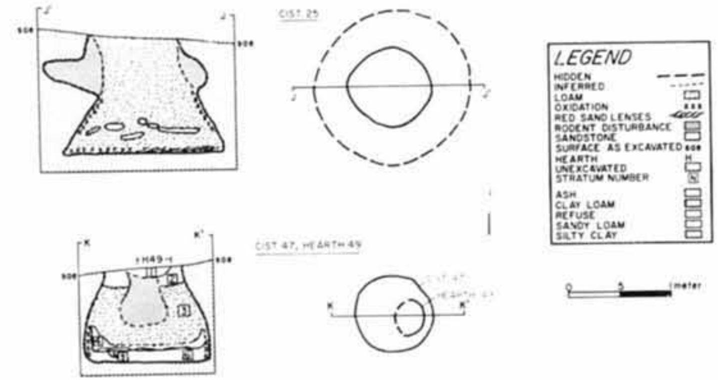

Figure 9.35 - Stratigraphic profiles of Features 25 and 47 (large cists), Nonstructural Unit 1, Poco Tiempo Hamlet

large and small tabular sandstone slabs; these slabs may have functioned as an interior lining of the pit or, alternatively, they may also have been refuse. Because this trash was interspersed with natural fill it is assumed that trash was dumped into them on an irregular basis. If use of these 2 units ceased before site abandonment, then storage had to take place elsewhere. These 2 features may have been the original storage facilities at the site and were eventually replaced by Rooms 2 and 3. Vegetal material recovered from Feature 25 consists of wood from pine, juniper, sagebrush (*Artemisia*), and gymnosperm. No bulk soil samples were collected from the feature. A bulk soil sample (BS 40) taken from the base of Feature 47 contained pine, sagebrush, and gymnosperm wood; a corn kernel and cupule; and tobacco seeds. Another bulk soil sample (BS 39) was collected from the upper fill of the feature. This sample contained juniper, sagebrush, mountain mahogany (*Cercocarpus*), Gambel oak (*Quercus gambelii*), and rosaceous wood; pine bark; corn kernels, cupules, and cob fragments; and cheno-am fruit. Which, if any, of these items can be attributed to the primary use of the cists cannot be determined. All of these materials could be present as a result of the use of the features for trash disposal. Built into the upper fill of Feature 47 was an unlined basin-shaped hearth (Feature 49). It is not known whether this primary refuse- and ash-filled feature dated to the main occupation of the site or was an intrusive feature from a later period. The occupants of a Pueblo I habitation directly west of Poco Tiempo Hamlet could have been responsible for this hearth.

Two isolated pits (Features 46 and 69) were encountered at Poco Tiempo Hamlet. Feature 46, a slab-lined, pit is a large, circular, rock-filled basin at the north edge of the site. This feature was initially constructed by digging a fairly steep sided basin. Flat sandstone slabs were then placed in the bottom of the east half. The west half was covered with a dark carbonaceous lens containing chunks of burned sagebrush. The south and southeast sidewalls were lined with clay and stone slabs. The rest of the side walls had a similar clay lining with occasional sandstone chunks imbedded in it. Numerous burned and blackened pieces of sandstone were encountered in the fill. Because the walls and base of this feature were not burned, it was inferred that these stones had been heated elsewhere and brought to Feature 46. Surrounding these burned rocks was a black loamy deposit that was probably a result of the use of this feature. Sagebrush and corn remains (BS 41) were recovered from this lens. Feature 46 appears to have functioned as a roasting or baking pit where the items to be cooked were buried under hot rocks and covered with earth. Figure 9.36 shows the pile of burned and blackened rocks in situ, and figure 9.37 shows Feature 46 upon completion of excavation.

Feature 69, an unburned pit, is on the eastern edge of the site. In some ways similar to Feature 46, it is circular, basin shaped, has a partial clay lining, and although numerous stones were discovered in the fill (fig. 9.38) no stone was used in the construction. The fill also contained numerous sandstone chunks and was heavily flecked with charcoal. The sandstone in this fill, however, was not fire

Figure 9.36 - Burned and blackened rocks in situ, Feature 46 (slab-lined pit), Nonstructural Unit 1, Poco Tiempo Hamlet (DAP 139534).

Figure 9.37 - Feature 46 (slab-lined pit) upon completion of excavation, Nonstructural Unit 1, Poco Tiempo Hamlet (DAP 146625).

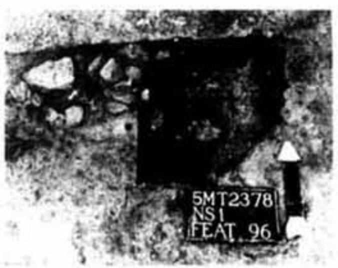

Figure 9.38 - Feature 69 (unburned pit), Nonstructural Unit 1, Poco Tiempo Hamlet (DAP 139613). The feature designation in the photo is incorrect.

reddened or smoke blackened like the stones found in Feature 46. It is inferred that Features 46 and 69 served similar purposes.

Interpretations

Most of Nonstructural Unit 1 was discussed as areas with distinct clusters of features where various processing activities may have taken place. The 2 isolated pits (Features 46 and 69) could have been areas where food was baked or roasted. The group of features northeast of Pitstructure 1 contains 3 small bell-shaped cists, remnants of a possible drying rack, and a basin-shaped unburned pit of unknown use. Whatever was being processed in this area might have been stored temporarily in the cists. The group of features southeast of Rooms 3, 4, and 5 consists of the remnants of 1 and possibly 2 drying racks; an ash-filled but unburned pit; and a hearth. It has been suggested that foods were being parched or roasted in this area and that the heated ash and sand was brought from the hearth and dumped on top of the food in the ash-filled pit near the drying rack. Ethnographically, corn is preserved in such a manner. Organic foodstuffs are parched and roasted to remove the moisture content for long-term storage. Foodstuffs in a dehydrated condition can then be ground into meal or flour. The food preservation and processing techniques are discussed by Di Peso (1965), Forde (1931), Kroeber (1935), Mindeleff (1891), Robbins et al. (1916), Beaglehole (1937), and Underhill (1946). For a more concise discussion of ethnographic methods of processing and perserving foodstuffs refer to Brisbin and Varien (1981).

The 2 large bell-shaped cists (Features 47 and 25) were probably used for storage, and the fact that they were abandoned and then periodically reused as trash pits indicates that the site was still active and that storage took place elsewhere. "Elsewhere" was probably Rooms 2 and 3, which, if these interpretations are correct, probably postdate the large storage pits.

It therefore appears that most of the food processing activities associated with Poco Tiempo Hamlet were conducted in specific outside areas set aside for various stages in this process. Unfortunately, poor feature preservation prevents more definitive statements about each of these areas.

Nonstructural Unit 2

A relatively high density of surface artifacts was scattered across a 16-m² area in the southeast portion of the site (fig. 9.5). The density of artifacts in this area may be a result of historic plowing activities or, more likely, represents an area of trash deposited by the prehistoric inhabitants of Poco Tiempo Hamlet; this 16-m² area has been designated the midden (Nonstructural Unit 2). The midden represents 26.6 percent of the site area subjected

to surface artifact collection, and from this area 34.2 percent of the ceramics, 25.9 percent of the flaked lithic tools, 34.4 percent of the debitage, and 27.3 percent of the nonflaked lithic tools were recovered. An inventory of artifacts collected from the modern ground surface is presented in appendix 9A, and a summary of artifacts from Nonstructural Unit 2 is provided in tables 9.9, 9.10, 9.11, and 9.12.

SITE SYNTHESIS

Chronology

Poco Tiempo Hamlet does not lend itself well to absolute dating. However, through architectural characteristics, ceramic dating, and archaeomagnetic dating it was determined that Poco Tiempo Hamlet was occupied during the Sagehill Subphase (A.D. 700-780) of the Sagehen Phase (A.D. 600-850). The Sagehen Phase covers the transition from the Basketmaker III to Pueblo I period.

Architecture

Kane (1983) has established a series of architectural and settlement patterns to define various cultural phases and subphases within the project area. Architecturally, Poco Tiempo Hamlet is a typical example of a Basketmaker III hamlet with an antechambered pitstructure. Two other intensively excavated, Basketmaker III sites in the project area are also characterized by noncontiguous surface structures and antechambered pitstructures. These are Tres Bobos Hamlet (Brisbin and Varien 1981) and Chindi Hamlet (Tucker 1983). Both sites are tree-ring dated. Tres Bobos Hamlet was occupied during the first 2 decades of the seventh century and Chindi Hamlet was occupied between A.D. 650 to 700. Therefore, the 100-year span from A.D. 600 to 700 seems to be a fairly secure bracket into which to place Poco Tiempo Hamlet, based on architectural similarities to other dated Basketmaker III sites in the project area. According to Kane's architectural scheme, the presence of surface rooms used in a capacity other than storage would push the occupation of the site closer to A.D. 700. The change in surface room function began in the project area some time after A.D. 650. Therefore, it is assumed that the hamlet was not built before A.D. 650.

Ceramic Collections

Poco Tiempo Hamlet ceramic data are presented in table 9A.1. Of the 331 sherds collected, 32 are Chapin Gray,

Table 9.9 - Ceramic data summary, Nonstructural Unit 2

Culture category: Tract Ware Type	Number	Count percent	Weight percent
Mesa Verde:			
Dolores Tract			
Gray Ware			
Chapin Gray	3	7.9	21.2
Early Pueblo Gray	25	65.8	61.5
White Ware			
Chapin Black-on-white	1	2.6	3.0
Polished White	2	5.3	3.3
Cahone Tract			
Gray Ware			
Early Pueblo Gray	6	15.8	10.1
White Ware			
Polished white	1	2.6	0.9
Total ceramics	38	100.0	100.0
Total weight (g)	180.5		
Vessel form:			
Gray Ware			
Jar	33	97.0	92.3
Other	1	2.9	7.6
White Ware			
Bowl	4	100.0	100.0

Table 9.10 – Flaked lithic tools, Nonstructural Unit 2

	Number	Percent	Mean wt(g)
Total tools	7	100.0	92
Tool morpho-use			
Utilized flake	6	85.7	19
Thick biface	1	14.2	533
Grain size			
Fine	1	14.2	533
Very fine	5	71.4	23
Microscopic	1	14.2	1
Item condition			
Broken			
Complete/nearly complete	7	100.0	92
Dorsal face evaluation			
Unworked with cortex	6	85.7	108
Unworked without cortex	1	14.2	1

Table 9.11 – Flaked lithic debitage, Nonstructural Unit 2

	Number	Percent	Mean wt(g)
Flakes/flake frags			
Grain size			
Fine	13	59.0	6
Very fine	8	36.3	2
Microscopic	1	4.5	1
Total flakes/flake frags	22		5
Items with cortex	5	22.7	
Whole flakes	12	54.5	
Nonlocal items			
Angular debris	2		7

frags - Fragments.

Table 9.12 – Nonflaked lithic tools, Nonstructural Unit 2

	Number	Percent	Mean wt(g)
Total tools	3	100.0	345
Tool morpho-use			
Indeterminate	1	33.3	541
Hammerstone	2	66.6	247
Blank type			
Rounded cobble	2	66.6	247
Flattened cobble	1	33.3	541
Item condition			
Broken			
Unidentifiable	1	33.3	541
Identifiable	1	33.3	112
Complete/nearly complete	1	33.3	383
Production evaluation			
Natural (unmodified)	3	100.0	345

3 are Moccasin Gray, 1 is Mancos Gray, and 1 is Bluff Black-on-red. Based on assemblage totals only, the presence of Moccasin Gray and Mancos Gray would indicate an occupation date into the A.D. 880's. However, these few sherds were found exclusively on the modern ground surface or in the upper fills of the major architectural units. Their presence in those loci is understandable in light of the proximity of 2 later sites that would have been producing these gray ware types. Based on sherds from floors and features, the ceramic assemblage is comprised almost exclusively of Chapin Gray and white and red wares normally associated with that gray ware.

This, then, establishes a pre-A.D. 760 date for the site. The gray wares by themselves suggest only a pre-A.D. 760 date, but the presence of a red ware bowl sherd on the floor of Room 4 may allow somewhat finer precision. In the project area, red wares do not usually appear in site inventories before A.D. 730 and are not common before A.D. 750. If this sherd is in its original context, which it seems to be, then it can be speculated that the site was occupied up to the period when the red wares first made their appearance in the project area (i.e., A.D. 700-750).

In conclusion, based on architectural attributes and ceramic dating, Poco Tiempo Hamlet was seemingly occupied sometime between A.D. 650 and 730. Evidence indicates that the most probable period of occupation was at the end of this 80-year range; this span might be shortened even more by working back from the A.D. 730 abandonment date estimate. Considering the amount of remodeling and construction that took place at Poco Tiempo Hamlet (i.e., the replacement of storage cists with storage rooms and the conversion of the pitstructure antechamber to a living room coupled with the construction of additional surface rooms), it is estimated that the site

was occupied for at least 20, but not more than 30 years. Schlanger (1983) proposes that structure life generally ranged from 10 to 15 years; however, this estimate is extended here, based on the remodeling. If these assumptions are correct, Poco Tiempo Hamlet was probably established sometime between A.D. 690 and 700 and was abandoned between A.D. 720 and 730.

Archaeomagnetic Dating

Only 2 archaeomagnetic dating samples were collected at Poco Tiempo Hamlet. Sample 1 was taken from the central hearth (Feature 9) in the main chamber of Pitstructure 1. Sample 2 was taken from the hearth (Feature 6) in the antechamber. These samples seem to correlate fairly well with the estimated range derived from architectural style and ceramic analysis. Sample 1 yielded 2 date ranges (pre-A.D. 700 to 735 and A.D. 875 to 885). The early range agrees particularly well with the other dating evidence. Sample 2 yielded only a pre-A.D. 700 date. Although this portion of the curve is not calibrated, the date probably falls within the A.D. 600's. These dates are derived from an interpretation of the intersection of the paleoplot derived for the sample and the current version of the paleopolar curve presented by Hathaway et al. (1983) and McGuire and Sternberg (1982). The plot position and intersection are given in Hathaway (1983).

Tree-Ring Dating

A single sample of wood was secured for tree-ring dating from Feature 44. This feature was 1 of 2 postholes for an inferred drying rack east of Pitstructure 1. The sample did not yield a date.

Integration of Spatial and Temporal Units

Poco Tiempo Hamlet is a single-component site assigned to the Sagehill Subphase (A.D. 700-780) of the Sagehen Phase (A.D. 600-850). It is composed of 5 noncontiguous surface rooms, a single antechambered pitstructure, and numerous outside processing and storage features.

The site seems to be the product of a single occupation by either an extended family group or 2 family groups coinhabiting Pitstructure 1. The occupation of the antechamber as a separate structure apparently began after the initial settlement of the site; this probably occurred at the time Rooms 3, 4, and 5 were constructed (refer to the discussion of social organization).

Following the occupation of the site, 2 human burials (Feature 1 [Human Burial 48] and Feature 2 [Human Burial 49]) were intruded into the postabandonment fills of Pitstructure 1 and Room 1. These later episodes cannot be dated, but inhabitants of nearby sites may have been responsible for the interments. Sites 5MT7192, 5MT2360, and 5MT2376 are approximately 100 m, 200 m, and 300 m, respectively, from Poco Tiempo Hamlet. These sites had short-term occupations, and surface-collected ceramics indicated that Sites 5MT7192 and 5MT2360 could date anywhere between A.D. 600 and 920. Site 5MT2376 has a more restricted date range of A.D. 775 to 920.

Material Culture

Ceramic Artifacts

A total of 331 sherds was collected from Poco Tiempo Hamlet. The ceramics from each major study unit are summarized in table 9A.1. The percentages for specific variables in this table and in the following discussion represent the percentages contributed by each variable to the total sherd weight from the examined unit.

Of the total weight of sherds from the overall site, 79.1 percent are Early Pueblo Gray sherds, 3.3 percent are unclassifiable white ware, and 1.1 percent are unclassifiable red ware. The rest of the assemblage is classified as follows: 13.9 percent Chapin Gray, 0.3 percent Moccasin Gray, 0.1 percent are Mancos Gray, 1.8 percent Chapin Black-on-white, and 0.2 percent Bluff Black-on-red. The only sherds directly associated with the occupation of Poco Tiempo Hamlet are Chapin Gray, white wares, and 1 Early Pueblo Red bowl sherd. Moccasin Gray, Mancos Gray, and red wares were recovered from upper fill levels or the modern ground surface, and these have been attributed to later occupations at nearby sites. Most of the gray wares and white wares associated with floor contexts at Poco Tiempo Hamlet were identified as having been manufactured in the Mesa Verde region.

An examination of vessel forms from the site reveals that most of the sherds (87 percent) represent jars. Bowls are represented by 10 percent of the assemblage, and other vessel forms made up the remaining 3 percent.

The dearth of sherds in the surface room precludes comparisons meaningful between surface room and pitstructure assemblages. Of interest, however, is the similarity of the assemblage from the pitstructure main chamber to that from the antechamber. This supports the inference that these 2 units were occupied by 2 household groups.

Flaked Lithic Artifacts

Results of the analysis of the 73 flaked lithic tools and 160 pieces of flaked lithic debitage recovered from Poco Tiempo Hamlet are presented in tables 9A.2 and 9A.3.

Utilized flakes are the most common tool type (52.1 percent), followed by used cores or cobble tools (15.1 percent). These are considered to be low-production-input items. High-production-input items, such as projectile points, bifaces, and specialized forms, make up 17.8 percent of the assemblage. Surprisingly, 93.2 percent of all tools are complete or nearly complete items. Only 2.7 percent of the items show secondary thinning, and 60.3 percent retain cortex. It would seem, therefore, that most of the tools are low-production-input items. None appeared to have been retouched or broken as a result of prolonged use.

Flaked lithic tools were totally absent from floor contexts of surface rooms, and debitage was scarce (4 pieces), found only in Rooms 1, 4, and 5. Six flaked lithic tools were recovered from surface-associated contexts in the main chamber floor of Pitstructure 1. A utilized flake was found in the west warming pit (Feature 14), and a corner-notched projectile point was found in a sealed surface feature (Feature 40). Two utilized flakes, 1 thick, side-worked uniface, and 1 cobble tool were recovered from the floor. In the antechamber, there was 1 utilized flake; 1 partially worked, thick biface; 1 thick, multiple-edged uniface; and 1 cobble tool. Flaked lithic debitage was scarce in the pitstructure was well as in the surface rooms. Two fine-grained flakes, 2 very fine grained flakes, and 1 piece of angular debris were recovered from the main chamber; the antechamber contained 1 fine-grained flake.

Flaked lithic tools and debitage are scarce in the major architectural units at Poco Tiempo Hamlet. A comparison between surface rooms only indicates that structures defined as storage rooms (Rooms 2 and 3) contained no flaked stone and that the structures defined as food processing rooms (Rooms 1 and 4) and a possible seasonal habitation (Room 5) contained very little material. The scarcity of flaked lithic items, particularly the scarcity of debitage, in the pitstructure may indicate that the tools were removed at abandonment, but it is not likely that bits and pieces of debitage were taken along as well. This lack of material may indicate that tools were manufactured outside the pitstructure.

Nonflaked Lithic Tools

The 53 nonflaked lithic tools collected from Poco Tiempo Hamlet are listed in table 9A.4. Hammerstones and manos compose 60.4 percent of the assemblage. The ratio of 10 two-hand manos to 4 one-hand manos is significant. Two-hand manos are inferred to have been used in trough metates, but no evidence of trough metates was found at the site. The trough metates may have been removed when the site was abandoned. One basin metate was left leaning against the wall in the antechamber of Pitstructure 1. The significance of its presence in light of the absence of trough metates is unknown.

The distributional pattern of nonflaked lithic tools is similar to that of flaked material. Of the surface rooms, only Rooms 2 and 5 yielded nonflaked lithic tools – each contained a mano. The nonflaked tool assemblage from the main chamber of Pitstructure 1 consists of 1 curved-surface abrading stone, 1 flat-surface abrading stone, 1 hammerstone, and 1 minimally altered item; the antechamber assemblage consists of 1 mano, 2 flat-surface abrading stones, 2 hammerstones, 1 basin metate, 2 generalized tool fragments, and 1 item that shows no cultural modification. A comparison of tools from the main chamber with tools from the antechamber reveals very similar assemblages, providing further support to the inference that the pitstructure was occupied by 2 groups.

Nonhuman Bone

The faunal assemblage from Poco Tiempo Hamlet is extremely small (tables 9A.5 and 9A.6). Of the 29 items recovered, all are mammal bones. Because of fragmentation or cultural modification, 19 (65.5 percent) of these bones could not be identified more specifically than to class size, and 1 item could be identified only as mammal.

Large mammals account for 27.5 percent of the nonhuman bone at Poco Tiempo Hamlet; small mammals compose 48.2 percent of the assemblage. Cottontail (*Sylvilagus*), represented by 4 bones, is slightly more common than jackrabbit (*Lepus*). This sample is too small to make any statements about preferred species; it simply indicates that locally available game was secured.

Four of the bones from Surface 1 in Pitstructure 1 are worked. Two awls (PL's 6 and 10) and 1 bead (PL 11) were on the floor in the main chamber and 1 awl (PL 5) was along the east wall in the antechamber. Another awl was recovered from the leaner shelf (Feature 106) in the pitstructure. Two additional bones from Poco Tiempo Hamlet are worked; an awl was found in the roof fall stratum in the pitstructure, and a tube was recovered from a posthole (Feature 24) in Nonstructural Unit 1.

Miscellaneous Materials

Five additional items were recovered at Poco Tiempo Hamlet. These are 2 pieces of hematite, 2 pieces of calcite, and 1 sample of animal or human hair. One piece of hematite came from the upper fill in Pitstructure 1; the other piece was in Feature 45, a borrow pit in Nonstructural Unit 1. Both pieces of calcite were recovered from Feature 4, a possible parching pit in Nonstructural Unit 1. The hair also came from Feature 4. It is assumed that these items were deposited naturally or unintentionally.

Material Culture Conclusions

In summary, the artifacts recovered from Poco Tiempo Hamlet indicate that the occupants were subsisting almost entirely on locally available resources. The stone for construction was probably secured from the Dakota

Sandstone Formation exposed in a small canyon directly west of the site. Stone for flaked tools was abundant in the Dolores River canyon to the east; fine-grained and very fine grained quartzites from the Morrison Formation, which is exposed in the river canyon, would have been easily accessible.

The local vegetation types (pinyon-juniper woodland and the sagebrush shrubland) would have provided game, building materials, fuel, and edible plants. The sagebrush areas are underlain by Gladel-Pulpit loam, which is an excellent, well-drained soil. These south-facing slopes were probably cleared and cultivated.

Applicability of Site Data to the Dolores Archaeological Program Research Design

In the DAP research design, Kane et al. (1983) outline 5 topics that will be addressed to the project data base. These topics are Economy and Adaptation, Paleodemography, Social Organization, Extraregional Relationships, and Cultural Process. Each site contributes to the data base in some or all of these areas.

Economy and Adaptation

In considering economy and adaptation, 4 main categories must be addressed. These categories are agriculture, wild plant resources, small-game hunting, and big-game hunting.

Agriculture was most important to Anasazi subsistence, and the prehistoric farmers probably made habitation site selections based on the presence of well-drained soil suitable for their crops. The soil for many hectares north and east of Poco Tiempo Hamlet is a well-drained Gladel-Pulpit loam, ideally suited for dryland crops such as corn, beans, and squash. This soil has the highest agricultural potential of any soil in the project area (Petersen et al. 1984). The length of growing season is also of prime consideration. For corn to mature it must have 110 to 130 frost free days. Between A.D. 600 and 750, the project area was characterized by increased summer temperatures and increases in precipitation derived from summer monsoons and the winter jet stream (Peterson 1982). These increases in daytime temperatures and increased summer and winter precipitation would allow successful dryland farming at elevations between 1678 and 2285 m. Because Poco Tiempo Hamlet is located at 2117 m above sea level and is located on a well-drained southern exposure, the chances for successful dryland farming of corn, beans, and squash seem to have been optimal.

In addition to ample farmland, the area around Poco Tiempo Hamlet has abundant natural resources. The sandstone used for construction was usually in tabular form and originates in the Dakota Sandstone Formation. This stone was available along the canyon rim less than 60 m west of the site. River cobbles were used in the manufacture of both nonflaked and flaked lithic tools; these cobbles were available in the Dolores River canyon 2 km to the east or in remnants of Pleistocene gravels on isolated hilltops. Most of the flaked lithic tools were manufactured from fine-grained quartzites found primarily in the canyon.

Both large and small game animals should have been available around Poco Tiempo Hamlet at the time of its occupation. The botanical information obtained from bulk soil samples indicated that the prehistoric environment was sagebrush shrubland interspersed with pinyon-juniper woodland. The environment is much the same today outside of the modern farming tracts. This habitat today supports a population of mule deer (*Odocoileus hemionus*), cottontails (*Sylvilagus*) in the uplands, jack rabbits (*Lepus*) in the lowlands, and numerous varieties of smaller mammals and birds. The area is especially attractive as a wintering area for American elk (*Cervus elaphus*) and mule deer.

<u>Summary</u>. – Overall, all aspects necessary for a successful prehistoric farming, gathering, and hunting economy were present in the immediate vicinity of Poco Tiempo Hamlet. The soil was well drained, fertile, and suitable for dryland farming. Building materials, such as sandstone and wood, were immediately at hand, and wood and brush for fuel were readily available. Sagebrush (*Artemisia*), pine (*Pinus*), juniper (*Juniperus*), and rosaceous (*Rosaceae*) wood seem to have been the most common items used for fuel. The Dolores River canyon, to the east, is a ready source of tool stone, particularly fine-grained quartzite from the Morrison Formation. The site was within the habitat for both large and small game animals, and it is assumed that the Sagehen Flats area was a winter range for elk and deer as it is today.

Paleodemography

To determine the number of people that inhabited this site, the available dwelling space is first determined. Most of the surface rooms represent storerooms or seasonal-use workrooms that relate to food processing and storage. That leaves the pitstructure, which, from the artifact assemblage, features, and floor area, appears to be a domicile. The fact that the entryway had been sealed off and that the antechamber was equipped with a set of features almost identical to those in the main chamber suggests that 2 household groups were residing in Pitstructure 1.

Based on Naroll's (1962) study of 18 preindustrial societies, population of a dwelling unit can be calculated by taking one-tenth of the total floor area of the roofed dwelling. Pitstructure 1 at Poco Tiempo Hamlet has a total floor area (main chamber and antechamber) of 26.9 m². According to Naroll's formula, the population at Poco Tiempo Hamlet would have been 2.69, or from 2 to 3 individuals. This seems reasonable for the early period of occupation. However, the population was probably greater during the later years, when Pitstructure 1 was occupied by 2 household groups. Casselberry's (1974) formula of one-sixth the total roofed dwelling area seems more appropriate in this case, because his estimates are based on studies of 8 societies with multiple-family dwellings. Thus, according to the Casselberry method, the population at Poco Tiempo Hamlet during the time in which the pitstructure antechamber was being used as second living room would have been 4.48, or from 4 to 5 individuals.

Social Organization

Poco Tiempo Hamlet is a two-household unit apparently associated with a dispersed community of the West Sagehen Neighborhood (Kane 1984:14 and fig. 1.4). Within a 2-km radius of Poco Tiempo Hamlet, 12 site are identified as Basketmaker III-Pueblo I (fig. 9.39). These are the westernmost sites in the West Sagehen Neighborhood. Each has a high probability of being Basketmaker III site or of being a multicomponent site with 1 component dating to the Basketmaker III period. Only Poco Tiempo Hamlet, Tres Bobos Hamlet (Site 5MT4545), and Casa Bodega Hamlet (Site 5MT2194) have been intensively excavated. Poco Tiempo and Tres Bobos are both single-component Basketmaker III hamlets. Casa Bodega is a single component Pueblo I hamlet.

It is assumed that Pitstructure 1 was originally occupied by 1 household group and, until expansion made it desirable, the antechamber was not used by a separate group. This assumption is based on evidence that the tunnel or crawlway and the deflector slabs on either side of the entryway fell into disuse at some time during the occupation of the structure. While the tunnel or crawlway was functional, deflector slabs in both chambers would have been necessary to control the passage of air from 1 chamber to the other. However, sealing off the entryway negated the need for deflector slabs, and they were subsequently removed and the molds were sealed over.

At this time, the antechamber probably became a separate living room and was equipped with a hearth, warming pit, and other small floor features. This new room might have been used by a member or members of an extended family prior to the construction of their own

Figure 9.39. Basketmaker III/Pueblo I sites within a 2-km radius of Poco Tiempo Hamlet.

home. This scenario may be tenuous, but it seems a relatively secure assumption that 2 households were living in Pitstructure 1 at Poco Tiempo Hamlet for an unknown period of time.

The spatial relationship between the 2 clusters of surface rooms lends credence to this interpretation. The first, or northern, cluster, consisting of Rooms 1 and 2 and a ramadalike structure, probably represents the original surface units built at a time when only a single household group occupied Pitstructure 1. These rooms are aligned in an east-west arc north of the main chamber of Pitstructure 1. The second cluster of structures, consisting of Rooms 3, 4, and 5, is separated from the northern cluster by 11 m, and the rooms are in proximity to the antechamber. Functionally, both sets of rooms contained a storage room, and a food-processing room; the later set of rooms also contained a room that might have been used as a seasonal habitation.

This arrangement and composition indicate that the 2 groups of surface rooms were independent of one another, suggesting the presence of 2 household groups. The food-processing features found in Nonstructural Unit 1, on the other hand, show an opposing pattern. In this area each of the feature clusters seem to have functioned in a particular step of the food-processing chain and none of these feature clusters duplicates the same step. In other words, the northern rooms do not have their own exterior processing area that duplicates that found in association with the southern rooms. This arrangement, therefore, indicates that gathering and processing was probably a shared endeavor and was not conducted independently by the 2 household groups. Storage (and some final processing) of this produce, on the other hand, seem to have been non-communal; the produce was apparently divided between the 2 household groups.

Not mentioned in this scenario are the 2 large, bell-shaped storage cists (Features 25 and 47). Based on the fill sequence in these 2 storage units, alternate periods of natural filling and cultural trash deposition are indicated. It appears that they fell into disuse long before the overall site was abandoned and that they filled while the site was still occupied. They probably are the first storage units built at the site, and it is assumed that they were eventually replaced by Room 2. Other than the borrow pit (Feature 45), no other exterior features at the site contained preabandonment trash fill. This indicates that the processing features were contemporaneous and were used in some manner up to the point of site abandoment.

A graphic representation is provided in figure 9.40 to illustrate the inferred growth of Poco Tiempo Hamlet.

Extraregional Relationships

Ceramics are good indicators of extraregional relationships, in that nonlocal sherds can frequently be identified as to their place of origin. This information provides evidence for some level of exchange with other groups. Only 2 nonlocal sherds are associated with the occupation of Poco Tiempo Hamlet. An Early Pueblo Red bowl sherd (Blanding Manufacturing Tract) was found in Room 4, and a conglomerate-tempered (Cahone Manufacturing Tract) Early Pueblo Gray jar sherd was recovered from the antechamber floor. The red ware bowl was produced outside the project area in the southeastern corner of Utah, near Blanding. The conglomerate-tempered gray ware jar was produced to the west and south of the project area, away from the river valley. Refer to Blinman (1982) for a discussion of ceramic manufacturing tracts.

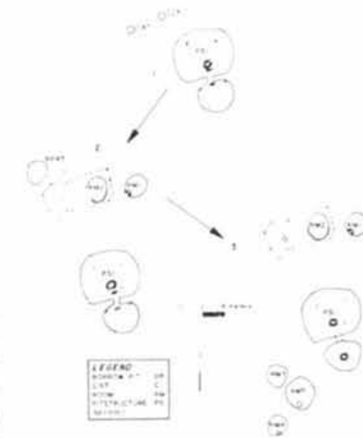

Figure 9.40. Development of Poco Tiempo Hamlet through time.

Evidence for exchange can also be found in flaked lithic tool and flaked lithic debitage assemblages. The presence of exotic lithic materials not locally available would indicate that the stone probably reached the site through exchange. At the Poco Tiempo Hamlet, however, all of the stone recovered could have been secured locally. Most of the materials were quartzites from the Morrison Formation, which is exposed all along the Dolores River canyon, or chalcedony and chert from the Burro Canyon Formation, also found in the canyon.

Thus, it seems that the occupants of Poco Tiempo Hamlet were manufacturing most of the items they needed and that they did not engage in trade outside the immediate area.

Cultural Process

Poco Tiempo Hamlet was not occupied for a long period of time. For this reason, direct evidence of ongoing cultural process is not available. However, some general comments can be made. For instance, the arrangement of Rooms 3, 4, and 5 may represent a preliminary step in the move to contiguous roomsuites during the Dos Casas Subphase (A.D. 760-850) (Kane 1983). In addition, the presence of hearths in 3 of these noncontiguous surface rooms indicates a shift in room function; rather than functioning strictly as storage units, the presence of hearths have been interpreted as indicating food processing areas and, for Room 5, a possible seasonal habitation.

During the occupation of Poco Tiempo Hamlet the pitstructure was still the central residence unit. In later periods, however, this residency pattern shifts to the roomsuites and the pithouse becomes a protokiva, which acts as an integrative structure for several household groups. The manifestation of hearths in Rooms 1, 4, and 5 might be the first tentative indication of the shift in residency from subterranean to surface dwellings.

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NOTE: References marked by § represent DAP reports that were published after this chapter was written. Those marked with a § may be found in *Dolores Archaeological Program: Studies in Environmental Archaeology*, compiled by Kenneth Lee Petersen, Vickie L. Clay, Meredith H. Matthews, and Sarah H. Neusius, Bureau of Reclamation, Engineering and Research Center, Denver, 1985.

APPENDIX 9A

MATERIAL CULTURE TABLES

Table 9A.1 - Ceramic data summary, Poco Tiempo Hamlet

Culture category: Tract Ware Type	Modern ground surface N	Modern ground surface %wt	Room 3 mixed fills and features N	Room 3 mixed fills and features %wt	Room 4 Surface 1 and features N	Room 4 Surface 1 and features %wt	Room 4 Noncultural fills and features N	Room 4 Noncultural fills and features %wt
Mesa Verde:								
Dolores Tract								
Gray Ware								
Chapin Gray	8	10.5						
Moccasin Gray	1	0.6					1	4.9
Mancos Gray								
Early Pueblo Gray	83	76.5	4	73.7			4	95.1
White Ware								
Chapin Black-on-white	1	0.9						
Painted White								
Polished White	7	6.4						
Cahone Tract								
Gray Ware								
Moccasin Gray								
Early Pueblo Gray	9	4.3	1	8.0				
White Ware								
Polished White	1	0.3						
Sandstone Tract								
Gray Ware								
Early Pueblo Gray			2	18.2				
Blanding Tract								
Red Ware								
Bluff Black-on-red								
Early Pueblo Red	1	0.6			1	100.0		
Kayenta:								
Red Ware								
Early Pueblo Red								
Total ceramics	111	100.0	7	100.0	1	100.0	5	100.0
Total wt (g)	597.4		81.1		13.5		39.1	
Vessel form:								
Gray Ware								
Bowl	1	0.7						
Jar	97	86.4	7	100.0			5	100.0
Other	3	4.8						
White Ware								
Bowl	8	6.9						
Jar	1	0.6						
Red Ware								
Bowl					1	100.0		
Jar	1	0.6						

NOTE: Percentages less than 0.05 are not recorded in the percent weight column.

Table 9A.1 - Ceramic data summary, Poco Tiempo Hamlet - Continued

Culture category: Tract Ware Type	Room 4 Total N	Room 4 Total %wt	Room 5 Mixed fills and features N	Room 5 Mixed fills and features %wt	Pitstructure 1 Main chamber Surface 1 and features N	Pitstructure 1 Main chamber Surface 1 and features %wt	Pitstructure 1 Main chamber Mixed fills and features N	Pitstructure 1 Main chamber Mixed fills and features %wt
Mesa Verde:								
Dolores Tract								
Gray Ware								
Chapin Gray					2	14.5	7	23.1
Moccasin Gray	1	3.6						
Mancos Gray			1	2.5				
Early Pueblo Gray	4	70.7	10	66.6	10	85.5	36	69.8
White Ware								
Chapin Black-on-white								
Painted White			1	3.4			4	4.9
Polished White								
Cahone Tract								
Gray Ware								
Moccasin Gray							1	1.5
Early Pueblo Gray								
White Ware								
Polished White								
Sandstone Tract								
Gray Ware								
Early Pueblo Gray								
Blanding Tract								
Red Ware								
Bluff Black-on-red			1	6.4				
Early Pueblo Red	1	25.7	1	21.3				
Kayenta:								
Red Ware								
Early Pueblo Red							1	0.8
Total ceramics	6	100.0	14	100.0	12	100.0	49	100.0
Total wt (g)	52.6		110.1		382.2		610.2	
Vessel form:								
Gray Ware								
Bowl							3	4.5
Jar	5	74.3	11	69.0	11	91.4	38	75.0
Other					1	8.6	3	14.8
White Ware								
Bowl			1	3.4			4	4.9
Jar								
Red Ware								
Bowl	1	25.7	2	27.6			1	0.8
Jar								

Table 9A.1 - Ceramic data summary, Poco Tiempo Hamlet - Continued

Culture category: Tract Ware Type	Pitstructure 1 Main chamber Total N	Pitstructure 1 Main chamber Total %wt	Antechamber Surface 1 and features N	Antechamber Surface 1 and features %wt	Antechamber Noncultural fills and features N	Antechamber Noncultural fills and features %wt	Antechamber Total N	Antechamber Total %wt
Mesa Verde:								
Dolores Tract								
Gray Ware								
Chapin Gray	9	19.8	3	11.3			3	8.3
Moccasin Gray								
Mancos Gray								
Early Pueblo Gray	46	75.9	18	84.9	21	98.4	39	88.5
White Ware								
Chapin Black-on-white			1	2.5			1	1.8
Painted White	4	3.0			2	0.9	2	0.2
Polished White								
Cahone Tract								
Gray Ware								
Moccasin Gray	1	0.9						
Early Pueblo Gray			1	1.3	1	0.7	2	1.1
White Ware								
Polished White								
Sandstone Tract								
Gray Ware								
Early Pueblo Gray								
Blanding Tract								
Red Ware								
Bluff Black-on-red								
Early Pueblo Red								
Kayenta:								
Red Ware								
Early Pueblo Red	1	0.5						
Total ceramics	61	100.0	23	100.0	24	100.0	47	100.0
Total wt (g)	992.4		706.3		257.7		964.0	
Vessel form:								
Gray Ware								
Bowl	3	2.8						
Jar	49	81.3	20	95.9	22	99.1	42	96.8
Other	4	12.4	2	1.6			2	1.1
White Ware								
Bowl	4	3.0	1	2.5	1	0.3	2	1.9
Jar					1	0.6	1	0.2
Red Ware								
Bowl	1	0.5						
Jar								

Table 9A.1 - Ceramic data summary, Poco Tiempo Hamlet - Continued

Culture category: Tract Ware Type	Pitstructure 1 Total N	Pitstructure 1 Total %wt	Nonstructural Unit 1 noncultural fills and features N	Nonstructural Unit 1 noncultural fills and features %wt	Site total N	Site total %wt
Mesa Verde:						
Dolores Tract						
Gray Ware						
Chapin Gray	12	14.1	7	18.4	27	13.9
Moccasin Gray					2	0.1
Mancos Gray					1	0.1
Early Pueblo Gray	85	82.1	66	72.1	252	77.6
White Ware						
Chapin Black-on-white	1	0.8	3	4.3	5	1.8
Painted White	6	1.6	1	0.4	8	1.0
Polished White			8	4.8	15	2.3
Cahone Tract						
Gray Ware						
Moccasin Gray	1				1	0.2
Early Pueblo Gray	2	0.1			12	1.1
White Ware						
Polished White					1	
Sandstone Tract						
Gray Ware						
Early Pueblo Gray					2	0.4
Blanding Tract						
Red Ware						
Bluff Black-on-red					1	0.2
Early Pueblo Red					3	1.0
Kayenta:						
Red Ware						
Early Pueblo Red	1				1	0.1
Total ceramics	108	100.0	85	100.0	331	100.0
Total wt (g)	1,956.4		1,140.3		3,937.9	
Vessel form:						
Gray Ware						
Bowl			2	2.2	6	1.4
Jar			69	85.2	280	86.9
Other			2	3.0	11	5.0
White Ware						
Bowl			7	7.5	22	4.5
Jar			5	2.1	7	0.7
Red Ware						
Bowl					4	1.2
Jar					1	0.1

Table 9A.2 - Flaked lithic tools, Poco Tiempo Hamlet

	Modern ground surface N	Modern ground surface %	Modern ground surface Mean wt(g)	Room 1 noncultural fills and features N	Room 1 noncultural fills and features %	Room 1 noncultural fills and features Mean wt(g)	Room 3 mixed fills and features N	Room 3 mixed fills and features %	Room 3 mixed fills and features Mean wt(g)
Total tools:	27	100.0	84	1	100.0	1	2	100.0	20
Tool morpho-use									
Utilized flake	13	48.1	20				2	100.0	20
Core	2	7.4	117						
Used core, cobble tool	4	14.8	196						
Thick uniface	3	11.1	45						
Thin uniface	1	3.7	54						
Specialized form	1	3.7	53						
Thick biface	3	11.1	258						
Thin biface									
Projectile point				1	100.0	1			
Grain size									
Fine	2	7.4	283				1	50.0	16
Very fine	18	66.7	82				1	50.0	24
Microscopic	7	25.9	34	1	100.0	1			
Item condition									
Broken									
Indeterminate	1	3.7	125						
Distal present				1	100.0	1			
Proximal present	1	3.7	2						
Complete/nearly complete	25	92.6	88				2	100.0	20
Dorsal face evaluation									
Indeterminate				1	100.0	1			
Core	6	22.2	170						
Unworked with cortex	11	40.7	86				2	100.0	20
Unworked without cortex	7	25.9	20						
Edged with cortex									
Edged without cortex									
Secondarily thinned									
Well shaped	3	11.1	57						

Table 9A.2 - Flaked lithic tools, Poco Tiempo Hamlet - Continued

	Room 4 noncultural fills and features			Room 5 mixed fills and features			Pitstructure 1 Main chamber Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	n	%	Mean wt(g)
Total tools:	1	100.0	23	7	100.0	43	6	100.0	163
Tool morpho-use									
Utilized flake	1	100.0	23	6	85.7	50	3	50.0	15
Core									
Used core, cobble tool							1	16.7	899
Thick uniface							1	16.7	29
Thin uniface				1	14.3	5			
Specialized form									
Thick biface									
Thin biface									
Projectile point							1	16.7	1
Grain size									
Fine				2	28.6	97			
Very fine	1	100.0	23	4	57.1	26	4	66.7	242
Microscopic				1	14.3	5	2	33.3	5
Item condition									
Broken									
Indeterminate									
Distal present									
Proximal present									
Complete/nearly complete	1	100.0	23	7	100.0	43	6	100.0	163
Dorsal face evaluation									
Indeterminate									
Core									
Unworked with cortex	1	100.0	23	7	100.0	43	4	66.7	242
Unworked without cortex							1	16.7	6
Edged with cortex									
Edged without cortex									
Secondarily thinned									
Well shaped							1	16.7	1

Table 9A.2 - Flaked lithic tools, Poco Tiempo Hamlet - Continued

	Pitstructure 1 Main chamber Mixed fills and features			Pitstructure 1 Main chamber Total			Pitstructure 1 Antechamber Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	8	100.0	19	14	100.0	80	4	100.0	202
Tool morpho-use									
Utilized flake	4	50.0	23	7	50.0	20	1	25.0	7
Core									
Used core, cobble tool	1	12.5	35	2	14.3	467	1	25.0	452
Thick uniface				1	7.1	29	1	25.0	204
Thin uniface									
Specialized form									
Thick biface							1	25.0	143
Thin biface	2	25.0	10	2	14.3	10			
Projectile point	1	12.5	2	2	14.3	2			
Grain size									
Fine	4	50.0	8	4	28.6	8			
Very fine	3	37.5	38	7	50.0	154	3	75.0	201
Microscopic	1	12.5	7	3	21.4	5	1	25.0	204
Item condition									
Broken									
Indeterminate	1	12.5	35	1	7.1	35			
Distal present	1	12.5	5	1	7.1	5			
Proximal present									
Complete/nearly complete	6	75.0	18	12	85.7	90	4	100.0	202
Dorsal face evaluation									
Indeterminate									
Core	1	12.5	35	1	7.1	35			
Unworked with cortex	3	37.5	28	7	50.0	150	3	75.0	201
Unworked without cortex	1	12.5	8	2	14.3	7	1	25.0	204
Edged with cortex									
Edged without cortex	1	12.5	15	1	7.1	15			
Secondarily thinned	2	25.0	4	2	14.3	4			
Well shaped				1	7.1	1			

Table 9A.2 - Flaked lithic tools, Poco Tiempo Hamlet - Continued

	Pitstructure 1 Total			Nonstructural Unit 1 noncultural fills and features			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	18	100.0	106	17	100.0	204	73	100.0	110
Tool morpho-use									
Utilized flake	8	44.4	18	8	47.1	97	38	52.1	41
Core							2	2.7	117
Used core, cobble tool	3	16.7	462	4	23.5	250	11	15.1	288
Thick uniface	2	11.1	117	2	11.8	610	7	9.6	273
Thin uniface							2	2.7	50
Specialized form							1	1.4	33
Thick biface	1	5.6	143	2	11.8	168	6	8.2	209
Thin biface	2	11.1	10	1	5.9	140	3	4.1	55
Projectile point	2	11.1	2				3	4.1	1
Grain size									
Fine	4	22.2	8	7	41.2	185	16	21.9	131
Very fine	10	55.6	168	9	52.9	241	43	58.9	127
Microscopic	4	22.2	55	1	5.9	8	14	19.2	34
Item condition									
Broken									
Indeterminate	1	5.6	55				2	2.7	80
Distal present	1	5.6	5				2	2.7	3
Proximal present							1	1.4	2
Complete/nearly complete	16	88.9	118	17	100.0	204	68	93.2	116
Dorsal face evaluation									
Indeterminate							1	1.4	1
Core	1	5.6	55	3	17.6	222	10	13.7	172
Unworked with cortex	10	55.6	166	12	70.6	224	43	58.9	132
Unworked without cortex	3	16.7	73	1	5.9	8	11	15.1	33
Edged with cortex				1	5.9	109	1	1.4	109
Edged without cortex	1	5.6	15				1	1.4	15
Secondarily thinned	2	11.1	4				2	2.7	4
Well shaped	1	5.6	1				4	5.5	43

Table 9A.3 - Flaked lithic debitage, Poco Tiempo Hamlet

	Modern ground surface			Room 1 Surface 1 and features			Room 3 mixed fills and features			Room 4 Surface 1 and features			Room 5 Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:															
Grain size															
Medium	1	1.6	13	0	0	0	0	0	0	0	0	0	0	0	0
Oine	30	46.9	7	0	0	0	0	0	0	0	0	0	1	100.0	45
Very fine	28	43.8	6	2	100.0	2	2	100.0	1	1	100.0	1	0	0	0
Microscopic	5	7.8	5	0	0	0	0	0	0	0	0	0	0	0	0
Total flakes/ flake frags	64	100.0	7	2	100.0	2	2	100.0	1	1	100.0	1	1	100.0	45
Items with cortex	19	29.7	...	0	0	0	1	50.0	...	0	0	0	1	100.0	0
Whole flakes	41	64.1	...	1	50.0	...	0	0	0	1	100.0	...	1	100.0	...
Angular debris	7	100.0	26	0	0	0	1	100.0	7	0	0	0	0	0	0

NOTE: frags - Fragments.
... - Information not available.

Table 9A.3 - Flaked lithic debitage, Poco Tiempo Hamlet - Continued

	Pitstructure 1											
	Main chamber			Antechamber 1								
	Total			Surface 1 and features			Noncultural fills and features			Total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:												
Grain size												
Medium	0	0	0	0	0	0	0	0	0	0	0	0
Fine	10	43.5	17	1	100.0	7	0	0	0	1	8.3	7
Very fine	13	56.5	10	0	0	0	11	100.0	7	11	91.7	7
Microscopic	0	0	0	0	0	0	0	0	0	0	0	0
Total flakes/ flake frags	23	100.0	13	1	100.0	7	11	100.0	7	12	100.0	7
Items with cortex	9	39.1	...	0	0	0	6	54.5	...	6	50.0	...
Whole flakes	19	82.6	...	1	100.0	...	8	72.7	...	9	75.0	...
Angular debris	2	100.0	30	0	0	0	1	100.0	17	1	100.0	17

Table 9A.3 - Flaked lithic debitage, Poco Tiempo Hamlet - Continued

	Pitstructure 1 Total			Nonstructural Unit 1 noncultural fills and features			Site total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Flakes/flake frags:									
Grain size									
Medium	0	0	0	1	2.2	8	2	1.3	11
Fine	11	31.4	16	15	33.3	8	61	38.1	10
Very fine	24	68.6	9	27	60.0	11	90	56.3	8
Microscopic	0	0	0	2	4.4	5	7	4.4	5
Total flakes/ Flake frags	35	100.0	11	45	100.0	10	160	100.0	9
Items with cortex	15	42.9	...	21	46.7	...	64	40.0	...
Whole flakes	28	80	...	27	60.0	...	106	66.3	...
Angular debris	3	100.0	25	1	100.0	1	12	100.0	22

Table 9A.4 - Nonflaked lithic tools, Poco Tiempo Hamlet

	Modern ground surface			Room 2 Surface 1			Room 5 Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	11	100.0	418	1	100.0	1,636	1	100.0	309
Tool morpho use									
Indeterminate	2	18.2	323						
Miscellaneous									
Hammerstone	5	45.5	265						
Mano fragment									
One-hand mano							1	100.0	309
Two-hand mano	4	36.4	656	1	100.0	1,636			
Basin metate									
Hafted item									
Blank type									
Rounded cobble	2	18.2	248						
Flattened cobble	1	9.1	541	1	100.0	1,636	1	100.0	309
Slab fragment									
Thin slab									
Very thin slab	1	9.1	105						
Data not available	7	63.6	493						
Item condition									
Broken									
Unidentifiable	2	18.2	323						
Identifiable	4	36.4	467						
Complete/nearly complete	5	45.5	416	1	100.0	1,636	1	100.0	309
Production evaluation									
Indeterminate	1	9.1	105						
Natural (unmodified)	6	54.5	311						
Minimally modified	1	9.1	868						
Well shaped	3	27.3	586	1	100.0	1,636	1	100.0	309

Table 9A.4 - Nonflaked lithic tools, Poco Tiempo Hamlet - Continued

	Room 5 Mixed fills and features			Room 5 Total			Pitstructure 1 Main chamber Surface 1 and features		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	2	100.0	257	3	100.0	274	6	100.0	1,474
Tool morpho use									
Indeterminate							1	16.7	3,100
Miscellaneous	1	50.0	250	1	33.3	250	2	33.3	576
Hammerstone	1	50.0	264	1	33.3	264	1	16.7	600
Mano fragment							2	33.3	1,995
One-hand mano				1	33.3	309			
Two-hand mano									
Basin metate									
Hafted item									
Blank type									
Rounded cobble	1	50.0	264	1	33.3	264	2	33.3	529
Flattened cobble	1	50.0	250	2	66.7	280	4	66.7	1,986
Slab fragment									
Thin slab									
Very thin slab									
Data not available									
Item condition									
Broken									
Unidentifiable									
Identifiable	1	50.0	250	1	33.3	250			
Complete/nearly complete	1	50.0	264	2	66.7	287	6	100.0	1,474
Production evaluation									
Indeterminate									
Natural (unmodified)	2	100.0	257	2	66.7	257	5	83.3	1,268
Minimally modified							1	16.7	2,500
Well shaped				1	33.3	309			

Table 9A.4 - Nonflaked lithic tools, Poco Tiempo Hamlet - Continued

	Pitstructure 1								
	Main chamber								
	Mixed fills and features			Noncultural fills and features			Total		
	N	%	Mean wt(g)	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	8	100.0	757	1	100.0	2,350	15	100.0	1,150
Tool morpho use									
Indeterminate	1	12.5	231				2	13.3	1,666
Miscellaneous	1	12.5	1,161	1	100.0	2,350	4	26.7	1,166
Hammerstone	2	25.0	612				3	20.0	608
Mano fragment							2	13.3	1,095
One-hand mano	1	12.5	642				1	6.7	642
Two-hand mano	3	37.5	951				3	20.0	951
Basin metate									
Hafted item									
Blank type									
Rounded cobble							2	13.3	529
Flattened cobble	8	100.0	757				12	80.0	1,153
Slab fragment									
Thin slab									
Very thin slab				1	100.0	2,350	1	6.7	2,350
Data not available									
Item condition									
Broken									
Unidentifiable	2	25.0	696				2	13.3	696
Identifiable	2	25.0	505				2	13.3	505
Complete/nearly complete	4	50.0	913	1	100.0	2,350	11	73.3	1,349
Production evaluation									
Indeterminate	1	12.5	231				1	6.7	231
Natural (unmodified)	3	37.5	795				8	53.3	1,091
Minimally modified	2	25.0	505				3	20.0	1,170
Well shaped	2	25.0	1,214	1	100.0	2,350	3	20.0	1,592

Table 9A.4 - Nonflaked lithic tools, Poco Tiempo Hamlet - Continued

	Pitstructure 1					
	Antechamber			Total		
	Surface 1 and features					
	N	%	Mean wt(g)	N	%	Mean wt(g)
Total tools:	8	100.0	3,671	23	100.0	2,027
Tool morpho use						
Indeterminate				2	8.7	1,666
Miscellaneous	4	50.0	1,908	8	34.8	1,787
Hammerstone	2	25.0	416	5	21.7	531
Mano fragment	1	12.5	3,000	3	13.0	2,330
One-hand mano				1	4.3	642
Two-hand mano				3	13.0	951
Basin metate	1	12.5	17,900	1	4.3	17,900
Hafted item						
Blank type						
Rounded cobble	1	12.5	442	3	13.0	500
Flattened cobble	3	37.5	2,055	15	65.2	1,333
Slab fragment	3	37.5	7,222	3	13.0	7,221
Thin slab	1	12.5	1,092	2	8.7	1,721
Very thin slab						
Data not available						
Item condition						
Broken						
Unidentifiable				2	8.7	696
Identifiable				2	8.7	505
Complete/nearly complete	8	100.0	3,671	19	21.7	1,708
Production evaluation						
Indeterminate				1	4.3	231
Natural (unmodified)	6	75.0	4,267	14	60.9	2,452
Minimally modified				3	13.0	1,170
Well shaped	2	25.0	1,883	5	21.7	1,708

Table 9A.4 - Nonflaked lithic tools, Poco Tiempo Hamlet - Continued

	Nonstructural Unit 1 noncultural fills and features N	%	Mean wt(g)	Site total N	%	Mean wt(g)
Total tools:	15	100,0	727	53	100,0	1,218
Tool morpho use						
Indeterminate	1	6,7	247	5	9,4	845
Miscellaneous	4	26,7	770	13	24,5	1,202
Hammerstone				11	20,8	386
Mano fragment	4	26,7	638	7	13,2	1,363
One-hand mano	2	13,3	398	4	7,5	437
Two-hand mano	2	13,3	890	10	18,9	885
Basin metate				1	1,9	17,900
Hafted item	2	13,3	1,226	2	3,8	1,226
Blank type						
Rounded cobble	5	33,3	1,139	11	20,8	732
Flattened cobble	8	53,3	425	27	50,9	968
Slab fragment	1	6,7	247	1	1,9	247
Thin slab				3	5,7	1,222
Very thin slab	1	6,7	1,464	4	7,5	1,253
Data not available				7	13,2	495
Item condition						
Broken						
Unidentifiable	4	26,7	406	8	15,1	458
Identifiable	2	13,3	248	9	17,0	403
Complete/nearly complete	9	60,0	976	36	67,9	1,591
Production evaluation						
Indeterminate	4	26,7	218	6	11,3	201
Natural (unmodified)	5	33,3	736	27	50,9	1,496
Minimally modified	4	26,7	929	8	15,1	1,012
Well shaped	2	13,3	1,321	12	22,6	1,241

Table 9A.5 - Composition of the total assemblage, Poco Tiempo Hamlet

	Room 1 fill: Indeterminate N	% class	% total	Identifiable N	% class	% total	Total N	% class	% total	Room 3 fill: Indeterminate N	% class	% total	Identifiable N	% class	% total	Total N	% class	% total
Mammalia:																		
Indeterminate				2	100,0	100,0	2	100,0	100,0									
Small																		
Medium																		
Medium or large										2	100,0	100,0				2	100,0	100,0
Large																		
Total Mammalia				2	100,0	100,0	2	100,0	100,0	2	100,0	100,0				2	100,0	100,0
Total assemblage				2		100,0	2		100,0	2		100,0				2		100,0

NOTE: Percent of total values less than ,05 are not recorded.

Table 9A.5 - Composition of the total assemblage, Poco Tiempo Hamlet - Continued

	Room 4 Surface 1 and features: Indeterminate N	% class	% total	Identifiable N	% class	% total	Total N	% class	% total	Pitstructure 1 fill: Indeterminate N	% class	% total	Identifiable N	% class	% total	Total N	% class	% total
Mammalia:																		
Indeterminate													1	16,6	16,6	1	12,5	12,5
Small	6	100,0	100,0				6	100,0	100,0				4	66,6	66,6	4	50,0	50,0
Medium																		
Medium or large																		
Large										2	100,0	100,0	1	16,6	16,6	3	37,5	37,5
Total Mammalia	6	100,0	100,0				6	100,0	100,0	2	100,0	100,0	6	100,0	100,0	8	100,0	100,0
Total assemblage	6		100,0				6		100,0	2		100,0	6		100,0	8		100,0

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Table 9A.5 - Composition of the total assemblage, Poco Tiempo Hamlet - Continued

	Pitstructure 1 Surface 1 and features									Nonstructural Unit 1											
	Indeterminate			Identifiable			Total			Indeterminate			Identifiable			Total			Site total		
	N	$ class	$ total	N	$ class	$ total	N	$ class	$ total	N	$ class	$ total	N	$ class	$ total	N	$ class	$ total	N	$ class	$ total
Mammalia:																					
Indeterminate										1	25.0	25.0				1	20.0	20.0	1	11.1	11.1
Small										1	25.0	25.0	1	100.0	100.0	2	40.0	40.0	7	77.7	77.7
Medium										2	50.0	50.0				2	40.0	40.0			
Medium or large	1	16.6	16.6				1	16.6	16.6												
Large	5	83.3	83.3				5	83.3	83.3										1	11.1	11.1
Total Mammalia	6	100.0	100.0				6	100.0	100.0	4	100.0	100.0	1	100.0	100.0	5	100.0	100.0	9	100.0	100.0
Total assemblage	6		100.0				6		100.0	4		100.0	1		100.0	5		100.0	9		100.0

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Table 9A.6 - Taxonomic composition of the identifiable faunal assemblage, Poco Tiempo Hamlet

	Room 1 fill N		Room 1 fill % class		Room 1 fill % total		Pitstructure 1 fill N		Pitstructure 1 fill % class		Pitstructure 1 fill % total	
Mammalia:												
Sylvilagus spp.												
cottontails	2	(2)	100.0	(100.0)	100.0	(100.0)	2	(2)	66.6	(33.3)	66.6	(33.3)
Lepus spp.												
jackrabbits or hares												
Lepus townsendii												
white-tailed jackrabbit							0	(2)	0.0	(33.3)	0.0	(33.3)
Canis sp.												
dog, coyote, or wolf							0	(1)	0.0	(16.6)	0.0	(16.6)
Artiodactyla												
artiodactyls							1	(1)	33.3	(16.6)	33.3	(16.6)
Total Mammalia	2	(2)	100.0	(100.0)	100.0	(100.0)	3	(6)	100.0	(100.0)	100.0	(100.0)
Total assemblage	2	(2)			100.0	(100.0)	3	(6)			100.0	(100.0)

NOTE: Figures in parentheses indicate counts and percentages when bones that compare favorably to that taxon are included.

Table 9A.6 - Taxonomic composition of the identifiable faunal assemblage - Continued

	Nonstructural Unit 1			Site total		
	N	% class	% total	N	% class	% total
Mammalia:						
Sylvilagus spp. cottontails				4 (4)	66.6 (44.4)	66.6 (44.4)
Lepus spp. jackrabbits or hares	1 (1)	100.0 (100.0)	100.0 (100.0)	1 (1)	16.6 (11.1)	16.6 (11.1)
Lepus townsendii white-tailed jackrabbit				0 (2)	0.0 (22.2)	0.0 (22.2)
Canis sp. dog, coyote, or wolf				0 (1)	0.0 (11.1)	0.0 (11.1)
Artiodactyla artiodactyls				1 (1)	16.6 (11.1)	16.6 (11.1)
Total Mammalia	1 (1)	100.0 (100.0)	100.0 (100.0)	6 (9)	100.0 (100.0)	100.0 (100.0)
Total assemblage	1 (1)		100.0 (100.0)	6 (9)		100.0 (100.0)

Table 9A.7 - Vegetal remains, Poco Tiempo Hamlet

Family / Genus species / Plant part	Provenience						
		Pitstructure 1					
	Room 4 Stratum 1	Level 2	Feat 10 (posthole)	Feat 10 (posthole)	Feat 11 (posthole)	Feat 56 (posthole)	Surface 1
Compositae							
Artemisia sp.							
wood	2g/C						
Cupressaceae							
Juniperus sp.							
wood			14g/N	1g/N	38g/N		
Fagaceae							
Quercus gambelii							
wood							
Gramineae							
Zea mays							
fruit							
cupule							
Liliaceae							
Yucca sp.							
leaf	1f/C						
Yucca baccata							
seed		3f/C					
fruit		10/C					
Pinaceae							
Pinus sp.							
wood						5g/N	29g/N
Rosaceae							
wood							
Gymnospermae							
wood				5g/N			

NOTES: In the body of the table, numerals to the left of the bar indicate the number of items present, except in those cases where the items have been reported as a weight. In this latter case, the numeral is followed by the abreviation "g," indicating the number of grams of material present.

Feat - Feature
C - Charred
N - Noncharred
F - Fragment
CN - Charred and noncharred
PC - Partially charred

Table 9A.7 - Vegetal remains, Poco Tiempo Hamlet - Continued

Family / Genus species / Plant part	Provenience							
	Nonstructural Unit 1							
	Feat 4 (pit)	Feat 25 (cist)	Feat 47 (cist)	Feat 44 (posthole)	Feat 63 (posthole)	Feat 64 (posthole)	Feat 77 (posthole)	Feat 46 (pit)
Compositae								
Artemisia sp.								
wood	<1g/C	5g/C	<1g/C					12g/C
Cupressaceae								
Juniperus sp.								
wood	1g/C	10g/CN	5g/C	51g/N		7g/PC	148g/N	
Fagaceae								
Quercus gambelii								
wood			<1/C					
Gramineae								
Zea mays								
fruit			<1/C					
cupule			2/C					
Liliaceae								
Yucca sp.								
leaf								
Yucca baccata								
seed								
fruit								
Pinaceae								
Pinus sp.								
wood	1g/C	71g/CN	<1g/C		6g/CN			
Rosaceae								
wood			<1/C					
Gymnospermae								
wood	<1g/C	<1g/N	<1g/C	8g/C	<1g/C			

Table 9A.8 – Macrobotanical remains from bulk soil samples, Poco Tiempo Hamlet

[illegible]

Table 9A.8 – Macrobotanical remains from bulk soil samples, Poco Tiempo Hamlet – Continued

[illegible]

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