

CULTURAL RELATIONSHIPS IN SOUTHERN ECUADOR 300 BC - AD 300:
excavations at the Guarumal and Punta Brava sites

by

ELIZABETH J CURRIE

Thesis submitted for the degree of PhD, in fulfilment
of the requirements for the degree of Doctor of
Philosophy in the Faculty of Arts at the Institute of
Archaeology, University College, University of London

October, 1989



col.pl 1

ABSTRACT

Based upon an analysis of pottery excavated from the Guarumal and Punta Brava archaeological sites in south coastal Ecuador, the author seeks to place these sites into an overall cultural and chronological framework within the timescale 300 BC - AD 300, and to use some of the issues deriving from a discussion of the material and the occupation of the sites to assess the validity of the Jambelí culture, as defined by Estrada, Meggers and Evans (1964).

"All Jambelí Phase sites are shell middens..." (*ibid*: 486) is one of the assertions questioned in this thesis, together with the question of using white-on-red decorated pottery as a distinguishing feature of the Ecuadorian Regional Developmental Period. Some of the material described as being of the Jambelí culture is likely to have been misidentified and wrongly ascribed pottery deriving from late Formative period cultures in the area, of which the most important is the Guayaquil phase, from the Gulf of Guayaquil.

A clear sequence of development of pottery forms and styles can be demonstrated for the site Guarumal, from late Formative period Chorrera-like antecedents, exhibiting certain similarities with the Pechiche culture, through to those more typical of the Regional Developmental period - which is the Jambelí culture in this area - in the later phases of occupation.

Stylistic parallels with several contemporary cultures in southern Ecuador (and parts of northern Peru) are also examined, for the insights or challenges they offer to questions of cultural relationships and interactions over a wider geographical area.

It is increasingly clear that a re-evaluation of the Jambelí culture is necessary to take account of archaeological research of the last twenty years, research which has shown that the Jambelí culture was not merely a coastal adaptation of shell-fishing communities, but that it stretched well into the interior and had Formative period roots.

ACKNOWLEDGEMENTS

I would like to acknowledge the following people, whose help - moral or practical - has contributed towards the production of this thesis.

Firstly thanks go to my husband Mark, who has continued to offer much encouragement and support in the face of often trying circumstances over the years.

All my family in one way or another deserve thanks, for they have all offered encouragement, patience and tolerance during the many difficult moments. I should like to thank my mother in particular, for her faith in me throughout, and for all her support in years past which has, in way or another, helped to make this possible.

My supervisor, Dr Warwick M Bray deserves similar acknowledgment for his faith and encouragement (and "boots up the backside"!), in particular during the early days of this work, when I fell prey to one too many emotional crises.

In Ecuador, thanks go to Olaf Holm and to Hernan Crespo Toral, both of the Museo Antropológico del Banco Central del Ecuador, to Presley Norton of the Programa Antropología del Ecuador and to Dr Jorge Marcos of ESPOL, Guayaquil for their varying assistance during my fieldwork in 1976 and 1980. Dr Patricia Netherly, currently working on the Proyecto Tahuin, has periodically written, and kindly passed on my Beta Analytic dates. I should also like to thank Señor Enrique Noblecilla of Machala, El Oro, who owned the land where the site Guarumal was located and who allowed me permission to work on his land, including all the practical assistance I might need in the form of heavy machinery to clear the dense surface thicket from the site, thereby facilitating proper survey and reconnaissance.

In 1976, the engineering company Sir William Halcrow and Partners were surveying the area of the Rio Jubones to do a feasibility study for a large dam. They had actually discovered the site Guarumal during one of their preliminary reconnaissance trips to the region and marked it down on a map, which I was subsequently able to use. On behalf of the company, Alan Hardy gave me full access to all their maps of the region, and at one time allowed me the use of their survey team who produced the

first plan of the site Guarumal (thanks to Oswald Evans for this). The survey team also took pity on my very spartan fieldworking conditions, and built me a 'site hut' (Pl. 18-2) to afford occasional protection from the equatorial sun.

During the 1980 field season, Peter Powell assisted for part of the time and thanks go to him for some very useful field drawings and photographs.

I should also like to acknowledge Geoffrey Dyson, sadly now deceased, for his encouragement and assistance during my brief return to England in 1980, and who would have been much pleased to see this finished product. Thanks also go to John Carter, for long-standing encouragement during the early days, and continued interest now.

More recently, I should like to thank Dr Lea Jones for the petrological analysis of pottery samples, as well as her much valued moral support. Thanks also to Mike Allen for looking at the landsnail evidence, and particularly to Peter Dorrell of the Photographic Department at the Institute of Archaeology, for congenial assistance spread across many a year. Dr Tom Aleto of Bloomsburg University, USA kindly shared insights with me on the Guayaquil phase and the issue of white-on-red pottery, for which I am very grateful.

I also owe thanks to Rose Rowan for looking after my small daughter, Jessica, which helped me through one difficult phase last year, and in the final months, to Mary Alison Durand, who kindly agreed to help me translate an archaeological report in French. Eileen Sutcliffe and Doug Moncur of York University arranged the loan of a printer when my own broke down at the start of printing out this thesis. Without their help, the final stages of production would have been far more difficult.

Last, but far from least, I should like to thank my friend and colleague at York University - Professor John Greve, who has offered me much encouragement, good advice and moral support during these final weeks.

.....

TABLE OF CONTENTS

Abstract.....	4
Acknowledgments.....	5
Table of contents.....	7
PART I	
General introduction.....	15
The environmental background.....	15
PART II	
EXCAVATIONS AT THE GUARUMAL AND PUNTA BRAVA SITES	
Introduction.....	27
THE GUARUMAL SHELL MIDDENS.....	29
Location.....	29
The Site.....	29
The 1980 Field Season.....	31
Mound 1.....	31
Mound 2.....	32
Mound 3.....	33
Mound 4.....	34
Mound 5.....	35
Mound 6.....	35
Feature 7.....	36
THE 1976 FIELD SEASON	
Mound 1: The Machine-Cut Section Face.....	37
Trench A.....	39
Correlations between the machine-cut profile and Trench A.....	43
Trench B.....	44
Trench B: interpretations and conclusions.....	50
THE 1980 FIELD SEASON: Unit C.....	53
The Floors.....	54
The Features.....	60
The Linear Features	
Feature 1.....	60
Feature 2.....	61
Features 3 and 4.....	61
Feature 5.....	63
Feature 6.....	63
The Post-Holes	
Feature 7.....	64
Feature 8.....	64
Feature 9.....	65
Feature 10.....	65
Feature 11.....	65
Feature 12.....	66
Feature 13.....	66
Feature 14.....	66
The Pits	
Feature 15.....	67
Feature 16.....	67
Feature 17.....	67

Feature 18.....	68
Feature 19.....	68
Unexcavated units and features.....	68
Sub-units 3 and 4.....	69
Discussion of the features.....	75
The Burial Area.....	79
Burial 1.....	82
Burial 2.....	82
Burial 3.....	84
Burial 4.....	86
Burial 5.....	86
Burial 6.....	86
Burial 7.....	88
Summary and conclusions.....	88
Discussion of the evidence.....	89
Mound stratigraphy.....	91
The C ¹⁴ data.....	92
Discussion of the phaseology.....	93
Phaseology and summary of the occupation at Guarumal.....	96
Summary and Conclusions.....	100
THE TAHUIN SURVEY SITES.....	104
00-AR-AR-318 PUNTA BRAVA.....	104
The Excavation.....	106
Unit 1.....	106
Unit 2.....	107
Interpretation of the stratigraphy in Unit 2.....	113

PART III THE CERAMIC EVIDENCE with non-ceramic finds

THE CERAMIC TYPOLOGY.....	124
Introduction: the sample.....	124
Pastes and wares.....	124

THE TYPOLOGY

Form 1: deep bowl with curved or upright section.....	125
Form 2: deep bowl with "beaded" rim and curved or upright section.....	126
Form 3: grooved deep bowl with curved or upright section.....	128
Form 4: deep bowl with ridged profile.....	128
Form 5: shallow bowl with upright rim.....	129
Form 6: shallow bowl with flaring sides.....	130
Form 7: shallow bowl with interior rim thickening.....	131
Form 8a: fine bowl with expanded and inturned rim.....	132
Form 8b: bowl with broad expanded rim.....	133
Form 9: carinated bowl with interior bevelled rim.....	134
Form 10: carinated bowl with thickened and upturned rim.....	135
Form 11: carinated bowl with wedge-shaped section.....	136
Form 12: shallow bowl with upright wedge-shaped rim.....	137
Form 13: <i>Comal</i> - platter with flat base.....	138
Form 14: coarse bowl with flaring sides.....	138

Form 15: carinated bowl with out-turned rim.....	139
Form 16: deep bowl with upright rim.....	140
Form 17: bowl with straight sides.....	141
Form 18: bowl/jar with bolstered rim.....	142
18a: large coarse jar with bolstered rim....	142
18b: jar with thickened rim.....	143
18c: shallow bowl with thickened rim.....	144
Form 19: funnel-necked jar with flaring rim....	144
Form 20: jar with upright neck and curled rim...	145
Form 21: jar with medium to long everted neck...	146
Form 22: jar with short everted rim.....	147
Form 23: jar with constricted mouth.....	149
Form 24: jar with flattened rim and carinated shoulder.....	149
Form 25: jar with vestigial rim.....	150
Form 26: long-necked jar with "blister" adorno.....	151
Form 27: jar with recurved neck.....	151
Form 28: compotera pedestals.....	152
Compoteras.....	153
Spouted vessels.....	154
Polypod bowls.....	155
Other base forms.....	156
Beakers.....	157
Figurines.....	158
DESIGN ELEMENTS.....	161
PAINTING.....	162
White-on-red, white and red.....	162
Negative painting.....	166
Black, white and red painting.....	167
Plain wares.....	167
Red painted or red slipped wares.....	168
Other categories of painting.....	169
Pattern burnishing.....	170
Incision.....	170
Notching.....	173
Punctation.....	173
Reed impressing.....	174
Appliqués and adornos.....	174
Shell-scraping.....	176
NON-CERAMIC FINDS.....	177
STONE ARTIFACTS	
Metates.....	177
Manos.....	177
Hammerstones.....	178
Axes and adzes.....	178
OTHER ARTIFACTS.....	179
Beads.....	180
Rings.....	180
Bone awl.....	181
Shell-spacers.....	181
Shell spoon.....	182

PART IV STYLISTIC PARALLELS

Introduction.....	186
The Jambelí Culture.....	187
The Pechiche and Garbanzal Cultures.....	191
Loma Saavedra.....	207
The Guayaquil Phase and related cultures.....	209
Chorrera-Engoroy.....	221
The Guangala Culture.....	228
Tejar and Daule affiliations.....	238
Archaeological traditions in Loja.....	240
The Piura-Chira region.....	249
The Upper Piura - Vicús.....	258
Salinar and Gallinazo affiliations.....	262
The Southern Ecuadorian Highlands.....	269

PART V CONCLUSIONS.....	277
Introduction.....	277
The Guarumal and Punta Brava sites.....	277
The Jambelí culture reconsidered.....	280
The Regional Developmental period reconsidered.....	281
Overview.....	282
General conclusions.....	283
References.....	284

LIST OF ILLUSTRATIONS

MAPS

Map 1: Southern Ecuador and northern Peru, indicating main archaeological sites.....	12
Map 2: Location of Jambelí sites according to Estrada, Meggers & Evans.....	14
Map 3: Coastal El Oro province, Ecuador with location of Guarumal & Punta Brava and the distribution of sites with Jambelí style pottery inland.....	26
Map 4: Location of the Guarumal site.....	28
Map 5: Guarumal general site plan.....	30
Map 6: Location of 318 - Punta Brava.....	103
Map 7: Punta Brava general site plan.....	105

SECTIONS

Section 1: Machine-cut profile into Mound 1.....	38
Section 2: Profiles from Trench A.....	40
Section 3: E-W profile from Trench B.....	45
Section 4: E-W profile from sub-units 3 & 4.....	70
Section 5: 4N/6E profile from sub-units 3 & 4.....	71
Section 6: E-S profile from Unit 2 - 318.....	108
Section 7: S-W profile from 318.....	109

PLANS

Plan 1: Distribution of features in Unit C at level of layer 3, Floor 2.....	57
Plan 2: Profiles of post-holes in Unit C.....	58
Plan 3: Profiles of linear features in C.....	59

Plan 4: Alignments of post-holes in C: 1.....	76
Plan 5: Alignments of post-holes in C: 2.....	77
Plan 6: Schematic matrix of the stratigraphy in Trench A.....	41
Plan 7: Schematic matrix of the stratigraphy in Trench B.....	46
Plan 8: Schematic matrix of the stratigraphy in Unit 2, 318 Punta Brava.....	112

BURIALS

Burial 1.....	81
Burial 2.....	83
Burials 3 - 6.....	85
Burials 6 & 7.....	87

TABLES 1 - 9: Stratigraphic distribution of diagnostic pottery forms

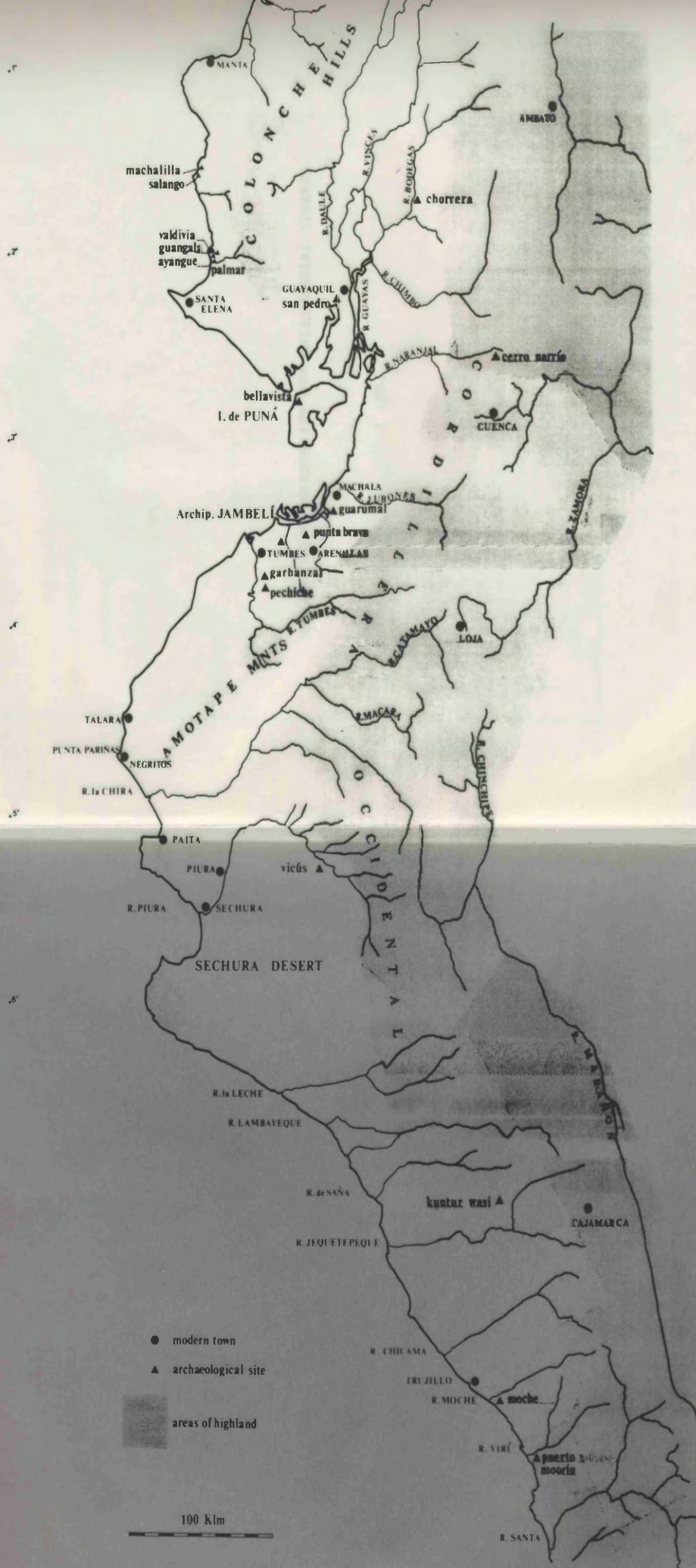
Table 1: Distribution of forms - Guarumal and Punta Brava.....	115
Table 2: Mound 1: machine-cut section and Trench A.....	116
Table 3: Mound 6: Trench B.....	117
Table 4: Mound 6: Unit C - layer 1.....	118
Table 5: Mound 6: Unit C - layer 2.....	119
Table 6: Mound 6: Unit C - features.....	120
Table 7: Mound 6: Unit C - sub-units 3 & 4.....	121
Table 8: Guarumal: surface, Mound 4 & Burial 2.....	122
Table 9: 00-AR-AR-318, Punta Brava.....	123
Table 10: Distribution of figurine fragments at Guarumal and Punta Brava.....	159

CHARTS

Scheme of relative heights at Guarumal.....	90
Phaseology and chronology of Guarumal and Punta Brava.....	95
General chronology of stylistic parallels.....	185

APPENDICES

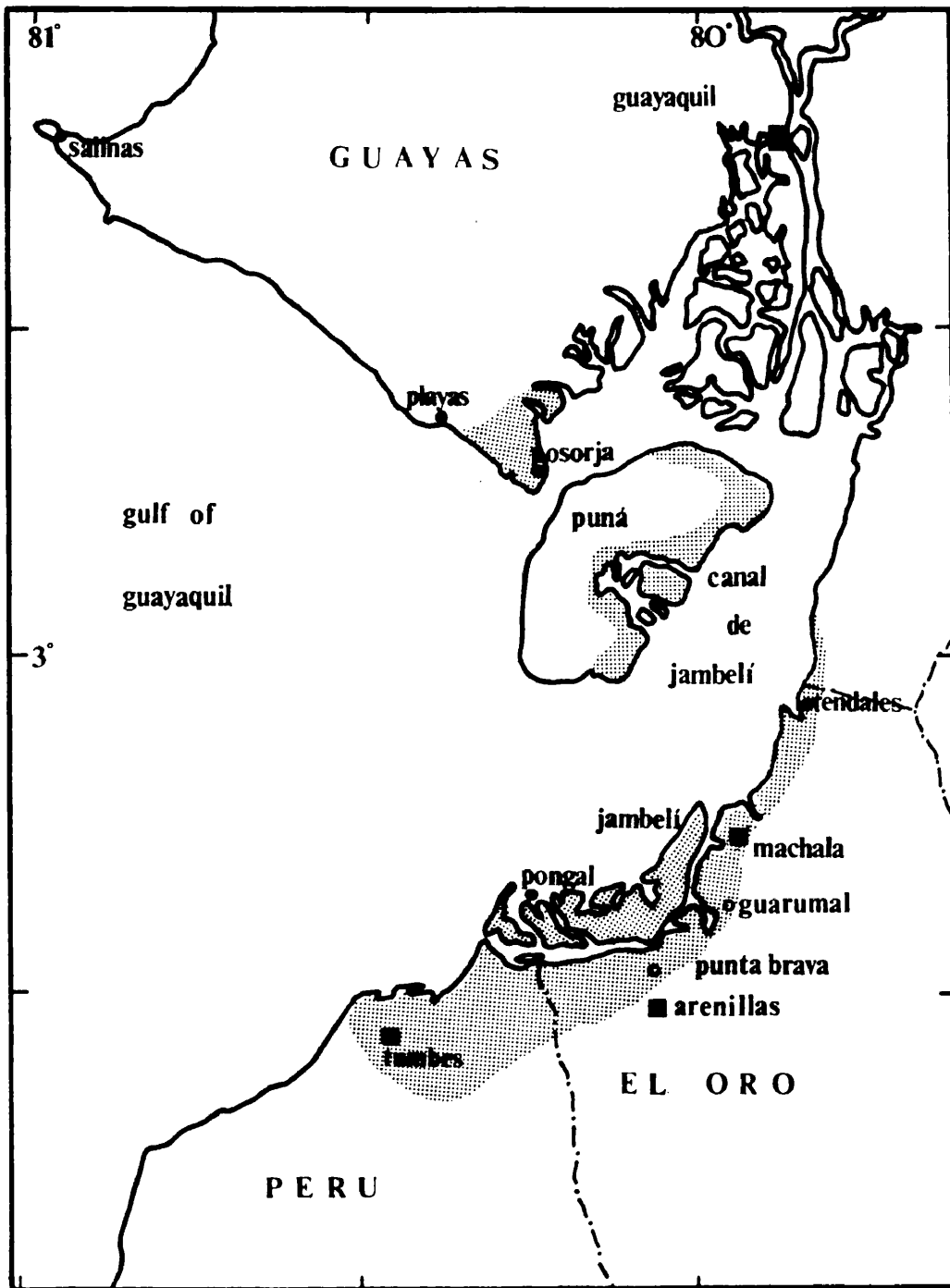
Appendix 1: The marine molluscan fauna.....	291
Appendix 2: Petrological analysis of pastes.....	297
Appendix 3: Land snail evidence.....	299
Appendix 4: Correlation of 1980 and revised field planning schemes.....	301
Appendix 5: Analysis of the blackishn deposition on A7 <i>Crassostrea</i> shells.....	304
Appendix 6: A note on the bones.....	306
Description of Figures 1 - 70.....	307
Description of Plates 1 - 20.....	312



MAP I - S.ECUADOR AND N.PERU

PART I

GENERAL INTRODUCTION and ENVIRONMENTAL BACKGROUND



MAP 2



distribution of Jambeli sites according to Estrada, Meggers and Evans (1964)

GENERAL INTRODUCTION

Following fieldwork undertaken between 1958 and 1961 along the coast of southern Ecuador, Emilio Estrada, Betty Meggers and Clifford Evans identified a new culture and called it Jambelí, after the Archipelago Jambelí complex of islands off the active mangrove coast of El Oro (Map 2).

Their chronological placement of the new culture into the Ecuadorian Regional Developmental period was guided by the predominance of white-on-red decorated pottery in the collections, together with negative painting and other distinctive forms such as *compoteras* and figurines. Their reconnaissance had been limited to the coastal regions of Guayas and El Oro, where the prevailing environmental conditions are of mangrove or dessicated *salitrals* and the sites they looked at were all shell middens, with a predominance of *Ostrea columbiensis* in the deposits. As a consequence, they wrote that: "All Jambelí Phase sites are shell middens..." (1964: 486), an assertion which subsequently has been challenged by several researchers (eg Spath, 1980; Aletto, 1987) and which is also questioned in this thesis. Indeed, so strong was their conviction of this association, that they probably identified many preceramic middens as being of the Jambelí culture, purely on the criterion of being shell mounds:

"Many [sites] are reduced to small remnants [by erosion] and were identified with the Jambelí culture by the characteristic occurrence of shells of the mangrove oyster (*Ostrea columbiensis*), no sherds having been found."

(Estrada, Meggers and Evans, 1964: 489)

Recent archaeological research

In 1979, following the proposed damming of the Rio Arenillas in the locality of the village of Tahuin, near Arenillas, in the southern foothills of El Oro province and close to the present-day border with Peru (Map 3), the Museo Antropológico del Banco Central del Ecuador, initiated an intensive archaeological field survey of the region. The aim of the survey was to locate, map and surface-sample - with excavation where appropriate, the precolumbian sites that would be destroyed by the subsequent flooding of the scheduled area. It was noticed during analysis of finds from more than 500 sites recorded, that several of these inland sites, which were located along the valley of

the Rio Arenillas, or amongst the surrounding foothills, contained forms of pottery and styles of ceramic decoration which corresponded to the description of Jambelí pottery styles by Estrada, Meggers and Evans.

It is increasingly clear that a re-evaluation of the Jambelí culture is necessary to take account of archaeological research in the last twenty years. This research has subsequently also revealed certain fallacies in the presumptions of the existing chronological framework, namely in the definition and dating of the Regional Developmental period and the issue of white-on-red pottery style. These questions will be discussed in the subsequent chapters.

THE ENVIRONMENTAL BACKGROUND

INTRODUCTION

The study area of this thesis is located in south coastal Ecuador and the far north coast of Peru (Maps 1 and 2), the former of which is a part of the Intermediate area, as defined by Willey, 1971: 254). Richardson describes the region north of the Chira river on the Peruvian north coast to Cape Pasado in southern Ecuador as:

"a climatically unstable transition zone between the heavy tropical rainfall of northern Ecuador and Colombia, and the region of intense aridity which characterises the coasts of Peru and northern Chile" (Richardson, 1973: 199).

Ferdon describes the coast of Ecuador as:

"an irregular band of land extending from the base of the western Andes to the Pacific Ocean and stretching from the border of Colombia to that of Peru..... From the Santa Elena Peninsula to the Peruvian frontier, the Andes and the ocean squeeze these lowlands into a narrow ribbon some thirty km. wide (Ferdon, 1950: 9)

It is within this region that sites of the Jambelí culture are located.

The natural environment of this coastal zone is affected not only by its low latitude, but also by a balance of other important factors, including ocean current interactions along the west coast of South America, tectonic instability and climatic variability. The cumulative

effect of these upon the human populations living here since the end of the Pleistocene period can scarcely be exaggerated.

CLIMATE

Environmental conditions pertaining to this region are dictated by the presence of the cold Peru or Humboldt Current, which is characterised by abnormally low surface temperatures of between 14° and 20° C. The main current flows northward to around Paita, Peru at about 5° south and then swings westwards; a small branch continues further up the far northern Peruvian coast into southern Ecuador, almost to latitude 1° south. The presence of this current, together with the prevailing dry south easterly trade winds which dominate the boreal summer and autumn months, is directly responsible for the dessicated conditions along the west coast of South America, from about latitude 25° south in Chile, as far as the Santa Elena Peninsula in south coastal Ecuador, around 2° south.

Fog or *garua* drifts inshore during June to November in southern Ecuador, when the cold current extends furthest northward. Deserts and *despoblados* characterise these coastal lowlands, from the Atacama of northern Chile to the Olmos, Sechura, Piura, Lobitos-Talara and Tumbes region of Peru, and the Santa Elena peninsula of southern Ecuador.

The climatic conditions described above are, however, periodically influenced by a profoundly unbalancing phenomenon known as the El Niño Southern Oscillation Phenomenon (ENSO), which must have shaped human adaptation to the coastal environment as much as unsettled it, and which still affects the region today, with sometimes catastrophic consequences.

El Niño

El Niño originally referred to a branch of the equatorial counter-current deflected south along the shores of south western Ecuador around Christmas time, to approximately latitude 4° south in the extreme north west of Peru during the boreal spring, bringing monsoon conditions to the region. For local fishermen, these conditions mark the end of the local *anchoveta* season with the inflod of warm, turgid, low-salinity waters. Although this is an annual event between latitudes 2° and 4° south, the regularity of this wet season fails below 5° south at Paita,

so that at the north coastal Peruvian town of Trujillo, rainfall is scarce or absent for years at a time.

Moderate summer rainfall accompanying these aperiodic El Niño visitations from between two to ten years should not, however, be confused with ENSO events. The latter involve complex oceanic-atmospheric interactions affecting not only the coastal strip of South America, but also the entire tropical Pacific Ocean (Philander, 1983: 295) and result in severe flooding to coastal areas of Peru and southern Ecuador. For generations, many observers have recounted the events of ENSO years in detail (eg Carrillo, 1891; Murphy, 1926; Caviedas, 1975), describing seasons of heavy rainfall and flooding throughout coastal Ecuador and Peru.

It is certain, then, that the ENSO phenomenon has been a major environmental influence throughout the prehistoric past, at least since the end of the Pleistocene period. Archaeological research in the coastal regions has revealed definite evidence of major floods around AD 1100, when an episode caused severe flooding in the central Moche valley, with waters at least 18 metres deep. Similarly, in AD 700, an even greater flood is indicated (Browman, 1983). The southern coastal regions of Ecuador are also affected by years of higher than average rainfall and ENSO events, which result in similar flood damage to arable land and to human settlement and sometimes cause major rivers, such as the Jubones, to cut new flood plain courses. The most recent of these occurred in 1985-6.

Wet and dry seasons

All the factors which characterise ENSO individually influence the climate of southern Ecuador and the far north coast of Peru, giving rise annually to a wet and a dry season. The wet season in Ecuador occurs between the months of December to April and it accounts for the highest temperature values of 25° - 26° C and the maximum hours of sunshine for the year.

The dry season is associated with the advance of the cold Peru current northwards to latitude 1° south as the prevailing south east winds strengthen and the Niño current retreats. Cooler temperatures of between

22° and 24° C prevail between these months of May to December, with the skies cloudy and overcast with occasional misty rainfall and *garua*.

Rainfall

Mean monthly rainfall values from the meteorological stations at Pasaje, Machala and Arenillas on the coastal plain of southern Ecuador are valuable for demonstrating the broad pattern of precipitation across the year. The average annual rainfall for the ten year period from 1964 - 1974 is 608.4 mm, placing it inside the 500 mm mean annual isohyet, which runs approximately in a north-south direction, and distinguishes the coastal plain from the Andes foothills to the east, with values of between 750 and 1000 mm (Halcrow Reports: 1972-76). The broad vegetation belts adhere very closely to the configurations of the mean annual isohyets.

TOPOGRAPHY

Fluctuations of the coastline of southern Ecuador and the far north coast of Peru may represent one of the most significant factors of topographic change during the Holocene period, affecting sites in the study area. Studies of 19th and early 20th century maps (dated 1858, 1892, 1906, 1926, 1933 and 1948) and modern aerial photographs, together with the results of feasibility surveys conducted in El Oro province (Halcrow Reports, *ibid*), clearly demonstrate the propensity of the rivers in this area to change their courses. The Rio Jubones, for example,

"provides a classic example of an alluvial fan which has coalesced with similar fans of neighbouring streams to form a piedmont alluvial plain or bajada across which its meander belt has moved northwards and southwards throughout time. There have also been changes in the mapped coastlines of the mainland and offshore islands." (Halcrow Reports, *ibid*)

On the coastal plain of southern Ecuador, the universally high water table, ranging from 60 to 160 cm below the ground level, encourages high soil salinity, which can be problematic, particularly close to the active shoreline where the wet, silty deposits along the brackish-water *esteros* encourage the growth of mangroves and other *halyphites*. Extensive *salitrals* are common along the margins of the mangroves where periodic flooding, the high water table and high evaporation encourage

the formation of salt pans, barren of all vegetation. Here, in the last two decades, extensive shrimp-farming operations have been profitably introduced, and the coastal margins are now characterised by networks of man-made lagoons, or *camaroneras*. Kent Matthewson (1987) and Alfred Siemens (1987) have both conducted research upon the use of raised fields in the wetlands of south coastal Ecuador by prehispanic populations as a means of agricultural adaptation to the difficult environment. Siemens comments that although there are abundant remains of raised field agriculture in the Guayas delta, there is currently no evidence of it around the wetlands of El Oro in southwestern Ecuador (Siemens, *ibid*: 4).

VEGETATION

The vegetational patterns of Ecuador closely parallel the main soil and climatic zones, and the study region on the coastal plain is associated with three main vegetational areas:

- 1) The active mangrove shoreline
- 2) The tropical savanna of the arid coastal plain
- 3) The tropical monsoon zone inside the 500 mm isohyet of the Andes foothills

1) The active mangrove shoreline

Mangroves characterise the coastal zone throughout the study region, from Playas-Posorja north of Guayaquil, south through the swamps of the Guayas Basin and the eastern Isle de Puná, along the coast of the province of El Oro, down as far as Tumbes on the far north coast of Peru.

In the study region, this vegetational type occupies a narrow margin of between 4 to 6 kilometres along the active tidal shoreline, where the presence of extensive alluvial fans, river delta systems and brackish-water *esteros* provide the ideal environment for these salt-tolerant species. The study region seems to fit both the "fringe" and the "riverine" forest categories described by Lugo and Snedaker (1968: 45), in that the coastline of Guayas and El Oro provinces consist of many

river deltas, islets and esteros with the mainland shore, well protected from the open sea by larger islands such as the Isle de Puná and the Archipelago Jambelí, which are themselves densely covered with mangrove forest on their landward sides.

An interesting feature of the mangrove swamp is the *firme*, an area of slightly higher and better drained sandy soil, where fresh water is usually found at about a metre's depth, allowing the cultivation of crops such as maize (West, 1956). These *firmes* have usually represented the foci of human occupation from precolumbian times up to the present day, and it was near one of these that a fine figure bridge and spout pot was discovered, close to the Guarumal site (Colour Pl.2: 1-2).

The mangrove ecosystem does not support a rich variety of faunal life, except in terms of waterfowl and shellfish (West, *ibid*: 120). Shellfish represent a "critical resource for coastal human populations, since they exist as a highly concentrated resource" (Yesner, 1980: 729) and they account for the presence of precolumbian midden sites along the esteros since preceramic times (ie Spath, 1980). Fish, crabs, small brocket deer and iguanas would also have provided useful supplement to the diet of shellfish gatherers. The most common pelecypod associated with this environment is the ubiquitous *Anadara tuberculosa* (Sowerby, 1873), or *concha prieta*, and this is still consumed with enthusiasm today. Other shellfish include several species of the genera *Cerithidea*, *Strombus*, and *Ostrea*, together with the prolific *Anadara grandis* (Broderip and Sowerby, 1829), *Colonche ecuatoriana* (Olsson, 1961) and *Chione subrugosa* (Olsson, *ibid*). These are all characteristic mangrove species and found throughout midden deposits of the study region, including the site Guarumal.

Inland from the active mangrove shoreline are the extensive *salitrals* which support a characteristically salt-tolerant community, such as the succulent known locally as *vidrio*. Other plant species associated with this part of the coast include *Chenopodium*, *Salsola*, *Portulaca* and the poisonous manzanillo or *Hippomane mancinella*. Areas of low salinity are covered with a short, dense thicket, mainly comprising thorny species of acacia, with algarroba, cacti and giant ceiba trees.

2) Tropical savanna of the arid coastal plain

Beyond the mangroves and *salitrals* of the coastal margin, and extending for some 20 kilometres west to the 40 meter contour of the first low Andean foothills, lie the tropical savannas of the arid coastal plain (Ferdon, *ibid*: 79). The vegetation type in this area is governed by the presence of the wet and dry seasons, with average rainfall being around 600 mm per annual average. Tall grasses predominate with scattered trees and shrubs, locally known as *matorral*: thicket, brushwood and scrub.

This arid coastal plain is chiefly characterised by the xerophytic nature of many of the plants which are endemic here and which eventually merge southward in the far north coast of Peru with true desert species, before failing altogether outside the irrigated river valley bottoms. Species include the thorny *Acacia huasango*, the abundant *Loxopterygium huasango*, *Cereus cartwrightianus* - the tall and prolific cactus, various species of *Bombax*, such as *Bombax ruizii*, the ceibas which extend west and southwards from the vicinity of Guayaquil into northern Peru, the pod-bearing argarropa *Proposis juliflora* and *Proposis pallida*, *Bursera graveolens*, the fragrant palo santo tree and various species of the long, trailing epiphyte *Tillandsia*. Extensive clearance for agriculture and grazing in recent years has accounted for widespread destruction of the natural vegetational cover in these regions

3) Tropical monsoon zone

This zone runs approximately parallel to the mangrove belt and the tropical savannas from as far north as the valley of the Rio Daule and Rio Vinces at around latitude 0°.30' south and includes the drainages of the Rios Bodegas, Chimbo, Naranjal, Siete, Jubones, Buenavista, Arenillas and the Puyango which drains into the Tumbes in northern Peru. It extends eastwards to take in the first low foothills of the Andes up as far as the 300 metre contour and is associated with a more substantial mean annual rainfall of up to 1500 mm, at least in the regions in the north and west of this climatic area, as in general, there is an increase in the rainfall from west to east and from south to north in south coastal Ecuador.

This climatic zone is characterised by a forest less obviously xerophytic, with a decrease in the thorny species and an increase in

Little maize production of any significance is found in the Tropical Savanna zone today, most of the crop being grown in the intermontane valleys of the Tropical Monsoon zone, further into El Oro province. There is no direct evidence for the prehistoric cultivation of the crop in the region.

Bombax species and epiphytes of mainly the *Tillandsia* species, for example.

PRESENT DAY LAND USE

As mentioned earlier, much of the natural vegetation of the coastal plain has been cleared in modern times for agricultural purposes and, where not actively under cultivation, the poorer soils have been turned over to grazing. Even previously unusable land in the mangrove and *salitral* is now being exploited for the intensive breeding of *camarones* for export.

El Oro province is still responsible for most of the bananas exported by Ecuador to the rest of the world, with between 30 - 40% of available agricultural land given over to the production of this year-round crop. Cacao is the second most important cash-crop, taking 10% of the available hectareage and together with bananas, accounts for around 55% of the total agricultural produce. Other crops such as maize and rice are grown on an annual basis, together with cassava, soya beans, peanuts and sorghum, whilst fruit such as maracuya (passion fruit), papaya and pineapple are sometimes grown in conjunction with cacao.

Irrigation plays a vital role in the year-round cultivation here, as virtually no rain falls during the dry season from May to December, although heavy *garua* does provide sufficient fog moisture to support a locally adapted natural vegetation and to allow the cultivation of crops such as maize, beans and curcubits on the moist parts of the coastal area from Colonche to Cape Pasado, for example (Svenson, 1946: 405). Further south on the north coast of Peru, agriculture is dependent upon irrigation as the yearly rainfall is virtually negligible below Tumbes.

DISTRIBUTION OF JAMBELI SITES

Archaeological sites containing pottery attributable to the Jambeli culture as defined by Estrada *et al* are now recognised to have a geographic distribution which would extend throughout these climatic-vegetational zones, although originally they were associated exclusively with the mangrove belt of Guayas and El Oro. The presence of sites of the Pechiche and Garbanzal cultures (Izumi and Terada, 1966) in the now arid region of Tumbes in far north coastal Peru (Map 1) should be

considered within the context of possible climatic change during the recent period, with the implication that this region may once have supported mangrove forest in a rather wetter climate than present.

Climatic fluctuations

As emphasised at the beginning of this section, south coastal Ecuador and the Peruvian far north coast represent an area of pronounced climatic instability distinct from northern Ecuador and Colombia to the north or the rest of Peru to the south. Climatic fluctuations during the Holocene period have probably further contributed to the environmental perturbations of the region, with alternating wetter and drier regimes implied during different periods in the archaeological record.

The question of climatic change during the post-Pleistocene period is a disputed one (eg Richardson, 1981: 139). Lanning (1963; 1970), Estrada, Evans and Meggers (1965), Sarma (1974) and Paulsen (1976) support the idea and discuss the nature and implications of these climatic perturbations which Paulsen and Isbell (1978) argue to be a prominent factor in the development of the later Andean states.

This question is relevant to cultural development and cultural relationships in southern Ecuador between 300 BC and AD 300, as the period coincides with a postulated low pluvial peak for the late Engoroy - Guangala 1-5 on the Santa Elena Peninsula between 850 BC and AD 50 (Sarma, 1974; Paulsen, 1971; 1976). It is argued that climatic change was a principal promoter of culture change in the Santa Elena Peninsula from 500 BC until the Conquest (Paulsen, 1976, *ibid*) and that present-day aridity on the Santa Elena Peninsula and the far north coast of Peru is the result of a long-term process of dessication which, during the Holocene period, saw successive wet and dry cycles.

Overall, the cumulative evidence of research "as extrapolated from geological, paleontological and pollen sequences from the Peruvian, Colombian and Chilean Andes" (Richardson, 1978: 283) does increasingly support the concept of post-Pleistocene climatic change. It is important to bear this in mind during the subsequent description, analysis and discussion of the Guarumal and Punta Brava sites and the insights they bring to bear upon the progress of culture change within this region.

PART II

EXCAVATIONS AT THE GUARUMAL AND PUNTA BRAVA SITES

In the 1976 field season, I was the sole excavator at Guarumal site, excavating both Trench A and Trench B with a standard WHS 4" pointing trowel of the sort normally used by archaeologists. Mattock and shovel were occasionally employed in the heavier, more difficult shell debris of Trench A. Finds in both trial trenches were bagged in accordance with the numbered stratigraphic units.

In the 1980 field season, I was the supervisor of a small team of field workers. These were three local young men and one English assistant, all of whom had had previous experience of archaeological excavation. Trowels and other small instruments of excavation were mainly used. Mattocks and shovels were employed very occasionally, when in need of speed, or where very heavy deposits were encountered. Finds were bagged according to the numbered units of natural stratigraphy, excepting in the excavation of sub-units 3 and 4 of Unit C, where excavation to artificial level was employed (p.69). These levels broadly adhered to blocks of floor deposit and were thus not uniform in depth. Finds were bagged according to the number given to the artificial level excavated (Guarumal Sections 4 and 5).



INTRODUCTION

The main site upon which this study is based is represented by a group of shell mounds collectively called "Guarumal", located in the salitrals to the north of town of Santa Rosa, near the Estero Guarumal, in southern El Oro province, Ecuador (Map 3).

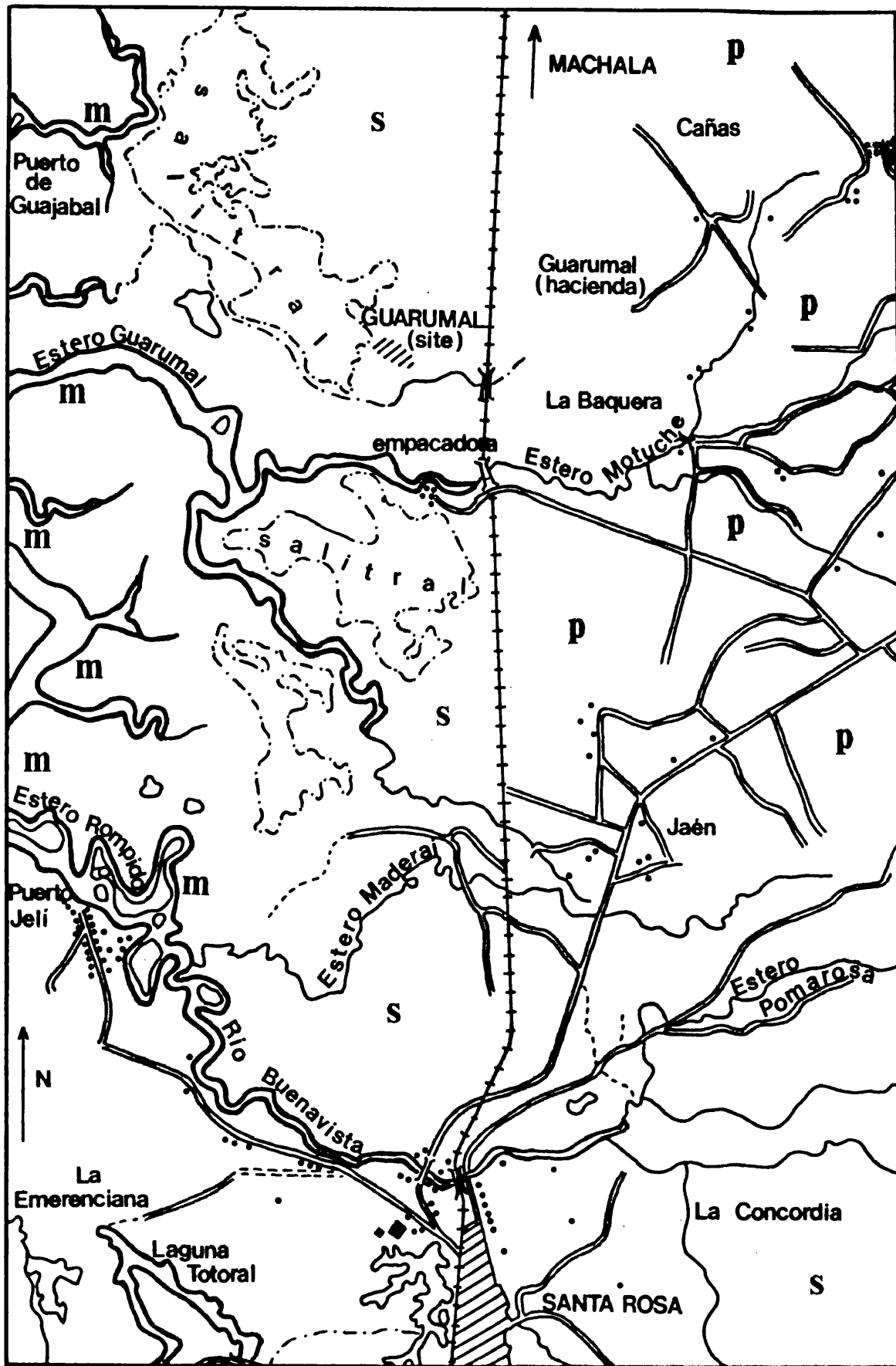
The site was originally recorded by the British engineering group Sir William Halcrow and Partners during their surveys of this area in 1972 and later noted on a map of the locality by their reconnaissance team. Visits made by the author in June 1976, confirmed the existence of a large archaeological site which was apparently in the process of destruction through the creation of shrimp farms or *camaroneras* in the immediate vicinity.

Permission was obtained from the Patrimonio Artístico Nacional and the Museo Antropológico del Banco Central del Ecuador to initiate a test excavation of the midden in order to establish some basic information on the date, the culture and the prehistoric environment of the site.

The results of these trial excavations proved sufficiently interesting and encouraging to prompt more intensive investigations of this site upon the author's return in 1980. The progressive destruction of the site which was noted in 1976 through the construction of large *camaroneras* in the immediate vicinity was, by then, well advanced.

Following an intensive field survey of archaeological sites in the Tahuin region of southern El Oro province in 1979 (p: 104), the Museo Antropológico financed another investigation in 1980 with the purpose of studying sites of the Jambelí culture in this area.

The Guarumal shell midden was one of these sites, selected partly because it represented a typical mangrove adaptation of the Jambelí culture as defined by Estrada, Meggers and Evans (1964, p:486). The other site OO-Ar-Ar-318 "Punta Brava" also yielded dense quantities of Jambelí-like material. It was not a shell midden, however, and was situated inland from the mangrove coastline, upon a low hill-top overlooking a river valley near the modern town of Arenillas in El Oro province. Such a location was typical of many of the sites recorded from



m = mangrove **S** = scrub thicket **p** = banana plantation •• = settlement (modern)

the 1979 survey and, as such, presented a contrast of environmental emphasis with the shell middens at OO-Sr-Sr-01 Guarumal.

THE GUARUMAL SHELL MIDDENS

LOCATION

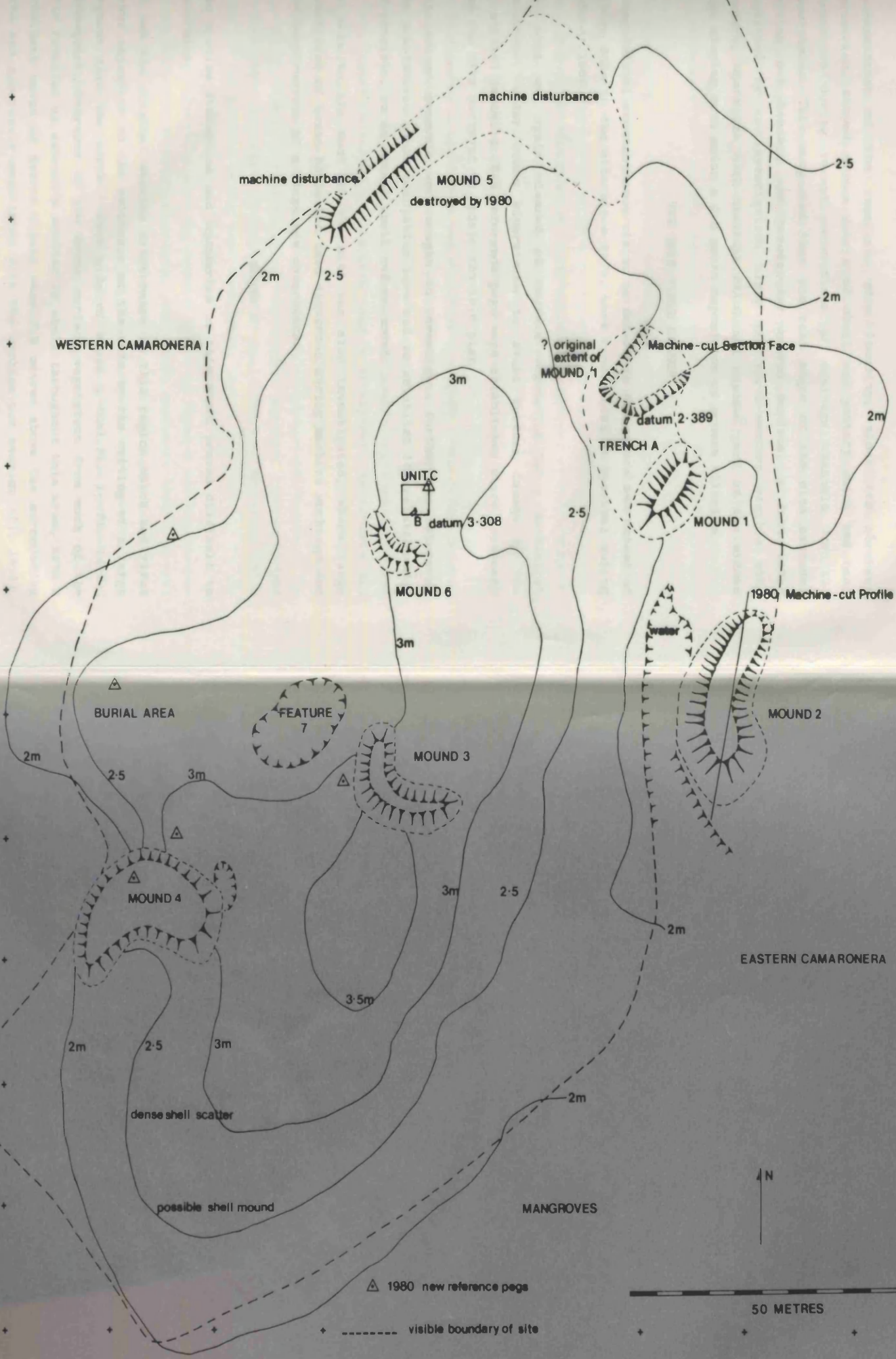
The location of the shell middens is fairly typical of many of the so-called Jambeli sites in El Oro province, being situated amidst the salitrals some four kilometers from the active mangrove coast. The site is raised by an average of two metres above the surrounding salitrals and is characterised by a dense cover of scrub thicket and semi-xerophytic vegetation which includes cactus, acacia and ceibo trees. These give way to salt-tolerant species such as *vidrio* and mangrove on the wetter margins.

Today this region of the province is exploited for the cultivation of banana and cacao, although recently these coastal margins have been characterised by the creation of intricate systems of banks and dykes which enclose large brackish water lagoons for the purpose of rearing large prawns (*camarones*) for export. It was during the construction of such a system that the midden was initially exposed and then progressively destroyed.

THE SITE

Investigations commenced in July 1976 and by August a bulldozer worked daily to clear much of the surface vegetation. This allowed a better study of the morphology of the site and revealed the existence of several large individual shell mounds. There were six main mounds in all, two of which had already been badly damaged by the earlier workings of a mechanical excavator (plates 14 - 18).

Early reconnaissance showed the site to be roughly oval in shape and orientated upon a north-east to south-west axis. The total surface area approximated to some 300 x 500 metres or around 9 hectares, with the main mounds attaining heights of between 2 and 3 metres above the present-day ground level. A full topographical survey followed later and defined the visible boundaries of the site and the main shell mounds (Map 5).



GUARUMAL SITE PLAN - 1976 & 1980

Reconnaissance of the immediate site locality, along its northern boundaries, showed midden debris of shell and pottery which had been turned up during recent excavations of drainage channels for the *camaroneras*. This suggested that the real edges of the site extended further out beneath the present-day ground surface, a fact later confirmed by an investigation along the north-western visible site borders, where one such drainage ditch had exposed part of the midden edge sloping down under a 0.8 metre deposition of modern alluvium.

THE 1980 FIELD SEASON

After initial reconnaissance visits to determine the nature and extent of damage done to the site since 1976, work recommenced at Guarumal during October 1980.

The site was again cleared of surface vegetation by a mechanical excavator, under close supervision to avoid further damage to the stratified deposits. New reference pegs were established where necessary and the site surveyed to update the 1976 plan.

This second season's work sought to investigate further the nature of the prehistoric human occupation here and to establish its relationship, if possible, to an actual shell refuse mound.

An area to the west of the site was also investigated, where large quantities of human bones had been disturbed during machine workings for the construction of a large new *camaronera*.

MOUND 1

The precise dimensions and boundaries of this mound proved difficult to determine.

It was the original machine disturbance in this region which had first drawn attention to the existence of the site by the cutting of a large segment into the north - east side of Mound 1 (Col.P1: 1; P1: 14-2). Subsequent clearance of the dense surface vegetation from much of the site revealed an extensive scatter of shell throughout this area, with a prominent mound of debris rising some 2.5 metres above the surrounding area and apparently associated with the machine-cut section (P1: 14-1).

For initial purposes of recording, the section face and the shell mound were treated separately and the latter was designated Mound 1. However, from the nature of the dense shell scatter and from comparison with the other mounds, later reconnaissance did tend to suggest the existence of one large mound, similar in shape to Mound 2 (see below). This would most probably have been kidney-shaped and approximately 80 metres long by 40 metres wide, its eastern side conforming to the 2 metre contour and attaining a maximum height of 2.5 metres above the present-day ground level.

As noted from the machine-cut section face and from the excavated unit Trench A, this mound consisted mainly of large marine bivalve shells of the species *crassostrea*, with approximately 0.30 - 0.40 metres superficial scattering of diverse species of small marine pelcypoda, including *O. columbiensis*, *A. tuberculosis*, *A. grandis* and *C. subrugosa*. Broken pottery and burned clay occurred throughout the shell refuse.

MOUND 2

In 1976, Mound 2 was intact and undisturbed (Pl: 15 1-2). It was located toward the centre of the eastern edge of the site, thus forming part of the main boundary. It was flanked to the east by a large *camaronera*, one small branch of which encircled its western backward edge (Map 5). Mound 2 was kidney-shaped and orientated upon a north-south axis, with the hollow of the kidney on its eastern side. It measured approximately 60 metres by 35 metres and rose to a maximum height of 2.14 metres above the present-day ground surface. Superficial reconnaissance showed it to contain a very high percentage of the cupped mangrove oyster, *Ostrea columbiensis* (Appendix 1) together with small amounts of very eroded oxidised red pottery in the most superficial layers.

The area of ground between the eastern hollow of Mound 2 and the western edge of the flanking *camaronera* was seen to be profusely scattered with burned clay, large lumps of which still retained the impression of cane wattling (cf Trench B p: 44). This, together with the characteristic kidney shape of the mound strongly suggested the presence of structures here.

In the period between the end of the 1976 field season and my return to the site in October 1980, Mound 2 had been partially destroyed during the machine works for the enlargement of the eastern *camaronera*. The mound had been bisected along its north-south axis, exposing a deep clean profile (Pl: 15-3).

Close examination of the machine-cut section confirmed the high incidence of the *Crassostrea* mollusc and the virtual absence of pottery, other than the fragments associated with the most superficial layers. The stratification now revealed in Mound 2 seemed similar in some respects to that of the machine-cut section face and the unit Trench A profiles of Mound 1 (Sects 1 & 2). However, whilst appearing to share the same broad stratigraphic groupings of "upper" "middle" and "lower", described below (pp: 37-40), Mound 2 differed from Mound 1 in certain subtle yet important ways. It contained more distinctive grey sedimentary layers and lenses and there were a higher proportion of mangrove-dwelling small pelecypoda throughout, including in the actual *Crassostrea* strata, as well as in the uppermost layers. These were characterised by their grey silty nature wherein the shells occurred only sparsely. It was of interest to note that the oyster shells of the "lower" stratigraphic grouping had upon them the same brownish-black mineral-like deposition found in layers 6a of the machine-cut profile, 7a of the unit Trench A and layer 19 of sub-units 3 and 4 (p: 42).

Given the conspicuous lack of pottery in the mound, it is tempting to see it as representing a preceramic occupation of the site. Unfortunately there was not sufficient time to test this hypothesis.

MOUND 3

Mound 3 was one of the two mounds to survive intact into 1980 (see also Mound 4 below).

This was another kidney-shaped mound, as were mounds 2, 4 and 6. It was located towards the centre of the site and measured approximately 45 metres long by 15 metres wide, being roughly orientated upon an east-west axis, with its western end conforming to the 3.5 metre contour. The

hollow of this mound faced due north and it attained a maximum height of 3.77 metres above the present-day ground level .

Mound 3 had been rather disturbed by large Palo Santo and Ceibo trees which grew upon it (Pls.: 16-2; 17-3). It contained a high percentage of *Crassostrea* shells, with only a superficial scatter of small marine pelecypodae together with some red-ware pottery. A large metate of volcanic basalt was discovered close to the southern backward edge of this mound during the 1976 site clearance (Fig. 69).

Surface reconnaissance indicated the existence of substantial quantities of burned clay in the central area of the site, apparently associated with the hollow of Mound 3.

MOUND 4

Together with Mound 3 (see above), this mound survived intact into 1980.

Mound 4 was located on the south-west edge of the site, forming part of its visible boundary (Pls: 16-1; 17-1). It measured approximately 60 metres long by 30 metres wide, being orientated upon an east-west axis and attained a maximum height of 2.69 metres above the present-day ground level. As with mounds 2,3 and 6, Mound 4 was kidney-shaped, with the hollow side facing southward. Its western edge conformed with the 2 metre contour and its eastern side with the 3 metre.

This mound had a rather flatter, less "steep" profile than any of the other individual shell mounds and consisted of a high proportion of smaller pelecypodae, including the cupped mangrove oyster *Ostrea columbiensis*. Large quantities of fine red and white-on-red decorated pottery were associated with this mound as superficial scatter and there appeared to be a huge extent of surface shell scatter in a south-east direction, which may possibly have represented another undifferentiated shell mound (Map 5; Table 8: 122).

Machine works for the construction of the large *camaronera* in the salitral to the west of the site in the interval between the 1976 and the 1980 field seasons had disturbed and almost destroyed a burial area situated to the north of Mound 4, along the central part of the visible western edge of the site (pp: 79-89).

Large quantities of human bone together with fine red painted pottery were scattered in the area, broken and soggy with waterlogging from the artificially high ground water level.

MOUND 5

Reconnaissance in 1976 showed that Mound 5 had already been largely destroyed by machine clearance along the north-western perimeter of the site, prior to 1976. A careful study of the surface shell scatter made it possible to estimate the original extent of this mound. It was apparently the largest of all the six mounds, having originally measured 115 metres long by a maximum of 65 metre wide. It was orientated upon a north-east - south-west axis and formed part of the north-west perimeter of the site with the western salitral, where it conformed to the 2 metre contour.

In 1976, only the "tail" of this mound remained, the ridge of which attained a maximum height of 3.38 metres above the present-day ground level. A machine cutting into the side of this "tail" had revealed a high percentage of shells of the large oyster *Crassostrea*, together with red-painted and white-on-red decorated pottery (Pl: 18 2-3).

Mound 5 was totally levelled in the interval between the 1976 and 1980 field seasons, during the construction of a large new *camaronera* in what was the western salitral.

MOUND 6

Although this mound had been observed and photographed in 1976 (Pl: 17-2), it was not actually included upon the site plan until 1980.

It was located toward the centre of the site and was the smallest of the six shell mounds, being only some 25 metres long by 10 metres wide. As mounds 2,3 and 4, Mound 6 was kidney-shaped, with the hollow facing the north-west. It was orientated along an east-west axis and attained a maximum height of 1.5 metres above the present-day ground level.

The superficial shell scatter appeared to indicate that this mound consisted of a high proportion of diverse species of small marine pelecypodae, including the cupped mangrove oyster *Ostrea columbiensis*.

Subsequent excavation in this area, however, indicated the presence of deep accumulations of the large *Crassostrea* in the lower strata of Mound 6 (cf. Unit C, sub-units 3&4, sects: 4-5, p: 70-1). Dense surface scatter of burned clay associated with the hollow of Mound 6 prompted the location of the second unit Trench B in 1976, to test for structural evidence of the human occupation of the site (p: 44).

Returning to the site in October 1980, it was decided to open a much larger 10 metres square area, close to the indentation of the mound, to try and recover a plan of any structures that had existed there (Plan 1: 57).

FEATURE 7

This was a shallow, sub-circular depression, measuring approximately 45 metres by 30 metres and was noted and planned during the 1976 survey of the site. It was located roughly midway along the north-east - south-west site axis, between mounds 6 and 4 and not far from Mound 3 (Map 5).

There was insufficient time for further investigation and no obvious features were associated with it to clarify its nature.

Surface reconnaissance showed minimal shell scatter with some incidence of pottery and burned clay.

There is a possibility, given its location, that Feature 7 may possibly have been part of an extended burial area, part of which was uncovered and badly damaged during the construction of the western *camaronera* (pp: 79-89). There is, however, no way of establishing this as a fact.

THE 1976 FIELD SEASON

MOUND 1

THE MACHINE-CUT SECTION FACE

Map 5 shows the location of Mound 1 and the machine-cut section face associated with it. From the present-day ground surface, the profile reaches a height of approximately 1.9 metres, although the archaeological deposits clearly continue below this.

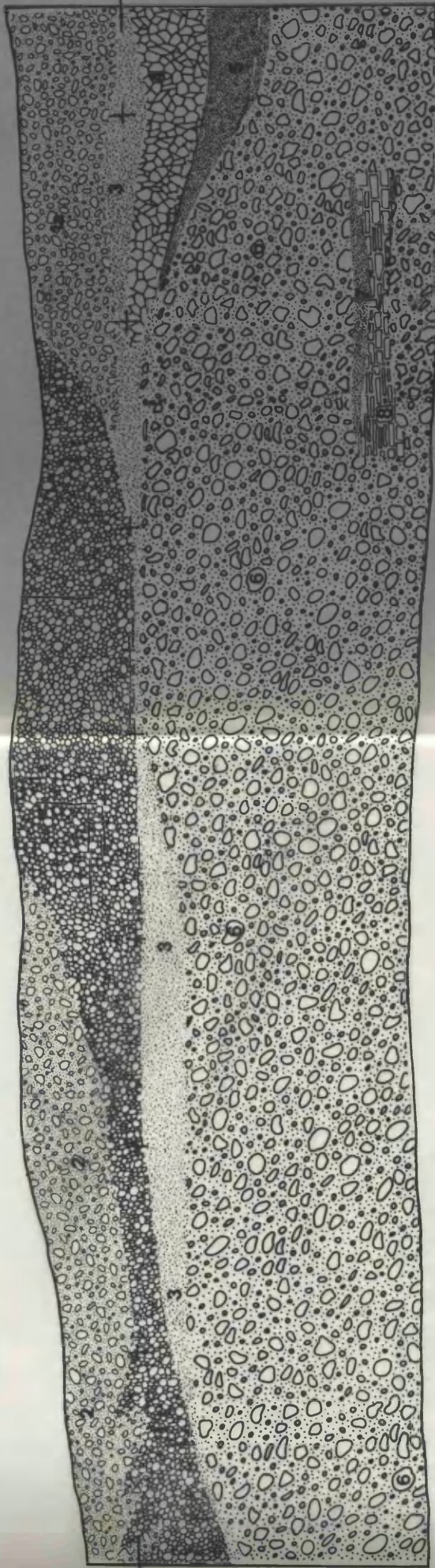
The machine-cut section face was cleaned back, photographed and drawn (Sect 1) and samples of the shell and the pottery were taken from the main strata. For recording purposes, these were sub-divided into the broader categories of "Upper" and "Lower". Subsequent to this, the brownish-grey humus horizon beneath the "Lower" stratigraphic group was noticed, defined and included in the description below.

The "UPPER" stratigraphic group included layers 1-5.

Layers 1-4 contained a high incidence of diverse species of small marine pelecypoda including the cupped-up mangrove oyster *Ostrea columbiensis* (Appendix 1). These occurred together with fine red-painted and white-on-red decorated pottery and coarse red undecorated wares in a fine, loose, grey sediment. These four layers were distinguished largely on the basis of their mollusc content, but together they formed a horizon, approximately 0.3 - 0.5 metres thick and distinct from the "Lower" stratigraphic group.

Layer 5 represented a broad lense of hard-packed fine grey loamy sediment containing shelly fragments of marine molluscs. Subsequent analysis of land mollusca seem to confirm the interpretation that this was a developing soil horizon implying a phase of disoccupation or disuse (Appendix 3), in which case the presence of shelly fragments might be explained as downwash from upper strata.

The "Lower" stratigraphic group included layers 6/6a, 7 and 8. These were characterised by a distinct stratification of patches and lenses with layers 6/6a containing a high preponderance of the large species of oyster *Crassostrea*, which formed a deep accumulation approximately 1 metre thick (Sect 1). Layer 7 was a lens of brownish sediment apparently



1 METRE

brown organic sediment
with densely packed
pottery



Crassostrea shells
loosely packed



packed sediment with
shelly fragments



brown organic sediment
with little shell



large and small marine
pelecypoda & gastropoda



small pelecypoda &
gastropoda



loosely packed
pelecypoda



GUARUMAL SECTION 1

of high organic content, with few shelly fragments. Layer 8 appeared to represent another lens consisting of broken sherds of coarse red gritty pottery.

The base of the "Lower" stratigraphic group seemed to reveal the beginnings of a deposit similar to layer 7, being brownish sediment of high organic content, probably much the same as layers 10 and 14 from Trench A (see below).

TRENCH A

The first excavated unit, Trench A was located with the intention of testing the stratigraphy of the machine-cut section of Mound 1.

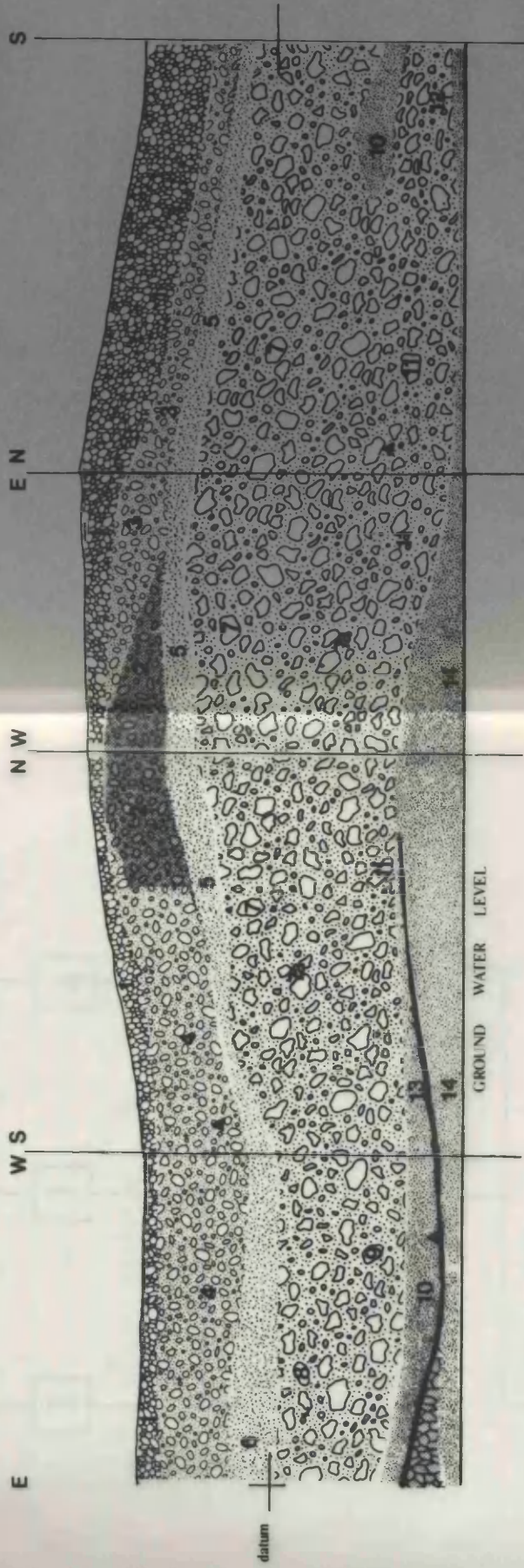
To this end, a 1.5 x 2 metre area was set out behind the section face and perpendicular to it. Excavation proceeded through densely-packed marine-mollusc shells to a depth of approximately 1.6 metres from the mound surface, where seepage from the artificially high ground-water level of the eastern *camaronera* rendered further investigation impossible.

The strata encountered broadly paralleled those from the machine-cut profile and fell into three categories:










The "UPPER" group of strata consisted of layers 1-6. As the final deposit, layer 1 contained a high percentage of brown humus together with large quantities of small marine pelecypodae. It overlay layer 2, a lense of concentrated burned shell and bone and also layers 3 and 4, which were both characterised by dense deposits of large and small pelecypodae in a greyish-brown sediment with shelly fragments. Together they would seem to represent the final phases of stratified dumping before the eventual abandonment of this mound.

A carbon sample from layer 4 was dated to 1475 ± 35 BP (AD 420-540) [BM 1688], although the accuracy of this date is now in question (see pp: 92-3).

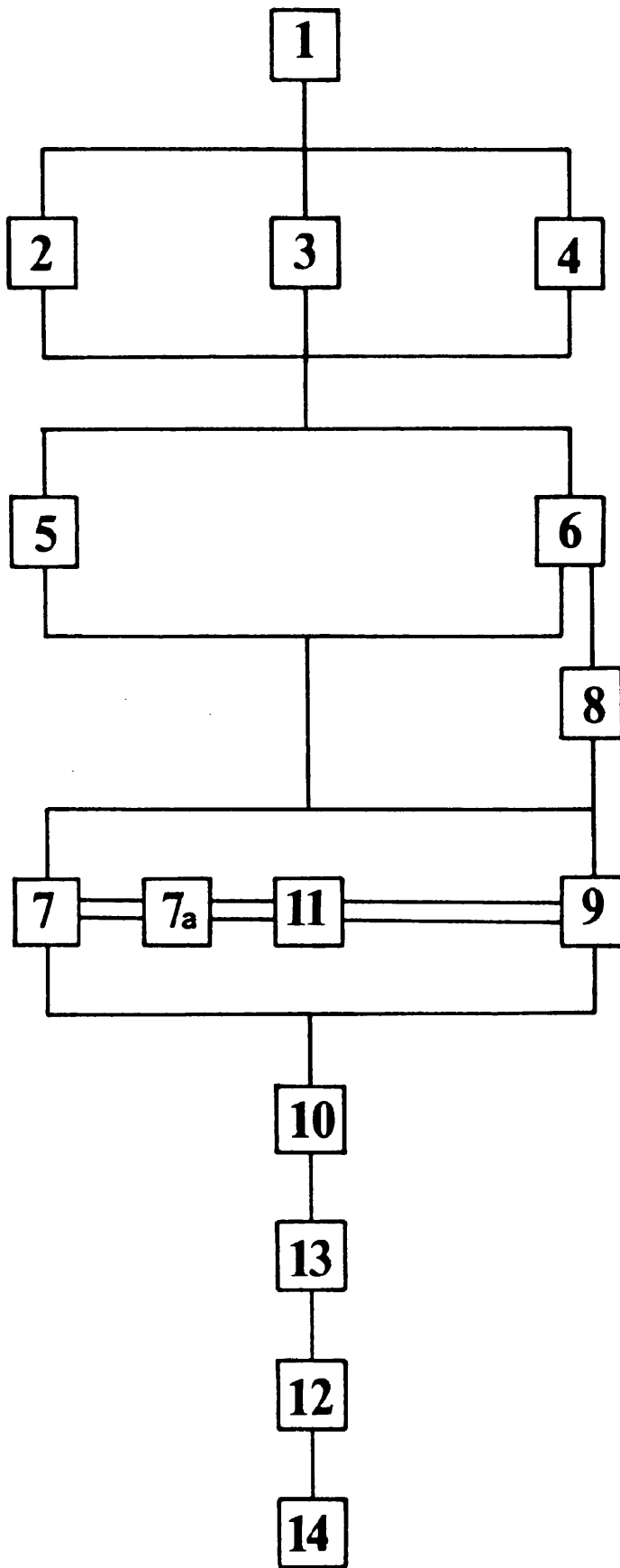
Layers 5 and 6 underlay 3 and 4 and approximated to the same deposit of grey, very fine sandy sediment, with shelly fragments and fewer whole mollusc shells, although 5 contained a high incidence of *Chione*



1 METRE

-  small marine pelecypoda & gastropoda in dark brown sediment
-  large & small marine pelecypoda & gastropoda in fine grey sediment
-  large & small pelecypoda in ash
-  fine grey deposit with shelly fragments
-  Crassostrea
-  heavy organic sediment with large shell fragments
-  Crassostrea in fine sediment
-  layer of carbon
-  ▲ C-14 sample

GUARUMAL SECTION 2



GUARUMAL PLAN 6

(*Iliocheone*) *subrugosa* (Olsson, 1961; Appendix 1) and layer 6 of *Cerithidea valida* (Adams, 1852; Appendix 1). Both coarse, undecorated, gritty-tempered pottery and large quantities of fine red-slipped and white-on-red decorated wares were found in this upper group of strata.

The division between the upper and the middle group of strata was distinctive and abrupt. The "MIDDLE" group consisted of layers 7/7a, 8, 9 and 11 and were characterised by an overwhelming predominance of the large elongated oyster shell, *Crassostrea*. Whereas layers 1-6 of the "Upper" group had together a depth of between 0.3 and 0.5 metres, the accumulation of *Crassostrea* shells in the "middle" strata was to a minimum depth of 1 metre.

Layer 7 was distinguished from layer 7a by the presence of a thick brownish-black deposition on the oyster shells, although apart from this, the two were undoubtedly the same deposit. This blackish deposition proved to be a feature common to the deep oyster layers in both Mound 2 (p: 32-3) and Mound 6 (p: 35-6) and was most probably indicative of a mineral, perhaps manganese, leaching through from the ground surface and the upper strata, especially when considering the very grey, almost "bleached" aspect of the fine soils from this group.

Layer 11 represented an arbitrary differentiation within layer 7, for the sake of recording purposes. In fact, the deposit was homogeneous as the section later revealed (fig.) and yielded a composite C¹⁴ assay of 2020 ± 130 bc [BM 1684R]. Layer 8 seemed to represent a narrow transition of between 3 and 4 centimetres depth between layer 6 of the "Upper" stratigraphic group and layer 9 of the "Middle" into which it quickly merged. Layer 9 contained a high incidence of *Crassostrea* and, except for a slight colour distinction, probably equates with layer 7/7a.

Coarse, medium and fine, plain, painted and decorated pottery was associated with this stratigraphic grouping (Table 2: 116).

The "LOWER" group of strata consisted of layers 10, 12, 13 and 14 and these underlay the "Middle" category of densely-packed *Crassostrea*. The lower group were distinctive from the middle in that they contained far fewer large oyster shells and consisted of a brownish-grey sediment which had the appearance of a humus horizon, or the A horizon of a

fossil soil, possibly representing the original ground surface prior to the primary deposition of midden material. There was also one continuous charcoal layer 13, which produced a C¹⁴ assay of 2040 ± 120 BP [BM 1682R]. These lower strata contained an overwhelming predominance of very eroded red gritty fabric pottery, although closer inspection revealed the presence of such forms as 7 and 13 (Figs: 15-16; 20c-g) amongst the sherds, which may hint at the broad contemporaneity of this early phase of midden usage in Mound 1 with the pile-built and wattle and daub dwellings associated with Mound 6 (pp: 75-79).

Excavation could not proceed beyond 1.6 metres owing to lateral seepage of water from the large camaronera located to the east. Attempts to pump the water out were unsuccessful and consequently the investigation of Trench A had to be discontinued.

CORRELATIONS BETWEEN THE MACHINE-CUT PROFILE AND TRENCH A

The machine-cut section face and the sections from Trench A shared the same broad stratigraphic groupings, which should not be surprising as both represented cuts made into what was probably the central portion of Mound 1. In both, the "Upper" group of strata corresponded to an approximate 0.5 metre accumulation of shells of diverse species of small marine pelecypodae and gastropodae, mostly of mangrove-dwelling species, in a fine grey, silty sediment. These deposits also contained large quantities of fine red-slipped and white-on-red decorated pottery, together with some coarser plain wares (Table 2; also list of Figs.).

Layers 7/7a, 9 and 11 of the "Middle" stratigraphic group from Trench A corresponded to layers 6/6a of the "Lower" stratigraphic group of the machine-cut section face. They both followed the distinct and abrupt change from the "Upper" group of strata, with average accumulations of approximately a metre of the large oyster, *Crassostrea* and similarly contained a higher proportion of coarse, plain, undecorated pottery to finer decorated wares (Table 2 & list of Figs.).

The northern (designated west-east) section face of Trench A corresponded most closely with the machine-cut profile, representing its "backward" view, so to speak. The southern east-west section of A showed a marked reduction in the depth of the large oysters, from approximately 1 metre to 0.5 metres, where it constituted an approximate 50:50 ratio

with the "Upper" strata of smaller bivalves. Possibly differential patterns of refuse dumping account for this, together with the presence of patches and lenses in the strata, such as the burned shell deposit layer 2 in A and the densely packed layer of very coarse, gritty pottery of layer 8 in the machine-cut section.

Observations made during the excavation, together with studies of the section faces tend to suggest the presence of silt horizons which may indicate a lengthy break in refuse dumping, or even phases of disoccupation of the midden. Some of these are very narrow and difficult to distinguish, although layers 3 and 5 in the machine-cut section and layer 5 of Trench A shared the same characteristics of very fine grade grey sediment which contained fewer shells and pottery compared with the other strata, and possibly may be examples of such.

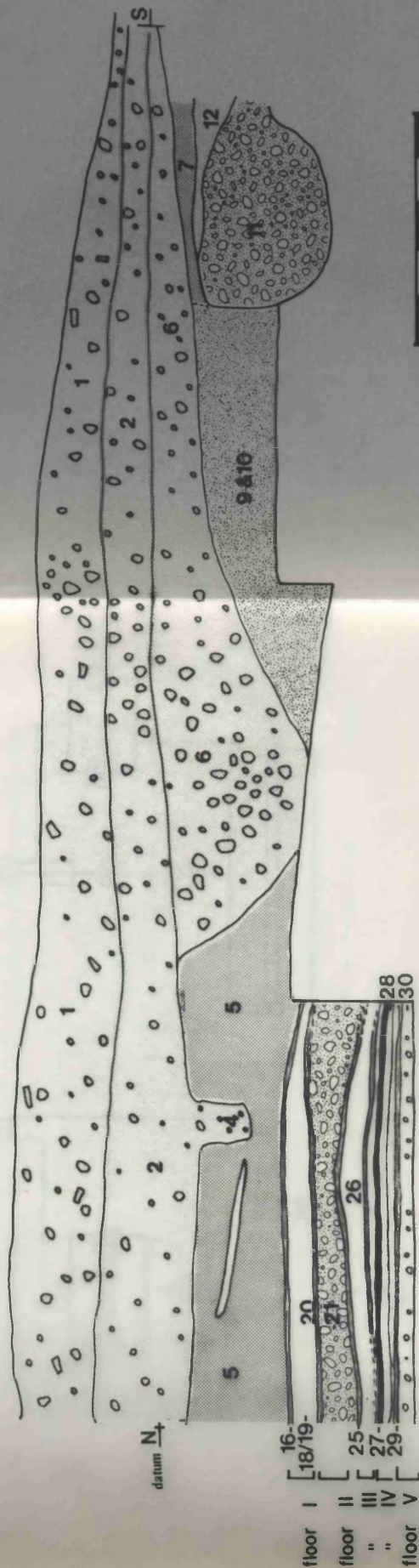
This tends to be confirmed by analysis of land molluscs from the soil samples (M. Allen, personal communication) which showed a high incidence of shade and litter-loving species consistent with the presence of dense undergrowth, probably very similar to that present upon the shell mounds immediately prior to clearance. These land molluscs are, however, ancient and they occur in high percentages in the layers of fine grey sediment with little shell or pottery (Appendix 3).











The limited nature of the excavation makes it difficult to speculate on the patterns of resource exploitation and refuse dumping by the prehistoric population of the Guarumal midden.

Trench A had sampled the stratigraphy of a shell mound. It was then hoped to find evidence of actual occupation deposits close to such a mound to confirm the hypothesis noted earlier that dwellings would have been in close proximity to individual refuse tips.

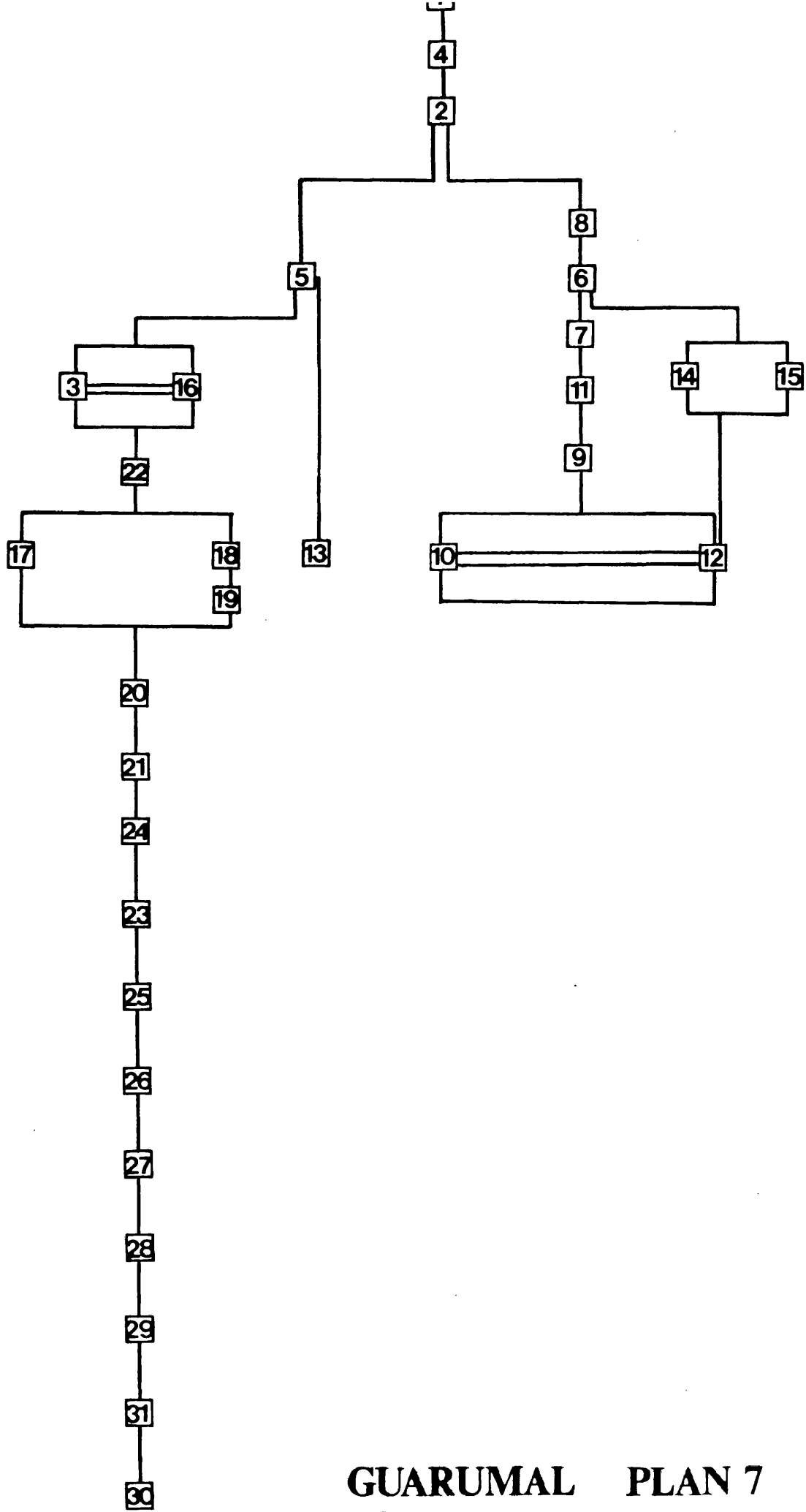
TRENCH B

Trench B was a 3 metre by 1 metre test unit set out toward the centre of the site in close proximity to Mound 6 (Map 5), with the object of testing for the presence of stratified human occupation in association with an individual refuse mound. Large quantities of burned clay, with some fragments retaining the impression of cane wattling, were scattered



-  sandier deposit with many shells
-  sandy deposit with few shells
-  pure sand with Chione subrugosa
-  packed grey sand ? floor
-  sandy sediment with shells
-  sandy sediment with shells and ladrilla
-  burned clay - ? hearth area
-  carbon layer
-  packed white deposit
-  ? floor

GUARUMAL SECTION 3



GUARUMAL PLAN 7

on the surface hereabouts and suggested the likelihood of finding structural remains in this area.

The deposits here differed greatly from those in Trench A, signifying their occupational nature. In this, they consisted of soil with few marine mollusc shells, together with fragments of broken pottery, bone and burned clay, whereas in A they had comprised large quantities of shell refuse with little soil.

Layers and features are numbered consecutively as excavated.

Layers 1, 2 and 3 comprised the uppermost strata of this unit and included Feature 4, a post-hole which cut layer 2 and layer 5 beneath it to a depth of 0.2 metres. Together they constituted the top 0.35 metres of yellowish-brown, loamy sub-soil and contained large quantities of both coarse and fine red-slipped and white-on-red decorated pottery (Table 2 & list of Figs.), burned clay and diverse species of small marine pelecypoda and gastropoda (Table 3: 117 & list of Figs.).

Layer 5 represented dense concentrations of burned clay to an average depth of 0.25 metres, which overlay a sequence of several possible floor horizons.

Layer 6 represented a soft, fine, darker brown deposit, containing patches of lighter yellow, sandy soil, with various species of small pelecypoda and the occasional large *Crassostrea*. This apparently divided the dense burned clay deposit 5 to the west from layers 9 and 10 to the east, which it overlay.

In the south-eastern corner of the unit, layer 6 directly overlay layer 7, an irregular area measuring 0.15 by 0.20 metres of burned clay, very similar in nature to 5.

Layer 9 underlay layer 6 in this south-eastern corner of the unit and was a lighter, sandier deposit, containing many small pelecypoda, especially of *Ostrea columbiensis* and *Chione subrugosa*. Layer 9 overlays layers 10 and 12 which later proved to be one homogenous stratum, similar to 9 in the sandiness of texture, but containing fewer shells. Many sherds of highly burnished fine, red-painted pottery were found in this layer (Table 3 & list of Figs.).

11 was a pit which cut through layers 9, 10 and 12 to a depth of 0.27 metres, at an actual depth of 2.53 metres o.d. It contained a loose, dark, sandy fill with many *Ostrea columbiensis*, burned shell together with coarse and medium-fine pottery wares.

Layer 13 was an irregular area of dark brown clay containing flecks of charcoal and burned shells.

14 represented a posthole in the extreme eastern end of the unit and cut layer 12.

15 was another post-hole in the extreme south-eastern corner of the unit, also cutting 12.

Layer 16 was a light yellowish deposit of sandy texture and very similar to layer 3. It lay beneath layer 5 in the north-western corner of the unit and contained many shells, mainly of the species *Ostrea columbiensis* and *Chione subrugosa*.

Layer 17 was a thin horizon of blackened, burned material underlying layer 16 in the north-west end of the unit.

Layer 18 was a grey sandy layer with many shells of the species *Chione subrugosa* and dense shelly fragments. It lay beneath layer 16 in the north-west end of the unit and layers 9, 10 and 12 in the south-eastern end possibly represented the capping to a floor.

Layer 19 was in close horizontal association with layer 18 and appeared to be a part of the same layer, although it was characterised by a thick, hard-packed white deposit, some 3-4 centimetres thick.

Layer 20 lay beneath layers 18 and 19 and represented another hard-packed grey deposit, sandy in texture, with shelly fragments and patches of burning.

Layer 21 lay beneath layer 20 and was a browner, sandy deposit, containing many small *Chione subrugosa* shells.

22 was a large post-hole measuring 0.20 metres in diameter and located in the north-western end of the unit. It contained a fill of yellowish-brown sandy clay with small bivalve shells and cut layers 18 and 20.

Layer 23 was a narrow strip of burned clay on the south-west edge of the unit. It was approximately 1-2 centimetres in depth and contained no pottery.

24 was another post-hole in the south-west corner of the unit which contained a sandy brown clay fill with small marine bivalve shells, as did the post hole 22.

Layer 25 was a hard-packed grey sandy floor which lay beneath layer 21 on the north-west side of the unit and beneath layer 23 in the south-west. It overlay layer 26 and contained no pottery.

Layer 26 was similar in composition to layer 19, being a fine, hard-packed white deposit, 1-2 centimeters thick and immediately underlying layer 25. It contained a few bivalve shells of the species *Chione subrugosa* and *Ostrea columbiensis*, but no pottery.

Layer 27 was a thick band of charcoal directly underlying layer 26. It yielded a C¹⁴ date of 1960 ± 40 BP (20BC - AD60) from a sample taken at a depth of 2.45 metres a.s.l. (BM. 1689).

Layer 28 was a fine white deposit, 1 centimetre thick, which underlay layer 27 and was very similar in composition to layers 19 and 26.

Layer 29 was a very narrow band of grey sandy material, 0.5 centimetres thick, which was overlain by both layers 27 and 28 and very similar in composition to layers 18 and 20.

Layer 30 lay beneath layers 28 and 29 and constituted a coarse, yellowish brown sandy deposit containing many *Chione subrugosa* shells.

31 was a post-hole cutting layer 32.

Layer 32 was a brownish-grey horizon containing shells of *Chione subrugosa*, distinct from layer 30 and cut by the post-hole 31.

Excavation did not proceed beyond this point.

Plan 7 shows a schematic matrix of the stratigraphical events and relationships for the unit Trench B.

As excavation proceeded, the test-trench was divided into metre-square sub-units. Owing to the shortage of time, only the first of these in the western end was continued. The second and third sub-units, in the central and eastern portion of the trench respectively, were discontinued at a depth of 0.57 metres, that is, an actual depth of 2.58 metres, to layers 10, 12 and 13. Attention was concentrated on the first, western sub-unit, where distinctive narrow horizons of a fine, white, hard compacted deposit, like concentrated lime, were sandwiched with grey, sandy-textured strata that contained high percentages of the pelecypod *Chione subrugosa*. These appeared to be sealed by layers 5 in the northern part of the sub-unit and 16 in the southern. There was a strong suggestion that these strata represented floor "units", each "unit" being associated with a narrow capping of hard grey sand, approximately 1 centimetre thick, which usually overlay a broader, 5 centimetre thick stratum of the white concreted deposit (ie: layers 18 and 19, or layers 25 and 26). Conversely, a narrow grey sand capping, 1 centimetre thick, overlying a yellow or brown sandy layer about 5 centimetres in depth, containing many shells of the species *Chione subrugosa* (ie: layers 20 and 21 or 29 and 30) constituted a second type of floor "unit".

Thus layers 18 and 19 would, in this manner, correspond to a floor "unit", here designated I.

Unit I was followed by Unit II, consisting of layers 20 and 21, where a loose sandy deposit with *Chione subrugosa* shells (21) seemed to constitute the packing of the floor interfill instead of the white compacted lime-like material of layer 19.

Unit III followed II and comprised layer 25, a band of hard-packed grey sand, capping approximately 5 centimetres of the fine white compacted deposit of layer 26.

Unit IV succeeded III, represented by layer 27, a thin charcoal horizon and fine grey sandy layer overlying the fine white concreted deposit of 28.

Layers 29 and 30/32 represented the final "Unit" V, consisting of a thin, grey sandy stratum which capped a brownish-grey layer containing *Chione subrugosa*.

Thus there would seem to be 5 floor units in all in Trench B, stratified through a total of 0.28 metres of archaeological deposit (Sect 3: 45).

There were very probably more floor units below V, but unfortunately it proved impossible to test this as exigencies of time forced the excavation to be discontinued at layers 30/32, at a depth of 0.85 metres, or 2.37 metres b.d., before the sterile natural had been reached.

In 1980, sub-units 3 and 4 of Unit C in this same area followed through eight successive floor units, stratified over dense accumulations of *Crassostrea* shells, before reaching sterile natural grey clay (p:69-74).

TRENCH B: INTERPRETATIONS AND CONCLUSIONS

The purpose of the test unit Trench B was undoubtedly successful in uncovering evidence of structural remains. The limited nature of the investigation and the smallness of the area available for excavation by one person has, however, left little possibility to more than speculate on the type of structures revealed.

Firstly the type of deposit uncovered in Trenches A and B differed greatly and indicate that the latter was certainly of an occupational nature.

A 0.20 metre accumulation of burned clay in layer 5, together with substantial quantities throughout the other deposits does strongly suggest the presence of part of a structure here. The impression of cane wattling in large fragments of this burned clay (Pl: 9-1), together with the presence of post-holes tends to confirm this. Layer 5 suggests a clay wattled wall, collapsed over and sealing what appears to be floor horizons beneath. These layers were remarkably even and well-prepared, laying uniformly level over one another. Exactly how many floors they represent is, of course, a surmise, but as many as five can be plausibly argued.

The evenness, uniformity and the nature of the composition of these layers suggested carefully prepared floors during the course of excavation. I was later involved with the excavations at Salango, Manabi, Ecuador during March and April, 1980 and it is of interest to note here that similar sequences of carefully prepared and levelled floor "units" were found at OM-JP-PL-24 throughout the several metres of accumulated human occupation found there. They comprised narrow horizons of fine grey sand capping fine, hard-compacted white lime-like deposit, similar to those from the unit B.

A post-hole 22 was associated with the floor layer 18, another: 24, with the floor layer 23 and finally post-hole 31 with the floor layer 32. The unit was, however, far too small to enable any hypothesised reconstruction, although it is of interest to note that post-holes 22 and 24 both contained a sandy yellowish fill very similar to Features 7, 13 and 14 of Unit C (pp: 64 & 66).

In the eastern portion of Trench B, the features included a shallow pit 11, which contained a fill of pottery and burned shells. There were also two post-holes: 14 and 15. All three cut layer 12 at a depth of 2.54 metres.

Layer 7 was a narrow lense of burned clay associated with 7a, a band of yellow, hard-packed sandy clay, rather as the burned clay layer 5 was associated with the hard-packed sandy deposits of layers 3 and 16.

Layers 2 and 6 represent the stratigraphical events sealing 5 and 9/10 respectively.

Layers 5 and 7 may possibly have represented a continuum, cut by a trough 6, but the precise relationship of 5 and 6 was never fully determined. Were this the case, however, layers 7 and 7a seal the pit 11 in a similar manner to layers 5 and 16 which seal floor units.

Possibly then, layers 6,9 and 10 represent later deposits, dividing what was originally one continuous layer of collapsed burned clay wall, which sealed occupational features beneath it.

THE 1980 FIELD SEASON: UNIT C

The Guarumal site was revisited in October 1980 as part of a project initiated by the Museo Antropológico del Banco Central del Ecuador to investigate sites attributable to the Jambelí culture.

The results of the 1976 season had proved sufficiently encouraging to prompt a more detailed investigation, particularly of the area where Trench B had uncovered evidence of structural remains in close proximity to Mound 6. As these had included a sequence of 5 possible floor horizons, stratified one above the other (pp: 49-51) it was hoped that by clearing a much larger area in the same vicinity, the horizontal relationships of features associated with one such floor could be planned and perhaps even the outlines of a single structure revealed.

To this end, a 10 metre by 10 metre unit "C" was laid out on a north-south - east-west axis, close to the indentation of Mound 6, where recent machine clearance of superficial vegetation had turned up large quantities of burned clay. The unit was first cleared of loose unstratified top-soil and then sub-divided into metre square sub-units to initiate a closely controlled "search" for feature patterns. This also simplified recording methods, as each sub-unit was accorded a separate number. Later, as feature patterns were revealed, the single metre square sub-units were incorporated into larger groups. The field recording system has been simplified here to clarify the presentation of the data in this text. Accordingly, the metre square sub-units have been numbered consecutively as is readily apparent from Plan 9. The features have similarly been re-numbered to follow in sequence and these also appear here. A correlation between the textual and the field planning schemes appears in Appendix 4, with Plan 9.

As complex horizontal feature patterns slowly emerged during the course of excavation, it became clear that the investigation would have to be confined to one floor level only because of limited time and resources. It was therefore decided during the closing days of the field work to excavate one sub-unit down to sterile natural deposit in order to study the vertical stratigraphy. Sub-units 3 and 4 afforded the ideal situation immediately between Mound 6 to the south and the floor with associated features of "C" to the north with the opportunity to study the relationship between the shell mound and its associated occupation.

Excavation here proceeded to a total depth of 1.62 metres asl. and revealed the presence of a total of 8 floor systems, together with large quantities of very fine, highly burnished, red-painted and white-on-red decorated pottery (Table 7; see also list of Figs.).

Approximately 0.50 metres of loose, grey-brown top-soil containing dense concentrations of shell, pottery and burned clay were cleared off Unit C down to the stratified deposit below machine disturbance. At this level, which varied on average between 3.18 and 3.26 metres above sea-level, there was already considerable variation apparent in the 100 square metres of the unit. The central portion was slightly higher, smoother and harder compacted, which may have been due to either the vagaries of the machine clearance, or possibly to the presence of a house platform, as this area later corresponded to the best preserved floor levels.

The undisturbed deposit beneath the surface overburden was a heavy clay which seemed to be typically 10YR 3/3-4/4: dark brown to dark yellowish brown with some local variations. Where much burned clay occurred it was 2.5YR 4/8 red and 10YR 7/3 very pale brown where shell scatter from Mound 6 intruded. The hard compacted area of dark yellowish-brown clay toward the central part of Unit C indicated the likelihood of floor remains here.

Unless the natural stratigraphy showed otherwise, the top 0.10 metres below the surface clearance was called layer 1. This was a fairly homogenous stratum, with a Munsell soil colour value ranging between 10YR 3/3 dark brown to 10YR 3/4 dark yellowish brown throughout.

As the excavation extended into each new metre square sub-unit, this first layer corresponded closely to the two colour categories described above and always contained shells of diverse species of marine pelecypoda and gastropoda, pottery and burned clay. Layer 1 generally occurred throughout the units at an average depth of 3.21 - 3.19 metres, but included a total range of 3.26 - 3.16 metres above sea-level.

THE FLOORS

As layer 1 was systematically removed, the deposit changed from a general Munsell soil colour value of 10YR 3/3 dark brown to a colour range of 10YR 3/4 - 4/4 dark yellowish brown and became softer and

denser in nature, with the darker patches of many features showing through. The soil colour category also included ranges of 10YR 7/6 yellow and 10YR 6/4 light yellowish brown in patchy areas where a fine sandy and hard-concreted deposit, containing many shells of the species *Ostrea* and *Chione subrugosa* packed horizontally onto the surface, strongly implied the presence of a floor level.

This occurred throughout the raised central region of smoother compacted deposit in Unit C and corresponded to the sub-units 9-11, 15-17 and 21-23 at an average depth of 3.18 - 3.13 metres above sea-level (Plan 1: 57). Subsequent investigation proved this "floor" surface to be similarly present in sub-units 6, 12 and 18, although it was by no means consistently present throughout and sometimes gave way to a softer compacted, dark brown and dark yellowish brown sediment. These areas of hard, yellowish, concreted "floor" were later designated floor system I, being the uppermost revealed in excavation, and this was stratigraphically associated with layer 2 at an average depth of 3.18 - 3.13 metres above sea-level.

In the central "control" units 9-11 and 15-17, investigation of Floor I revealed the existence of another deposit of a very similar nature, stratified approximately 0.06 metres below it and which was designated Floor II of layer 3. Floor I of layer 2 did not represent a continuum, but was patchy and disrupted, frequently giving way to a softer sandy deposit with a Munsell soil colour value of 10YR 5/4 yellowish brown and some difficulty was experienced directly associating features with it. It was therefore removed to reveal Floor II beneath, which seemed to be better preserved.

As Floor I was removed, it proved to consist of a sandy matrix with a colour range varying from 10YR 5/4 yellowish brown to 10YR 6/4 light yellowish brown and 6/6 brownish yellow with inclusions of 10YR 7/6 yellow, which represented the hard concrete-like capping. This sandy matrix contained many small marine shells, especially those of the species *Chione subrugosa* together with a few *Ostrea* and it was gritty with very fine shelly fragments. Sherds of fine, red-painted, burnished pottery were found during the removal of this stratum (Table 5: 119).

Floor II of layer 3 was found to be present throughout the central sub-units 9-11, 15-17 and 21-23 and also in adjacent sub-units 3 and 4 at an

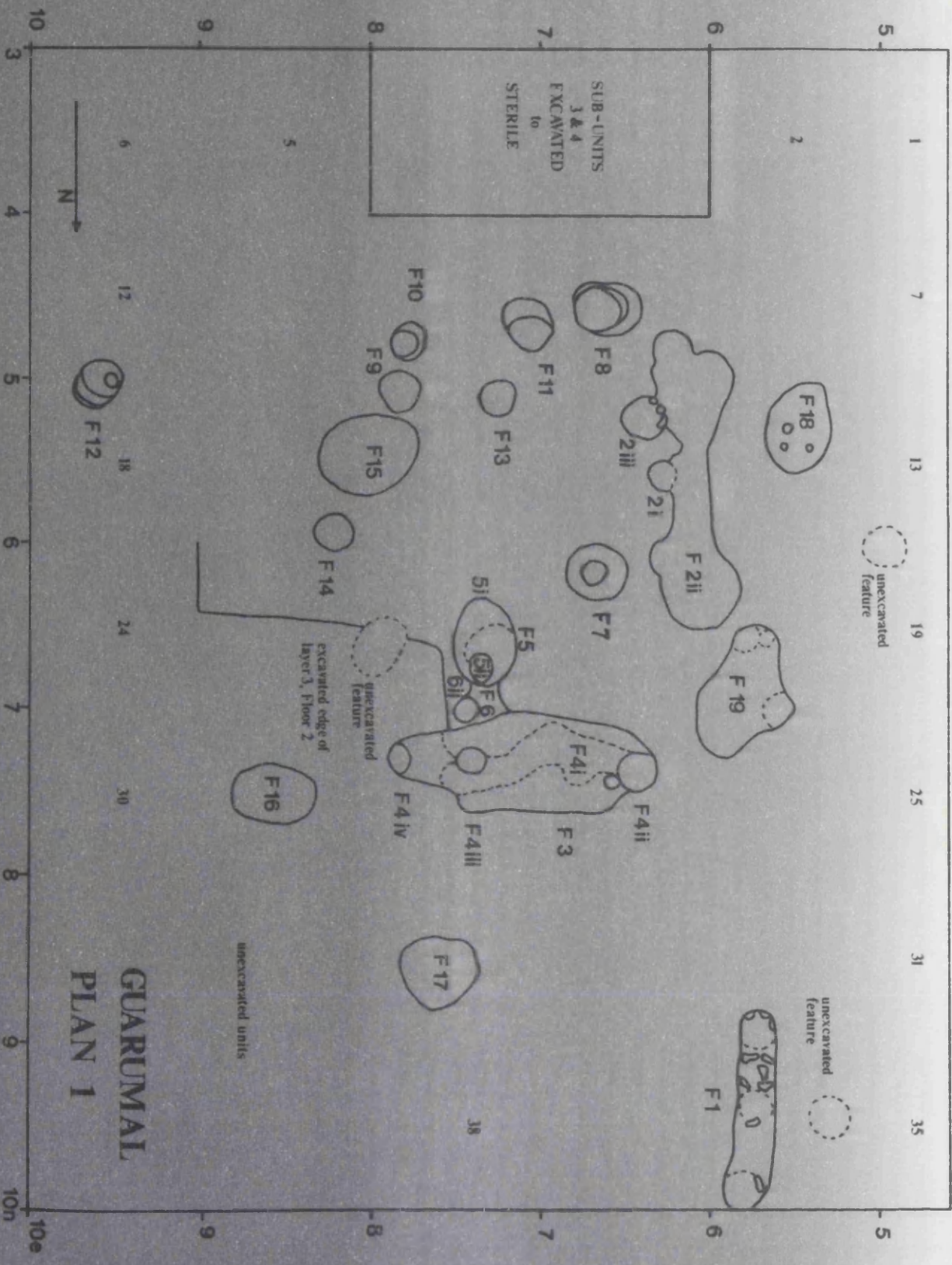
average depth of 3.11 metres above sea-level (which included a range of between 3.13 and 3.09 metres). It was characterised by exactly the same type of composition as that of the first floor surface, consisting of a very fine, sandy, hard-concreted deposit, which contained small marine pelecypoda shells, especially of *Chione subrugosa*, packed horizontally onto the surface. The Munsell soil colour values also largely duplicated those of Floor I, being typically 10YR 7/6 yellow, with a range from 10 YR 6/3 pale brown to 10YR 6/6 brownish yellow.

A deposit of this type also occurred patchily in the adjacent sub-units 8, 14, 20 and the north-east corner of 33 at between 3.11 and 3.06 metres above sea-level.

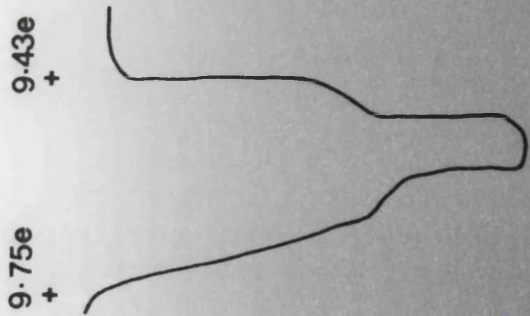
It should be noted that whilst these floor layers gave a very level aspect to the eye, a slight surface undulation made it difficult to distinguish one from the other. In some areas, as in sub-units 17 and 28, Floor I actually seemed to merge with Floor II at a depth of between 3.11 and 3.05 metres above sea-level. The former probably represented the latest in a sequence of floors and as one of the uppermost strata, unprotected as the others underneath had been, was very eroded and occurring only patchily. Elsewhere, as in sub-units 1, 13, 14, 35 and 20, the first floor layer to be encountered occurred at a depth of between 3.11 and 3.05 metres a.s.l., which was the level of Floor II in the central sub-units 9-11 and 15-17.

The lack of a consistent, coherent distinction between the two floors throughout, except in the sub-units 9-11 and 15-17, makes it difficult to envisage the two as separate occupational levels and more probably indicates a pattern of differential resurfacing. Where possible, the two were excavated and treated as separate strata, but it eventually proved to be too difficult always to distinguish a first from a second floor and thus be able to associate individual features with them as separate systems. In due course, Floor I was removed where it occurred, down to Floor II, which gave a consistent surface throughout the central sub-units of "C".

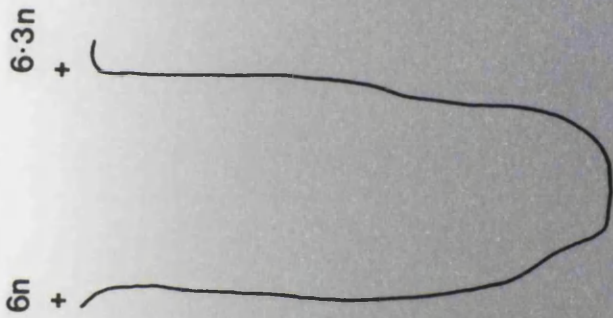
This surface was traced throughout sub-units 21-23, but it appeared to be disrupted north of a line crossing through the sub-units 22 and 23 by a wide area of disturbance comprising a slump of loose soil and shells, mainly of the species *Ostrea*. Although features 3 and 4 of sub-units 27



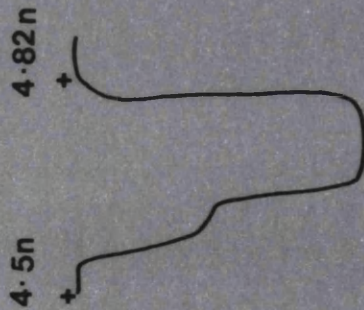
GUARUMAL
PLAN 1



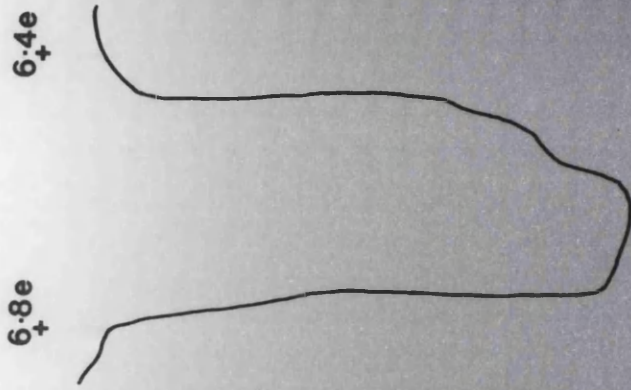
E - W profile of F12



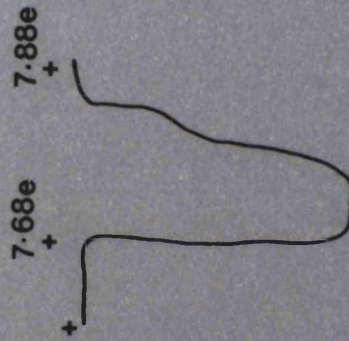
N - S profile of F7



S - N profile of F11



E - W profile of F8

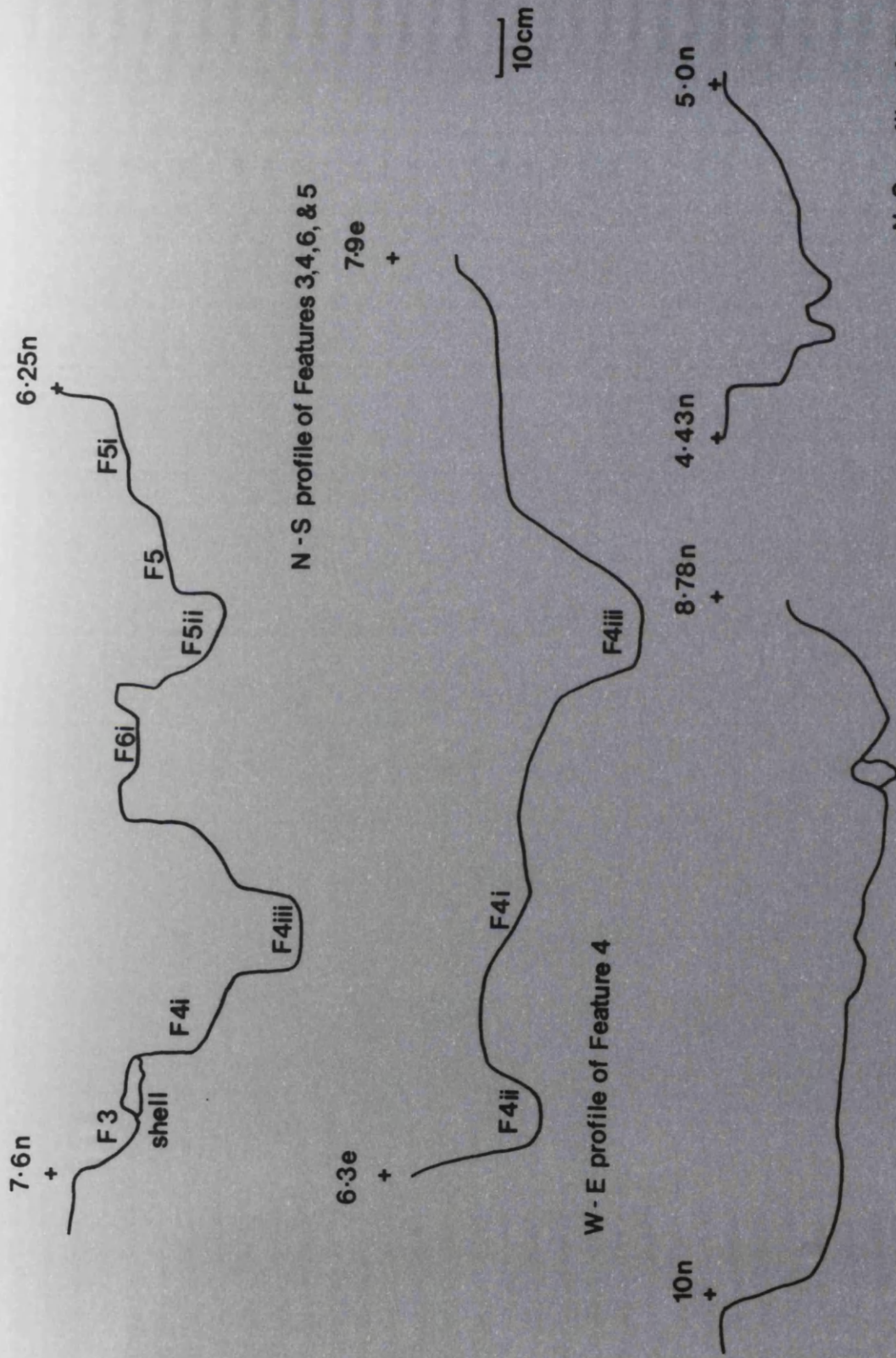


S - E profile of F10

10 cm

GUARUMAL

PLAN 2



N-S profile of Feature 18

N-S profile of Feature 2

W-E profile of Feature 4

N-S profile of Features 3, 4, 6, & 5

GUARUMAL PLAN 3

and 28 were cut through and down to similar yellowish floor-like deposits, no trace of such was found to a depth of 3.01 metres in the adjacent sub-units 29 and 30

THE FEATURES

The features had become apparent during the removal of layer 1 and showed up as darker shadowy patches in the dark yellowish brown deposit of layer 2. They fell into three broad categories:

- 1) Short linear features and sub-circular or oval patches later distinguished as
- 2) Post-holes or
- 3) Pits.

Another category represented by dense patches of burned clay failed to emerge as more than that, revealing no distinguishable structure or form. Very possibly they were the collapsed remnants of burned clay walls.

The post-holes were sometimes very hard to discern as they often had fills of a very similar colour to the deposit through which they had been cut. Spraying with water and observing colour contrasts and differential drying clarified them, as did observation of the vertical depositional angle of pottery or shell in the fill.

THE LINEAR FEATURES

Features 1, 2, 3 and 4 fell into this category and were all clearly noticeable in the yellowish brown deposit of layer 2, especially when the site was wet, after rain.

FEATURE 1 (SUB-UNITS: 32 & 36)

This was a shallow, elongated trench-like feature measuring 1.3 x 0.2 metres and orientated approximately on a north-south axis at a depth of 3.07 metres a.s.l. (Plans 1 & 3). It was initially associated with layer 2, which was an area of burned clay with a Munsell soil colour value of 10R 4/8 Red, occurring as an elongated patch in the hard-compacted yellowish-brown clay of layer 3.

Further investigation delineated the edges of this feature, which were defined by burned clay. It had, in fact, been cut through layer 2 and into a very hard concreted floor-like deposit of layer 5, which had a Munsell soil colour value of 10YR 6/4 Light Yellowish Brown. This was very similar in nature to the floors I and II in sub-units 9-11, 15-17 and 21-23, but occurred here at the lower level of 2.95 metres a.s.l.

Feature 1 contained a fill of burned clay mixed with an otherwise very dark and soft deposit with flecks of charcoal and with a Munsell soil colour value of 10YR 2/1 Black. Shells of the large elongated oyster, *Crassostrea* were packed into the fill of Feature 1 in a sub-circular manner, which strongly suggested packing for posts.

FEATURE 2 (SUB-UNITS: 9, 15 & 21)

Prior to excavation, this feature seemed to be directly on a line with Feature 1, being also elongated and trench-like, orientated along an approximate north-south axis and measuring 1.80 metres in total length. It appeared in the context of layer 2, at a depth of 3.09 metres a.s.l. and subsequent investigation suggested a complex of interrelated features comprising a shallow trench: Feature 2, with at least two post-holes: Features 2I and 2III cutting its eastern edge (Plan 1). It contained a soft clay fill with a Munsell soil colour value of 10YR 4/4 Dark Brown, together with a scattering of burned clay, charcoal and large quantities of shells of the *Ostrea* family, probably used as packing in the post-holes. A C¹⁴ assay on charcoal from this feature yielded a date of 1830 ± 80 BP (AD 120 ± 80; date range AD 40 - 200) [Beta 22915-7].

This feature cut through Floor I and Floor II to a depth of 2.99 metres a.s.l. and had a bottom of hard compacted yellow floor deposit as did Feature 1 above.

It seems plausible to interpret both Features 1 and 2 as crude construction slots for posts.

FEATURES 3 and 4 (SUB-UNITS: 27 & 28)

As with Features 1 and 2, this feature system was clearly visible as a dark, oblong intrusion in the yellow-brown soil of Layer 2 and before

excavation it measured approximately 0.85 metres by 0.23 metres, orientated along an east-west axis at a depth of 3.05 metres a.s.l. Excavation later revealed a complex feature system which included another "trench" Feature 4, cutting the southern edge of Feature 3 upon a parallel axis and to a total depth of 2.59 metres, including at least two associated post-holes: Feature 4II and 4III (Plan 1 & 3: 57, 59).

The initial excavation of Feature 3 showed it to have a soft sandy fill, with a Munsell soil colour value of 10YR 5/4 Yellowish Brown and containing many small marine shells of the species *Ostrea columbiensis*, *Chione subrugosa* and *Protothaca ecuatoriana*, together with pottery, although in contrast to Features 1 and 2, there was little burned clay or charcoal. It cut through both Layers 2 and 3 with their associated floor to a depth of 2.94 metres, exposing at its bottom, another hard-compacted floor-like surface, with a Munsell colour value of 10YR 7/6 Yellow, as did Features 1 and 2.

Feature 4 was another oblong trench running parallel with Feature 3 and cutting its southern edge. The edges were defined by the Floor II through which it cut, Feature 5 and the northern edge of Feature 3. It measured approximately 1.2 by 0.4 metres and contained a soft, dark brown fill of a Munsell soil color value 10YR 3/3. Beneath the top 0.04 metres, the fill consisted of dense quantities of burned clay and packed shells of the family *Ostrea* and the species *Chione subrugosa*.

The main "trench", Feature 4, had its bottom and southern edge defined by the yellow floor at an undulating depth of 3.16 - 3.11 metres a.s.l.. Within this, two post-holes: Features 4II and 4III has been cut in the western and eastern ends respectively of Feature 4 (Plans 1 & 3). The post-hole 4III had a light yellowish sandy fill, containing very many shells of *Chione subrugosa*.

Features 3 and 4 seemed closely interrelated with Feature complexes 5 and 6 and together they may well represent one large system. Feature complexes 5 and 6 fell into the pit/post-hole category, but will be dealt with immediately below, owing to their close relationship with Feature 4.

FEATURE 5 (SUB-UNIT: 22)

This feature was originally observed as a very dark oval patch, with dimensions measuring approximately 0.55 x 0.44 metres, in the yellowish-brown deposit of Layer 2, at a depth of 3.105 metres. Excavation of the half-section initially showed it to be a shallow pit with a very soft dark fill of Munsell soil colour value 10YR 3/2 - 2/1 Very Dark Brown to Black and containing large quantities of charcoal, which became a thick deposit of pure carbon 6 centimetres below the surface at a depth of 3.045 metres a.s.l.. Further investigation revealed the existence of a feature complex here, consisting of a shallow pit: Feature 5, with a post-hole: Feature 5 II cutting through it to a depth of 2.98 metres and containing a fill with a Munsell value of 10YR 3/3 Dark Brown - 10YR 3/6 Dark Red where much burned clay occurred.

Feature complex 5 was closely associated with Feature complex 6, described below.

FEATURE 6 (SUB-UNITS: 22 & 28)

Excavation of the feature complex 3 and 4 revealed the existence of a shallow pit, 3.14 metres a.s.l., directly adjacent to the northern end of Feature 5 and cut by the southern edge of Feature 4. Feature 6 had a soft, loose fill of Munsell soil colour value 10YR 3/2 Very Dark Greyish Brown, flecked with carbon and containing marine shells, pottery sherds and pieces of burned clay.

As with Feature 5I, there proved to be a post-hole, Feature 6II, cut into 6I to a depth of 2.84 metres, with a loose sandy fill, of Munsell soil colour value 10YR 3/3 Dark Brown and containing many shells of the pelecypod *Chione subrugosa*.

The close association of Features 3 and 4 with Features 5 and 6 may indicate a complex relationship between them. Each feature system was represented by a trench or a pit containing post-holes, with Features 5 and 6 orientated perpendicular to Features 3 and 4. There was a fairly strong indication that the entire group of Features 3,4,5 and 6 together represented one foundation element of a structure which was present, at least in part, in Unit C (Plan 5: 77).

THE POST-HOLES

FEATURE 7 (SUB-UNITS: 21)

This was a very large and deep, circular post-hole, measuring 0.35 x 0.32 metres across and 0.75 metres deep at a depth of 2.37 metres a.s.l.. It was first located at 3.12 metres in Floor II of Layer 3 through which it was cut and was found to have been cut through other hard concreted, yellowish, sandy deposits and also one thick layer of carbon at a depth of 2.61 metres. The sides of this feature were smooth and even with no sign of recutting and they were defined by the sandy yellowish floor deposits through which they had been cut.

The fill was distinguished by a lack of carbon and a paucity of burned clay (unlike Features 8, 10, 11 and 12) being very soft and sandy, with a Munsell soil colour value of 10YR 5/4 Yellowish Brown and containing many shells of the species *Chione subrugosa*, together with a few small *Ostrea*.

FEATURE 8 (SUB-UNIT: 9)

This was another very large and deep circular post-hole measuring 0.4 x 0.3 metres across and attaining a total depth of 0.78 metres down to 2.33 metres a.s.l.. It was first located at 3.11 metres in Floor II of Layer 3 through which it was cut and it cut through other yellowish sandy floor deposits which gave the sides of the feature a smooth hard consistency.

The fill was fine and soft, with a Munsell soil colour value of 2.5 YR 3/4 Dark Reddish Brown, containing many small fragments of burned clay with little shell (in contrast to F7) or pottery. In places, the sides appeared as though lined with burned clay with charcoal. The profile of this feature suggested the possibility of a recutting which would imply a dual phase or re-use (Plan 2). A C¹⁴ assay on charcoal from floor layers at the side of this feature yielded a date of 2250 ± 95 BP (300 BC ± 95; date range 395 - 205 BC) [Beta 22914-6].

FEATURE 9 (SUB-UNITS: 10 & 16)

This was a shallow circular post-hole, or possibly the remains of the bottom part of one, which measured 0.36 x 0.33 metres across and a mere 0.08 metres deep. It was first located at 3.11 metres a.s.l. in the context of Floor II in Layer 3, through which it was cut, down to another hard yellowish sandy deposit to a depth of 3.03 metres a.s.l..

This post-hole had a soft fill with a Munsell soil colour value of 2.5YR 2/1 black and contained pottery sherds and shells which had been stained by the thick carbon deposit.

FEATURE 10 (SUB-UNIT: 10)

This was a large, deep, sub-circular post-hole measuring 0.3 x 0.2 metres across and attaining a total depth of 0.4 metres. It was first located at 3.11 metres a.s.l. in Floor II of Layer 3, through which it was cut, and similarly cut through other sandy yellow floor deposits which gave the sides of the feature a smooth and hard consistency, down to a depth of 2.71 metres a.s.l..

The fill was fine and soft, with a Munsell soil colour value of 2.5 YR 3/4 Dark Reddish Brown and contained many small fragments of burned clay together with some shell and pottery and therefore was very similar to Feature 8

FEATURE 11 (SUB-UNITS: 9 & 10)

This was a circular post-hole measuring 0.25 x 0.23 metres across and attaining a total depth of 0.40 metres deep. It was first located at 3.11 metres a.s.l. in Floor II of Layer 3, through which it had been cut and cut through other sandy yellowish floor deposits, giving the sides a smooth hard consistency, down to a depth of 2.69 metres.

The fill was very similar to Features 8 and 10, being soft and fine, with a Munsell soil colour value of 2.5YR 3/4 Dark Reddish Brown and containing many small fragments of burned clay together with much shell and shelly fragments. The profile of this post-hole indicates a recutting at 2.94 metres a.s.l. (Plan 2).

FEATURE 12 (SUB-UNIT: 18)

This was a large and deep, sub-circular post-hole measuring 0.36 x 0.26 metres across and attaining a total depth of 0.6 metres deep. It was first located at 3.11 metres a.s.l. in Floor I of Layer 2 through which it cut and apparently had been cut through other sandy yellow deposits to a depth of 2.51 metres .

The fill was very similar to that of Features 8, 10 and 11, with a Munsell soil colour value of 2.5YR 3/4 Dark Reddish Brown, containing many small fragments of burned clay with pottery sherds and a few marine shells of the species *Chione subrugosa* and *Ostrea*. Both the plan and the profile of this post-hole suggest a dual phase or re-use, with a recut at 2.51 metres asl (Plan 2).

FEATURE 13 (SUB-UNIT: 16)

This was a sub-circular post-hole measuring 0.20 x 0.23 metres across with a total depth of only 0.16 metres deep. It was first located at 3.14 metres in Floor I of Layer 2 through which it had been cut, and through other sandy yellow floor deposits, giving the sides of the feature a smooth and hard consistency to a bottom at 2.98 metres a.s.l.

The fill was similar to that of Feature 7, being soft and sandy with a Munsell soil colour value of 10YR 5/4 Yellowish Brown, containing flecks of carbon, together with shells of the species *Chione subrugosa* and *Ostrea* and also pottery sherds.

FEATURE 14 (SUB-UNITS: 17 & 23)

This was a deep, circular post-hole measuring 0.24 x 0.24 metres across and attaining a total depth of 0.32 metres. It was first located at 3.1 metres in Floor II of Layer 3 through which it had been cut and was cut through other similar floor deposits to a bottom at 2.78 metres a.s.l..

The fill was similar to that of features 7 and 13, being soft and sandy, with a Munsell soil colour value of 10YR 5/4 Yellowish Brown and containing shell packing of *Chione subrugosa* and species of *Ostrea*, together with pottery. The sides of the feature had the usual smooth and hard consistency.

THE PITS

FEATURE 15 (SUB-UNITS: 16 & 17)

This was a shallow, oval pit measuring 0.6 x 0.5 metres across, with a total depth of 0.16 metres. It was first located at 3.1 metres within Floor I of Layer 3 through which it had been cut to another hard-packed sandy yellow floor deposit at a depth of 2.94 metres a.s.l.. The edges of this feature were very disturbed by the nature of the large *Ostrea* shells from the pit fill.

The fill itself was very similar to that of features 7, 13 and 14, being fine and soft, with a Munsell soil colour value of 10YR 5/4 Yellowish Brown, containing large shells of the species *Crassostrea* and fragments of fine red-painted pottery.

FEATURE 16 (SUB-UNIT: 29)

This was a shallow oval pit measuring 0.50 x 0.35 metres across, with a total depth of 0.10 metres down to 3.04 metres a.s.l.. This feature occurred outside the central area of the unit and the floors found there, in the very disturbed area of the sub-units 23, 24, 29 and 30 (Plan 1).

It contained a fine soft fill with marine pelecypod shells, pottery sherds and carbon and had a Munsell soil colour value which ranged between 10YR 3/1 Very Dark Grey and 2/2 Very dark Brown to 10YR 2/1 Black.

The dark shadowy marks of an unexcavated feature in Layer 2 (and possibly related to Feature 16) was later observed and is shown dotted in on Plan 1.

FEATURE 17 (SUB-UNIT: 34)

This was a shallow, sub-rectangular feature measuring 0.44 x 0.46 metres across and consisting entirely of burned clay from a depth of 3.18 metres in Layer 2 to 3.11 metres a.s.l.. This feature had no clearly defined edges and appeared to be no more than an amorphous accumulation of burned clay, with a Munsell soil colour value of 2.5 YR 4/8 Red.

FEATURE 18 (SUB-UNIT: 14)

This was a shallow oval pit measuring 0.57 x 0.38 metres across, cutting Floor II of Layer 3 at 3.09 metres down to 2.95 metres a.s.l. to another hard yellow sandy floor layer. It contained a soft, dark fill with a Munsell soil colour value ranging from 10YR 4/2 Dark Greyish Brown to 10YR 2/1 Black where there was much carbon. As with other features detailed above, the edges were defined by the floors it cut, with a colour value of 10YR 7/6 yellow.

Three small stake-holes were found in the bottom of this shallow pit, the deepest having a maximum depth to 2.74 metres a.s.l.. These, together with the presence of much carbon, may indicate some culinary purpose to the feature, such as fish smoking, for example. There is, of course, no way of proving this.

FEATURE 19 (SUB-UNITS: 20/21 & 26/27)

This feature was initially excavated as a small post-hole which cut Floor I of Layer 2 at 3.17 metres. It later proved to be a large, deep and irregular pit-like feature, measuring approximately 0.84 x 0.58 across and was apparently a complex of several intercutting post-holes, with a maximum depth of 0.36 metres down to 2.81 metres a.s.l..

The fill was a dark clay with a Munsell soil colour value of 10YR 3/3 Dark Brown and contained many *Chione subrugosa* shells packed into the hard sandy yellow sides and large *Crassostrea* shells towards the centre, together with large quantities of burned clay and some pottery.

UNEXCAVATED UNITS AND FEATURES

Owing to the exigencies of time and the investigation of the complex nature of the floor level and its associated features inside the central sub-units, it was not possible to follow through the excavation of all the sub-units in "C". Similarly, there were several features which eventually had to be left unexcavated and these have been marked in on Plan 1.

SUB-UNITS 3 and 4

As explained earlier (p: 53 & 68), restrictions on time and resources had limited the excavation of Unit C to an investigation of two main floor horizons. It was therefore decided towards the end of the field season to excavate sub-units 3 and 4 down to sterile natural in order to gain a better understanding of the vertical stratigraphic nature of the floor horizons, the final phase of which was represented by Floor I of Layer 2 at the average level of 3.14 metres a.s.l..

Rapid excavation to achieve this end took as much account of the natural stratigraphy as possible under these circumstances. Artificial levels were implemented which broadly adhered to the blocks of floor deposit as they were uncovered and the associated finds were accordingly separated into 6 categories of level, from 3 to 8 which followed on from Layers 1 and 2 of the previously excavated strata of this sub-unit. The resulting profiles (Sects: 4 & 5: 70-71) showed a complex sequence of floor levels, with each floor level broadly defined by a loose sandy matrix of mixed shell capped by a hard-concreted yellow surface. One such horizon, marked Floor VIII on the section drawing, consisted of a solid band of hard, concrete-like yellowish deposit, approximately 0.20 metres thick.

The nature of these floor blocks or units has been remarked upon earlier, during the discussion of the evidence from Trench B and a comparison with another Ecuadorian site 00-JP-PL-24 which had a complex stratigraphy of similar floor horizons (p: 51). In Trench B, the floor capping was taken to be a thin band of hard-packed grey sand which overlay an interfill of loose brownish yellow sand also containing shells of the species *Chione subrugosa*.

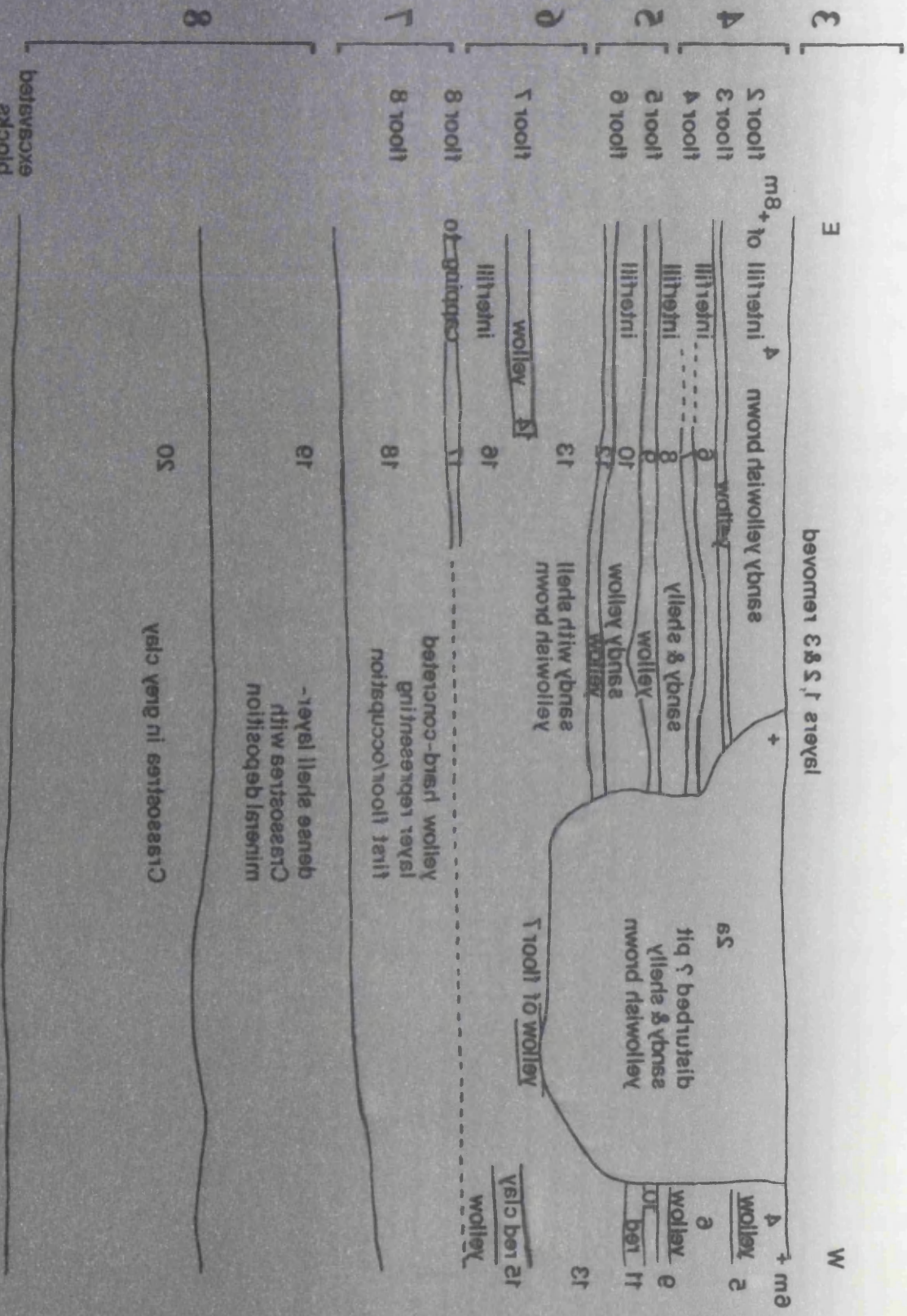
In sub-units 3 and 4 of "C", the solid yellow deposits seemed to constitute the floor surface over an interfill of loose, brownish yellow sand which also contained *Chione subrugosa* shells. There was, however, no evidence of a capping of a hard grey sandy layer. Each floor block, or unit, would therefore seem to be represented by a composite deposit of two layers thus described, measuring approximately 0.10 - 0.15 metres thick and of very level and even composition, disturbed only by the intrusion of a large pit from Layer 2 at 3.09 metres to a level of 2.64 metres a.s.l., which contained a dark brown sandy fill with shells of *Chione subrugosa* and *Ostrea*.

20 CM

GENERAL SECTION

natural sterile grey clay

blocks excavated



51

Claystones in grey clay

mineral deposition
Claystones with
dense shell layer

that floor occupation
layer representing
yellow hard-concreted

yellow of floor
yellowish brown
sandy & shell
bit disturbed 5 bit
59

yellowish brown
sandy with shell

yellowish brown
sandy yellow

yellow

sandy & shell

sandy yellowish brown

interstratified

interstratified

interstratified

interstratified

interstratified

interstratified

interstratified

interstratified

interstratified

interstratified

interstratified

interstratified

50

18

17

16

15

14

13

12

11

10

9

8

7

6

5

4

3

2

1

0

1

2

3

4

5

8

7

6

5

4

3

floor 8

floor 8

floor 7

floor 6

floor 5

floor 4

floor 3

floor 2

floor 1

floor 0

floor 1

floor 2

floor 3

floor 4

floor 5

floor 6

floor 7

floor 8

floor 9

floor 10

floor 11

floor 12

floor 13

floor 14

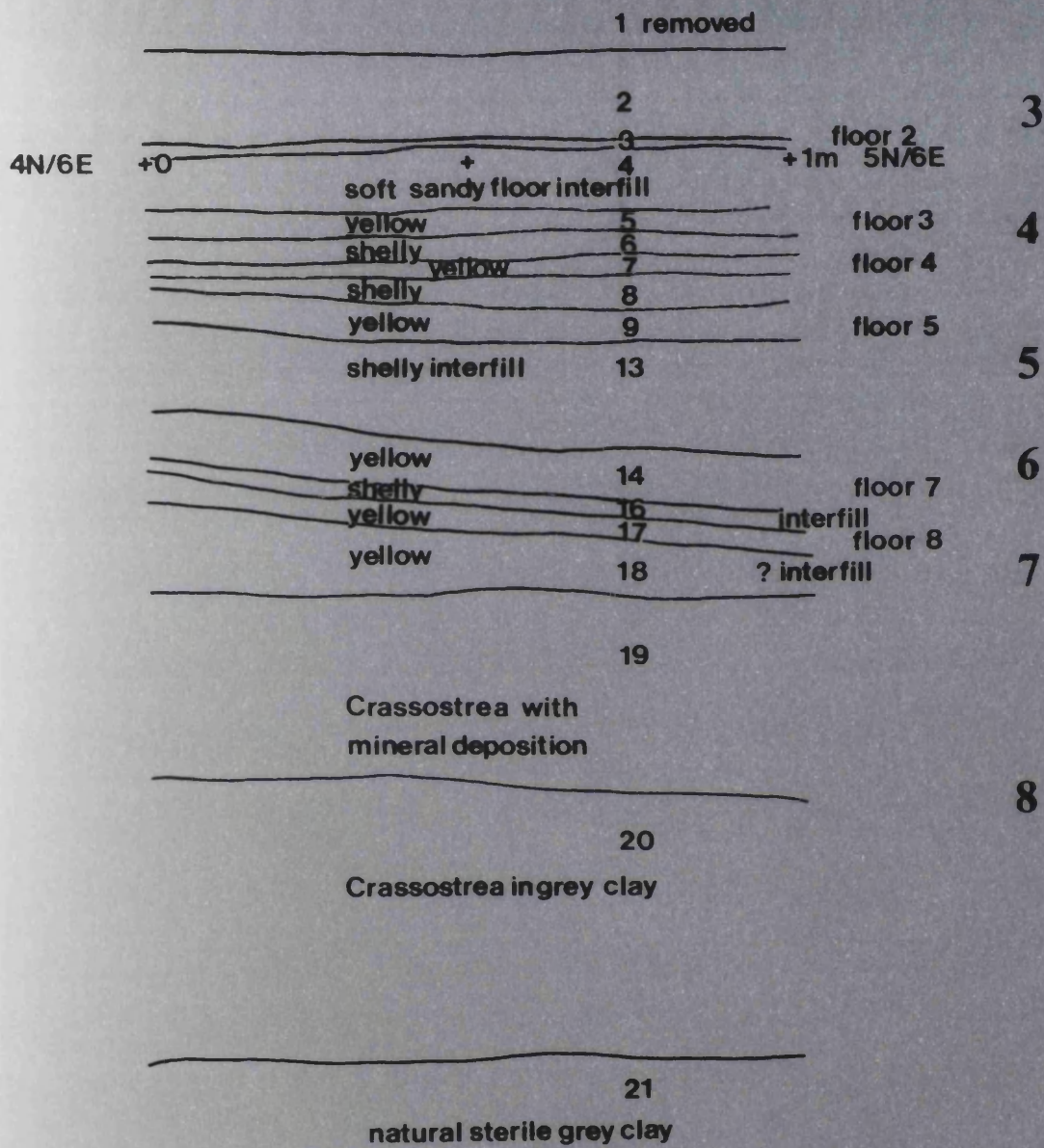
E

W

8m

4

layers 1, 2 & 3 removed



50CM

GUARUMAL SECTION 5

In all, seven floors could be distinguished, from Floor II of Layer 3 at 3.13 metres down to Floor VIII at a depth of 2.51 metres a.s.l.. The 0.20 metre thick deposit of Floor VIII had been constructed over a loose stratum of densely packed large oyster shells of the *Crassostrea* species, very similar in nature to Layer 6/6a of the machine-cut section face and Layers 7/7a, 9 and 11 of Trench A (pp: 42-3).

The strata of the profiles did not invariably match one another exactly and the presence of the pit 2a, cutting down from Layer 2 served to confuse the stratigraphic continuity. However, the homogenous and level nature of the floors made it possible to match the two drawn profiles: 3N/6E-4N/6E and 4N/6E-4N/8E to each other with a fair degree of accuracy (Sections 4 & 5).

The top two layers 1 and 2, including the associated Floor I of Layer 2 had been removed from the profile 4N/6E-4N/8E during the course of the excavation of the sub-units 3 and 4, although Layer 2 had, in fact, been preserved in the 3N/6E-4N/8E section face of the adjacent sub-unit 2.

A study of the drawn profiles reveals the following stratigraphic record:

Layer 3 represented the yellow hard sandy yellow capping of Floor II, with a Munsell soil colour value of 10YR 7/6 Yellow.

Layer 4 was the sandy yellowish brown floor fill, containing shells of *Chione subrugosa* and some red-painted pottery; this had a Munsell soil colour value of 10YR 5/4.

Layer 5 was another hard, concrete-like yellow horizon or floor with a Munsell colour value of 10YR 7/6 Yellow.

Layer 6 was a soft, loose, yellowish brown sandy deposit containing many *Chione subrugosa* shells and with a Munsell colour value of 10YR 5/4. This represented the "fill" to Floor III of Layer 5 and thus is III/6.

Layer 7 was a yellow, hard-concreted, sandy floor: Floor IV, with the typical Munsell colour value 10YR 7/6 Yellow.

Layer 8 was a soft, loose, yellowish brown sandy deposit containing many *Chione subrugosa* shells, with a Munsell colour value of 10YR 5/4 Yellowish Brown. It represented the fill to Floor IV/7, ie IV/8.

Layer 9 was a yellow hard-concreted sandy floor, Floor V with a Munsell colour value 10YR 7/6 Yellow.

Layer 10 was present only in the profile 4N/6E-4N/8E and consisted of a sandy yellow floor fill with a Munsell colour value of 10YR 6/4 Light Yellowish Brown.

Layer 11 was similarly present only in the profile 4N/6E-4N/8E and consisted of a lense of burned clay with a Munsell colour value of 2.5YR 4/4 Red.

Layer 12 was also found only in the profile 4N/6E-4N/8E and this consisted of a band of yellow hard-concreted sandy deposit, constituting Floor VI.

Layer 13 is represented in both profiles and consisted of a very shelly, yellowish brown sandy horizon, seemingly constituting the floor fill to Floor VI in 4N/6E-4N/8E and to Floor V in the 3N/6E-4N/6E section, where Floor VII is not apparent.

Layer 14 was a yellow hard-compacted horizon with a Munsell colour value of 10YR 7/6 and represented Floor VII.

Layer 15 did not appear in 3N/6E-4N/6E and was characterised by another lens of burned clay, with a Munsell soil colour value of 2.5YR 4/4 Red and was thus very similar to Layer 11.

Layer 16 was represented by a shelly, sandy yellowish brown deposit with a Munsell colour value of 10YR 5/4 Yellowish Brown and probably constituted the fill to Floor VII.

Layer 17 was a very hard pale yellow compound with a Munsell soil colour value of 10YR 6/3 Pale Brown, apparently representing the capping to Floor VIII.

Layer 18 was a broad horizon, measuring approximately 0.20 metres thick of yellow hard-concreted sandy deposit, with a Munsell colour value of 10YR 7/6 and was capped by the paler yellow and harder layer 17. Together these represent what must have been the earliest floor system of Floor VIII, which was apparently constructed over the loose, large shells in Layer 19.

Layer 19 constituted the first pre-constructional deposit of midden refuse. It consisted mostly of shells of the large elongated species of *Crassostrea*, which were covered in a brownish-black deposition, possibly manganese, very similar to the shells in layer 6a of the machine-cut section face of Mound 1 and 7a of Trench A (pp: 37-9; 42).

Layer 20 contained densely packed *Crassostrea* in thick sticky grey clay, presumably associated with the natural sterile grey clay of layer 21 below. This most probably represents the first phase of midden use (in this area).

Layer 21 was the natural sterile clay, waterlogged from the close proximity to the high ground water table. It had a Munsell soil colour value of 10YR Grey and contained no finds.

As remarked earlier (p: 53), sub-units 3 and 4, located between the northern edge of Mound 6 and the southern side of Unit C afforded an ideal opportunity to study the relationship of the occupational deposits with the nearby shell refuse mound. The profiles clearly demonstrate this relationship, with the earliest human occupational deposit represented by Floor VIII which had been constructed in a thick, even layer over the midden refuse of Layer 19, evidently to consolidate a loose unstable ground surface for the purpose of building.

There was then an already substantial accumulation of shell midden, by as much as 0.7 metres, prior to the earliest building phases of the occupation in this area.

The C¹⁴ date of 2250 ± 95 BP (300 BC) obtained on charcoal from what represented an early floor context towards the base of the post-hole Feature 8 (p: 64) gives one a measure of the age of these lower floor levels. Unfortunately, the C¹⁴ date from layer 27, Trench B (p: 49) is not very trustworthy, owing to the reasons discussed below (pp: 92-3) and may be up to 250 years older than given. Were this the case and the true date to be closer to 2210 ± 125 BP (260 BC), that would give a span of around 40 years or one generation between one of the middle floor units (probably equivalent to Floor V from sub-units 3 and 4) and a lower one. This is probably more acceptable than a time lapse of around 300 years as suggested by an unmodified interpretation of the British Museum layer 27 date, especially when one compares the pottery forms and wares found from these two contexts, which are similar (Tables 3 & 7).

Examination of this pottery also tends to rule out any great cultural or temporal discontinuity between the earliest midden deposit and the primary constructional levels in this area. Similarly, there were no phases of disoccupation apparent from the profile, which shows a stratified continuity of floor building, with one phase or floor unit succeeding the next, without any apparent break.

DISCUSSION OF THE FEATURES

A fairly intricate feature pattern emerged for the central area of Unit C, contained in 4-8N/5-10E at a level represented by Floor II of Layer 3 at an average depth of 3.13 to 3.09 metres a.s.l.. There can be little doubt that the presence of several superimposed hard-compacted floor levels, construction trenches and post-holes indicates the existence of one or more structures here.

The linear category of features represented by Features 1,2,3 and 4, with their associated post-holes, burned clay and shelly fills do seem to be in the nature of construction trenches of some sort, where large oyster shells were evidently used as packing to keep posts in place. Feature 1 in particular preserved *Crassostrea* shells embedded edgewise in a circular fashion, presumably for this purpose.

Whilst many of the post-holes contained fragments of carbon, only in Feature 9 was there a sufficient quantity to imply burning *in situ*, which seems a little odd, given the large amount of burned clay scattered throughout the entire area, some of it still retaining the impression of the cane wattling to which it originally adhered. Post-hole fills fell largely into two categories, broadly defined on a relative presence/absence basis of burned clay or shell.

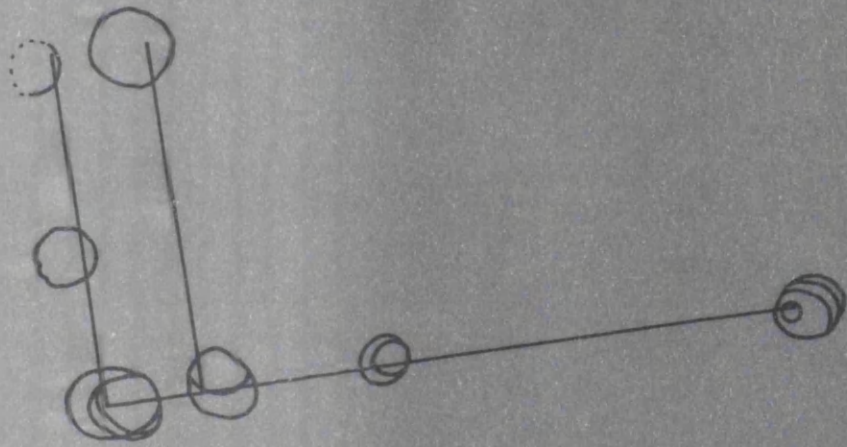
The first category had distinctive soft, dark reddish brown fills, with a Munsell soil colour value of 2.5 YR 3/4 and contained a high percentage of burned clay fragments, but with few shells of any species. These included Features 8, 10 and 12, but excluded Feature 11 which contained large quantities of shell and shelly fragments.

The second category were distinguished by having fine, soft, yellowish brown sandy fills, with a Munsell soil colour value of 10YR 5/4 and contained little or no burned clay, but high percentages of marine pelecypodae shells of the species *Chione subrugosa* together with some *Ostrea*. These include Features 7, 13 and 14. Fragments of fine, red-slipped pottery were normally found to be present in both fill categories.

All the main features in the central area of "C" were found to be associated with a hard-concreted yellowish sandy deposit which was

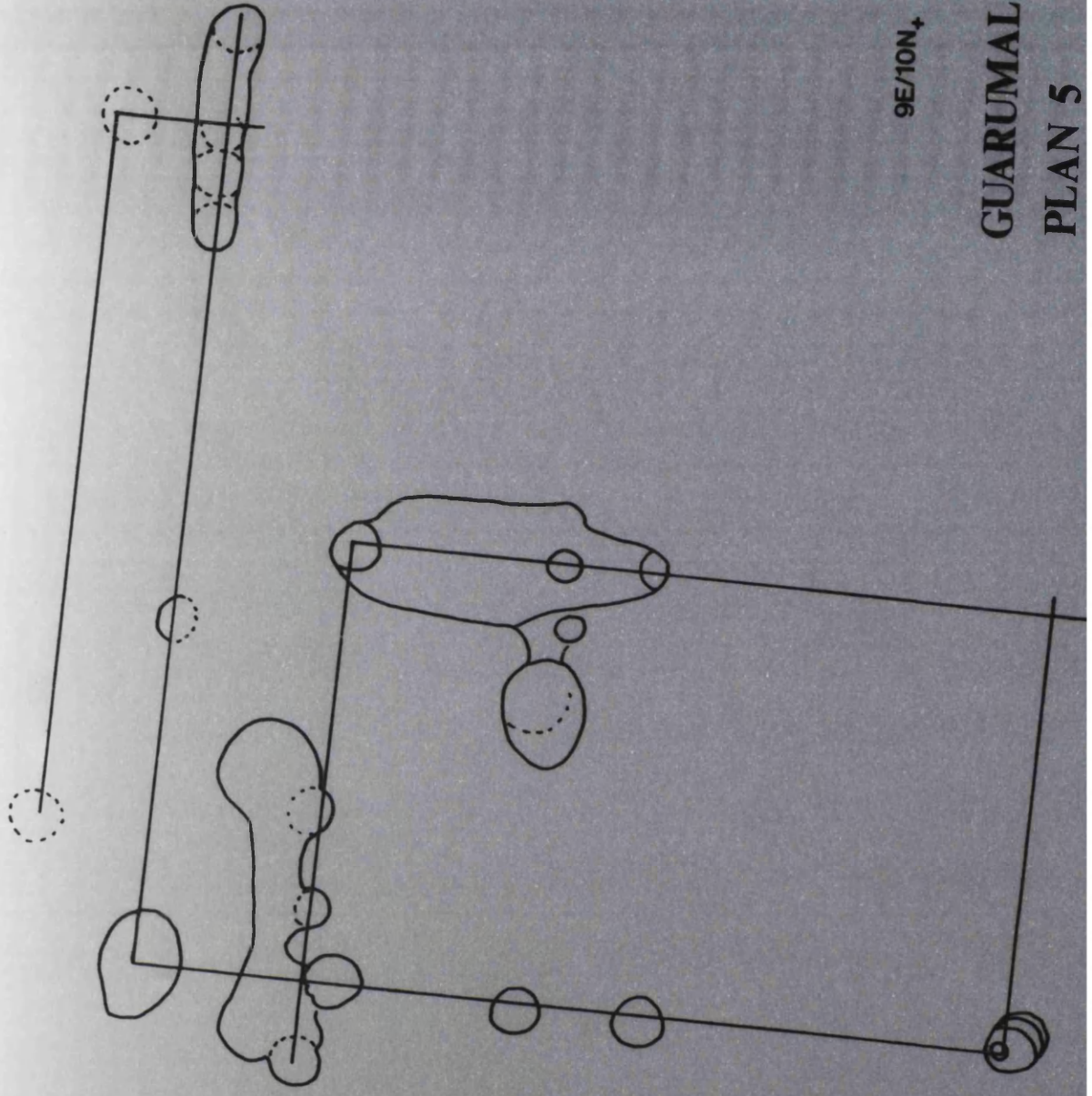
9E/10N₊

GUARUMAL PLAN 4



9E/3N₊

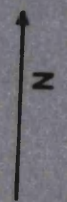




9E/10N+

GUARUMAL PLAN 5

9E/3N



interpreted as being a floor level, through which they had been cut. All had their edges and bottoms defined by these distinctive layers, including even the deepest Features 7 and 8, with a depth down to 2.37 and 2.33 metres a.s.l. respectively. The depth and consistency of these floor levels were later confirmed by the test sub-units 3 and 4, which were excavated down to sterile natural. This showed the existence of at least eight floor systems stratified within a depth of 0.8 metres (pp: 69-74).

Significantly, however, many features, including the so-called linear trench-like features had been clearly distinguishable from Layers 1 and 2 above the first floor level and whilst the post-holes had only been observed and excavated in association with the Floors I and II, they were also quite clearly subsequent to the latest floor construction. The C¹⁴ assay from Feature 2II of 1830 ± 80 BP (AD 120) supports this interpretation, being substantially later than either of the two dates for the floors (p: 61). Unit C would therefore seem to contain at least two main phases of human occupation of two very different sorts: the first represented by a sequence of well-constructed floors of a distinctive, hard-compacted, sandy yellow material with a sandy shell fill and superficial shell "cobbling" and the second represented by timber-built structures with wattle and daub walls.

The presence of two main types of construction feature: shallow trenches containing small post-holes together with shell packing for posts and large, deep, circular post-holes further suggests a dual phase of posted structures, represented by these two types.

The deep post-holes: Features 7 and 8 especially, together with Features 10, 11 and 12, evidently contained massive posts capable of supporting a structure of some considerable size and weight. They cut Floors I and II cleanly, with no indication of wall trenches in between and may therefore represent the supporting timbers of a large pile-built structure, similar to the local houses constructed in the area today. These are raised from the ground by approximately 2 - 3 metres and have walls made of split cane.

Conversely, Features 1 to 6 inclusive, were more in the nature of construction trenches for posts supporting walls of a smaller, lighter structure which more probably may have been built at ground level. The

large quantities of burned clay, some still retaining the impression of cane wattling, would tend to confirm the presence of a wattle and daub structure here.

The post-holes, Features 8, 10, 11 and 12 were well aligned with one another and contained fills of the first category of a dark reddish brown. It is tempting to interpret them as constituting one side of a pile-built dwelling. However, the massive post-hole Feature 7 does not fit into this scheme as it was not even perpendicular to the hypothetical alignment and, moreover, it had a fill of a second soft, sandy yellowish brown category to distinguish it.

Somewhat more convincing is a second series of alignments which shows how the "construction trench" features form one angle of a rectilinear structure with a secondary series of post-hole alignments, all of which contained fill of the second category, as indeed did the trench post-holes too. These hypothetical alignments are indicated in Plan 4 (post-holes), and Plan 5 (linear features), together with a plan showing the presence of floor deposit as it occurred throughout the excavated units.

It is not possible, on the available excavated evidence, similarly to interpret a structure for the phase of occupation represented by the floors in Unit C. The linear construction trenches and the main post-holes are all subsequent to them, as we have seen. Features such as 18 and 19 may have been contemporary with the latest sequence of floors in "C", but they can give no real indication of the type of structure associated with these deposits.

The nature, depth and extent of these floor systems: well-constructed levelled surfaces of crushed and powdered shell and sand, nearly one metre in depth and covering an area of at least 20 square metres seems to argue for a structure distinct from the two basic types briefly described above.

THE BURIAL AREA (1980)

A burial area was located centrally on the western perimeter of the site along the 2.5 metre contour line, about 30 metres to the north of Mound 4. The open water of the new western camaronera lay no more than 5

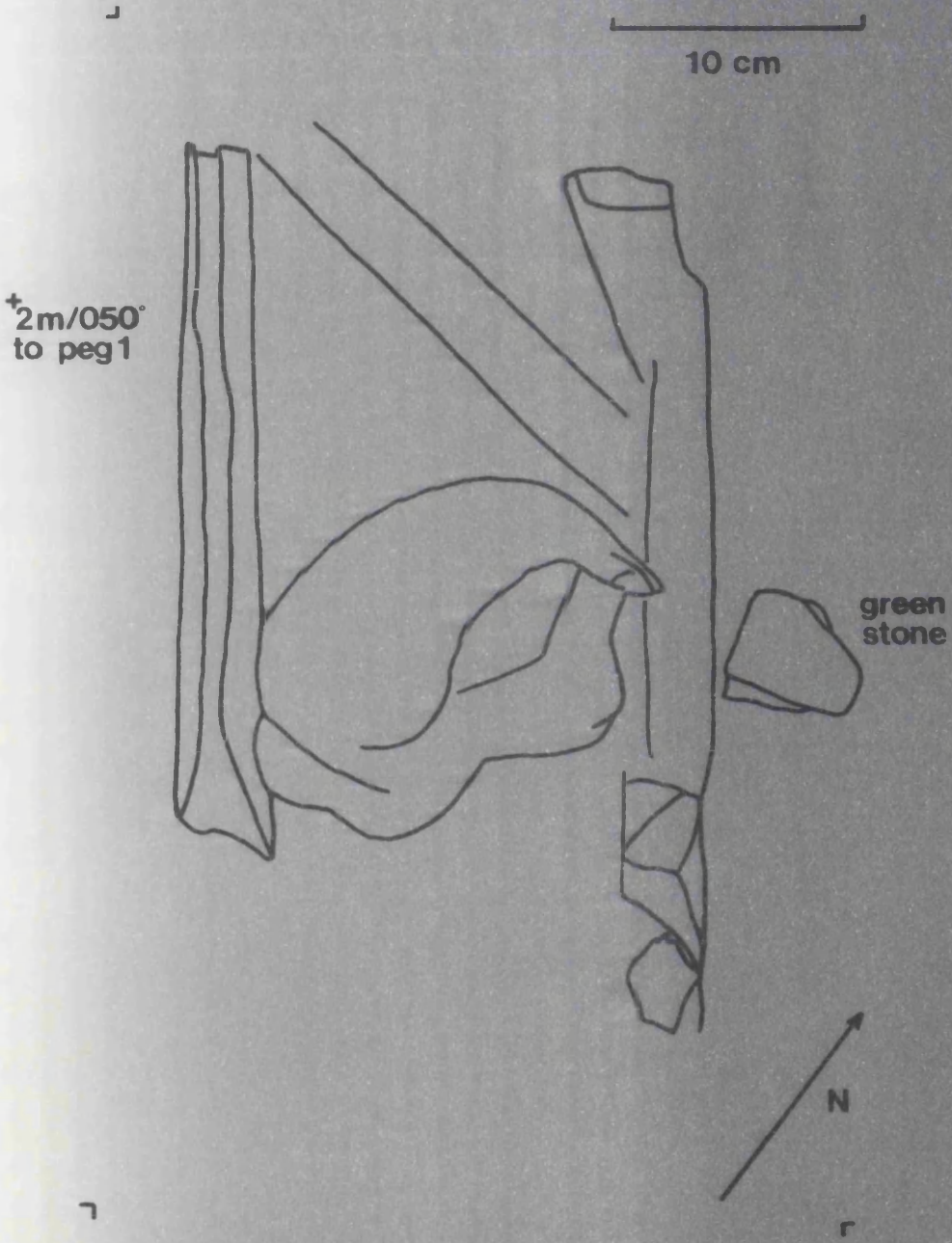
metres to the west of this area, divided from it by a rough earth bank and trackway.

There had been no indication of the existence of the burial area prior to 1978, when it was revealed by machine clearance operations in the construction of this large *camaronera* in the western salitral. In October 1980, reconnaissance to evaluate the extent of the damage caused to the site since the 1976 season gave little reason to hope that much information could be recovered from this area.

The devastation was immediately apparent, with large quantities of human bones and fine, red-painted pottery strewn across an area measuring some 60 x 40 metres and further pock-marked by the activities of local treasure hunters. The remaining undisturbed deposits, lying at a depth of more than a metre below the average pre-clearance ground level, had greatly degenerated in the artificially high water-table, owing to the proximity of the western *camaronera*. The passage of heavy machinery had crushed both bones and pottery *in situ*.

Continuing disturbance by local treasure seekers and the imminent threat of flooding during drainage operations of the western *camaronera* prompted an emergency investigation of this area. Excavation commenced in an area measuring approximately 2m x 1m, close to the reference peg 1 (Map 5), where the deposits seemed least disturbed, with the aim of recovering plans and photographs of any inhumations surviving intact.

Regrettably, shortage of time and prevailing conditions reduced scientific method to a minimum, as the purpose was to obtain the maximum information possible under emergency salvage conditions. Normal procedure of excavation by natural layers was therefore abandoned in favour of the faster although less accurate and informative method of excavation by level. However, the remains of seven inhumations were recovered and recorded, all within a total depth of 0.35 metres from the working ground level. It must be noted that because of the implementation of the salvage method described above, the outline of the original burial cuts were not recovered.



BURIAL 1

BURIAL 1

The first inhumation was recovered at an approximate depth of 0.10 metres from the working ground surface, thus at an actual depth of 1.4 metres a.s.l.

The burial deposit consisted of a heavy grey clay packed with the rotting shell debris of various species of small pelecypodae, including *Ostrea columbiensis*, and in some ways shared similarities with layer 20 of the excavated sub-units 3 and 4 in Unit C (p: 73). The pulpy, deteriorated condition of the bones made them hard to distinguish from the surrounding shell and clay matrix.

The inhumation consisted of a cranium set "face" down, flanked either side by two long bones and with a third placed across these at an angle of 45°. The maxilla was intact, but the mandible was missing and the unidentified long bones all lacked their articulating ends. The situation and disposition of these remains strongly suggested a secondary inhumation, after initial disturbance by the cut for Burial 2, which lay immediately below Burial 1.

Simple burial offerings were implied by the finding of a small piece of malachite of about one cubic centimetre, under the cranium and another larger piece, 6 cubic centimetres, in close proximity to the group.

BURIAL 2

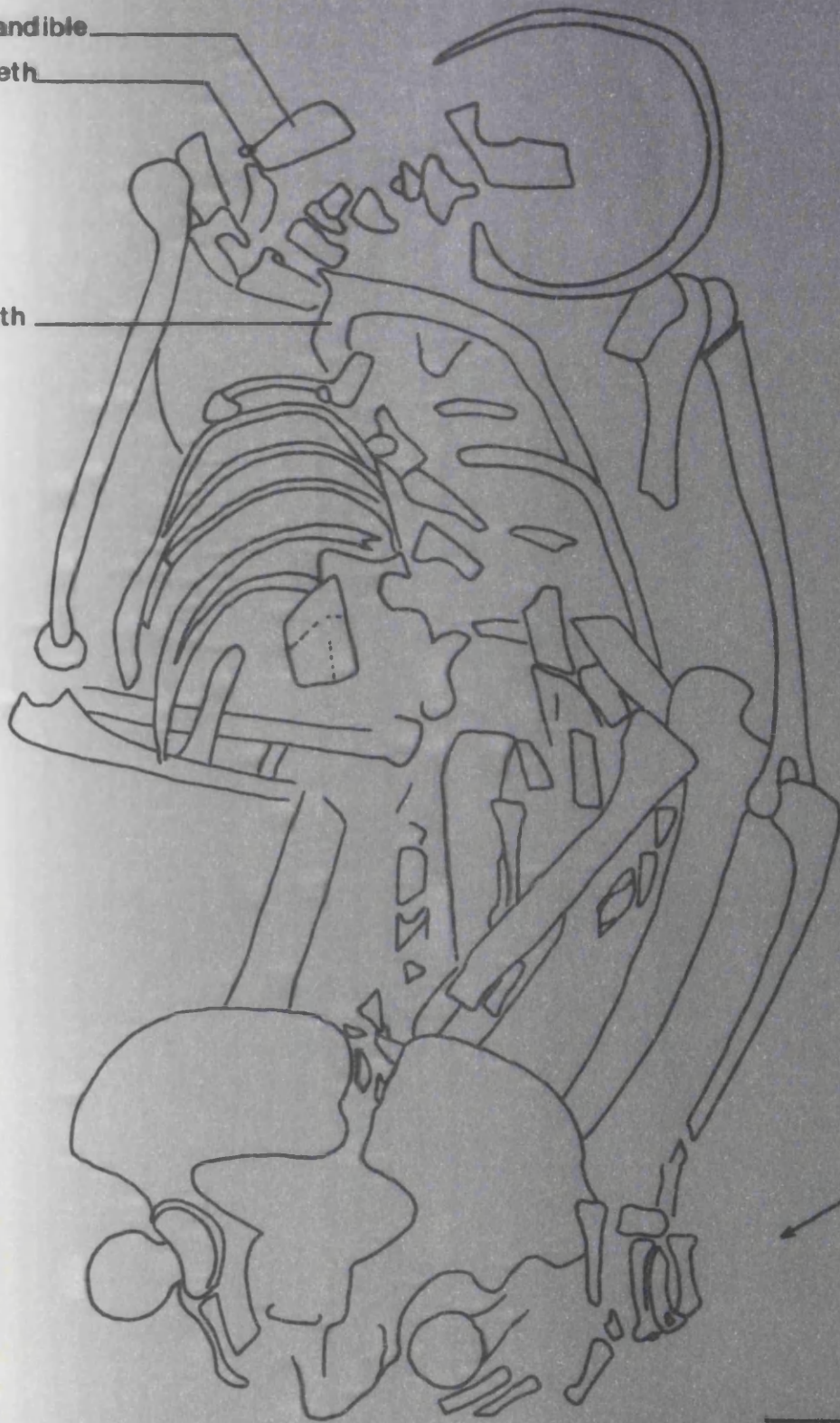
Removal of Burial 1 revealed the second inhumation which underlay it at an approximate depth of 0.15 metres from the working ground level, thus at an actual depth of 1.35 metres a.s.l.

It lay in a deposit consisting of the same heavy grey clay with rotting shell debris as Burial 1. This time, however, the body was intact and lying crouched face down on its left hand side, orientated on a south-west - north-east axis. The knees were drawn up to the chest with the left arm clasped around them and the right arm extended down to the right hip with the palm of the hand lying against the pelvis. The cranium had apparently fallen sideways against the right shoulder, with the remains of the mandible lying upon the clavicles of the left, where

? mandible

teeth

teeth



N
2.2m/050'
to peg 1

10 cm

BURIAL 2

teeth were found. A few teeth were also found with the upper vertebrae, one containing a large carey.

From their positions relative to one another, it is suggested that this inhumation was probably responsible for disturbing the remains found in Burial 1 as a primary inhumation.

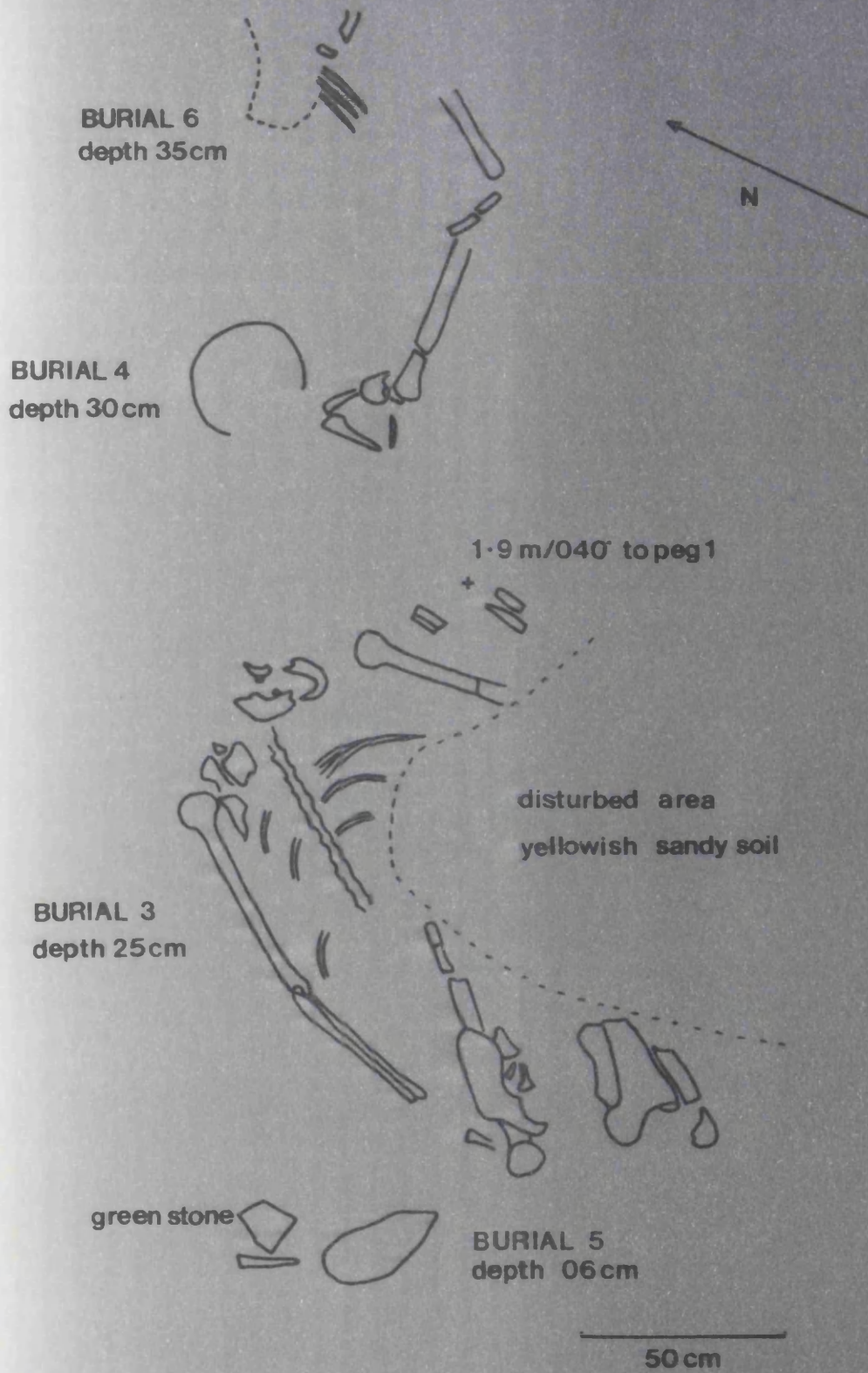
BURIAL 3

The removal of Burial 2 revealed the third inhumation, which underlay it at an approximate depth of 0.25 metres from the working ground surface, thus at an actual depth of 1.25 metres a.s.l.

This inhumation was greatly disturbed and only partially intact in the heavy grey clay deposit. It was orientated upon a north-east - south-west axis and appeared to have been interred in a similar crouched posture to the individual in Burial 2. This was face down on its left hand side, with the knees drawn up to the chest and with the left arm extended down against the pelvis. However, the entire cranial region was missing with only fragments of the maxilla remaining. The mandible was inclined to the right, although some of the teeth were found embedded in the left hand shoulder area, as with Burial 2.

Much of the right hand portion of the body was missing, including the lower arm below the humerus, the right hand section of the rib-cage and most of both lower limbs, with only the pelvic bones and articulated fragments of the upper femurs remaining intact.

A lighter textured, yellowish deposit, approximately one metre square in area, was associated with this disturbance to the right hand portion of the inhumation and probably represented the cut for the interment of Burial 2. The secondary nature of Burial 1, which comprised only a cranium with three carefully positioned long bones, corresponded closely to the missing portions of Burial 3 and would tend to confirm this hypothesis.



BURIALS 3 - 6

BURIAL 4

The removal of Burial 2 further revealed another greatly disturbed and only partially intact inhumation. This lay at an approximate depth of 0.3 metres below the working ground level and thus at an actual depth of 1.2 metres a.s.l. in the heavy grey shelly deposit.

There were insufficient remains of this burial to determine the posture or orientation of the body. The cranial region barely survived in a highly deteriorated condition, together with teeth, an articulated humerus and the fragment of an ulna of the right forearm. The position of these suggest that the body was originally interred upon its left side.

BURIAL 5

The cleaning of Burial 3 revealed traces of another skull close to its pelvic area. This lay at an approximate depth of 0.07 metres from the working ground level and thus an actual depth of 1.43 metres.

This interment consisted of a few cranial and long-bone fragments, together with a 10 cubic centimetre piece of malachite in the heavy grey clay deposit. It possibly represents an inhumation disturbed by the cut for Burial 3, but the stratified evidence is insufficient to prove this.

BURIAL 6

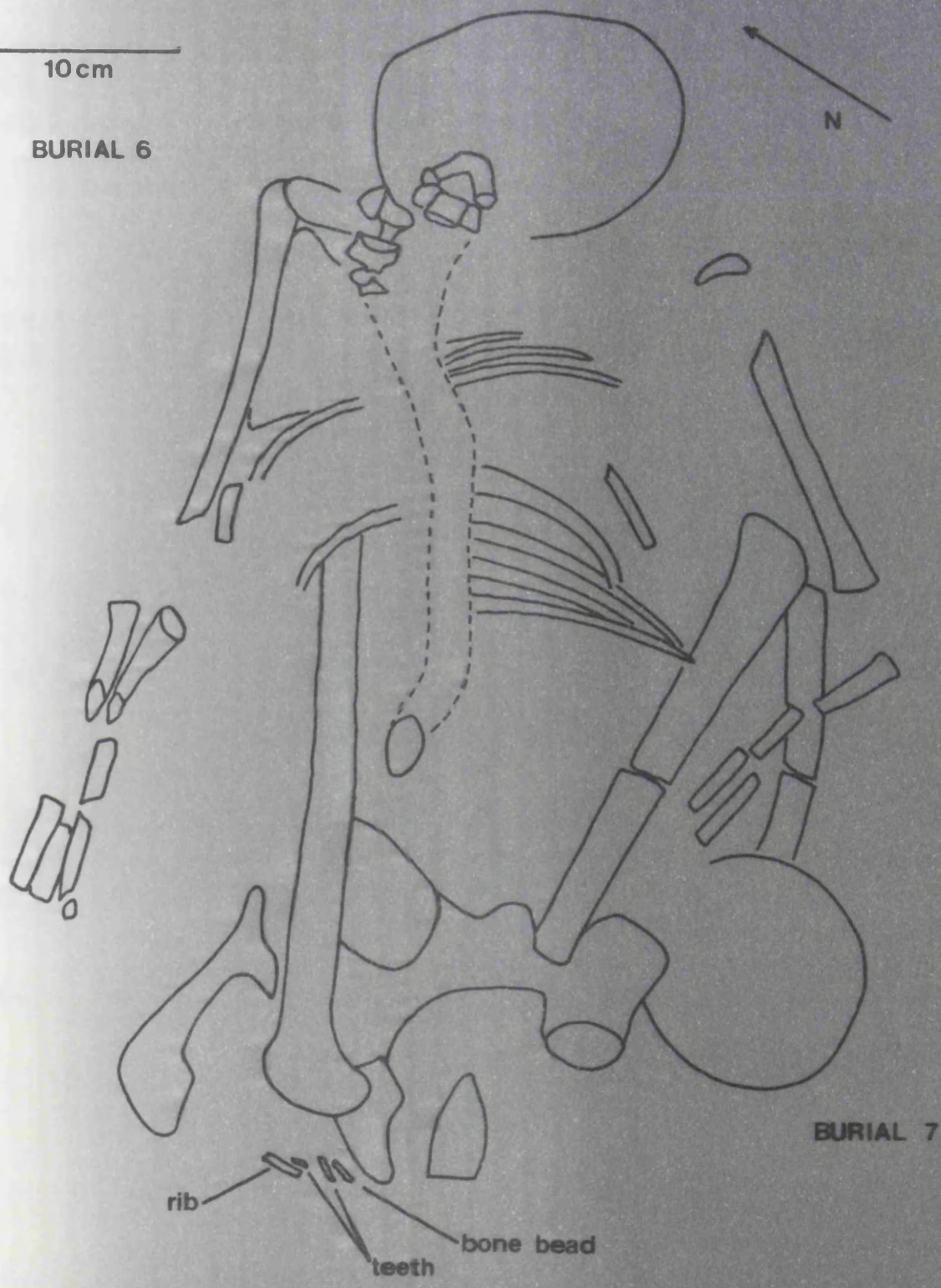
The cleaning of Burial 4 revealed another inhumation which subsequent investigation showed to be largely intact, lying at an approximate depth of 0.35 metres from the working ground surface and at an actual depth of 1.15 metres in the heavy grey shelly deposit (Pl: 20-1).

The body was orientated along a north-east - south-west axis and was lying face downward in a crouched posture, with knees drawn up under the chin and apparently encircled by the right arm, with the left arm extended down to the hip. Although not apparent on the drawing, the mandible was found intact with the teeth.

10cm

BURIAL 6

N



BURIAL 7

rib
teeth
bone bead

BURIALS 6 & 7

A collection of small bone and shell beads and rings were recovered from the vicinity of the pelvis (Pl: 9-6). It was not possible, however, to determine with any certainty whether these belong to Burial 6 or to Burial 7, owing to the greatly confused state of the deposit.

BURIAL 7)

The cleaning of Burial 6 revealed yet another skull, from Burial 7, lying at a depth of approximately 0.35 metres from the working ground surface, at an actual depth of 1.15 metres a.s.l..

This was set "face" downward and partially covered by the right crest of the ileum from Burial 6.

Sieving in the area recovered more shell and bone rings and beads associated either with this inhumation, or with Burial 6.

SUMMARY AND CONCLUSIONS

The investigation of the burial area was conducted under salvage conditions with emphasis on fast rather than meticulous retrieval of information. The nature of the deposit alone rendered working conditions confusing and arduous, the heavy wet clay being packed with shell debris which, in its rotting state, proved hard to distinguish and separate from the bones interred in it.

The human bones scattered about this area by the mechanical excavator and by the treasure hunters showed how secure and well-preserved the burials had been until the construction of the western camaronera. Those recovered during the investigation had deteriorated greatly in just two years and were pulpy from prolonged saturation in the artificially high ground water table and further crushed by the passage of heavy machinery across the deposit. As a consequence they were removed in fragments and it would seem unlikely that much physio-anthropological information can be determined from them.

The recovery of seven inhumations in an area measuring approximately 2 metres by 1 metre and contained within a deposit less than 0.50 metres

in depth (although undoubtedly this deposit had been considerably compacted), implies a dense burial pattern.

Burials 2, 3 and 6 suggest a practice of interment with the body placed face downward in a crouched posture, with one arm clasping the knees and the other extended to the hip.

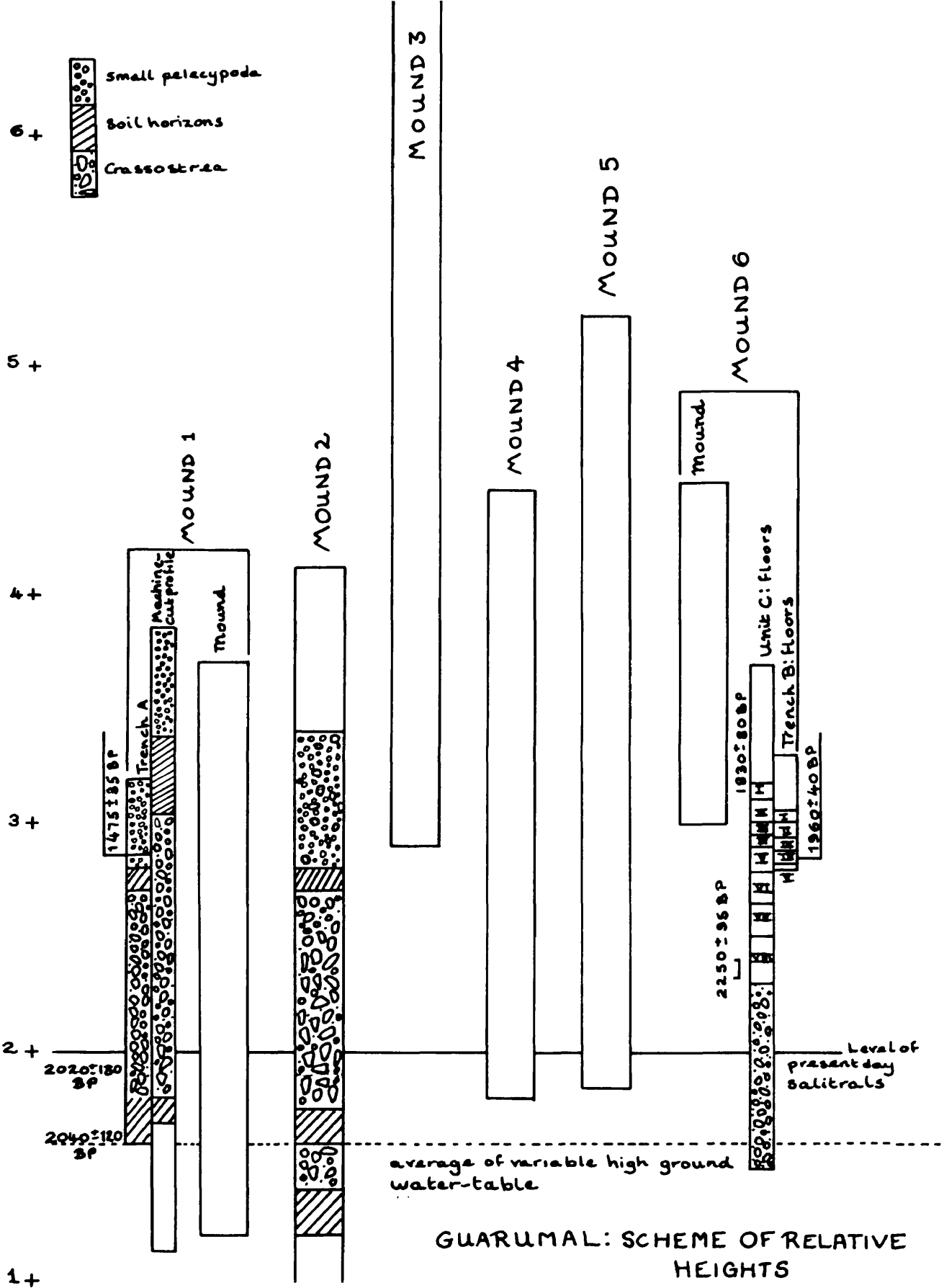
Local people claim that a gold bead was found in this area, but the grave goods recovered were few and simple. These included roughly-shaped green stone, probably malachite, bone and shell beads and rings. Large quantities of broken, fine, red-painted pottery littered the area, together with human bones, although interestingly enough only one piece of white-on-red decorated ware (Fig: 14c) and one sherd of a form 7 bowl was actually recovered from the excavation.

DISCUSSION OF THE EVIDENCE

The 1976 and 1980 field seasons at the Guarumal site, El Oro, Ecuador investigated a shell midden site of the kind usually attributed to the Jambelí culture, although the site was larger than the largest middens recorded by Estrada, Meggers and Evans (0-5: Embarcardero, which they report as being 150 x 40 metres, Estrada *et al*, 1964: 487). It had an overall surface area of 300 x 500 metres and consisted of at least six individual shell refuse mounds, with each probably having at least one structure of any one phase associated with it.

Trench A of Mound 1 explored the composition of one of these shell refuse mounds and Trench B investigated the nature of the human occupation. It confirmed the presence of well-stratified occupational deposit in close proximity to an individual shell mound.

The 1980 field season uncovered a larger area of the occupation with the purpose of studying the structural remains and the relationship these bore to the mound associated with it. One significant factor to emerge from the 1976 and 1980 field seasons was the occurrence of distinguishable phases in the occupation of the site, represented both in the refuse mounds and in the occupational deposits themselves (Chronological chart 1: 95).



MOUND STRATIGRAPHY

A study of the stratigraphy from the machine-cut section face and from Trench A showed a sub-division could be made of at least three broad categories of an upper, middle and lower group of strata. These were characterised by a high percentage of small marine pelecypoda and gastropoda in the first, stratified over a high proportion of the large, elongated oyster *Crassostrea* in the middle deposits, after an abrupt transition. This transition was associated with what appeared to be silt horizons which could be indicative of a phase of disuse or possibly even general site abandonment. This pattern seemed to recur in the other mounds on the site, possibly in Mounds 2 and 5, where machine disturbance allowed a closer study of their respective profiles. Both had deep deposits of over a metre of the large *Crassostrea*, succeeded by 0.3 - 0.5 metres of diverse species of small marine pelecypod and gastropod shells in a matrix of fine, soft, loose grey sediment. In all, the abrupt stratigraphic change was clearly distinct.

The lower group of strata in Trench A and just visible in the machine-cut section face of Mound 1 and in the 1980 profile of Mound 2 consisted of few large elongated oyster shells in a dark greyish-brown soil, which contained very weathered pottery sherds (from the machine-cut profile and from Trench A only). These lower layers in Trench A and the two machine-cut profiles of Mounds 1 and 2 were of a distinctly organic nature and possibly represent a humus-rich "A" horizon of the fossil pre-midden land-surface.

The excavation of sub-units 3 and 4 was important for two reasons. Firstly to establish the relationship of a mound (Mound 6) to the human occupation, here represented by the floors, and secondly to reveal the composition of the mound's lower strata. Although superficial reconnaissance had indicated a high incidence of the small mangrove oyster *Ostrea columbiensis* together with various species of small marine pelecypod shells, sub-units 3 and 4 showed that the bulk of the refuse deposit beneath consisted of the large *Crassostrea*.

Mound 3 (p: 33) was also observed to consist of a high percentage of large oyster shells, with a surface scatter of smaller bivalves and Mound 4 (p: 34) consisted of dense surface accumulations of mainly *Ostrea columbiensis* with other small pelecypod shells.

The occurrence of an horizon of brownish-black staining on the *Crassostrea* shells in Mounds 1, 2 and 6 implies an area-wide phenomenon and possibly represents the deposition of manganese through the high variable local water table (R. Macphail, Inst. of. Arch: pers. comm.).

THE C14 DATA

C¹⁴ determinations on charcoal from the two key areas in conjunction with the stratigraphic evidence and the pottery typology (pp: 114-176) have helped to formulate a chronological framework for the site. Unfortunately, problems with the British Museum assays have called two of the six dates into question.

Of the four samples dated by them, two were later remeasured and given revised dates. These were:

[BM 1684] from layer 11, Trench A, originally dated to 1760 ± 70 BP was reassessed at 2020 ± 130 BP [BM 1684R], some 260 radiocarbon years earlier.

[BM 1682] from layer 13, Trench A, originally dated to 1820 ± 70 BP was reassessed at 2040 ± 120 BP [BM1682R], some 220 radiocarbon years older.

[BM 1689] from layer 27, representing the postulated floor unit IV in Trench B, remains unrevised at 1960 ± 40 BP and

[BM 1688] from layer 4 of Trench A remains unrevised at 1475 ± 35 BP, although both these two latter dates were assayed within the period when the British Museum discovered the error in its measuring process. Whilst it has not proved possible to remeasure these last two samples, "...the results....are...likely to be too young by an amount between zero and roughly 250 radiocarbon years" (Dr. S. Bowman, BM Research Laboratory, personal communication, 1988).

[BM 1688] may therefore be around 1725 ± 125 BP (AD 225) and [BM 1689] around 2210 BP (260 BC). This probably is more plausible, taking the Beta Analytic dates into consideration, together with the stylistic parallels discussed later (pp: 186-275). However, whilst perfectly acceptable to consider the implications of revising [BM 1688] and

[1689] earlier by some 250 years, it must be remembered that these two assays remain fundamentally unreliable.

What remains, then, are four probably reliable dates, two from Beta Analytic for the occupation in Unit C and two from the British Museum's programme of revised estimates, from the "middle" and "lower" stratigraphic groupings of Trench A, which have been listed above. At this point it must be said that the standard deviation for these latter two dates, of ± 130 and ± 120 radiocarbon years are disappointingly large.

The Beta Analytic dates for the Unit C contexts have already been quoted earlier in the text. They give a measure of the date range between one of the earlier floor levels, sampled from towards the base of Feature 8 (2250 ± 95 BP) and one of the 'construction trenches', Feature 2II (1830 ± 80 BP), a span of some 420 radiocarbon years.

The C^{14} data thus reveal a notable temporal discontinuity, not only between two of the phases of occupation in Unit C, but also between the two groups of *Crassostrea* deposit from Trench A and sub-units 3 and 4 of Unit C. The Trench A deposits are dated from around 2040 ± 120 BP (90 BC), with a mid deposit date of 2020 ± 130 BP (70 BC). The Mound 6/Unit C *Crassostrea* deposits from sub-units 3 and 4 were sealed by layer 18 of the first floor system (Floor VIII), which may be as early as 2250 ± 95 BP (300 BC), or possibly earlier still.

DISCUSSION OF THE PHASEOLOGY

Two clear phases of site occupation can thus be demonstrated, based upon the exploitation of the large oyster, and between these two phases, actual structural evidence in the form of living floors occurred as a third phase and the pile-built and wattle and daub dwellings as a fourth and fifth. The continuation of *Crassostrea* exploitation during this interval is implicit. Similarly, a continuity of occupation between the floor layers and the oyster deposits beneath them is implied by the first floor layer 18 being constructed directly upon the loose, unconsolidated oyster layer 19. There is no stratigraphic evidence for a hiatus here in the form of an intervening soil or sediment horizon.

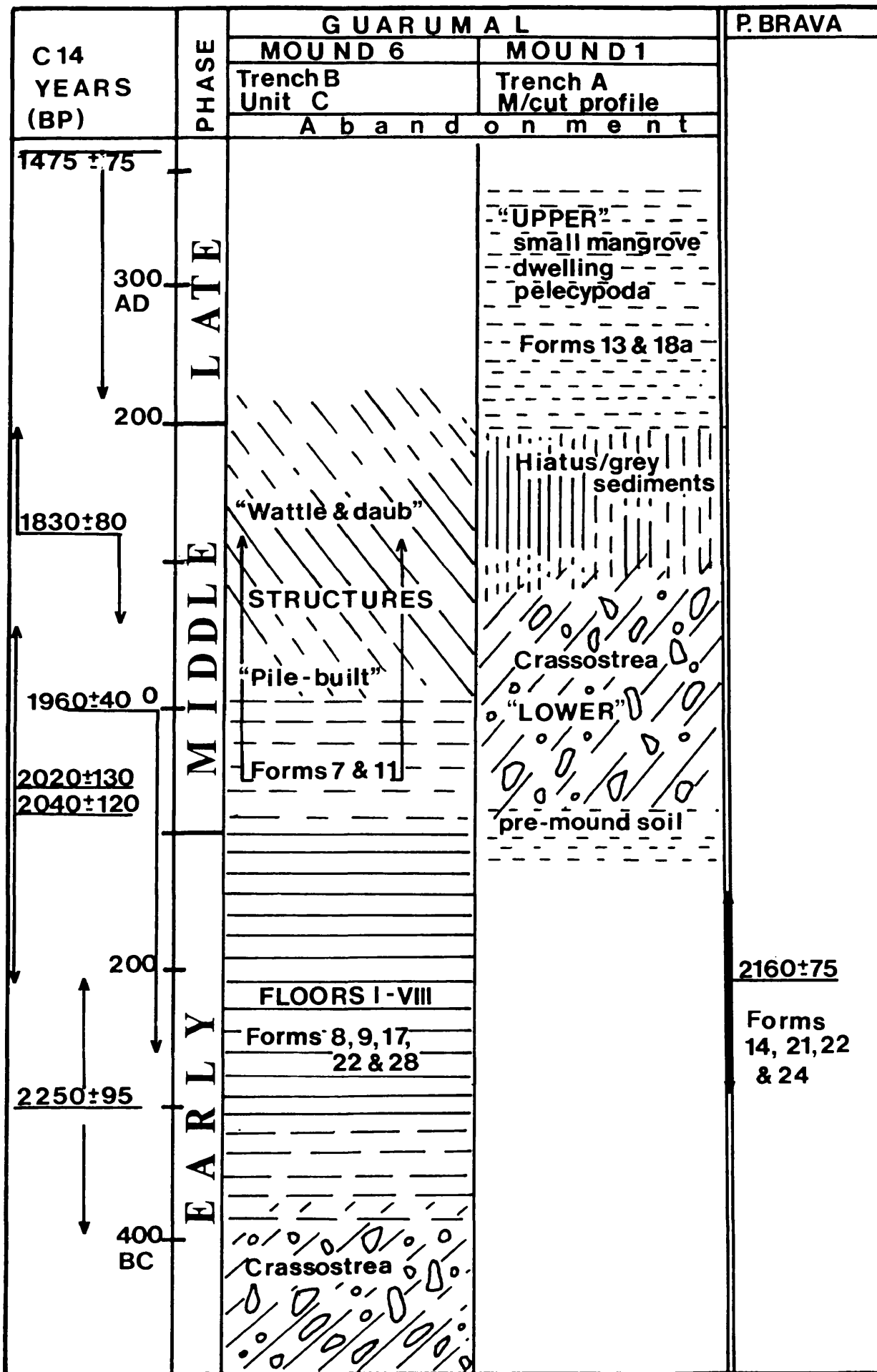
The initial phases of dumping for Mound 1 probably occurred around the final phases of floor construction in Unit C (with a 'middle floor' date from layer 27 Trench B possibly revisable down from 1960 ± 40 BP (10 BC) to around 2210 ± 125 BP (260 BC), although, as we have seen, this assay is unreliable). They were, however, probably earlier than the "structural" phases of the Unit C occupation, dated to around 1830 ± 80 BP (AD 120). This tends to be confirmed by the pottery, where Forms 7 and 11, which, although uncommon, nevertheless seem to be correlated with the "structural" phase, are rare or absent from all but the lowest layers of Trench A (Tables 2-5 & 7; pp: 131 & 136). The large oyster continued to be exploited by those dwelling in the vicinity of Mound 1, until a sharp break in the deposition implies a break in occupation associated with the disappearance of *Crassostrea* as a foodsource.

The following phase probably represents a transition which occurs in the archaeological record as an accumulation of fine grey sediments containing few shells or pot sherds. These are layers 3 and 5 of the machine-cut profile and 5 and 6 of Trench A. These sediments tend to suggest a phase of Mound abandonment with aeolian material settling over the *Crassostrea* deposits and this is further supported by the land snail evidence (appendix: 3).

Following this hiatus, Mound 1 was apparently re-used and this may well be indicative of a wider reoccupation of the site as a whole. This time, high proportions of the smaller species of mangrove-dwelling shell-fish are represented in layers 1 and 2 from the machine-cut profile and 1 - 4 from Trench A. The large elongated oyster, *Crassostrea*, completely disappeared.

The dichotomy in date between the two *Crassostrea* deposits in Trench A and in sub-units 3 and 4 make it impossible to easily assign those from Mound 2 into any relative chronological phase. Were it not for this disparity, it would have been tempting to regard all deposits containing a high proportion of *Crassostrea* to be of the same broad period of occupation, thereby implying an erroneous contemporaneity for what are clearly different phases of exploitation.

Whilst appearing to share the same broad stratigraphic groupings of "Upper", "Middle" and "Lower", described earlier (pp: 32-33), Mound 2 differs from Mound 1 in certain subtle yet important ways. It contains



more distinctive grey sedimentary layers and lenses and there are a higher proportion of mangrove-dwelling small pelecypoda throughout, including in the actual *Crassostrea* strata, as well as in the uppermost layers. These are characterised by their grey, silty nature wherein the shells sometimes occur only sparsely. Probably of the greatest significance is the apparent lack of pottery throughout the profiles, excepting small fragments in the upper layers and on the surface. The possibility of its being a largely preceramic mound was referred to earlier and if this is so, then it represents a very lengthy occupation of the site, constituting an occupational phase in its own right.

The superficial layers consisting exclusively of small mangrove shellfish cover most of these mounds, and possibly all belong to a similar late phase. The date of 1475 ± 35 BP (AD 475) on charcoal from Layer 4 in Mound 1, Trench A is, as we have seen above, an unreliable date which may be up to 250 years older (1725 ± 125 BP / AD 225). However it is interpreted, it is the latest C¹⁴ assay in the series and derives from what certainly seems to be a late context. These latest layers tend to imply a more limited and scattered occupation towards the terminal phases of site exploitation.

PHASEOLOGY AND SUMMARY OF THE OCCUPATION AT GUARUMAL

A summary of the site's occupation, based upon the cumulative data evaluated above, infer the following sequence of events in the evolution of the Guarumal site as a whole:

- 1) Earliest exploitation during preceramic times of unknown date, probably represented by Mound 2. *Crassostrea* was then the prevalent food source, together with other species such as *Ostrea columbiensis* and *Anadara tuberculosis*. The flat, uncupped morphology of *Crassostrea* tends to infer open estuarine conditions where oyster beds of this kind could accumulate in an environment which was not too silty (Appendix 1). *O. columbiensis* and *A. tuberculosis* are both found in mangrove conditions, so it may well be that the occupants of the site were able to exploit both open coastal and sheltered estero environments close to the site.
- 2) Periodic exploitation from preceramic to ceramic times may be attested by individual mounds on the site as yet unstudied. Mounds 3 and 5

would be good candidates as they both contain a high percentage of the large *Crassostrea* well into the superficial levels and seem to be composed largely of this type.

3) The occupation around and including Mound 6 begins with the deposition of *Crassostrea* onto the natural thick grey clay and Layer 19 actually consists of these large oyster shells embedded in the clay. This is interesting, for while the primary visible stratum from Mound 1 had more the appearance of a soil with a high organic content, it is feasible to interpret the clay here as more in the nature of a fossil river or estero bed, or possibly even a shore (R. Macphail, personal communication), thus suggesting something of the early morphology of the site.

4) The next phase of occupation here continues with the "cementing" over of these deep *Crassostrea* strata. Up to eight successive floor units can be demonstrated, although it has not been possible to assign any particular form of building to them. A C¹⁴ assay of 2250 ± 95 BP (Beta 22914-6) on charcoal from another early floor context towards the base of Feature 8 gives a measure of the date for this phase, although the earliest floors may well be older still. The C14 date of 1960 ± 40 BP (10 BC) obtained from charcoal in floor system IV of Trench B may be up to 250 years older than given, at around 2210 BP, although this date remains unreliable. Continued exploitation of the large oyster presumably accounts for the presence of Mound 6 here.

Pottery types (Table 7) are characterised by fine burnished red and white-on-red decorated wares of Form 1, 5 and 6 bowls (Figs: 9a-d; 14d), Form 8 vessels with their characteristically thickened and ridged rims (Figs: 18; 19a-d), Form 17 straight-sided bowls (Figs: 9e&f; 31d) and the fine white-on-red decorated Form 22 jars, which have their highest preponderance in these contexts (Figs: 27 & 28). Particularly important are the occurrence of several Form 9 red-slipped and white-on-red sherds (Figs: 17b-f) and many of the burnished red annular bases of compoteras (Figs: 31a-c; 32). Their presence gives the strongest possible indication of a relationship between this early phase of the Guarumal occupation and the Guayaquil phase (pp: 209-221), and also of Chorrera-like antecedents with the presence of possible dog figurines (Figs: 41a-c). Other Chorrera-Engoroy affiliations (pp: 221-227) are indicated by Form 8, and Form 7 (Figs: 16a-d) in the upper floor levels. In other

parts of Unit C at the upper floors levels represented by layer 3, come such finds as the figurine fragment of a man's head (Fig: 42 a).

5) In Mound 1, dark brownish-grey sediments underlying the *Crassostrea* strata could well represent a fossil humus-rich "A" horizon of the original land surface, prior to the main phases of midden use here. Charcoal from Layer 13 produced a C¹⁴ date of 2040 ± 120 BP (90 BC), which supports the view that the *Crassostrea* phase of Mound 1 may be earlier than the "Structural" phase represented by the pile-built and construction-trench buildings in Unit C, although probably later than all but the latest of the "Floors" phase (ie Floors I - II). None of the 'early' phase sherds of the lower floor levels (eg Forms 8 and 9) are found in any Trench A contexts, with only one sherd of the Form 22 jar, whilst Forms 7 and 11, the two most distinctive (although uncommon) forms associated with the latest floors and the "structural" phases, are rare (Table: 2). One badly eroded red slipped sherd of a Form 7 bowl was found in layer 14 and another negative-decorated specimen was found in Layer 5 of Trench A, which represents one of the "hiatus" layers in the stratigraphy. There is no way of knowing whether this latter was an intrusive piece or not.

Crassostrea prevailed in large quantities in Layers 6/6a of the machine-cut profile and 7/7a, 9 and 11 of Trench A. Charcoal from Layer 11 produced a C¹⁴ date of 2020 ± 130 BP (70 BC). Deposits of *Crassostrea* continued for around 1 metre above this and then abruptly ceased.

6) There is some evidence to suggest that the occupation associated with Mound 4 may provide the next phase in the sequence. It may be possible to use the Form 7 shallow bowl as something of a timemarker for a "middle" period in its association with the latest floor levels and the succeeding structural phases of Mound 6. We have seen that there is some discontinuity between the floor levels and the structural phases, although by how much time it is not possible to say. Surface reconnaissance produced many sherds of polished red-slipped and white-on-red decorated shallow bowls and compoteras from the immediate vicinity of Mound 4, but Form 7 sherds are present here, including the only reconstructed vessel (Fig: 15a; Pl: 1-11). Although circumstantial, it may nevertheless be plausible to suggest that the "bridging" occupation may be found in this area.

7) Occupation in the vicinity of Mound 6 continued after its 'floors phase' with at least two different successive building periods characterised by the pile-built dwelling/s, followed by the wattle and daub structure/s. They succeeded the floor building phase by an interval of time sufficient for a soil to have developed over the last Floor I, a fact supported by the later C¹⁴ date obtained from Feature 2II of the 'wattle and daub phase', of 1830 ± 80 BP (AD 120).

Distinctive pottery types include Forms 7 and 11 fineware bowls which, although not very common, nevertheless seem attributable to these building phases (Figs: 15 & 16; 21b-f & 22; Tables 3-6), together with the fairly ubiquitous Forms 1,2, 5 and 6 and sherds of the incised red-slipped *compotera* pedestals. Both the C¹⁴ and the ceramic evidence suggests that these structures post-date the main occupation associated with the *Crassostrea* layers of Mound 1.

8) The succeeding layers 3 and 5 of the machine-cut profile and 5 and 6 of Trench A were fine grey aeolian-like sediments containing few shells and pot-sherds. These seem to indicate a period of mound abandonment, a phase possibly reflected in other mounds across the site. The highly calcareous nature of the soils on the mounds has precluded a study of the pollen record, since none survives in it. However, the finding of high percentages of fossil shade and litter-loving species of land mollusca in the samples from these sediments would support this interpretation, indicating that during this phase of disuse, the mounds were colonised by vegetation probably of a kind very similar to that existing prior to general site clearance in June, 1976 (Colour Plate: 1).

9) The final phase of site usage is represented by the upper strata of small pelecypoda exemplified by Layers 1-4 of Mound 1, a C¹⁴ date of 1475 ± 35 BP (AD 475) being obtained from charcoal in Layer 4. It has been observed above that this date could be earlier by as much as 250 radiocarbon years (pp: 92-3). Pottery types here still exhibit a high proportion of fine red and white-on-red bowls of Forms 1,5 and 6, together with coarser sherds of form 18 large coarse jar with bolstered rim (Table: 2). Subtle differences in decorative style, quality of colour and finish do suggest temporal differences from similar forms in such earlier contexts as layers 3 - 8 of sub-units 3 and 4 of Unit C, a phenomenon noticed by Izumi and Terada with their

simple bowl Form D7 (Izumi and Terada, 1966: 48-50). There does seem to be a strong correlation between the comal Form 13 and this latest phase (Tables 1 & 2), which could indicate the importance of maize (or perhaps even manioc) in the subsistence framework.

These upper layers represent the latest phase of midden exploitation after which, the site was finally abandoned.

SUMMARY AND CONCLUSIONS

The precise nature of the occupation at Guarumal is really impossible to know, at least without further investigation of the other shell mounds. It is assumed here that each mound developed from the immediate presence of one or more dwellings from which the occupants discarded their refuse over successive generations, resulting in the characteristic kidney-shape of the final mound.

A consideration of the C¹⁴ dates from Mound 1 gives some idea of the timespans involved for the accumulation of the *Crassostrea* deposits and the length of time between the commencement of dumping to the final phase of use, although periods of disuse may account for part of this. Problems with the C¹⁴ data have already been discussed (pp: 92-3) and another consideration, however inconvenient, must be the size of the standard deviation and the implications of these at x2 sigma. In short, whilst it is not possible to quantify the years accurately, there is nevertheless an indication that these mounds probably developed over the space of successive generations. A similar argument may be made of the Mound 6 occupation. The depth, size and complexity of both the "Floors" and "Structural" phases of occupation from Units B and C confirm the view that the Guarumal occupations were unlikely to have been the transient or seasonal camps of a shifting populace occupying flimsy dwellings. The pottery typology also tends to support the longer-term view.

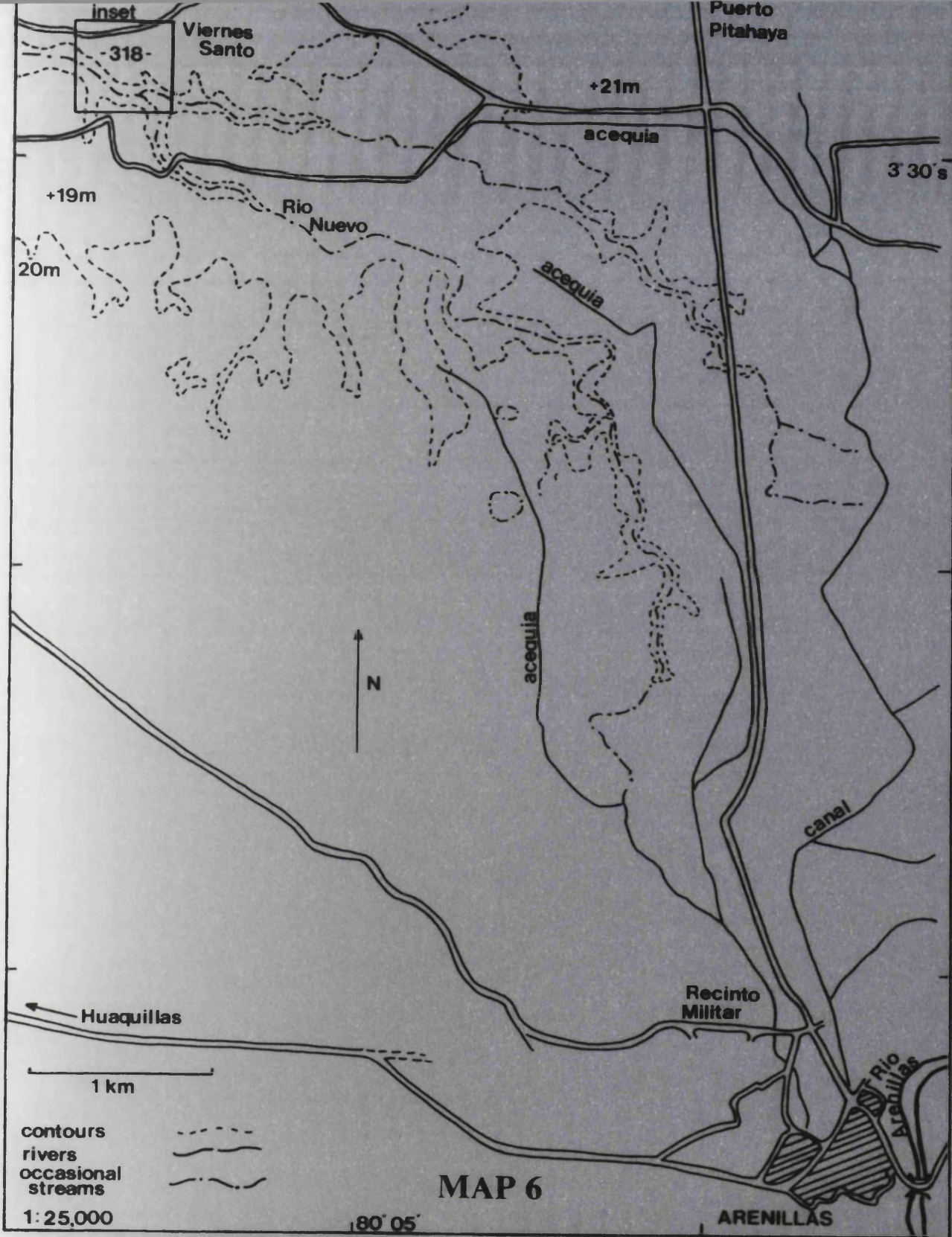
It is not clear how many settlements existed together at any one time, or if the mounds each represent discreet occupations. There is certainly evidence that the settlement moved around the overall site in a linear chronological manner, for the occupations associated with Mounds 1 and 6 are mostly not contemporary, as we have seen from the C¹⁴ and corroborative ceramic data.

For much of the site's period of occupation, the primary food source was the large oyster, *Crassostrea*. This species constitutes the bulk of the shell refuse in most of the mounds, as far as can be seen. The cause for its demise is unknown, but whatever it was, the effect was sudden, as can be seen in the stratigraphic record, especially in the machine-cut profile and Trench A of Mound 1. Were it not for this suddenness, then over-exploitation may have seemed a plausible reason, or perhaps even slow environmental change, from a primarily open estuarine habitat favouring the formation of deep oyster beds to muddier, more enclosed mangrove conditions, where the cupped oyster *Ostrea columbiensis* and such mud-dwellers as *Anadara tuberculosis* thrived. As it is, one is tempted to suspect natural events which wiped out the local oyster beds in one episode.


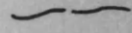
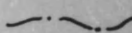
Such an event could well be represented by the periodic cataclysmic El Niño phenomenon which still effects the region today and which causes the sort of torrential rains, flooding and mud-slides capable of wreaking ecological catastrophe (pp: 17-18). It is certainly responsible for the periodic changes in course of the local Rio Jubones, now some 20kms to the north, but once having its estuary close by, as demonstrated by a fossil channel of river sand, less than 1 kilometer from the site. There is no way of knowing whether such a fossil course was ever contemporary with the site, but it would explain much if it was. As a major river, the Jubones has a wide and open estuary and presumably would have done so throughout most of its history. Whilst mangroves would probably still have been present, especially along the drainages of smaller esteros and tributaries, such open estuarine conditions would favour the development of oyster beds in the less silty, tidal reaches of the main river.

The availability of such an excellent food source would easily explain the size, permanency and duration of Guarumal's occupation. Presumably the diet would have been supplemented by fish and other shell-fish from the local mangrove swamps, and by the hunting of small game such as water fowl, deer and peccary (Appendix 5). Maize agriculture is implied by the Form 13 *comales* and by the presence of grinding-stone equipment, but as we have seen, the association tends to be stronger with the later, post-*Crassostrea* phase.

It would be easy to imagine a scenario wherein a particularly severe El Niño one year caused an ancient Rio Jubones to burst its banks and cut a new channel and estuary far away from the site which had developed for many generations along its banks. Local oyster beds would have been wiped out, either as a result of excessive silting or through being left high and dry. Such an event could have been responsible for the hiatus observable in the archaeological record in the sections through Mound 1. When re-occupation later took place, it seems to have been more limited and very likely to have been less permanent or probably of a seasonal nature. Small, mangrove-dwelling shell-fish now dominate the food refuse strata, indicating that the environment of the locality had shifted towards a predominance of mangrove over open shoreline, such as it is even today. Comales are found in far higher proportions in the Late Phase layers of Trench A, Mound 1, thereby implying that maize consumption had become more important among the population now occupying the site. These Late Phase occupations were, however of short duration and it is possible that the climatic regression and general aridity noted in northern Peru (Richardson, 1976) and on the Santa Elena peninsula (Sarma, 1969: 124) were responsible for the final abandonment of Guarumal, sometime after AD 225 (p: 24).



MAP 6

contours 
 rivers 
 occasional streams 
 1: 25,000

ARENILLAS

THE TAHUIN SURVEY SITES

00-AR-AR-318 "Punta Brava" was first located and surface sampled during the archaeological site survey programme conducted by the Proyecto Tahuin in 1979 for the Museo Antropológico del Banco Central del Ecuador.

The Proyecto Tahuin had mapped and surface sampled over 500 pre-columbian sites in southern El Oro province, mainly in the area of the projected Represa Tahuin. Several of these were found to contain sherds which would have been considered as diagnostic of the so-called Jambelí culture by Estrada, Meggers and Evans and yet were not typical shell middens as described by them (1964: 486). As such, they were either located on low hilltops along the drainage of the Rio Arenillas, as with 00-AR-AR-131 or 192, or down in the valley bottom alongside the river's edge, as with 00-AR-AR-11. In the 1980 field season it had been planned to investigate one such site in order to present a contrast of environmental emphasis with the shell midden 00-SR-SR-01 Guarumal (pp: 27-28). The finding of substantial quantities of distinctive red-slipped and white-on-red geometrically decorated pottery at 00-AR-AR-318 Punta Brava indicated that this site could be considered to be a Jambelí phase site, according to the typology of Estrada *et al* and was therefore of interest in the continuing investigations of sites with material of this nature in south coastal Ecuador in 1980.

00-AR-AR-318 PUNTA BRAVA

This site was located at 80° 06' 15" W by 3° 29' 45" S, approximately seven kilometres north west of Arenillas in southern El Oro province. The general topography of the area is typical of the coastal plain of southern Ecuador, where large rivers such as the Tumbes and Zarumilla in the south, the Arenillas, Santa Rosa and Buenavista to the north drain out of the Andes foothills in the east across gently undulating terrain to the Pacific Ocean (Maps 1 and 2).

The region is governed by the alternating wet and dry season climatic regime described earlier (pp: 18-19) and is characterised by a vegetation ranging from semi-xerophytic to tropical savanna or mangrove depending upon conditions of altitude, soil, rainfall and temperature of the different micro regions.

military trackway

10m

▲ bench mark

RIO NUEVO

Unit 1 □ 11.4m

Unit 2 □ 10.5m

▲ 9.8m

10m

N

10m

10m

10m

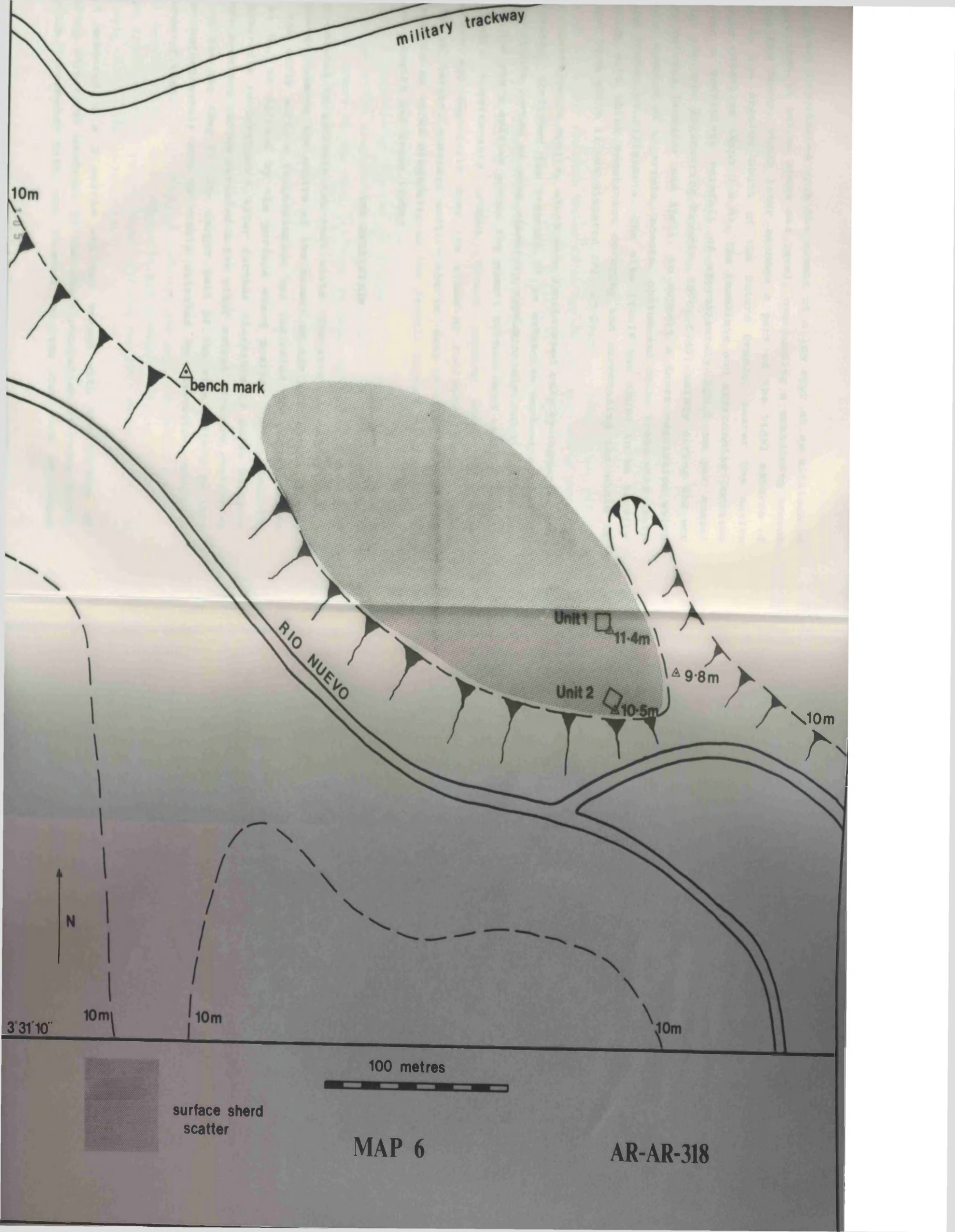
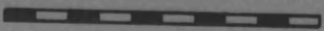
100 metres

surface sherd scatter

MAP 6

AR-AR-318

3° 31' 10"



Punta Brava is situated upon the summit of a low spur at an altitude of no more than 15 metres above sea level, overlooking a meandering branch of the Rio Nuevo, which later becomes a part of the tidal esteros of Maria de los Angeles south of the Estero Grande, nearer the active mangrove coastline (Maps 3 & 6). The immediate and surrounding location receives a sufficient rainfall of approximately 225.2 mm per annual average (Halcrow Engineering Reports, 1978: 6/4), mainly during the wet season between December and April, to support a dense vegetation which includes species of algarroba, acacia, cactus and ceiba trees with their hanging fronds of tillandsia. The site itself was found to be heavily overgrown with thick vegetation covering and surrounding the whole of the spur upon which it was situated (Pl: 20-2).

Early reconnaissance visits, which were facilitated only by unsparing use of machetes, confirmed the presence of an extensive surface scatter of pottery sherds across an area measuring approximately 250 x 100 metres. Much of the sherd scatter across the summit surface were small fragments which were considerably eroded. Closer probing around the site perimeters and especially down the sides of the spur revealed dense deposits of larger, uneroded pottery sherds. Many of these were clearly identifiable as wares diagnostic of the Jambelí culture as described by Estrada, Meggers and Evans (1964).

THE EXCAVATION

It was decided to excavate two test units. The first of these, Unit 1, was located towards the centre of the summit of the spur within an area where the early surface reconnaissance had indicated the centre of the site to be, as defined by the surface sherd scatter. Later, however, more extensive reconnaissance after further clearance of dense thickets of thorn bush and cactus revealed a far wider extent of sherd scatter as shown on the map (Map 7). The larger part of the site defined by this scatter unfortunately had to remain untested by excavation, owing to pressures of time.

UNIT 1

Unit 1 measured 2 x 2 metres and was opened with the purpose of uncovering structural evidence of the human occupation of Punta Brava. Excavation commenced with the removal of the top 5cm of loose

unstratified top soil and then continued in controlled arbitrary levels of 5 cm depth until such a time as natural stratigraphy could be recognised. In the event, none ever was.

The deposit consisted of a fine clay throughout, which quickly became hard-baked and cracked through exposure to the sun. The colour varied depending upon the degree of dryness of the soil, from 10YR 6/2 Light Yellowish Brown when very dry, to 10YR 6/4 Yellowish Brown when moistened. No features were ever distinguishable. Only in the top 10 cm of the deposit, comprising levels 1 and 2 (11.20 - 11.15 and 11.15 - 11.10 metres over sea level) were there any significant quantities of sherds and shells, the former small and very eroded. These quickly dwindled in number and size below 11.10 metres over sea level, until by level 4 at 11.02 metres a.s.l. it was fairly evident that the natural deposit had been reached. The very few fragments of eroded pottery remaining in the deposit seemed consistent with down-wash through the weathering cracks in the soil.

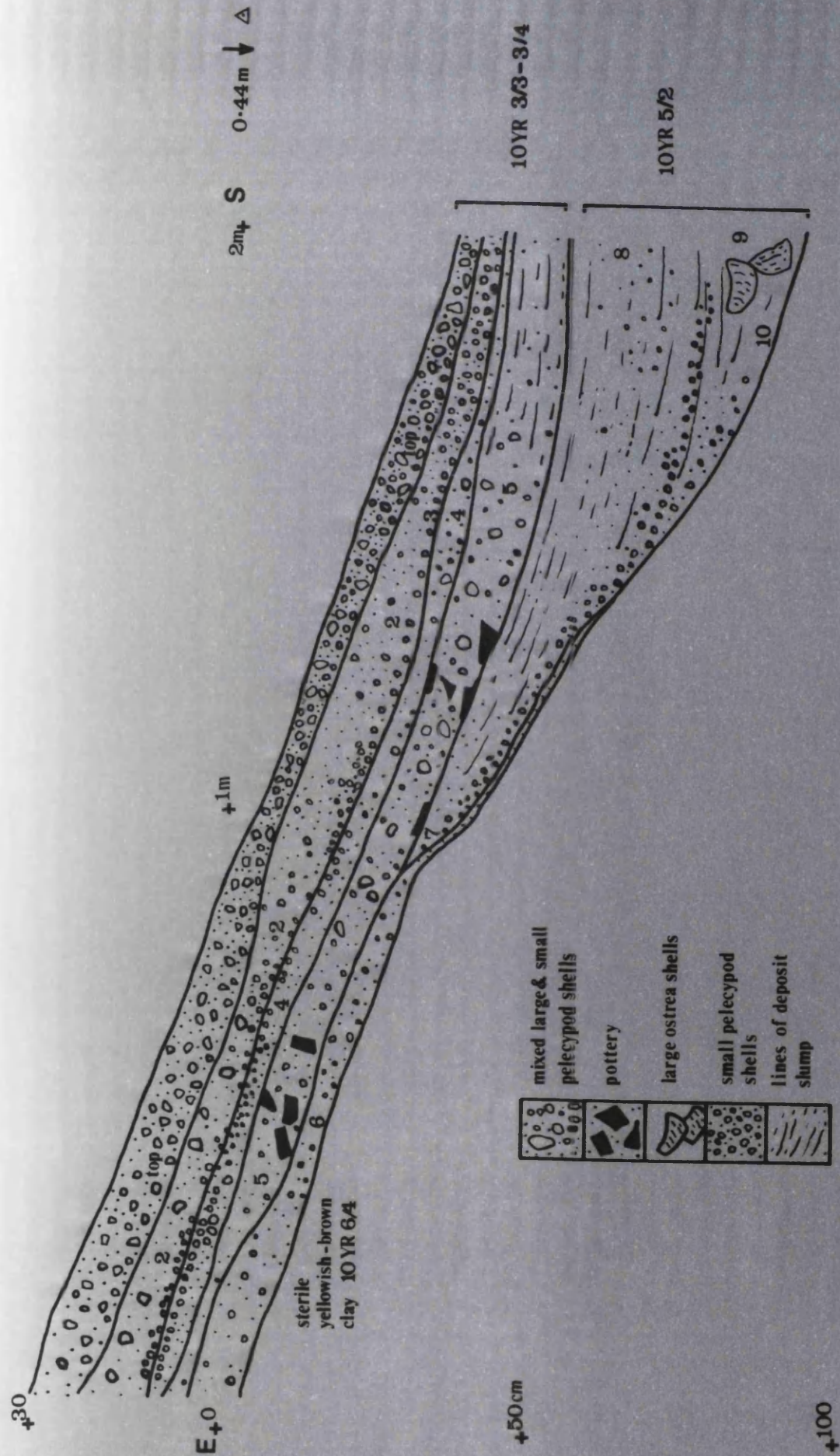
A 1 x 1 metre sub-unit was later excavated by a further 30 cm, down to an average depth of 10.72 metres a.s.l. and confirmed the presence of sterile natural yellowish brown clay here.

From the disappointing results of the excavation of Unit 1, together with the generally fragmented and eroded state of the sherds scattered across the summit of the spur, it must be concluded that this site has suffered too great a weathering over the passage of the centuries to yield much of significance by way of archaeological deposit.

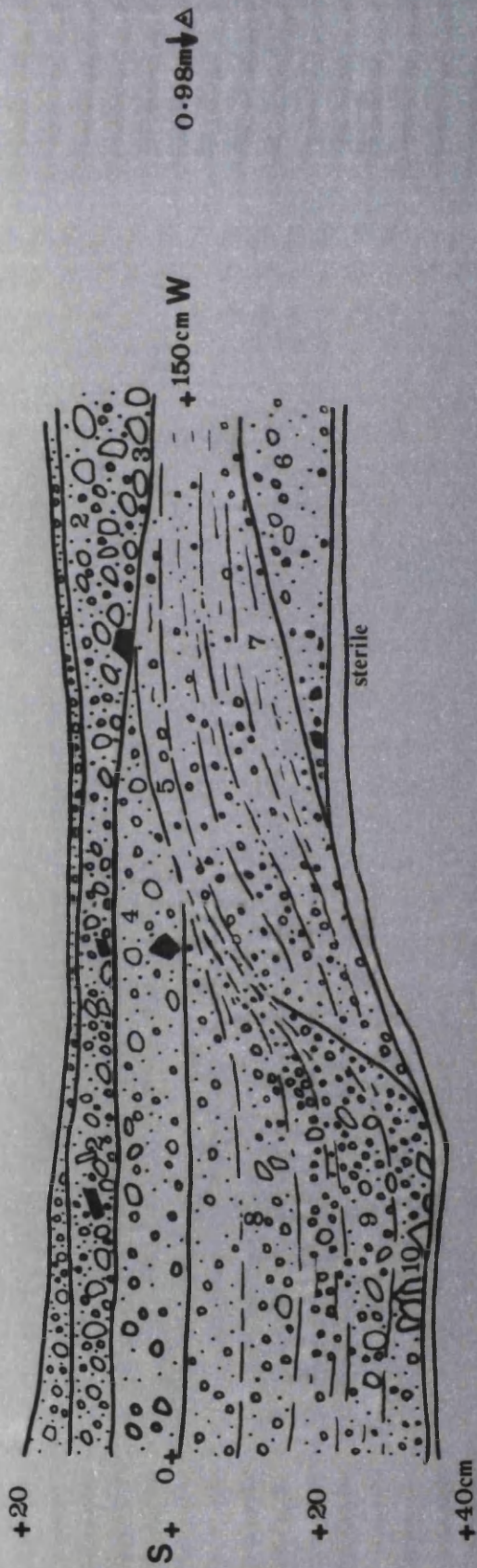
UNIT 2

The second test unit, Unit 2, measuring 1.5 x 2 metres was located on the south east edge of the site, close to the point of the spur, overlooking the Rio Nuevo and following the downward contour of the hillslope. Superficial probing had revealed the greatest quantity of so-called Jambelí pottery which evidently had slumped over the side of the spur as domestic midden refuse or as hillwash deposit, where it remained relatively undisturbed or uneroded.

The total depth of archaeological deposit varied from between 0.35 metres at the upper and 0.55 metres at the lower end of the test unit



318 SECTION 6



for key see section 6

318 SECTION 7

with the profiles revealing the characteristic slump lines of the stratigraphy down the hillside. Excavation commenced with the removal of the top 5cm of disturbed unstratified topsoil.

Layer 1 lay at a depth of between 10.22 and 10.35 metres a.s.l. in the northern and north-western section of the unit and consisted of hard-packed, light brown loamy soil, with soft, looser patches, evidently much disturbed at this level by roots. It contained large quantities of sherds and shells of the mangrove dwelling species of shell-fish: *Chione subrugosa*, *Protothaca ecuatoriana* and *Ostrea columbiensis*.

Layer 2 underlay Layer 1 throughout, at an average depth of 10.22 to 10.27 metres a.s.l. in the northern end and 9.70 to 9.75 metres a.s.l. in the southern end of the unit. It consisted of a looser, light yellowish brown loamy soil, still disturbed in places by roots and densely packed with pottery sherds of mainly a coarse orange ware, together with shells of mangrove dwelling shellfish: *C. subrugosa*, *P. ecuatoriana*, *O. columbiensis* and *C. valida*. The eastern corner of the unit contained a lense of densely packed *C. subrugosa*.

Layer 3 represented an arbitrary distinction of level in Layer 2, with no immediate stratigraphic change evident, at an average depth of 10.14 to 10.27 and 9.65 to 9.70 metres a.s.l.. Dense quantities of pottery debris and shells of mangrove-dwelling molluscs were still present, together with a patch of scattered burned shell towards the centre of the unit, giving the deposit a Munsell soil colour value of 10YR 4/2 Dark Greyish Brown. Excavation indicated layers 2 and 3 to be the same natural stratigraphic layer.

Layer 4 underlay Layer 3 throughout, at a depth of 10.10 to 10.14 metres a.s.l. in the northern end and 9.59 to 9.65 metres a.s.l. in the southern end of the unit. It consisted of a fine brown to dark brown soil with a Munsell soil colour value varying between 10YR 4/3 and 10YR 3/3 and initially contained less pottery sherds than layers 2 and 3, although larger size fragments and less shells. Excavation throughout layer 4, however, produced sherds and shells in the same large quantities as previously encountered.

Layer 5 underlay Layer 4 at a depth of 10.5 to 10.10 metres a.s.l. in the northern end and 9.51 to 9.59 metres a.s.l. in the southern end of

the unit. It consisted of a fine, loose, dark greyish brown soil with a Munsell soil colour value of 10YR 4/2 and contained a scattering of charcoal, burned shell and pottery throughout the deposit. As with the upper layers, it was still characterised by its dense content of pottery sherds and shells of small mangrove dwelling shellfish *C. subrugosa* and *P. ecuatoriana*.

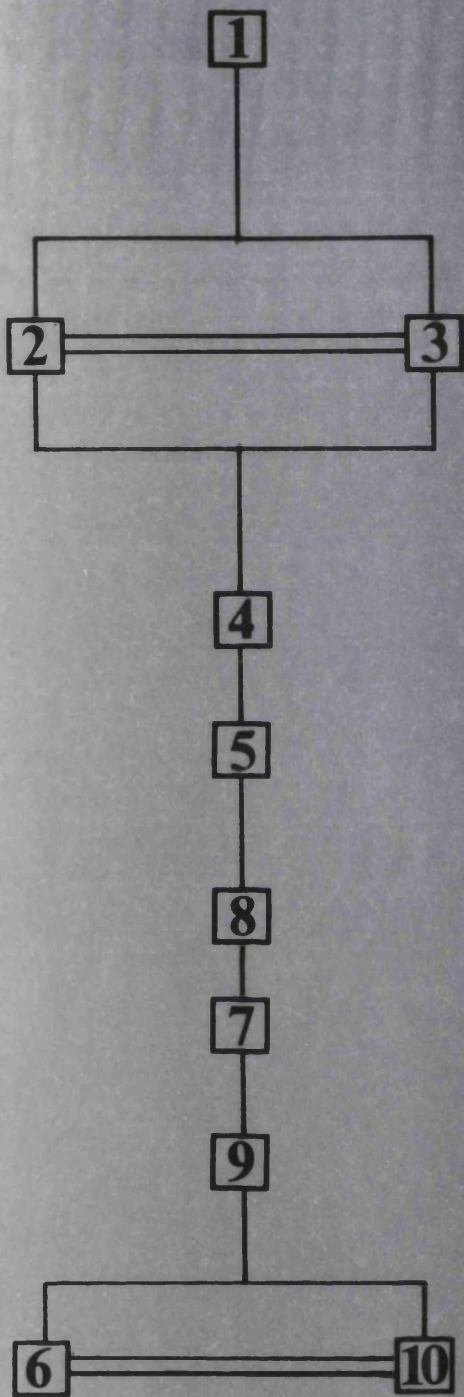
Underlying Layer 5 in the north east half of the unit, a fine hard packed brown clay deposit, Layer 6, was encountered, with a Munsell soil colour value of 10YR 5/3 at a depth of 10.05 metres a.s.l.. It contained much less sherds and shells than the previous layers and indicated the proximity of sterile natural. In the southwestern half of the unit, the archaeological deposit continued as Layer 7 at a depth of between 9.72 and 9.76 metres a.s.l. in the central part and 9.52 to 9.56 metres in the southern end of the unit.

Layer 7 was a soft, loose, greyish brown deposit with a Munsell soil colour value of 10YR 5/2 containing dense deposits of pottery and shell.

8 was probably a pit and represented by an area of very fine, soft, loose greyish brown soil. It measured approximately 0.75 x 0.60 metres in extent and apparently cut into Layer 7 in the extreme southern corner of the unit at a depth of 9.52 metres a.s.l.. It had a Munsell soil colour value of 10YR 5/2 and mainly contained a higher incidence of shells than pottery, the species being *C. subrugosa* and *C. valida*, including large quantities of burned specimens. Charcoal from 8 produced a date of 2160 ± 75 BP (210 BC) [Beta 22912-4].

Layer 9 succeeded 8 at a depth of 9.30 metres a.s.l.. It was a much harder packed yellowish brown clay deposit of Munsell soil colour value 10YR 5/4 very similar to Layer 6 in that it contained substantially fewer pottery sherds and shells and, indeed, probably represented a continuation of 6 down into the southern end of the unit, beneath the pit 8 which cut it.

Layer 10 succeeded Layer 9 at a depth of 9.21 metres a.s.l. and represented the fill at the extreme edges and bottom of the pit 8. It was exactly coeval with Layer 6, being a light yellowish brown, hard packed clay with a Munsell soil colour value of 10YR 6/4 and contained a few residual fragmented sherds and shells.



318 PLAN 8

The excavation of test unit 2 finished at Layer 6 throughout, which represented the sterile natural clay of the spur into which it had been cut.

INTERPRETATION OF THE STRATIGRAPHY IN UNIT 2

Plan 8 is a schematic matrix of the stratigraphy of Unit 2, showing the layers in their relation to each other exactly as found. However, interpretation is complicated by the disposition of the unit at the edge of the spur, where erosion and hillwash probably caused the natural layers to be interposed.

There is some evidence to suggest that layers 1 to 5 may be redeposited hillwash (Sects 6 & 7), in which case layer 2 would contain the earliest material and layer 5 the latest, an observation which tends to be supported by the pottery, with layer 2 containing at least two early Pechiche-ish sherds (Figs: 56g & 58f; pp: 197-8) and several Bellavista coarseware bowl forms (Figs: 53-55; pp: 220). It is not possible to say what timespan is represented between layers 2 and 5, however although it is probable from the ceramic evidence that it was not very large.

x Layer 7 underlies layer 5 and was cut by the pit 8, which in turn was sealed by layer 5.

The C¹⁴ date of 2160 ± 75 BP (210 BC) was obtained from charcoal in the pit 8, which clearly post-dated layers 7, 9 and 10. Layers 6 and 9 thus may be primary and undisturbed, representing the original land surface prior to post-occupation hillwash.

The C¹⁴ date, together with the presence of 'early' Pechiche and Bellavista-like forms suggest a relative contemporaneity with the Guarumal early to middle 'Floors' phase. The lack of Form 11 and the rarity of Form 7 (ie one sherd) tends to confirm this, although there are a few *comal*-like sherds present, which is a form characteristic of the Guarumal Late phase.

PART III

THE CERAMIC EVIDENCE
with non-ceramic finds

TABLES 1 - 9: STRATIGRAPHIC DISTRIBUTION OF DIAGNOSTIC RIM FORMS

TABLE 1 DISTRIBUTION OF FORMS: GUARUMAL AND PUNTA BRAVA

FORM	GUARUMAL				TOTAL	318	TOTAL
	M1/A	M6/B	M6/C	M4/S/B			
1	51	20	35	5	111	43	154
2			3		3		3
3	1		2	1	4	1	5
4		4	3	1	8		8
5	17	6	23	4	50	20	70
6	5	6	17	2	30	30	60
7	2	9	12	4	27	1	28
8a	1		6		7	1	8
8b	1	1	6		8	2	10
9		1	7		8	2	10
10			3		3	1	4
11		5	6		11		11
12	1		6	1	8	8	16
13	33	3	1		37	4	41
14			4		4	48	52
15			1		1	1	2
16			2	1	3		3
17	1		8		9	11	20
18a	12	2	3	1	18	2	20
18b		1	3		4	7	11
18c	3	3	4	1	11	6	17
19	1	1	3	1	6	15	21
20	1	0	2		3		3
21	4	7	9		20	47	67
22	1	1	33		33	32	67
23			1		1	13	14
24		5	5	2	12	2	14
25			4		4	2	6
26						2	2
27						2	2
28			14	2	16		16
TOTALS:	135	75	226	26	462	303	765

TABLE 2

MOUND 1: MACHINE-CUT SECTION AND TRENCH A

FORM	LAYERS														TOT			
	SBt	SEb	At	1	2	3	4	5	6	7	8	9	10	11		12	13	14
1	2	5	1	2	9	4	3	5	9	5	2	2	1		1			51
2																		0
3					1													1
4																		0
5			2		2	3	3	2	1	3	1							17
6			1	2	1	1												5
7								1								1		2
8a															1			1
8b							1											1
9																		0
10																		0
11																		0
12																1		1
13		1		3	3	9	2	3	5	3	2					2		33
14																		0
15																		0
16																		0
17								1										1
18a		1		1	1	2	1			1		1	1	3				12
18b																		0
18c						2	1											3
19														1				1
20				1														1
21		1	1	1								1						4
22					1													1
23																		0
24																		0
25																		0
26																		0
27																		0
28																		0
TOTAL																		135

(SBt = Machine-cut profile 'top'; SEb = Machine-cut profile 'bottom')

TABLE 3

MOUND 6: TRENCH B

FORM	LAYERS											TOTAL
	1	2	3	5	6	10	12	13	16	17	20	
1	8			2	4	1		2		2	1	20
2												0
3									1			1
4			1			1			1	1		4
5	4						1	1				6
6	2	3			1							6
7	1	1		1		2	1	1	2			9
8a												0
8b						1						1
9	1											1
10												0
11	1	2		2								5
12												0
13	1					2						3
14												0
15												0
16												0
17												0
18a	1				1							2
18b							1					1
18c	3											3
19		1										1
20												0
21	3			1	2		1					7
22	1											1
23												0
24				1		1	1		1	1		5
25												0
26												0
27												0
28												0
TOTAL												76

TABLE 4

MOUND 6: UNIT C

SUB-UNITS at LAYER 1

23/24

FORM	Sf	1	2	4	7	12	13	14	17/18	19	20	22	29/30	32	34	35/36	37	TOT
1	7	2	1		1	2		1			1		2		2	1	3	23
2																		0
3																		0
4	1																	1
5	3			1						1	1			1				7
6	7	1				1	1			1			1					12
7	1	1												1		1		4
8a	1																	1
8b										1								1
9																		0
10																		0
11	1	1																2
12	2														1			3
13																		0
14															1			1
15																		0
16													1					1
17				2														2
18a		1							1									2
18b																		0
18c													1					1
19															1			1
20																		0
21																1		1
22	2												1			1		4
23																		0
24	1																	1
25													1					1
26																		0
27																		0
28	1							1										2
TOTAL																		71

(Sf = surface; nb: / indicates contiguous sub-units)

TABLE 5

MOUND 6: UNIT C

SUB-UNITS at LAYER 2																
FORM	7	8	9	11	13	13/19	15	16	17	'C'	20	22	23	28	35	TOT
1			2				1			1		1			1	6
2											1					1
3																0
4		1														1
5											1	1				2
6								1								1
7					1								1			2
8a						1									1	2
8b																0
9	1															1
10		1				1		1								3
11										2						2
12		1				1										2
13																0
14																0
15																0
16																0
17																0
18a																0
18b						1										1
18c						1										1
19	1															1
20			1													1
21																0
22															2	2
23																0
24				1												1
25																0
26																0
27																0
28	2					1			1							4
TOTAL																34

('C' = central sub-units at 6-8N/5-9E)

TABLE 6

MOUND 6: UNIT C

FORM	FEATURES						TOTAL
	2II	2III	12	19/ ₃	4II	16/ ₄	
1				1			1
2							0
3			1				1
4					1		1
5		1					1
6							0
7							0
8a/b							0
9							0
10							0
11	1						1
12							0
13							0
14							0
15			1				1
16							0
17							0
18a/b							0
18c				1		1	2
19							0
20							0
21-27inc							0
28		1					1
TOTAL							9

(/₃ and /₄ = feature layer numbers)

TABLE 7

MOUND 6: UNIT C - SUB-UNITS 3 and 4: 'FLOORS'

FORM	LAYERS			ARBITRARY EXCAVATED BLOCKS					TOTAL
	1	2	3	4	5	6	7	8	
1			1	2		1		1	5
2			2						2
3									0
4									0
5				3	1		6	3	13
6			1	2		1			4
7			3	2	1				6
8a						1		2	3
8b				1	1	2		1	5
9					4	1	1		6
10									0
11			1						1
12								1	1
13				1					1
14			1		1	1			3
15									0
16						1			1
17					2	1	1	2	6
18a	1								1
18b		1	1						2
18c									0
19			1						1
20						1			1
21		1	6	1					8
22			3	5	8	6	4	1	27
23				1					1
24					2		1		3
25					1			2	3
26									0
27									0
28				1	4	1		1	7
TOTAL									111

TABLE 8

GUARNAL: SURFACE, MOUND 4 and BURIAL 2

FORM	SURFACE	MOUND 4	BURIAL 2	TOTAL
1	4		1	5
2				0
3	1			1
4		1		1
5	1	3		4
6	1	1		2
7		3	1	4
8a/b				0
9				0
10				0
11				0
12	1			1
13				0
14				0
15				0
16		1		1
17				0
18a	1			1
18b				0
18c		1		1
19	1			1
20				0
21-23				0
24	2			2
25-27				0
28	1	1		2
TOTAL				<hr/> 26

TABLE 9

00-AR-AR-318: PUNTA BRAVA

FORM	Surf	LAYERS										TOTAL
		1	2	3	4	5	6	7	8	9	10	
1	8		7	1	5	11	2	2	5	1	1	43
2												0
3			1									1
4												0
5	1	1	6		1	4	2		3		2	20
6	2	1	9	6	5	2	1	3		1		30
7					1							1
8a			1									1
8b						1v		1				2
9						1		1				2
10								1				1
11												0
12	1		1v	2			1	1	2			8
13	1	1	1	1								4
14	2	4	15	13	3	3	3	3	2			48
15			1									1
16												0
17	1		1			2		6	1			11
18a			1			1						2
18b			1	3				1	1	1		7
18c	2		1	1				1	1			6
19			1	2	8	1	2		1			15
20												0
21	11	2	11	7	2	3	3		7	1		47
22	5	3	7	3	4	5	2		2			32
23	2	1	4	4					2			13
24						1		1				2
25			1			1						2
26	2											2
27	2											2
28												0
TOTAL												303

(v = form variant)

THE CERAMIC TYPOLOGY

Introduction: the sample

The sample used as the basis for the following typology consists of pottery collected mainly from stratified contexts, augmented by occasional non-stratified examples at the two study sites of Guarumal (1976 and 1980 material) and Punta Brava (1980 only). The sample is not a large one as it represents all that could be brought back to England from Ecuador for study, either as actual pottery from the 1976 excavation at Guarumal, or as illustrated specimens (drawings and photographs) from the subsequent visit in 1980.

Although an effort was made to keep the sample representative, with all the pottery sherds found recorded and counted, only rim sherds and other distinctive or large pieces were eventually used as the basis for the typology and appear in this report. Because of this, some of the sample sizes of different forms identified are too small to have any statistical validity and attention is drawn to this in the text, where relevant.

Within the overall body of material, different forms have been distinguished and the different sherds grouped accordingly, down to small numbers of as few as two or three sherds, where this was felt to be valid.

There are 28 different form categories in total, some with sub-groupings of a, b and c, where it was felt that a particular group called for this.

PASTES AND WARES AND MANUFACTURE

For initial convenience, pottery was originally classified as having a 'coarse', 'medium' or 'fine' fabric, according to the overall appearance and particle size of the paste and temper, the quality of mix and the hardness of firing. Subsequent to this, petrological analysis of sherds representative of these three categories was undertaken, the details of which are given in Appendix 2. As far as could be determined, manufacture of the pottery was by the coiling method.

Coarse fabric wares are generally of poor mix, containing large particle size, from 0.5 - 2mm, often with visible elements of polycrystalline quartz protruding through the vessel surface. Most are oxidised red with poor surface finish and mica is a conspicuous element in the paste. Many of the jars, particularly forms 18a, 19 and 20 are included in this group and occasional examples of the the large bowl 14.

Medium fabric wares represent the majority of the sherds in the sample, having a well-mixed, smooth paste, smaller particle size of around 0.3 - 1mm with occasional polycrystalline and frequent rounded quartz inclusions; overall they have less visible elements, are oxidised red, occasionally partially reduced and have a smooth, well-finished surface, with mica being a conspicuous element in the paste. Forms 10, 13, 14, 18b and c, and 21 - 27 are usually of medium fabric wares.

Fine fabric wares include the majority of the decorated sherds and also tend to be thin-walled with tight, well-mixed paste, no visible elements, hard-fired with a well-finished surface, usually painted red, polished, or otherwise decorated. Many of the sherds contain abundant mica in their paste with particle size from 0.1 - 0.4mm. Smaller quartz elements of around 0.3mm are frequent.

The sample size was not sufficiently large enough to be able to differentiate into more exact ware sub-groupings, but overall categories of plain, white-on-red, negative, black, white and red, red painted or slipped, incised, notched and punctate are described in the following section.

THE TYPOLOGY

FORM 1: DEEP BOWL WITH CURVED OR UPRIGHT SECTION

(Figs: 1b-e; 2; 3b-c; 4; 5; 43c-e; 44b; 45b,d&e; 46b, d&e)

SAMPLE : 154 sherds

GUARUMAL: 111

PUNTA BRAVA: 43

This is a very common bowl form at both Guarumal and Punta Brava. It has a fine, generally thin-walled profile curving smoothly towards the base, which can be either rounded or with a low annular ring. Although no whole specimens were recovered, sufficiently large fragments survived and a comparison with stylistically related material from the Jambeli,

Pechiche and Garbanzal cultures all tend to support this interpretation. The rim is usually upright, although it can be slightly everted or slightly incurved and the lip is normally evenly rounded, sometimes slightly expanded or tapering to a point.

Rim diameters vary between 50 and 230mm, although the greatest number fall within a 180 - 200mm range. Some vessels maintain an equal section width from rim to base, but in other cases the body wall of the pot is narrow, thickening upwards to the rim and downwards into the base. The greatest majority have sections varying from between 4-7mm, although occasionally finer forms with widths of 3-5mm or thicker at 7-9mm occur. No coarse specimens of this form occur. Most have a fine, well-mixed paste and are well-finished and well-fired. Indeed this group includes some of the finest, best finished and decorated pottery found, usually in white-on-red with designs ranging from simple horizontal circumferential bands to more complex geometric motifs upon well-polished, red-slipped surfaces (pp: 162-65). Undulating or notched rims sometimes occur with this form.

Although Form 1 occurs throughout the sequence, there is a clear increasing trend through time, with a greater prevalence the later the context (Tables 1-8). As the most simple and common bowl, this form would correspond to Estrada, Meggers and Evans' Form 1 *rounded, shallow to deep bowl* (1964: 507; *ibid*), to those examples with upright rims, that is. D7 would be the equivalent form from the Izumi and Terada typology (1966: 32; Fig 10). It is harder to make a direct comparison with the Guayaquil phase material. Form 1, *cuenco de borde directo* is probably the most comparable, although the examples illustrated are rather more like Form 5. Simple bowls with direct rims of this sort are common in many pottery inventories, from the Early Formative onwards.

FORM 2: DEEP BOWL WITH "BEADED" RIM AND CURVED OR UPRIGHT SECTION

(Figs: 7 b & c)

SAMPLE: 3

GUARUMAL: 3

PUNTA BRAVA: 0

The rim diameter is only available for two of the three pieces, being 255mm and 300mm respectively. Despite the tiny sample size, it was

nevertheless felt to be a distinctive enough type to be included as a separate category, next to Form 1 which it closely resembles.

It is a fine, deep bowl with a narrow "beaded" rim which curves slightly inwards. The vessel wall is of a fine, well-fired fabric with a section width of around 7mm. Excepting the distinctive beaded rim, this category would in all other respects fit that of Form 1, excepting its larger rim diameter.

One of the three sherds has a fairly unique surface treatment, with a very narrow red strip banding the inner rim and the rest of the interior slipped in black. Similarly, the exterior has a broader red-slipped band over the rim and the top 2cm of the pot, below which the vessel is black (Fig: 7b). The second specimen has small incisions on its interior and a broad red slipped band over the rim and top 2cm of the pot exterior, beneath which it is painted white. The third example is only fragmentary, bearing traces of red slip upon the rim.

The stratigraphic data show that these sherds are associated with the later Floors phase of the Guarumal site, although caution should be exercised with any interpretation, given the tiny sample size (Table 7). There were no examples from Punta Brava.

This form closely resembles Form D11 of the Izumi and Terada typology (Izumi and Terada, 1966: 32; Fig.: 10) (see also p: 193), but Estrada, Meggers and Evans have no form with the characteristic beaded rim. There are no corresponding types mentioned for the Guayaquil phase. However, it is interesting to observe that similar vessels date back to the Valdivia culture (Meggers, Evans and Estrada, 1965: 53, Fig 27-2; 68, Fig 38-1&3), so this form has a demonstrable Early Formative period pedigree, traceable through the far north coast Pechiche culture into Regional Developmental southern coastal Ecuador.

FORM 3: GROOVED DEEP BOWL WITH CURVED OR UPRIGHT SECTION

(Figs: 6c, d & e; 47e)

SAMPLE: 5

GUARUMAL: 4

PUNTA BRAVA: 1

This category also corresponds closely to Form 1, having a similar fine, thin-walled profile, with section widths varying between 5 and 8mm. All have upright rims with diameters around 180-200mm and differ from Form 1 in having a groove running mid-way down around the exterior wall of the vessel. All examples are of a fine, well-fired fabric with white-on-red geometric decorative motifs on either the interior or exterior wall, or both. There is one example of negative painting in this group from unstratified contexts (Fig:6e).

The stratigraphic significance of this form is not immediately clear, being singly present in both Middle and Late Phase contexts at Guarumal and in Layer 2 from Punta Brava, which is probably an 'early' context. However, with such a small sample size, caution should be exercised with any attempt at interpretation. There is also a possibility that sherds of this form which have been broken above the groove may be included in with the Form 1 group.

There is no parallel to this type mentioned in the Estrada *et al* Jambelí typology, but it probably corresponds to the Pechiche Broad-Line Incised group of Izumi and Terada (*ibid*: 63). There is a certain, interesting similarity to some of the early Formative Period Valdivia vessels, especially to Form 1 of *Valdivia Polished Plain* (Meggers, Evans & Estrada, 1965, *ibid*: 74; Fig 42-1).

FORM 4: DEEP BOWL WITH RIDGED PROFILE

(Figs: 6a; 36g)

SAMPLE: 8

GUARUMAL: 8

PUNTA BRAVA: 0

This is the last category to closely correspond to Form 1. It, too, has a fine, thin-walled profile with section widths between 5-8mm. The rims are vertical, or occasionally inclined slightly inwards.

This form differs from Form 1 in that the smoothly curving profile of the exterior wall is interrupted by an expanded ridge, running parallel to the rim and increasing the section width by a factor of some 2mm. A subtle change in angle occurs with the lower portion of the vessel curving more abruptly towards the base in a gentle carination. Rim diameters closely parallel Form 1 vessels, being around 180-200mm. Two of these sherds carry white-on-red decoration, one being a particularly fine specimen (from Trench B, layer 16) with polished red slip upon which is a fairly elaborate geometric motif in white paint (Fig: 6a). The others are simply slipped in red.

The stratigraphic distribution tables seem to show a correlation of this form with the Middle Phase at Guarumal. There are no sherds from early or late contexts, nor from Punta Brava, (which is probably contemporary with the early to middle 'Floors' phase of Guarumal). However, it is again important to bear in mind the small sample size with this group. There is also the possibility that sherds broken above the ridge have included with the Form 1 group.

Form 4 cannot be demonstrated to occur either in the Jambelí or the Pechiche-Garbanzal cultures. (There is, however, an interesting parallel with certain Valdivia forms discussed by Meggers, Evans and Estrada for the *Valdivia Pebble Polished* and *Valdivia Polished Plain* (1965, *ibid*: 70, Fig 1-1; 74, Fig 42-1)).

FORM 5: SHALLOW BOWL WITH UPRIGHT RIM

(Figs: 7d; 9b; 10a&b; 11b; 13a; 14a&b; 18a; 45f; 46c)

SAMPLE: 70

GUARUMAL: 50

PUNTA BRAVA: 20

This bowl is similar to a shallow version of Form 1, there being no depth of vessel wall between the short upright or slightly incurving rim and that part of the section which curves rapidly inwards to form the rounded or more usually flattened base. Rim diameters vary between 160 and 270mm, although most are around 180-220mm and the vessel wall is between 5 and 8mm wide. A small number of these sherds, mostly deriving from the lower layers of sub-units 3 and 4, have a distinctive interior bevelled edge to their rims, sometimes painted white. This makes the vessel rather reminiscent of Form 9, also strongly associated with these

lower floor contexts. However, they lack the carinated shoulder, having instead a smoothly curving profile from base to rim. There is otherwise a general similarity between certain examples of these two forms.

Form 5 is another of the fineware categories, with the majority of the sherds in the sample being slipped or banded in red and many with white-on-red decoration, occasionally of complex design (Fig: 14a). Some of this type may be the bowl fragments of *compoteras* (Figs: 9b&c; 13a; 18a) and indeed there is one certain *compotera* sherd of this form (Fig: 14b).

This form occurs throughout the main stratigraphic contexts, from early to late at Guarumal, and throughout the sequence at Punta Brava. It is of interest to note, however, that there is a clear association of Form 5 vessels with plain red slip, red-banded decoration or relatively simple geometric designs on lighter, less well-polished red backgrounds with the later contexts of Trench A, and Layer 1 from Trench B (Figs: 7d, 10a & 11b), whilst those of a richer, better polished red slip and more complex motifs tend to be associated with middle and earlier contexts (Figs: 14 a&b, 9c & 13a). This is especially relevant to the findings of Izumi and Terada in their discussion of the differences between D7 bowls of Pechiche or Garbanzal phases (Izumi and Terada, 1966: 48-50; see also pp: 201 & 203).

There is no specific category for this form in either the Jambeli or Tumbes cultures, where it is included, instead, in one of their larger bowl groupings. There are, however, interesting parallels with form 1, some of form 3 and form 12 of the Parducci and Parducci Fase Guayaquil pottery (1975, *ibid*: Figs 32-a, b&d; 34a; see also pp 210, 213).

FORM 6: SHALLOW BOWL WITH FLARING SIDES

(Figs: 1a; 3a; 7e; 9d; 10c; 11a; 12; 13 b-d, 45a)

SAMPLE: 60

GUARUMAL: 30

PUNTA BRAVA: 30

With this form, the rim is widely everted, forming a continuous line with the body of the vessel which is thus shallow. Rim diameters vary between 150 - 270mm, although most are around 200-240mm. The walls of some of these vessels appear to be rather thick, with the width of their sections being between 5 and 9mm. Bases are almost certainly rounded

rather than flat and probably supported by polypods (Figs: 10c; 12c), or occasionally pedestals if they are compoteras, as some seem to be (Fig: 11a).

This is another ubiquitous form, appearing in all stratigraphic contexts, although again, as with Form 5, there does seem to be some differentiation evident in terms of the decorative treatment. Similarly, unpolished red slipped vessels with more simple motifs of lines and circles in white upon the red background are grouped in the later contexts and the more elaborately decorated vessels with better polished red slipped bases are found in the early and middle. Notching of rims is a fairly common feature of this form (Figs: 12a, b & d). Some of these vessels are probably compotera bowls (Figs: 13 b & c), whilst others certainly possessed polypod supports (Fig 12c).

Estrada, Meggers and Evans include this form in their Form 1 category. Forms D 4, 5 and 6 from the Pechiche/Garbanzal cultures are all shallow, widely flaring vessels, but with different distinguishing rim forms (Izumi and Terada, *ibid*, 1966: Fig 10). Parducci and Parducci record shallow, widely flaring bowls with their forms 2, 11 and 15, which are also associated with either annular pedestal bases or polypods.

FORM 7: SHALLOW BOWL WITH INTERIOR RIM THICKENING

(Figs: 15 and 16)

SAMPLE: 28

GUARUMAL: 27

PUNTA BRAVA: 1

This is a consistent, well defined group, being a shallow bowl with a raised band around the inside of the rim which forms a well-defined lip. The rim diameter varies between 160 and 275mm, although most of the examples are around 200mm. At the widest part of the section, that is the lip of the rim, the width varies between 6 and 10mm, narrowing below the thickened ridge to between 3 and 5mm. Some examples are so shallow as to be almost flat and thus platter-like, whilst others resemble somewhat deeper dishes or "soup plates". The exterior wall curves smoothly from the rim lip into the base without any break in the profile. All examples are of a fine to medium fine fabric and have well-finished surfaces which are slipped in red paint and on the exterior just above the base. Some of these are plain red and unpolished (Fig:

15a), whilst others are well polished either on the inside, or occasionally on both sides, and bear complex geometric motifs on their interiors, painted in white against the red background (Figs: 15c,e;16e,f). Form 7 includes some of the finest wares found at Guarumal.

Although not a particularly common variety, this form is a distinctive one and it seems to be associated with the 'middle' phase contexts of Trench B and the upper floors in Unit C, with only two sherds occurring from Trench A, and one of those from the lowest layer 14 (Tables: 115-122). The other derives from Layer 5 which belongs to what has been identified as a probable hiatus phase and may possibly be of intrusive or secondary origin, although of course one cannot be sure of this. Only one example of a white-on-red sherd was found at Punta Brava, although this possibly may be due to the limited nature of the whole sample from this site.

This category is identical to Form 6 of the Estrada, Meggers and Evans typology: "shallow bowl with interior rim thickening" (1964: 510). It does not seem to be present in the Tumbes material (Izumi and Terada, 1966), but is one of the forms associated with the Engoroy pottery illustrated by Simmons (1970: Fig 7: 8; Fig 55-b; p: 224) whilst Paulsen talks of 'typical Engoroy shallow plates', which possibly may be the same (1977: 73). There may also be a connection with one of the illustrated varieties of Parducci and Parduccis' Form 15 (1975: Fig 34b-g; p: 212).

FORM 8a: FINE BOWL WITH EXPANDED AND INTURNED RIM

(Figs: 18b & c; 50g)

SAMPLE: 8

GUARUMAL: 7

PUNTA BRAVA: 1

This is a medium depth to deep bowl with an expanded and inwardly turned rim, which has a slight exterior downward bevelled edge to the lip. Rim diameters vary from 180 to 290mm, with the majority being between 210 and 260mm and the width of the section wall from between 8 to 15mm at the broadest part of the thickened rim, narrowing to between 3 and 6mm at the body wall and base. Apart from its distinctively shaped rim, the overall vessel shape may well have been otherwise rather similar to Form

1 bowl. Vessels of this form are of a medium to fine temper and frequently red slipped, although no white-on-red or otherwise decorated examples have been found.

One sherd only derives from the later Trench A "Upper" layers, with the remainder associated with middle and early layers of Unit C and sub-units 3 and 4 (see tables), but as this is a limited group and it would not be wise to infer too much from the distribution. There is also one sherd from layer 2 (probably an early context) at Punta Brava.

There is no striking similarity to any of the Jambelí pottery. The rim of the compotera P2 and certain other bowls from the Pechiche /Garbanzal assemblages share a generalised similarity to Form 8 (1966: Pl: 26-12), as does Parducci and Parducci's Form 12 rim shape (which is similar, in turn, to Izumi and Terada's compotera P2; pp 31 & 34). There is also a possible parallel with some Engoroy forms (Simmons, *ibid*: Figs 56d; 57a).

FORM 8b: BOWL WITH BROAD EXPANDED RIM

(Figs: 19 a-c)

SAMPLE: 10

GUARUMAL: 8

PUNTA BRAVA: 2

This is another very small, but fairly distinctive category of vessel, having greatly thickened rims, sometimes with slight ridges or flanges beneath the rim. Rim diameters vary from 220 - 370mm, with section widths ranging from between 10-12mm at the broadest part of the rimdown to 4-6mm at the thinnest. Most of the examples are either plain or red slipped, but there is one variant from Punta Brava Layer 5, which is decorated with white-on-red painting both inside and out and is thus untypical of the group.

There is a slight association with the lower floors layers of sub-units 3 and 4, but the same caveat applies here as to the other forms of small sample size.

There are no particular resemblances to any of the Pechiche/Garbanzal material, although the form does share a general resemblance to Estrada *et al*'s Form 7 Deep Bowl with Expanded Rim and to certain of their Form 8 shallow Bowl with Exterior Flange Rim (1964: 510; Figs 19 & 20). It is

also similar in certain respects to some of Aletto's Bellavista coarseware bowls (Aletto, ms: Fig 11b) and to certain Engoroy forms (Simmons *ibid*: 55a; 57a).

FORM 9: CARINATED BOWL WITH INTERIOR BEVELLED RIM

(Figs: 17 b-f; 21a; 24 d & e)

SAMPLE: 10

GUARUMAL: 8

PUNTA BRAVA: 2

This is another distinctive form of limited sample size. It is a fine, carinated bowl, which typically has an interiorly bevelled rim. The upper wall of the vessel above the carinated shoulder can be either vertical or inclined slightly outward and is usually straight, although two examples have a slight convex and one other (Trench B) a concave curve. One example (Fig: 21a) which is inclined slightly inward is rather similar to Form 11, but the latter typically has a more sharply inward angled rim usually with a wedge-shaped section at the carination, distinguishing from Form 9. Rim diameters vary from 160mm - 210mm, with section wall thicknesses from around 4 - 5mm at the narrowest part towards the base, to between 6 - 8mm at the widest part of the bevelled rim lip. The examples from sub-units 3 and 4 are fine and in well polished red slip, sometimes with white-painted decoration on either or both the interior and exterior. The interior rim bevelled edge can be painted in white. Other examples are unpainted, with notching, incision or punctate decoration (Fig: 21a).

Small though the sample size undoubtedly is, it is nevertheless interesting that six of the seven Guarumal sherds derive from the middle-lower floors contexts of sub-units 3 and 4. The other from Trench B is rather different, having the concave upper wall with notching along the shoulder carination and incised triangles with punctates beneath (Fig: 24e). It is otherwise plain, although minute fragments of red pigment indicate that it may once have been slipped red, at least in part. Another similar sherd derives from layer 5 of sub-units 3 and 4 and is notched along the rim and the shoulder carination; it too is either unslipped or badly eroded.

These sherds have much in common with the carinated bowls of the Bellavista-San Pedro Guayaquil phase tradition (Aletto, ms *ibid*; Parducci

and Parducci, 1976 *ibid*). Within the Estrada, Meggers and Evans typology they would be included within the widely varying group of carinated bowls of Form 2 (Fig: 19; pp: 510). Izumi and Terada's Form D 14, which is comparable to the more "classic" Form 4 San Pedro Guayaquil phase bowls, is generally not much like the small group from Guarumal and Punta Brava. However, scrutiny of Aletto's range of wall and rim profiles for the Bellavista carinated bowls (*ibid*: Fig. 8) gives the clearest indication that they probably belong here (discussion pp: 211 & 220).

FORM 10: CARINATED BOWL WITH THICKENED AND UPTURNED RIM

(Figs: 18d, 20 and d)

SAMPLE: 4 GUARUMAL: 3 PUNTA BRAVA: 1

There are only four sherds for this form category, which is a carinated bowl with a rather thick cross-section, the upper portion of which is further thickened. The rim is upright or slightly inturned; two examples have an exterior bevelled edge and the third a horizontally cut rim lip. Rim diameters are 250, 260 and 290mm and widths of the section wall are from 4 to 9 mm to between 5 and 11mm. The sherds are plain or barely slipped in red and two of them imply a wide shallow bowl form, although the third may have been somewhat deeper. As it is, there is sufficient variation between these sherds to render caution essential in discussing them as a consistent group. They share some similarities with forms 8/8b,9 and 13, but not enough to be included with any of these, so they have been allotted to a loose category of their own.

Three examples derive from the upper floors layer of Unit C, although the sample size is too tiny to have any statistical significance. They are not particularly comparable with any of the forms of the so-called Jambelí culture, with the Pechiche/Garbanzal groups, nor, finally, with the Guayaquil phase pottery.

FORM 11: CARINATED BOWL WITH WEDGE-SHAPED SECTION

(Fig: 21 b-f; 22)

SAMPLE: 10

GUARUMAL: 10

PUNTA BRAVA: 0

This is a very distinctive shallow to medium depth carinated bowl. It has a fine, thin-walled profile with section widths varying from 3 to 6mm. A pronounced angle, usually wedge-shaped in section and ranging from 6-9mm in width, forms a sharply defined shoulder or waist, dividing the upper from the lower portions of the vessel. The upper, rimmed part of the bowl, which is angled sharply inwards, often bears distinctive painted or occasionally modelled decoration. Rim diameters vary between 110 and 215mm.

All examples of this form are of fine, well-fired fabric, many with both interior and exterior surfaces well-smoothed, red-painted and polished. Most are decorated in white-on-red. Form 11 includes some of the finest pottery found at Guarumal.

This is certainly not a prolific group, but there seems to be a slight stratigraphic association with the late "Floors" and structural phases, ie Middle period contexts, at Guarumal (see tables). Form 11 is absent from Trench A and not found below Layer 3 in sub-units 3 & 4. It was not found at all at Punta Brava.

Form 11 is rather similar to some of D2 and to D3 of Izumi and Terada's typology (1966: 30; Fig. 10; Pl 33 & 34) and there is also some similarity in the general surface and decorative treatment to descriptions given for Pechiche White-on-Red Fine, especially the comments given for form D7b (*ibid*: 48-49) The combination of such elements as dots with lines seems particularly interesting (*ibid*: 54-5; see pp: 198 & 202 for further discussion). Of the Estrada *et al* typology, categories 2 and 4 broadly compare with Form 11 (1964: Fig 19; pp 510. There is, however, a stronger correlation with an Engoroy form (Bischof, 1975: Fig. 6b&c; Simmons, 1970: Fig 7-1), which is discussed in detail below (p: 224). There are no directly comparable forms from the Guayaquil phase pottery.

FORM 12: SHALLOW BOWL WITH UPRIGHT WEDGE-SHAPED RIM

(Fig: 20i; 22b; 50 e and f)

SAMPLE: 16

GUARUMAL 8

PUNTA BRAVA: 8

This is a wide, shallow bowl with a rim greatly expanded into a broad, wedge-shaped profile. There is a slight variation within this group, in that some of the vessels have short, upright rims with the wedge-shaped profile slightly beneath, forming an expanded shoulder (Fig: 22b). In most, however, the expanded shoulder and rim are as one (eg Fig: 20i). The overall appearance is of a shallow, carinated bowl with a very short upright rim, the diameter of which varies from around 160 mm to 320 mm. Most of the sample are slipped in red, varying in quality from thin and often very eroded red wash, to polished red slip. One example, from the surface of Guarumal, has a simple white-painted 'festoon' design with white dots interposed around the upper portion of the vessel (Fig: 22b). Section widths vary from around 11 - 15 mm at the widest part of the wedge profile to about 5 mm at the narrowest.

Form 12 was thinly and widely distributed through the stratigraphic contexts of both Guarumal and Punta Brava and no particular association with any phase could thus be made.

This form closely resembles Izumi and Terada's D2 bowl (1966: Fig 10; Pl 33: 1-5, 12 & 12), where it is held to be predominantly a Garbanzal form (although it certainly occurs in the early Pechiche period contexts too, *ibid*: Table 2). In the Estrada, Meggers and Evans typology, it compares with some of their form 4 (1964: Fig 19). There is no particular resemblance to any of the Guayaquil phase pottery, illustrated by the Parduccis, but some of Aleto's coarseware bowls are of the same form (Aleto, *ms*: Fig 11-c). Some Engoroy types also are broadly comparable (Simmons, 1970: Fig 7-2 & 3; Fig 61; Bischof, 1975: Fig 3-1; 4-e).

FORM 13: COMAL - PLATTER WITH FLAT BASE

(Figs: 20 c-g; 50 c and d)

SAMPLE: 41

GUARUMAL: 37

PUNTA BRAVA: 4

This is a fairly distinctive group of plain and rather coarse sherds. The form consists of a flat, platter-like base, the edges of which are turned up to become a broad, thick rim, with diameters ranging from 220mm to in excess of 300mm. Section widths vary from around 5mm for the thin body/base wall to 12mm at the thickened rim. There is some suggestion that this may be a vessel for the production of maize cakes, a sort of toasting plate (Warwick M. Bray, personal communication) and considering the general poorness of surface finish, with only a thin red wash occasionally used and the very functional appearance of the whole form, there is no reason to disagree with this interpretation.

There seems to be a clear stratigraphic association with the Late Phase at Guarumal, with most sherds deriving from the Upper layers of Trench A (80% in layers 1-6 alone: Table 2). There is the rare sherd from other Middle Phase contexts. Of the 4 from Punta Brava, are all from the three upper layers (which could be redeposited hillwash p: 113).

The *comales* may correspond to some of Form 4 of Estrada *et al* (1964: 510). Although there are no obvious corresponding forms in any of the other typologies cited in this section, Lathrap illustrates a very similar form for his early tropical forest cultures, where it is taken to denote the production of bitter manioc as a staple (Lathrap, 1970: 100; Fig 15g).

FORM 14: COARSE BOWL WITH FLARING SIDES

(Figs: 34 b&c; 51-55).

SAMPLE: 52

GUARUMAL: 4

PUNTA BRAVA: 48

This is a large, coarse bowl which can be shallow to moderately deep. It has a rim diameter normally around 320 - 340mm, although this actually varies between 230 and 430mm. The section width is considerably thicker than for Form 6, being between 10 and 14mm. Most of these bowls are plain or with only a thin, usually eroded, red wash and a medium quality

of temper predominates. There are three distinctive decorative surface treatments which occur in the Punta Brava group: notching of the rim (16.6%); incision in a crudely triangular motif on the interior wall (14.5%) and shell-scraping of the interior wall, which is the commonest (37.5%). One of the Guarumal examples has three holes bored through the body wall (Fig: 34b). There is some considerable variation in the form of the vessel wall, owing to the crude nature of the hand modelling, which is also a feature of this group.

It is rather striking that this form occurs so commonly at Punta Brava, although rarely at Guarumal, considering the relative size of the two sites and the several stratigraphic contexts tested at Guarumal. This vessel appears to be a rather ordinary functional bowl, rather than a particular type of fancy ware which might reasonably be expected to have certain specific cultural or chronological associations.

Forms 1 and 7 of Estrada *et al* together bear the greatest resemblance to the Jambelí pottery (1964: 507-510), whilst either of D17 or more especially D18 are comparable from the Pechiche Garbanzal typology. Aleto illustrates similar forms of coarseware bowls from his Bellavista phase (ms, *ibid*: Fig 11 a-b).

FORM 15: CARINATED BOWL WITH OUT-TURNED RIM

(Figs: 24c and 58g)

SAMPLE: 2

GUARUMAL: 1

PUNTA BRAVA: 1

With only two sherds in the sample, this is a very small category, but sufficiently distinctive to be worth considering together. It is a carinated bowl with an out-turned rim, differing from Form 9 in that it possesses a deeper, almost 'jar' shape, with the wall of the vessel above the shoulder carination more outward pointing than nearly vertical (as the Form 9 carinated bowls are). The rim of Form 15 is widely everted, making a distinct angle with the shoulder and the two diameters are 100 and 360mm with the section-wall ranging from 5-7mm at its narrowest and 8-12mm at its greatest width. There are certain similarities to Form 16 following, but the marked carinated shoulder of Form 15, giving a pronounced ridge around the upper portion of the vessel, distinguishes it. The two vessels both have a fine, well-mixed

paste, one with simple red wash and the other with white-on-red decoration.

There is no really convincing parallel to this form in the Jambelí, the Pechiche-Garbanzal or Guayaquil phase typologies.

FORM 16: DEEP BOWL WITH UPRIGHT RIM

(Figs: 18f and 24a)

SAMPLE: 3

GUARUMAL: 3

PUNTA BRAVA: 0

This is another limited category, but distinctive enough to be treated as a separate group. It is a deep bowl with an up or slightly out-turned rim, which is inwardly thickened, forming a sharply defined inner ridge. This form is distinct from the Form 1 deep bowls in having this upright rim distinct from the otherwise smoothly curving wall of the vessel's body. In some ways it seems to represent a middle category between the basic bowl and jar form. The lack of a carinated shoulder distinguishes it from the preceding Form 15. The three rim diameters are closely similar, being at around 220-230mm and the width of the section wall varies from around 10mm at the internally thickened rim to 5-6mm at the thinnest part of the section wall. None of these three sherds are decorated and if surface slipped, are too eroded to show it. They are of medium-fine fabric and moderately well-finished.

No stratigraphic significance can be determined with such a small sample.

There is no relevant comparable group from the Jambelí material, but form D20 of the Izumi and Terada typology is rather similar (Izumi and Terada, 1966: 33; Fig.: 10). There is some similarity with the Parducci and Parducci *olla globular* (globular jar), form 25 (Parducci and Parducci, *ibid*: 166; Figs 31b & 33b), although these vessels seem to be much larger.

FORM 17: BOWL WITH STRAIGHT SIDES

(Figs: 9 e&f; 12e; 31d; 56a,b & d)

SAMPLE: 20

GUARUMAL: 9

PUNTA BRAVA: 11

The distinguishing feature of this bowl is its straight, flaring sides, which can either be quite short, resulting in a shallow vessel (Figs: 12c; 56 c&d), or long, giving a moderately deep one (56a). Rim diameters vary considerably, from as small as 80mm upward to 210mm and the width of the section wall from 4 to 9mm. Five of the sample retain, unusually, a portion of their bases, three of which are flat and two of which are low annular rings.

Most of these vessels have a fine paste and are well-finished, usually in well-polished red slip and sometimes with elaborate white-on-red decoration (Fig: 56a). One rather exceptional example has both incised and impressed decoration, the latter actually piercing the wall of the pot, so it is difficult to guess what function it could have served (Fig: 56b). It must be admitted that some difficulty was experienced in always readily distinguishing the straight, flaring sides of the Form 17 bowl from the occasionally similar shaped, low flaring annular base of the compotera Form 28 and there may be the occasional misallocation of sherds of these two groups.

The stratigraphic implications for this form are unclear. There seems to be a slight association with the Early phase at Guarumal, with six of the nine sherds deriving from the lower floor layers of sub-units 3 and 4 of Unit C. However, the sample is really too small to be able to make much of this.

Form 17 is not particularly comparable to any of the Jambelí pottery, but broadly corresponds to the simpler variety of D8 of the Pechiche and Garbanzal typology (Izumi and Terada, 1966: 32; Fig.: 10). There can also be some likeness to the generalised form of Bellavista annular-based vessel (Aieto, ms *ibid*: Figs 5a; 7a; 9) and the possibility of confusing the straight sided bowl with, perhaps, the straight flaring annular pedestal has already been referred to.

FORM 18: BOWL/JAR WITH BOLSTERED RIM

(eg Figs: 19e; 25 and 57)

This is an overall form category comprising three separate sub-groups (a, b and c) and defines a group of vessels which, whilst sharing a nearly identical treatment of the rim (being achieved, apparently, by the addition of an extra coil of clay to produce a pronounced ridge around the exterior), nevertheless exhibit wide variation of size, projected body form and finish.

FORM 18A: LARGE COARSE JAR WITH BOLSTERED RIM

(Fig: 19e; 25a)

SAMPLE: 20

GUARUMAL: 18

PUNTA BRAVA: 2

These are large deep vessels, probably used for cooking or storage purposes. They are of coarse fabric and many have a poor finish with friable fabric. The large thickened rims are usually vertical, sometimes slightly everted or enclosed. The interior of the rim lip can be slightly bevelled, but usually is smoothly curved into the interior wall, whilst the exterior is hooked, separating it from a curved or sometimes slightly carinated shoulder. Rim diameters range from 300 to in excess of 500 mm, with the thickness of vessel wall from 16 mm to 35 mm at the broadest part of the bolstered rim, down to between 5 and 15mm at the narrowest portion of the body wall. Some of the vessels possess remnants of eroded red slip upon the exterior, but most are plain.

The majority of the sherds derive from Middle-Late phase contexts at Guarumal, with 12 of the 18 Guarumal sherds coming from Trench A. This form is not found in the Izumi and Terada typology, but would broadly correspond to Form 11 *jar with exteriorally thickened rim* (Estrada *et al* 1964: 511). There is also a similarity to some examples of Guffroy's Form H from the Catamayo D tradition (Guffroy *et al*, 1987: 94; Fig 18 a-b), although the mouths of these vessels are more enclosed and the thickened rim often pierced through with small holes. Form H vessels generally seem to be a finer quality vessel and although rarely painted, the sub-group a-b type nevertheless often has a polished rim, which is not evident in Form 18a.

FORM 18B: JAR WITH THICKENED RIM

(Fig: 23c; 26a; 57 a-c)

SAMPLE: 11

GUARUMAL: 4

PUNTA BRAVA: 7

These vessels are rather similar in overall form to 18A, but on a somewhat smaller scale, having rim diameters ranging from 130 - 380mm, finer fabric and better surface finish, although only two sherds bear remnants of an exterior red slip. There is some variation in the exact rim form, with some examples having a very broad, almost rolled rim with a conspicuous hook (figs: 26a; 57c) and others with a pronounced interior bevel to the lip (fig: 23c). Most of the vessels have a smoothly curving body wall, but slight shoulder carinations do occur, and one sherd with a sharply carinated shoulder has been included because of otherwise similarity of rim and body form, fabric and surface finish (fig: 57c). Thickness of vessel wall varies from 17 - 20 mm at the thickened hooked rim down to 5 - 6 mm at the body wall.

Punta Brava, with its smaller sample of sherds than Guarumal, has the greater number of these sherds, but the sample size is too small to draw any significance from the stratigraphic distribution.

This form would correspond to Estrada, Meggers and Evans' Form 11 *jar with exteriorally thickened rim*, as it is a large, undifferentiated group of vessels containing both large, coarse pots and small, finer ones. There is a slight resemblance with Izumi and Terada's Form D 15, one of the forms characteristic of their Pechiche period, which is described as having a thickened rim at the exterior lip "as if the original vertical wall were surrounded by a thick band at the rim" (Izumi and Terada, 1966: 32; Pl 27: 8-11). The vessels most reminiscent of this form come from the Punta Brava sample (figs: 57c & d), which has other distinctive Pechiche forms. Fig. 56g is a fine bowl with a thickened rim, particularly reminiscent of D15, but treated as a unique sherd here, as it does not seem to properly fit into either 18b, or 18c following, although apparently having a similar, if much finer overall shape.

FORM 18C: SHALLOW BOWL WITH THICKENED RIM

(Figs: 25 b-e; 57d)

SAMPLE: 17

GUARUMAL: 11

PUNTA BRAVA: 6

This sub-group of vessels share the fundamentally similar rim form of the previous two groups, but although no whole pots were found, their overall form was almost certainly a shallow bowl of broad diameter. Rim diameters range from 210 - 320 mm, although one example has a diameter greatly in excess of this, approaching 500 mm. The fabric of the vessels are finer than 18A, closer to 18B and several of the bowls bear traces of exterior red slipping. Three examples from floor/feature contexts at Guarumal (Fig: 25c-e), have especially well modelled thickened rims with a pronounced hook beneath the exterior of the rim into a sharply defined shoulder carination; two have an exterior bevelled edge to the rim lip (figs: 25 c&d). Section widths vary from between 11 - 17 mm at the broadest part of the thickened rim, down to around 6 mm at the narrowest remaining part of the body wall.

The eleven sherds from Guarumal are scattered through Middle and Late stratigraphic contexts. There is some similarity with Form 4 of Estrada, Meggers and Evans' typology: *shallow bowl with bevelled or upturned rim*, although in several instances, the rim form itself is still closer to their *jar with exteriorally thickened rim* (*ibid*: 510-11). Meggers *et al* do, however, report that "there is considerable variation in the form of the rim profile, all resulting in the same general shape effect" of their form 4, and they also mention the rim bevelling or carination below the lip. There are no real similarities to any of the Izumi and Terada typology.

FORM 19: FUNNEL-NECKED JAR WITH FLARING RIM

(Figs: 30; 64 a-c)

SAMPLE: 21

GUARUMAL: 6

PUNTA BRAVA: 15

Owing to the impossibility of accurately reconstructing the body of this vessel, definition is based solely upon the neck, which is tall, and widely everted at the rim. It usually possesses of a relatively coarse fabric and poor surface finish, which occasionally bears exterior shell-

scraping, although one of the sherds from Punta Brava has red banding upon both the rim interior and the exterior, and two more have simple white-painted motifs upon the lip and around the base of the neck. Rim diameters are around 120-240mm and section widths vary widely from 6 to 9mm at the thinnest part of the neck to between 10 and 15mm at the thickest, which is usually the rim lip, or the reinforced section adjoining the neck to the body. The body shape, whilst unknown, would most probably have been broad and globular.

This is not an uncommon form from the middle and lower layers at Punta Brava, but rather rare at Guarumal, where individual sherds are found in Middle Phase stratigraphic contexts (see tables).

All necked jars fall within the category of Form 9 in the Estrada *et al* typology (*ibid*: 510), whilst Form B8 bears the closest resemblance from the Pechiche culture (Izumi and Terada, 1966: 37; Fig.: 11). There is some resemblance between this rim form and Form F in the Catamayo tradition D (Guffroy *et al*, 1987 : 92; Fig 17 a-c; also pp: 242,246).

FORM 20: JAR WITH UPRIGHT NECK AND CURLED RIM

(Figs: 31 e and f)

SAMPLE: 3 GUARUMAL: 3 PUNTA BRAVA: 0

This is a rare form and one which was found only at Guarumal. It has a vertical neck and the rim is curled out to form an exterior roll around the lip. Rim diameters are from 120-175mm and section widths from 6-12mm. The three sherds are of a medium fabric and plain, save for one which has red banding on the rim interior and a white line on the exterior, beneath the rim. As with the preceding Form 19, the body form is unknown, but probably large and globular.

The sample is too small to make anything of the stratigraphic distribution, and in any case, the three sherds are found one in each of the main phase contexts.

Form 20 resembles B7 of the Izumi and Terada typology (*ibid*: 1966: 37; Fig.: 11), but there are no convincing parallels with the Jambelí pottery of Estrada, Meggers and Evans (1964). There is also quite a

striking parallel to Form D of the Catamayo tradition C (Guffroy *et al*, 1987: 86; Fig 13 a-c; Fig 14 a,b,h), although it is somewhat early for direct comparison, being dated to between 950-800 BC (p: 242).

FORM 21: JAR WITH MEDIUM TO LONG EVERTED NECK

(Figs: 23 a-b; 29; 62 and 63)

SAMPLE: 67

GUARUMAL: 20

PUNTA BRAVA: 47

This is a fairly ubiquitous category of jar, the definition of which is also based solely upon the neck, as only rarely do even limited fragments of the body remain attached to the rim. Rim diameters vary widely, between 100 and 290mm, although are more commonly in the range of 145-185mm. Widths of the section wall are between 5 and 8mm at the narrowest and 11 and 13mm at the widest parts.

Actual shape of the rim profile varies slightly, being either plainly convex (Figs: 29 a-b, e-f), with ridges around the rim (Fig: 29c), with slightly modelled rims (Figs.: 73 b&c), or with thickened bands upon the exterior of the lower part of the neck (Fig: 29d). The sharp angular junction of neck with body (where a fragment of the latter remains) tends to produce a pronounced ridge on the inside of the rim and allows speculation upon the overall shape of the vessel, which in general was probably wide and globular, although at least two differing forms are suggested by fragments remaining attached to the rim in two different examples. In one (Fig: 63f), the acute angle formed by the neck and the body is unrelieved by a high shoulder carination and thus suggests a wide, globular form. In the second (Fig: 71a), a carination occurs high at the shoulder which abruptly relieves the severity of the angle and suggests a more smoothly curving body (see also Fig: 65a).

Both these sherds share a similar rim profile, but clearly, if more complete pieces survived, then we would almost certainly have two distinct jar forms instead, perforce, of including the two into one large category. Coarse sherds are rare in this group. The majority of the pieces are of a medium-fine to fine paste and are well-fired and finished. Most of the sherds of this group are plain, although red-slipped, red-banded, occasional white-on-red and even black and red

painted examples occur (Figs: 62 a-b; 63b). Shell-scraping, either of the interior or exterior wall of the neck also occurs.

This form is scattered throughout most stratigraphic groups at Guarumal, although seems to be rather more frequent in Middle Phase contexts. It is also a common form at Punta Brava.

It would, of course, be included into Estrada *et al*'s Form 9 jars category (*ibid*: 1964: 510) and compares with most of forms B1 and B2 from the Tumbes collections (Izumi and Terada, 1966: 37; Fig.: 11). There is also an overall likeness to the Catamayo D tradition Form G (Guffroy *et al*, 1987: 92; Fig 17 d-g; also p: 242).

FORM 22: JAR WITH SHORT EVERTED RIM

(Figs: 27; 28; 59; 60; 61 a-c; 64 d-g)

SAMPLE: 65

GUARUMAL: 33

PUNTA BRAVA: 32

This is one of the commonest of the jar categories found at Guarumal. It is characterised by its short, everted neck which normally has an outwardly bevelled edge to the rounded rim and a pronounced interior ridge formed by the sharp angular junction of the neck with the body. This junction is sometimes interiorally thickened, forming a wedge-shaped section which becomes more exaggerated as the rim becomes shorter (Figs: 27 d-e; 28 a-c) or more widely everted (Figs: 59 d-f).

Within this broad category is a considerable variation of form. Rim diameters vary from 50-260mm, although most of the sample range between 130 and 200mm. The width of the vessel wall might be from 5-7mm in a fine example, 6-12mm in the most common medium group to a chunky 8-21mm at the heavier end of the spectrum. Height of the vessel neck similarly varies rather widely, from 36mm down to 7mm, whilst a wide variety of overall body shape is implied by the range of angular variations in the neck to body ratio. Insufficient of the body portion remains attached to the rim to be able to adequately reconstruct the entire form, although three examples (Fig: 27c; 60 a-b) do retain large fragments of the body wall, one of which has a pronounced carination of its shoulder and the other two slightly softer carinations to suggest a smoothly rounded body form. The lower portions are missing. Given these examples and the

degree of variation present in the angle of the neck with the body, the implication is of a wide variation in the overall vessel form, which probably includes a broad globular jar with a rounded base, to one with a distinct carinated shoulder.

Body sherds which, to judge from their overall similarity in decoration, probably derive from these jars do indeed occur. There are seven good examples from Guarumal and one from Punta Brava. The actual rim is missing from all of these, of course, but the shoulder carination remains and indeed, sometimes is exaggerated into quite a well-defined ridge (Figs: 33d; 35g; 36 e,f,h,i,j; 65a)). The common mode of decoration consists of white diagonal hatching and cross-hatching upon the background red slip (Figs: 35c, e & g; 36 e&j; 65a).

Two slight variations are included in this category as they differ from Form 22 only in a treatment to the exterior wall junction of the neck with the body, where a raised band forms a slight ridge under the rim (Figs: 27 a&b). Fig: 28 also differs from the norm in being a coarse fabric with a poor surface finish.

An important feature of this form is the high propensity of medium to fine fabrics with well-finished surfaces including red slipping of the rim interior and the exterior of the vessel wall. White painted geometric motifs occur, either as pairs of longitudinal white stripes down the body of the pot or as areas of cross-hatching, occasionally upon the plain, unslipped surface of the vessel or, more often, against the red-slipped background (Figs: already cited above). Parallel horizontal bands of white paint around the shoulders of some jars also occur (Figs: 59 b&c) and there is one example of a red and black decorated sherd from this group (Fig: 59d).

There does seem to be quite a marked stratigraphic association with the Early Phase at Guarumal (Table 7), with 81% of the sherds occurring between layers 3 and 8 of sub-units 3 and 4, whilst sherds occur in most layers at Punta Brava, which helps to add credence to the latter being more or less contemporary with the Early - Middle Guarumal phases. This form would, together with the other jars, be included in the broad category 9 of the Estrada *et al* typology (*ibid*, 1964: 510) and seems to compare broadly with B6 and B11 of the Tumbes pottery (Izumi and Terada, 1966: 37; Fig.: 11).

FORM 23: JAR WITH CONSTRICTED MOUTH

(Figs: 58 a-e)

SAMPLE: 14

GUARUMAL: 1

PUNTA BRAVA: 13

This group share certain similarities with the preceding Form 22 in having a short, everted neck with a smoothly rounded lip to the rim and being of a well-fired and finished fabric. They do differ, however, in having very constricted necks, with rim diameters ranging from between 40 and 60mm, in having a smoothly curved interior junction between the neck and body, lacking the distinctive ridge of the former group. The angle of the body fragment to the neck implies a broad, globular body, as is the case with Fig: 58a.

The exteriors of these vessels appear to be plain, or simply red slipped, although the large pot fragment bears horizontal bands in white around the neck and shoulder with curvilinear motifs upon the body.

There is only one sherd of this kind at Guarumal, whilst sherds tend to be grouped in the higher layers at Punta Brava (Table 9).

Form 23 is not recognised as a separate category by either Estrada *et al* or by Izumi and Terada, being included in any of their other jar forms, according to specific rim shape only.

FORM 24: JAR WITH FLATTENED RIM AND CARINATED SHOULDER

(Figs: 26 c-h)

SAMPLE: 14

GUARUMAL: 12

PUNTA BRAVA: 2

This type is characterised by its expanded rim with a broad horizontal surface, which varies between 13 and 26mm in the width of the section. The mouth of this jar is enclosed, with diameters ranging from 140-260mm. Suggested body forms are reconstructed in Fig: 72, where varying angles of rim to body sherd imply at least two shapes, one with both a shoulder and a waist carination and the other being a longer, deeper vessel, possibly with a flattened base. Unfortunately, it is not possible to prove these. The body wall can be quite narrow, varying between 4 and 7mm wide.

Form 24 tends to be plain, with occasional thin red slip. One example from Punta Brava has a nicked fillet running vertically from beneath its rim (Pl. 12-2), whilst another example from Guarumal (Fig: 26g) is notable, not only for its decoration, but also for the extreme coarseness of its fabric and its poor surface finish, from which grains of quartz sand protrude. A crude dark red slip covers this surface, over which a rough, cross-hatched design in what seems to be a badly eroded white paint occurs. This white paint, now beige, at first appearance seems to be the unslipped vessel surface showing through in "negative". In fact, this is not the case, as red paint may be found underneath.

The chart of stratigraphic associations (see tables) seems to indicate something of a correlation of this form to the Middle Phase at Guarumal, although three sherds also derive from earlier contexts (sub-units 3&4). There are two sherds from layer 5 and 7 respectively, at Punta Brava.

This form is included within Estrada, Meggers and Evans' ubiquitous Form 9 category (*ibid*: 510). There seems to be no parallel from the Izumi and Terada typology.

FORM 25: JAR WITH VESTIGIAL RIM

(Fig: 58f)

SAMPLE: 6 GUARUMAL: 4 PUNTA BRAVA: 2

Although there are only four sherds from Guarumal and two from Punta Brava, it was nevertheless felt justifiable to include these in a separate category owing to the distinctively shortened nature of the neck. Rim diameters are 140-210mm and the sherds are of medium to fine quality fabric and well-finished. The Guarumal examples are all undecorated.

The sample is really too limited to encourage speculation on the stratigraphic associations, although three of the four sherds from Guarumal do derive from early contexts (Table 7).

Comparison can be made with B3 of Izumi and Terada's typology (*ibid*, 1966: 34;37; Fig.: 11; Pl.:32-16) "neckless jar with constricted mouth", or to Estrada, Meggers and Evans' Form 10 "rounded jar with constricted

mouth", although Form 25 does possess a sort of stunted residual neck, which appears in the section as a slight thickening of the rim with an interior, downward slanting bevelled edge. The similarity to the Pechiche White-on-Red Fine vessel (Izumi and Terada, 1966: Pl.32-16) is striking. There is also a similarity with some examples of Form H from Guffroy's Catamayo D tradition (Guffroy *et al*, 1987: 94; Fig 18 d).

FORM 26: LONG-NECKED JAR WITH "BLISTER" ADORNO

(Figs: 65b; 71e)

SAMPLE: 3

GUARUMAL: 1

PUNTA BRAVA: 2

This is a very limited category, but nevertheless distinctive enough to be included as a type. It has a tall, funnel-shaped collar, which is distinguished by the presence of a nicked "blister"-like protuberance, high up on the side of the neck. The sherd from Guarumal is of rather poor quality, coarse paste and not well finished, although this may be due to erosion of the surface. The two sherds from Punta Brava are both of a fine fabric and are well finished and fired.

There do not seem to be any parallels with the Jambelí pottery, although there are certain similarities with form B4 of the Izumi and Terada typology (*ibid*, 1966: 31; Pl.30-21; Pl.41-6).

FORM 27: JAR WITH RECURVED NECK

(Figs: 71 f&g)

SAMPLE: 2

GUARUMAL: 0

PUNTA BRAVA: 2

This is another very limited category, with only two unstratified sherds from Punta Brava in the sample and none, to date, from Guarumal. It is the tall neck of a jar with a recurved profile, which gives a distinctive convex bulge to the middle band of the collar. Both sherds are of a fine paste fabric, slipped both inside and out in red and painted in white bands around the exterior.

There is no reference to such a form in the Estrada *et al* typology, but it is present, however, in both Izumi and Terada's material from Tumbes

(*ibid*: Pl.:31-12; Pl.:41-3) and in Lanning's Sechura B phase (Lanning, 1963: 247-1).

FORM 28: COMPOTERA PEDESTALS

(Figs: 31 a-c; 32)

SAMPLE: 16

GUARUMAL: 16

PUNTA BRAVA: 0

This form almost certainly represents the pedestal base portion of fineware compoteras, which have straight, flaring sides which are sometimes gently everted towards the borders, with the angle to the base around 45°. Diameters range between 130 and 220 mm, although are more commonly between 140-180 mm. The lip of the pedestal is either rounded or slightly tapered, whilst the width of the profile section is between 5 and 7 mm and rarely varies by more than a mm in individual examples.

Most of these sherds are slipped in red, which is sometimes polished, but six sherds (37.5%) have a distinctive surface decorative treatment, which is both slipped in red and has three continuous or discontinuous lines incised parallel with the border and to each other, some two or three centimetres from the edge. Above these, in the centre portion of the pedestal, oval apertures pierce the fabric through completely and above these are more parallel incised lines. Two sherds of the sample indicate the presence of a further aperture above these, but since a complete example has never been found or reconstructed, it remains impossible to know exactly how specimen would look.

In discussing the Form 17 *bowl with straight sides*, reference was made to the possibility of confusing some sherds of this type with Form 28 compotera pedestals, and *vice versa*. It is frankly difficult to be sure of always distinguishing between these two forms, although careful consideration to the angle of the rim/base, the shape of the lip and the exact shape of the profile, its relative straightness, convexity or concavity was given before making a decision.

The fabric of this group is fine and hard, with the surface well-finished and slipped in red paint, which is often lustrous. White-painted decoration is present on four of the sherds in bands, or in one

case as part of a geometric design. One of the sherds combines white painted decoration with incision, bearing a white line between the second and third incised lines below the edge (Fig: 32e).

There may be a stratigraphical association with the Middle and especially the Early Phase at Guarumal, with seven (43%) of the sherds concentrated in the lower floor levels of sub-units 3 and 4 (Table 7). Interestingly, no sherds of this type were found at Punta Brava, despite its association with the Early-Middle phase

Form 28 as the pedestal portion of fineware *compoteras* would compare with the *compotera* form P6 of the Izumi and Terada typology (*ibid*: Fig.: 11), which is described as having a high pedestal with an elaborate incised design, which is also, apparently, finer than the preceding group of *compoteras* P1-5 (*ibid*: 34). Estrada, Meggers and Evans recognise this type in their Jambelí Incised category (*ibid*: 516), where it also occurs as tall annular pedestals, which account for a high proportion of their sherds with incised decoration. However, they associate this type with their Form 4 bowls, which would be the same as the coarser *compoteras* P1 and 2 of Izumi and Terada and which are described as being rarely incised. Aletto illustrates white and negative painted pedestal sherds from his Bellavista phase, but no incised examples (1987, ms *ibid*: Figs 3 d-f; 5 b-d; 6 a-c). For the Guayaquil phase, Parducci and Parducci (1975) however, discuss *calados en bases de compoteras*, describing both circular and oval perforations executed in combination with incisions upon *compotera* pedestal bases, occurring as a minority element outside of their sequence, although evidently not felt to be of Jambelí origin (p: 216).

COMPOTERAS

(Figs: 14b; 37; 48a; 66a)

Considering the fragmentary nature of the evidence, it is mostly impossible to accurately determine which bowl sherds are simply bowls and which constitute the upper portions of *compoteras*. Rarely, sufficiently large fragments of the pedestal base remains to make identifications unequivocal (Fig: 14b). More subtly still, a combination of features, such as the angle of the bowl sides at the point of breakage and the point of breakage itself, together with distinctive

white-on-red decoration of the bowl interior strongly suggest a compotera fragment (Figs: 9 b&c; 11a; 13e).

Such sherds, whether easily distinguished as compotera bowls or not, have been classified according to whichever form group their bowls belong to. As undoubtedly many compotera bowls have gone unrecognized as such, it was felt to be unrealistic to separate the few which could be. Three sherds from Guarumal have been grouped apart, however, as they do seem to be a distinctive type, with shallow to pronounced ridges or flanges around the bowl sides (Figs: 37 a-c). This seems to be a common feature of the compoteras from this region (Izumi and Terada, 1966: Pl.: 29; Pl.: 39; Estrada *et al*, 1964: 511; Fig.: 21).

Compotera pedestals usually can be recognised more readily than their bowls, however. Form 28 represents the slightly flaring-sided bases of fine compoteras, slipped in red or additionally decorated with either white painted bands or with distinctive incisions and openwork (Figs: 31 a-c; 32). The problem of distinguishing them from the straight flaring sided bowl Form 17 has already been referred to (p: 152). Other examples include the large, heavy sherd in Fig: 66a. This example is almost certainly the pedestal base of a large, coarse compotera, possibly rather similar to the Jambelí Form 13 (Estrada *et al*: Fig.: 21). Certain incised body sherds from Guarumal could also be the fragmentary remnants of compotera pedestal bases similar to Forms P5 and P8 of the Izumi and Terada typology (*ibid*: 33-35; Pl.:38-5; Pl.:39:1-4). Punta Brava has few discernable compotera sherds.

SPOUTED VESSELS (including Bridge and Spout)

(Figs: 38 a&h; 40h; Pl: 9-2&4)

Spouted jars, jars with strap handles and pots with actual bridge and spout attachments are inferred in both the Guarumal and the Punta Brava assemblages through finds of actual spouts with the fragmentary attachment of handles or bridges in surface and occasionally stratified contexts. They are few, indeed there is but one badly eroded example from Punta Brava, and as no larger sherds than these have been found, it is impossible to do more than postulate what the exact form of the complete vessel was like.

A rare and interesting find of a complete bridge and spouted pot from a mangrove swamp close to Guarumal gives an important insight into what we might expect (Col.Pl: 2-1&2). Although it is of unknown date and cultural associations, it is strikingly similar to Castillo Modelled wares from the Virú valley region of the Peruvian north coast (pp: 268 for discussion).

Of the five spouted fragments from Guarumal, two are certainly of bridge and spout vessels, one plain and the other well slipped in red. One other red slipped spout is almost certainly also from a bridge and spout vessel, whilst the other two are rather less obvious, but may be of either bridge and spout or spout and strap handle jars.

Izumi and Terada call this category of vessel their B12 "jar form with a long spout" (1966: 37; Pl.: 22b) and they too were unable to restore a body form to go with it. Pl.: 22b-1 certainly looks to be of a long spouted jar, possibly with a strap handle, but Pl.: 22b 2 and 3 are rather less convincing and may possibly be fragments of bridge and spout vessels, although the authors do not mention this latter category.

Estrada, Meggers and Evans illustrate spout attachments under their "rim embellishments" (1964: 517; Fig.: 23a) and make a passing reference to "jar with spout and bridge handle" as a rare vessel shape in their Jambelí White-on-Red section (*ibid*: 532). Parducci and Parducci describe bottle spouts (*picos de botella*), and illustrate what could be either spout and handle or part of a double spout and bridge vessel in polished red. They comment that there was no evidence for the form of the bottle. A category of double compotera bridge (*punte de doble compotera*) is also described by them (1975, *ibid*: 222-6; Fig 45). Clearly then, as with similar or related cultures, spouted vessels, especially bridge and spout pots, contribute a small component to the ceramic assemblages of Guarumal and Punta Brava.

POLYPOD BOWLS

Polypod bowls are certainly present in the Guarumal assemblage, as evinced by bowls with the marks of such attachments on their bases (Figs: 10c; 12c) and by occasional fragments of the feet themselves,

although these are rare. It is unclear whether they also occurred at Punta Brava as neither trace nor remain of them was found.

The polypods at Guarumal were probably long and hollow in the main and roughly conical in shape (Fig: 41c), or possibly in the form of animal or human feet (Figs: 38f; 41 b&f; Pl: 4-1). These latter do occur, but it is not immediately apparent, especially in the case of Fig: 41f, whether they derive from actual hollow figurines, or were the supports for a bowl. Some small, plain, solid "cones" (Fig: 40g) could either be adornos from *compoteras* (cf Izumi and Terada, 1966: Pl. 38-11 - 13), or small polypod attachments (cf Parducci and Parducci, 1975 *ibid*: 219-20; Fig.: 44 c-d). The impression received is that only tripod vessels were present at Guarumal, rather than the multipod bowls of other cultures, such as Guangala hexapods (p: 232). This would be more likely in a late Formative period context too.

Estrada, Meggers and Evans include both hollow and solid polypods in their section on bases (1964: 511), where they associate them principally with their Form 8 *shallow bowl with exterior flange rim* (*ibid*: 510-512). There are few sherds corresponding to this form at Guarumal and none from Punta Brava and it is merely surmise that such bowls had polypod bases. Certainly Form 6 shallow bowl with flaring sides occasionally possessed hollow, probably conical feet, especially those of a shallow, outwardly curved shape, as shown in Fig: 12c.

Izumi and Terada make no reference to such items in their assemblages and comment in their chapter on "Wider relationships of the Tumbes area" (1966: 81) that it is one of the traits of the Guangala culture which is absent in Garbanzal material.

OTHER BASE FORMS

Tall annular pedestal bases are associated with the *compoteras* and are the device by which certain bowl forms, especially Forms 5 and 6, are raised up to constitute a new composite shape.

Short, annular bases (Figs: 12e; 56 c&d) form a low ring around the flat or slightly curved base of the vessel which can be Form 1 or Form 5 bowls, which tends to be corroborated by Izumi and Terada with one of

their equivalent forms, D7 (1966: Fig.: 10). They are not sufficiently common in the sherd refuse from either Guarumal or Punta Brava, however, to constitute a significant element. The simplest, and certainly the commonest form, is the flat or slightly curved base which can be readily inferred for many of the bowl and jar forms, despite the lack of whole vessels both through regard to the profiles of many nearly complete sherds and also through a study of the large body of comparative material throughout the Stylistic Parallels section pp: 183-275).

The only reconstructed vessel of a Form 7 bowl has a shallow curving base and indeed this is almost certainly a distinguishing characteristic of this kind of bowl.

BEAKERS

This form is known to the Izumi and Terada typology, where it is asserted to be a feature peculiar to the Pechiche site and also representative of the early Pechiche phase (*ibid*: 35). It is described thus: "The height is nearly the same as the diameter. It has a horizontal plain at the lip extending outward, which looks wedge-shaped in section.....the beakers of Pechiche have almost a vertical body, generally a longitudinal loop handle at the middle and an annular base slightly open downward" (*ibid*).

Be that as it may, the only indication that such a vessel occurred at Guarumal is the find of a single loop handle from the surface contexts of Unit C. It may possibly belong to another sort of vessel entirely, of course, but nevertheless does look exactly like those depicted for Pechiche beakers. It is of rather coarse fabric and appears to be unpainted, although possibly may only be badly weathered (Plate 9-3).

The Pechiche beakers are decorated with elaborate incision depicting Chavinoid human faces, which are post-fired painted, an interesting technique also found in the Formative period in southern Ecuador, which is noted by Guffroy, for example, for his Catamayo C and D traditions (1987: 90&96)

FIGURINES

The hollow figurine tradition is a major characteristic of the Ecuadorian Regional Developmental period in Ecuador and most of the contemporary cultures of this period have their different distinctive kinds of figurines. No whole nor even nearly complete figurines were found from Guarumal or from Punta Brava, but fragments of such do occur.

The "startled eye" motif described later on p: 174 and used mainly in conjunction with modelled appliqués is also found on a single solid figurine fragment from Guarumal (Fig: 42b; Pl: 4-8). It bears little resemblance to anything figured in the Estrada, Meggers and Evans publication (1964, *ibid*), although the eyes themselves are like those in Fig. 15a and 16b (*ibid*: 504-505) and also the division at the top of the head into two separate lobes is rather similar to that described for a Jambelí form (*ibid*: 502). As such, it is also reminiscent of some of the Vicús figurines which have heads divided into two lobes or spheres (p: 261).

The second and more common rendering of eyes is used on both the hollow human head fragments from Guarumal and from Punta Brava (Fig: 42 a & e). It involves incising an elongated diamond shape, with four separate strokes to frame a through-wall circular punctation. A large hooked nose with nostrils remains on the Guarumal specimen and the mouth is an irregular horizontal line beneath this. The face is divided from the missing head, or headdress by another horizontal incised line, and the rounded, well-proportioned ears are sculpted with a curvilinear incision suggesting a large round earloop. The fragment from Punta Brava has lost its nose, although the two nostrils punctured beneath and the irregular horizontal line of a mouth remain and are very similar to the Guarumal specimen. The ear, however, is more rectangular than rounded, and so are the incisions which follow its shape. The fragment of a small, hunched shoulder remains beneath the continuous sculpted line of earlobe, cheek and chin. The face is divided from the squarish head, rather as the Guarumal specimen, by incised horizontal and vertical lines, suggesting a simple hairline. One short, vertical stroke, probably one of a pair, occurs to one side of the top of the head. Both figurine fragments are red painted.

TABLE 10

DISTRIBUTION OF FIGURINE FRAGMENTS

	GUARUMAL	PUNTA BRAVA
HUMAN FACE (Fig. 42a; Pl. 9-2)	C14 ₃	
HUMAN FACE (Fig. 42e; Pl. 12-6)		Unit 2 ₃
?DOG FRNT LEG (Fig. 41a; Pl. 7-4)	C3/4 ₄	
?DOG FRNT LEG (Fig. 41c)	C3/4 ₄	
?DOG PAV (Fig. 41b; Pl. 7-5)	C3/4 ₅	
?DOG PAV (Pl. 4-1)	Surface	
?LEG&FOOT (Fig. 41e)	C20 ₁	
FIG. FOOT (Fig. 38g; Pl. 4-7)	Surface	
?ANTHROP. HEAD (Fig. 42b; Pl. 4-8)	CSurf	
?TOP OF HEAD (Pl. 5-1)	CSurf	
?ANTHROP. ADORNO (Fig. 38e)	B ₁	
BIRD ADORNO (Fig. 42c; Pl. 4-5)	CSurf	
BIRD ADORNO (Fig. 42h)		Unit 2 ₃
?HEADDRESS/ BIRDTAIL (Fig. 41d; Pl. 4-4)	CSurf	
?POSSUM ADORNO (Pl. 4-6)	Mound 5	
?PAW POLYPOD (Fig. 41f; Pl. 4-2)	C10 ₁	
INCISED SERPENT (Fig. 42f; Pl. 12-5)		Unit 2 ₁₀

(nb: Unit number followed by layer in subscript)

Estrada, Meggers and Evans describe "a highly stylised hollow anthropomorphic figurine" as being "characteristic of the Jambeli culture" (*ibid*: 502) and continue by describing the type in great detail (*ibid*: 502-505). It is interesting that while the fragments from Guarumal and Punta Brava share many of the same techniques of execution as these Jambeli figurines, the overall effect achieved is rather different. This is almost certainly due to the proportions of the face and the features, which make the two faces from Guarumal and Punta Brava seem rather more naturalistic than the anthropomorphic oddities from the Estrada *et al* assemblage. Another rather large and solid pottery fragment from Guarumal suggests the top of a figurine head, but it is too crude and poorly finished for this interpretation to be more certain (Pl: 5-1). It is also quite possible that the solid pottery fragment with deep vertical incisions and a hole punched centrally, already described under the appliqué section as being suggestive of the tail segment of a bird adorno, could alternatively be the headdress of a human figurine (cf Estrada *et al*, *ibid*: 503c).

The presence of hollow, stylised feet, usually with four short vertical incisions, suggestive of toes (Figs: 38f,1; 41b) has already been mentioned under the heading on polypods (pp: 155-6). Whilst these may possibly be the supports for bowls, it seems far more likely that those figured for this section at least have come from free-standing hollow figurines. If, indeed, they do, then it is certainly a departure from the style of figurines described by Estrada, Meggers and Evans, wherein "The legs are typically not separated; the feet are formed by eversion of the lower end of the body outward at the front and back. Incised lines indicate a minimal number of toes, usually three per foot" (*ibid*: 502. Fig: 41e, however, may possibly be legs/feet produced in this way). Unfortunately, there is no way of knowing whether these more naturalistic figurines were imported or in production here.

So far, we have dealt with human figurines, but fragments from Guarumal also suggest the presence of animal figurines. One of the hollow feet mentioned above is almost certainly that of a dog, having the distinctive dew claw in the appropriate place on the inside of the foot (Fig: 41b). Another much larger and similarly red-painted fragment is of the right forearm and chest of an animal which also seems to be more canine than human (Fig: 41a) and there is a third, smaller, red-slipped

example which probably also represents a dog's paw (Pl: 4-1). Good quality polished red slipping of these fragments and fine, well-fired fabric attests to a generally high quality of figurine production and not at all as one would tend to expect from the descriptions of Estrada, Meggers and Evans.

Very few and poor quality figurine fragments were found by Izumi and Terada. There is one which is suggestive of a foot such as that described above, but nothing else worthy of comment (*ibid*, 1966: Pl.: 24b: 1&6). Comparisons with the Guayaquil Phase figurines are described in detail in the relevant section (p: 218), where similarities to both the Naupe and Guayaquil Sólido types are discussed. It is noted there that the Guarumal and Punta Brava figurine fragments have more in common with the Guayaquil phase tradition than with those of the Jambelí culture (Parducci and Parducci, 1975 *ibid*: 95-102; Figs 7 & 8).

DESIGN ELEMENTS

Most of the main methods of surface treatment of the pottery from Guarumal and Punta Brava have been described in both the typologies of Estrada, Meggers and Evans (1964) and Izumi and Terada (1966). These fall into the following broad groups:

- 1) Painting, which includes both surface slipping and decorative design, either upon the plain fabric of the pot or its painted surface.
- 2) Modification of the vessel's surface by notching, incision, punctation, impressing or simply rasping the fabric with the serrated edge of a shell (usually *Anadara grandis*).
- 3) Application of modelled clay, either as fillets, nubbins or anthropomorphic or zoomorphic shapes.

These can occur separately or in combination with one another, as with the decorative notched rim on white-on-red painted bowls (Figs: 56e), incision and punctation on the red slipped compotera pedestals (Figs: 32 a-c, e & g) and modelled appliqué on painted bowls.

1) PAINTING

Perhaps owing to the limited sample size, to effects of erosion and weathering of vessel surfaces, or to both, neither Guarumal or Punta Brava (from which the sample size is somewhat smaller anyhow) have the same wide range of painted decoration described in the typologies of Estrada, Meggers and Evans and Izumi and Terada. The post-fired painting technique described by Izumi and Terada (*ibid*: 45) was not recognised, whilst white, negative and three-colour painting are all rare.

Easily the commonest mode of decoration, apart from simple surface slipping in red, is the white-on-red style. Estrada, Meggers and Evans describe it as "characteristic throughout the seriated sequence" (1964: 535), whilst Izumi and Terada comment that "painting in white-on-red slip is the principal decoration of the pottery" (1966: 47). White-on-red and red and white painting also feature in the San Pedro and Bellavista phases of the Guayaquil culture.

WHITE-ON-RED, WHITE AND RED

Izumi and Terada noted the considerable variation in this category of decoration, firstly in terms of the range of the two colours: the red varying from a bright orangey red, through vermilion to deep scarlet and almost brown and the white from a fresh white, through a pale yellow to buff.

Included in the white-on-red category is a type of decoration, exactly similar to that used with white paint against a red slip, but being instead a pale orange. In this case the design appears as if in resist against the darker red slipped surface of the vessel. It is difficult to determine how deliberate the intent behind this colour use was. Certainly in some instances it appears to be as a result of a surface erosion of the white pigment, leaving a yellowish stain beneath. In other instances, both shades are present in different designs upon the same vessel and in these cases it does seem as though on purpose, with the white sometimes being used in larger block designs and the pale orange in a trailing zig-zag motif (Pl: 11-2; Fig: 43c) or as smaller areas of rectangular or triangular block where a white-painted cross-hatched motif predominates (Fig: 14a).

White paint is also used directly upon the unslipped vessel surface, which is commonly an oxidised red through firing anyway. Estrada, Meggers and Evans call this their Jambelí White Painted (1964: 535-6) and it largely conforms to the longitudinal stripe motif described later in this section (p: 164). Izumi and Terada also recognise this as a common decorative motif (1966: 54), together with the practice of white and red painting with each colour applied to separate areas of the pot, but in designs so similar to true white-on-red and in such a manner, that it is often very difficult to distinguish the two methods and to all intent and purpose they are the same and are treated as such (*ibid*: 47-48; 57).

Forms 1, 3-7, 11 and 22 are commonly decorated with white-on-red painting. It is, indeed, rare for these vessels not to be well-finished at least, with a good quality red slip and well fired. Of the bowls, some have plain interiors with only exterior decoration, but it is more usual for them to be red slipped on the inside or to have, in addition, one or more circumferential white bands which vary in thickness from between 4 to 15mm. Sometimes the surface of the lip itself is painted in white. It is not uncommon for a pot to have quite intricate motifs both inside and out (Figs: 9d-f; 14c). Shallow forms, such as Forms 5, 6 and 7, can have more complex interior motifs, such as white bands perpendicular to the circumferential rings, radiating inwards to the centre (Fig: 11 a&b), small series of white triangles, rectangles and dots from the rim to the centre (Figs: 15e; 56a) or areas of cross-hatching with large open triangles (Fig: 14a). Deeper forms are usually only red-slipped, or sometimes plain, although one exception has a quite complex interior motif consisting of a broad white band and cross-hatching, more usually associated with the interiors of shallow bowls, or the exteriors of deeper ones (Fig: 6d).

Of the designs typically found on the exteriors of the bowls, simple bands, either continuous or interrupted also occur, sometimes with accompanying strokes or dots of white. Rectangles, triangles and lozenges, open, partially or completely blocked out in white are favoured motifs (Figs: 1-3; 6; 8; 9; 14; 15; 46. Some of the triangular motifs compare well with similar ones from the Guayaquil phase: Parducci, 1975: Cuadro 10: 1-2). Arcs, spirals, stepped frets and key patterns are also found (Figs: 44; 47; 48b). Hatching and cross-hatching, more commonly associated with the interior rims of jars and

their exterior shoulders, additionally occur on the interiors of shallow bowls and the exteriors of deep ones, where the design is regular and well delineated, usually within the confines of a larger open white rectangle or triangle (Figs: 9c & 13a; 14a).

Whilst the geometric emphasis of these designs is indisputable, rare large sherds of Form 1 bowls from Punta Brava suggest that stylised animal figures may be present in some of the motifs, as yet unrecognised owing to the fragmentation of the design. These sherds also have horizontal and vertical bands, blocked rectangles, spirals and frets, but taken together these convincingly resolve themselves into the shoulders, head with eye and snapping jaws of a crouching cayman or jaguar, especially in the case of one example (Fig: 43c; Col.Pl.3-2). Two more sherds replicate elements of this design in a similar way: one with spirals around the "eye" (Fig: 44b; Pl.11-3&4) and the other suggesting the crouched shoulder, with indeterminable sections of the body behind (Fig: 45d). A further two may well be the surviving fragments of such a larger stylised design (Fig: 47d). This makes one question the actual number of sherds with the geometric motif described above which may originally have been sections of a larger stylised design on the whole pot. Only one was recognised from the Guarumal inventory, perhaps owing to too great a fragmentation of the pottery there (Fig: 1d). If these designs are indeed stylised jaguars or caymans, there is the possibility of their being representations of Chavinoid influence, which would be possible, considering similar influence (although rather different representation) recognised by Izumi and Terada in the Pechiche culture further to the south (Izumi and Terada, 1966: 72) and also considering the overall dating of the Chavin Horizon to between 900 and 200 BC.

Longitudinal stripe, hatch and cross-hatch is the common decorative technique used on the jars, of which Form 22 is the commonest thus treated (Figs: 26g; 27d&e; 28b-e). Circumferential white bands, singly or on the vessel's neck and shoulder as rings of concentric circles down the body occur (Figs: 59 b&c) as do decorative white arcs which are also used to define areas of deeper burnished red slip (Fig: 58a).

Longitudinal stripe, hatch and cross-hatched lines are all the same basic design element, producing varied motifs depending upon their angle of execution and combination in pairs or as groups of cross-hatching

(Figs: 35b,c,e&g; 36d,e,j&k; 65a). A significant feature of the white longitudinal stripe is its occurrence in pairs which radiate out over the swelling shoulder of the vessel. In this context, the white lines are either painted directly upon the red unslipped surface of the pot, as described earlier in reference to Estrada, Meggers and Evans' Jambelí White Painted Ware (*ibid*: 535) or upon a rather rudimentary red slip, which is rarely well applied or smoothed. The temper sometimes shows through the surface as fragments of quartz and mica. The paint is usually thinnish, corresponding to Izumi and Terada's description of Pechiche White-on-Red as being "thin" or "fugitive" (*ibid*: 54-5; 61). In some cases the white lines have been so thinly applied as to seem fugitive themselves, an effect which evidently occurs through the erosion of the extreme surface of the white design, leaving a dull, buffish colour beneath. Certainly, whilst appearing to be the vessel's surface, it can be flaked off to reveal red slip beneath. This effect is also common with the poorer quality cross-hatched wares (Fig: 26g). Although the white-on-red pottery of Guarumal and Punta Brava shares many of the same geometric design elements from the Guayaquil phase white-on-red and red and white decorated pottery, only broad white longitudinal stripes of the longitudinal stripe, hatch and cross-hatch decorative group feature in the Guayaquil phase (Parducci and Parducci, 1975 *ibid*: 178-184; Cuadro 10-1: b-e). There seems to be no hatch/cross-hatch recorded.

Cross-hatching has many features in common with the longitudinal line motif, especially in terms of the type of vessel it decorates, the quality of the red slip and the white paint. However, as well as being associated with medium and coarser fabric jars, it can also occur as a composite motif with other designs on the interior of shallow bowls (Figs: 13a; 14a) or as larger "lattice-work" motif on the exterior of the deeper Form 1 bowls (Fig: 1b). It is difficult to say whether the longitudinal lines occur regularly with the cross-hatching. A large body sherd of a jar from Guarumal (Fig.: 78n) seems to have both designs, but here, the longitudinal lines appear more as unhatched elements of an otherwise cross-hatched design and are not obviously planned in pairs, whilst the best examples clearly have been planned as such (Figs: 27d).

One single Form 1 bowl has a longitudinal striped decoration, but in this case the bands are quite broad, that is, around 12mm thick (Fig: 8e).

NEGATIVE PAINTING

The technique of producing resist or negative designs on pottery by blocking the motif around in paint - usually black, is one of the recognised characteristics of pottery decoration in the Regional Developmental Period, although it is a technique which also commonly occurs in the Formative period. It is present, although not common, in both the assemblages of Guarumal and Punta Brava. In neither the typology of Izumi and Terada, nor that of Estrada, Meggers and Evans is the negative technique a very common one, constituting a mere fraction of 1% of the total sherd samples in both cases. Negative decoration is rather more common from the Bellavista and San Pedro phases of the late Formative Guayaquil complex.

An effort has been made here not to confuse the simple use of black paint as immediately indicative of the negative technique, a failing that is apparent in the typology of Estrada, Meggers and Evans (*ibid*: 524-5; 526-7). Izumi and Terada have certainly been at pains to distinguish these two methods (1966: 46-7).

A variety of different designs are described for this technique by both Izumi and Terada and Estrada *et al* (*ibid*, 1966: 58;63) (*ibid*, 1964: 524-5) and indeed in many ways they seem to follow basic white-on-red motifs, with geometric elements of lines, circles, frets, rectangles and dots in a variety of combined ways. In the Garbanzal culture, stylised animals on the interiors of fine bowls are included.

Of all these motifs, one of the most characteristic seems to be the design of a black straight or curvilinear band with either white, or more simply resist dots in the unpainted red slip, in a row. An interesting variation of this occurs on a Form 7 bowl from Guarumal, where a narrow white band, some 5-6mm wide, has dark, greyish resist dots in a row along it, perhaps formed by allowing soot or charcoal from the firing to stain the resist matter used. The other two negative sherds from Guarumal occur on a Form 6 bowl, with notches along the outer edge of the rim (Fig: 13b; Pl: 1-10) and on the interior of an otherwise plain red slipped Form 3 bowl (Fig: 6e). There is only one obvious negative painted sherd from Punta Brava, which looks broadly identical in pattern to the last mentioned from Guarumal, except the

design occurs on the interior of a Form 1 bowl which has a simple triangular white-on-red motif painted upon the exterior (Fig: 49a).

BLACK, WHITE AND RED PAINTING

This is otherwise called two or three colour painting, where black paint is used decoratively against the red background slip or to supplement the white-on-red motif. Included of necessity may also be sherds of negative painted vessels which are too small to be able to be distinguished as such. As previously noted, Estrada *et al* seem to have included all this group within their negative category. Izumi and Terada have noted the distinction and found it primarily to occur on their Pechiche phase jar B11, where the use of black lines framed with fine white bands or white dots is fairly characteristic (*ibid*: 54-5). The use of black paint on bowls is also attested, although it represents the least common decorative mode (*ibid*: 48-9). As with the negative painting, decorative painting in black, white and red, or black and red, whilst represented, is nevertheless uncommon at Guarumal and Punta Brava. There are but two bowl sherds from Guarumal, one of Form 1 and the other of Form 2 (Fig: 7b). Of the three from Punta Brava, one is on a Form 5 bowl, as a black circumferential band close to the base of an otherwise burnished white-on-red vessel (Fig: 44a). The other two are both upon the interior rim of otherwise red slipped jars of Forms 21 and 22 (Figs: 59d; 62a). The latter is very similar to Izumi and Terada's B11 vessel.

PLAIN WARES

By far the greater proportion of sherds from both Guarumal and Punta Brava are plain unpainted or otherwise undecorated, although many of these may simply be the plain fragments of partially painted or decorated pots. Whilst many plainware sherds are of coarse utilitarian vessels, such as Form 18 bowls and jars, there is nevertheless a significant proportion of medium to fineware pots from such groups as Forms 8, 9, 13, 18 and 21. The total sample was not really large enough to attempt a more subtle division of wares, other than as rather generalised coarse, medium and fine types.

Izumi and Terada have managed three such categories: Garbanzal Coarse (*ibid*: 58), Garbanzal Unpainted (*ibid*: 59) and Pechiche Unpainted (*ibid*: 64), although they do admit that the last two are difficult to distinguish. Many of their jar forms are associated with these types, together with some of their large, deep and sometimes coarse bowls (*ibid*: 33; 35-7). Estrada *et al* differentiate Ayalan Plain (1964: 516), Jambelí Plain (*ibid*: 525) and Posorja Polished Plain (*ibid*: 537) and sherds corresponding to all these types were found at Guarumal, although the somewhat coarser, less well-finished Jambelí Plain ware tends to predominate. Parducci and Parducci (1975 *ibid*: 160) recognise different qualities of paste within their *Plain (Ordinario)* ware pottery, depending upon the relative size and purpose of the vessel. Their Grey or Brown Polished wares (*Gris o Marrón Pulido*), which are also plain in the sense that they are otherwise undecorated, are of finer quality paste (*ibid*).

RED PAINTED OR RED SLIPPED WARES

Probably the second commonest category of wares are the sherds of vessels which have been slipped or painted in red pigment. The range of quality and colour are great, from a thin red wash-like coating which is easily eroded, to a bright or a deep red, well-burnished and even lustrous.

The one reconstructed vessel from Guarumal of a Form 7 bowl was simply slipped in red pigment and was not at all well polished, as were some of the other sherds of this group. Red slipping probably includes almost every category of vessel, although naturally it is very hard to always be certain that such a red slipped sherd was not originally from a pot with some white, black or even negative painted decoration.

Red painting or slipping of pottery occurs as Jambelí Red Wash or Jambelí Polished Red in the Estrada, Meggers and Evans typology (1964, *ibid*: 530-1) and as Garbanzal White-on-Red (a category which includes many red painted only sherds) and Pechiche Red in the Tumbes cultures (Izumi and Terada, 1966 *ibid*: 57-62). Parducci and Parducci describe two categories of red painted pottery: *Ligero Baño Rojo (alisado)* and *Rojo Pulido* for their Guayaquil Phase (1975, *ibid*: 170-176). It thus seems usual for there to be two standards of red painted pottery: one a rather

crude light wash and the other a better quality red slip, which can be well-polished or even highly burnished.

OTHER CATEGORIES OF PAINTING

There are a few other categories of decorative painting, although they are of decreasing significance in the assemblages of Guarumal and Punta Brava.

Red banding is a simple and a relatively common decorative technique, however, and is characterised by the application of a broad band of paint, usually between 15 and 25mm wide, in a fairly standardised manner. In its simplest form it occurs only around the rim interior or exterior, but this can also become the continuation of a complete surface slipping of the opposite side (Figs: 2d; 3a; 4a; 7a&e; 10a; 14a; 34e; 50a; 56a). Exterior rim banding may also be found in conjunction with white-on-red painting of some bowl interiors (Figs: 59c,d,h; 60a; 61a-c). The most typical categories of vessel for this method are Forms 1,5 and 6 and occasionally Form 22, although this seems to be more common at Punta Brava (Figs.: 56a-c,g; 77c). Estrada, Meggers and Evans refer to this as Jambeli Red Banded (*ibid*: 530), but as at Guarumal and Punta Brava, it does not seem to constitute a very significant element in the overall assemblage. Izumi and Terada make no reference at all to red banding in their typology, but it is described for the Guayaquil Phase as *Bordes Rajos* (red rims), where it is similarly uncommon and restricted to one bowl and one jar form and in the former, to the rim edge only (Parducci and Parducci, 1975 *ibid*: 176-178).

The use of two-tone red slip decoration is also found at Guarumal, although it seems unlikely that this was a common technique (Figs: 8 c&g). Red and light reddish brown colours are used in alternating bands or blocks and, in one case, in conjunction with white pigment which is used to separate the two areas of red from each other (Fig: 8c interior). Neither Estrada *et al*, nor Izumi and Terada mention two-tone red painting in their respective typologies, although something akin to it is found in Sechura B with the use of contrasting zones of colour (Lanning, 1963: 171).

There is only one example of a white slipped pot, which is a Form 1 bowl from Guarumal. Plain white slipping of pottery is known in both the typologies of Estrada *et al*, where it is called Jambelí White Wash (*ibid*: 536) and of Izumi and Terada (*ibid*: 58), but in neither does it constitute a very significant element. This example from Guarumal is of rather poor quality and not at all well finished (Fig: 4c)

PATTERN BURNISHING

Pattern burnishing also occurs, although rarely, and has only been recognised with areas of red slip, where it is used to raise lines or large dots in a decorative fashion (Fig: 43e). Estrada *et al* refer to the presence of "Guangala Burnished Line" trade sherds in their assemblages, but do not say whether this technique was used locally or not (*ibid*: 537). Izumi and Terada make no mention of it. Parducci and Parducci describe a minority category called *Lineas Lustradas* (polished lines), where parallel vertical or oblique lines are decoratively raised by use of a blunt pointed instrument (1975 *ibid*: 201-202).

INCISION

Incision is the technique whereby decorative patterns are achieved by inscribing lines in the still-wet clay of the vessel. Although it is often associated with otherwise plain pots, one category treated in this manner includes what are probably the tall, fine, red-slipped annular pedestals of *compoteras*. In this case, a standardised style of decoration is employed, with sets of two or three continuous or disrupted parallel circumferential lines, interspersed with oval or keyhole shaped apertures pierced through the wall of the section (Figs: 32 a-c, e & g; Pl: 3-1). The "censer" vessel: Fig. 67-1 employs an identical motif and, as previously noted, these styles are present at Guarumal, but were not found at Punta Brava. The only comparable sherd is that already described (p: 141) as Form 17, with deep scoring beneath the rim exterior and impressed circles with through-wall circular holes pierced within them (Fig: 56). Estrada *et al* call this category their Jambelí Incised ware, with which they principally associate the tall annular pedestals of their Form 4 bowls (*ibid*: 516; Figs.: 24-26). Izumi and Terada do not seem to recognise this style.

Despite a strong correlation of the incision technique with their fine P6 compotera and occasionally with P5, the actual motifs employed are rather different. Whilst some mention is made of white paint being occasionally applied to the incised squares in the design (*ibid*: 39), the characteristic polished red slipping is apparently absent. Indeed in their description of the Garbanzal White-on-Red, they actually note the inclusion of mostly plain compotera pedestals within this category owing to the style of decoration of their bowls (*ibid*: 57).

Other styles of incision do tend to be mostly associated with otherwise unpainted vessels, although often combined with such techniques as appliqués (p: 174), impressed rings (p:174), notching (p: 173) and punctation. A good example of the latter is shown in Fig: 33c; Pl:3-4 on the lower portion of an unclassified jar from Guarumal, which has horizontal, circumferential lines with groups of radiating perpendicular verticals in conjunction with decorative impressed rings.

Into this category is included the common use of geometric motifs other than simple use of lines, especially triangles, rectangles and squares and stepped frets (Figs: 24e; 34d; Pl: 2-7). Several of the techniques and motifs described by Parducci and Parducci in their category for incision, punctate and appliqués (*inciso, punteado y botones*) contain design elements which are broadly comparable to this group, especially in the combination of incision with punctate designs. (1975, *ibid*: 202-208; Cuadro 10-7).

This group would better include the P5 and P6 compotera bases and also the pendant rims of the coarse and heavy P8 compotera of the Tumbes collections (Izumi and Terada, 1966: 34-5; 39; Pl.: 38:5,10-14;Pl.: 39:1&2)). There is but one large sherd reminiscent of this heavier variety of compotera P8 or Estrada, Meggers and Evans' Form 12, which has the much simpler motif of a single scalloped line incised around its pendant edge, with small holes pierced at the apex of each point and a single straight line incised above it (Pl: 3-2). It is otherwise plain and unpainted. Other than this, there is only one fragment from Guarumal and another from Punta Brava which replicate a tiny element of the design shown for both Izumi and Terada's P8 (*ibid*: Pl.: 39-1) and Estrada, Meggers and Evans' Form 12 (*ibid*: Figs.: 27-28). This is a series of straight parallel vertical lines set against an impressed ring with a hole pierced in its centre (Figs: 39h; Pl: 12-7 & 42g;Pl: 4-3)

and it seems quite possible that these sherds were from such a vessel. Small, typically incised body sherds of Izumi and Terada's Form P5 (and possibly also the finer P6, although the rim shape of this form has never been found at either site; Figs.: Pl.: 38-5, 10-14) also occur at Guarumal and similarly it seems plausible to believe that they may be of this type (Figs: 38 c&d; 39 i-k; Pl:3-3).

A very important category of incision occurs with the figurines, or those parts of vessels modified to represent stylised animal faces. The former group will be considered under the figurine sub-heading (pp: 158-161). Of the latter, small modelled birds' heads is discussed under the appliqué and adorno sub-heading (p: 174-76). Suffice to comment that the straight horizontal and incised strokes combined with impressed rings is certainly the commonest technique employed. Two very interesting sherds from Guarumal show these simple decorative elements used to great effect to produce stylised zoomorphic faces, one beneath the rim of an otherwise unclassified jar sherd (Figs: 33e; Pls: 3-8; 4-6). From Punta Brava, another sherd treated in this manner produces a fine, stylised serpent head (Fig: 42f & Pl: 12-5).

Other styles of incision occasionally occur, but apparently in a non-standardised or "one-off" manner. The unique sherd from Guarumal, described earlier (Fig: 34d), has two large cruciform designs beneath the plain flat rim, apparently made by a fairly blunt, broad pointed instrument. The appliqué nubbins with which the incised designs alternated are much eroded now. Four sherds from Punta Brava also bear rather spurious incised designs. One is a plain, unpainted body sherd with deep intercrossing gashes on the interior of the surface, very evidently made in the clay while still wet. The other three are all on the interiors of Form 14 bowls. One has part of a broad arc consisting of two very finely inscribed lines, whilst the other two both have portions of a triangle apex, one of which is combined with an area of shell-scraping (Figs: 51 & 52d).

Parducci and Parducci have a category for incision, punctate and appliqués (*inciso, punteado y botones*) which is most commonly associated with their form 22 jar (1975, *ibid*: 202-208; Cuadro 10-7). Several of the techniques and motifs described are comparable to those found at

Guarumal, more especially in the combination of incision with punctate designs.

NOTCHING

This is the technique of nicking the rim or the shoulder angle of carinated vessels to make either a continuous row or short groups of "V"-shaped notches. It is usually associated with the rims of both fine and coarse bowls of Forms 1,6 and 14 and also rarely with such forms as 9 (Fig: 21a & 56e) and unique forms (Fig: 33b). It is not unusual for a bowl to be decorated with both white-on-red painting and to have a notched rim (Figs: 8b; 45a; 56e).

Izumi and Terada recognise this technique as belonging to their late or Garbanzal Phase, where they also associate it with the flanges of their thick P7 and P8 compoteras (*ibid*: 40-1). Rather surprisingly, Estrada, Meggers and Evans make no specific mention of notching as such, but illustrate examples of incised sherds which are also notched along rim or flange edges (1964 *ibid*: Figs 27-28). Notching of rims and flanges certainly occurs in the Guayaquil phase, as it also does in Engoroy pottery.

PUNCTATION

This describes the method of puncturing the surface of the pot with short, sharp stabbing marks that range from small pointed holes or pricks to short gashes (Fig: 38b). It is not well represented in either the Guarumal or the Punta Brava assemblages, but then neither does it seem very common in either those of Izumi and Terada (*ibid*: 41-3), or Estrada, Meggers and Evans (*ibid*: 528-30) where it accounts for a mere fraction of a percentage for each.

Izumi and Terada include impressing with a hollow cylindrical tool into this category (*ibid*: 41-2), whereas Estrada *et al* treat it as a variant of their Incised ware (*ibid*: 517). On the other hand, Estrada *et al* include nicked appliqués with their Jambelí Punctate (*ibid*: 528), which are discussed under the appliqué heading in Izumi and Terada, as, indeed, it is proposed to do here (see below). Parducci and Parducci

discuss their punctate (punteado) under their overall Inciso, Punteado Y Botones category (see above). They note its rarity as a single decorative element, occurring most commonly in conjunction with incision (1975 *ibid*: 206-7). This is certainly the case with Guarumal and Punta Brava pottery, where the punctate technique has only been found in combination with other decorative categories such as incision (Figs:24e; 33 c&e) and nicked appliqués (Fig: 38b).

REED IMPRESSING

This specifically concerns the use of what were possibly the cut-off ends of reeds to produce a uniform circular impression in the wet clay of the pot. It is most commonly "finished" by piercing the centre with a punctation or hole and usually occurs together with incised geometric motifs (Fig: 33c; 39h; 42 f&g). In figurines and adornos it is used to produce the "startled eye" motif: one of the two methods employed to depict eyes (Figs: 33e; 42 b&c; Pl: 14-6; see Figurines above).

APPLIQUÉS AND ADORNOS

These are dealt with under the same heading as they are basically the same thing: pieces of modelled clay applied to the surface or the rim of the pot to adorn it in a supplementary manner.

The following may be considered as being adornos or appliqués:

- narrow serpentine bands of clay, almost always decorated with series of incisions, notches or punctations (Figs: 39o; Pl: 5-5; Pl: 12-2&3). Only one such example was found at Guarumal, whereas there are six from the one small trench at Punta Brava. Both Estrada, *et al* (*ibid*: 528) and Izumi and Terada (*ibid*: 43-5) recognise this category which, as mentioned previously, the former include in their Jambelí Punctate group. Parducci and Parducci include it as a minority element in the Guayaquil phase (*tiras sobrepuestas* and *tiras y botones sobrepuestos*: 1975 *ibid*: 227; 231).

- shorter "boss"-like appliquéés which are flattened pieces of clay treated in the same manner as the larger serpentine bands described above, which is to say they are nicked across (Fig: 39m; Pl: 5-6). One good example of such from Guarumal is bordered by zoned incision (Fig: 42d; Pl: 5-4). Another rather curious sherd is rather cruder, with a row of punctations beneath the appliqué (Fig: 38b). Although most of the serpentine nicked fillets seem to be on otherwise plain, unpainted vessels, these "bosses" can apparently be on red-painted pots. This category was apparently not differentiated from the serpentine nicked fillets described above by Estrada, Meggers and Evans. Izumi and Terada refer generally to appliquéés in the varying forms of disk, ball or long rectilinear or curvilinear band on the wall (*ibid*: 43) which would include this type. Apart from the diminutive appliqué *botones* which always go together with incised or incised and punctate decoration (Parducci and Parducci, 1975 *ibid*: 207), appliquéés and adornos in general seem to be a rarity in the Guayaquil phase.

- modelled appliquéés or adornos representing stylised animals or birds' heads. These are treated in much the same manner as figurines, except inasmuch as they are physically attached to the vessels. There are two pottery bird's head adornos, one from Guarumal and the other from Punta Brava. Interestingly, they seem to suggest different species of bird (Fig: 42 c & h) and both are dark grey, evidently having been fired in reducing conditions. A small, deeply incised pottery fragment from Guarumal (Fig: 41d) is very reminiscent of the tail portion of the bird adorno depicted in Estrada *et al's assemblage* (*ibid*: 523), but it is also possible that it may be the headdress of a human figurine (*ibid*: 503-4). There is also one highly stylised adorno of an animal's head from Guarumal (Fig: 38e, Pl: 2-6). Exactly in what way they were attached can only be surmised, since no sufficiently large fragments of pots with accompanying appliquéés survive from Guarumal or Punta Brava. Izumi and Terada mention them as decorating the upper parts of the tall pedestal bases of *compoteras* (*ibid*: 45) and affirm that they stick out in such a manner as to readily break off. They mention the finding of bird's head adornos (*ibid*: 65). Estrada *et al* include these modelled appliquéés within their Jambelí Incised section as adornos, of which three are birds' heads and three are animals of some description (*ibid*: 516-7; Fig.: 29). Two

further stylised animals' heads, possibly depicting possum-like creatures, appear to derive from pot rims (Figs: 33e; Pls: 3-8, 4-6). No specific mention is made of such representations in either of the two aforementioned typologies.

Generalised decorative modelling of the rims of pots is occasionally found, as with two Form 11 rim sherds from Guarumal, one of which is adorned with a stylised snake and otherwise decorated with punctations and rather eroded white-on-red paint (Fig: 21f & 22g).

SHELL-SCRAPING

This is the technique of rasping the serrated edge of a bivalve shell, usually *Anadara grandis* and possibly larger specimens of *Anadara tuberculosis* across the surface of the vessel while still wet. Shell-scraping occurs most commonly on the interiors of Form 14 bowls (Figs: 55 a & b), the exterior necks of Form 19 funnel-necked jars (Fig: 30) and Form 21 medium to long-necked jars (Fig: 63d). Occasionally it is found on other forms, but it is almost always associated with medium to coarse, unpainted and usually otherwise plain vessels, where it seems to have been used as a rudimentary finishing technique. It may well have also served as a crude decorative method as on the necks of Form 19 jars, some of which have rather exaggerated deeply scored lines rasped uniformly down in a vertical direction (Fig: 30; Pl: 5-3).

Estrada, Meggers and Evans recognise this category as Jambelí Shell-Scraped (*ibid*: 531) where over 94% of sherds with this treatment are of their jar with constricted neck and everted rim category. This would compare well with the Guarumal assemblage, but as mentioned before, many of the Form 14 bowls from Punta Brava have been shell-scraped on their interiors (pp: 138-9). This may well be included in their less than 5% attributed to their Forms 1 and 10, however. Interestingly, Izumi and Terada make no mention of shell-scraping. It seems rather strange that a fairly common technique in pottery manufacture should be missing from a repertoire which has much else in common with the southern coastal Ecuadorian cultures. There is no mention of this decorative technique in the Guayaquil phase.

NON-CERAMIC FINDS

STONE ARTIFACTS

Although several stone artifacts were found at Guarumal, including metates, manos, hammerstones, axes and adzes, none derived from stratified contexts, all having been retrieved from the surface of the site after superficial clearance. Only one fragment of a basalt axe was found at Punta Brava.

Apart from the 1980 metate and mano of coarse-grained conglomerate, all the stone artifacts discussed below appear to be of igneous material, which is most probably basalt in one or another of its forms.

METATES

Two whole metates were found at Guarumal, one in the 1976 season, close to Mound 3 and the second, together with a mano (see below,) in 1980 by Mound 1.

- The 1976 Mound 3 metate (Fig: 69) is of grey, coarse-grained igneous material, oval in shape, shallow of depth with a well-smoothed, slightly concave working surface.
- The 1980 Mound 1 metate (Pl: 13-1) is of grey, coarse-grained marine conglomerate, sub-rectangular in shape, shallow of depth, with a flat, less well-smoothed working surface than the former, owing to the coarseness of the material [unfortunately, no drawing is available for this find].

MANOS

A half fragment of a grey, coarse-grained basaltic mano was found in the 1976 season (Fig: 70a).

In the 1980 season, a whole mano was found close by the metate described above. It is elongated and rectangular in shape, fairly narrow in cross-section and also of coarse-grained marine conglomerate like the metate (Pl: 13-1) [Unfortunately, no drawing is available for this find].

HAMMERSTONES

Two hammerstones were found in surface contexts in the 1976 season, both roughly ovoid and pitted on their ends through use (Figs: 70 b & c).

AXES AND ADZES

The 1980 season produced a total of seven axe and adze fragments, all of them from surface contexts (Fig: 67). Three of the adze fragments derive from what were probably broadly similar implements, most readily perceived from the most complete specimen (Fig: 67c), which is missing only a portion of its top and side. As with the two other fragments, it is made of coarse-grained grey basaltic material, the same as the 1976 metate and hammerstones. Evidently, it was rather narrow in section, of elongated rectangular proportions, with a squared-off top and a "V" shaped cross-sectioned cutting edge. The adze was presumably hafted by passing a handle through the regular circular hole cut through its body just above the centre.

The two other fragments preserve only the lower portions of the adzes beneath their hafting holes (Figs: 67 a&b). One (Fig: 67b) has a broadly curved cutting edge like the larger example described above, but the position of the remaining lower part of the hafting hole indicates that it was rather more centrally placed on the implement. The other fragment (Fig: 67a; Pl: 13-3) has a slightly more curved cutting edge, but the hafting hole is placed slightly higher up the adze head, as with the first-described tool.

Three other probable axe fragments are of a dark, brownish-grey basaltic material, one of which is partially polished (Fig: 68c) and the two others more completely so. The former, partially polished specimen was probably shaped rather like an isosceles triangle, having a short, barely curved cutting edge, long, straight, steep sides closing on what was probably a blunted point, but which is now broken off. The barely curved cutting edge is rather more "u" than "v" shaped and the long narrow body is virtually the same depth towards its top as its bottom. there is no indication of a hole for hafting, so the axe was probably bound by thongs to the handle.

Of the two other polished specimens, one seems to have been a rather broader, triangular shape [Unfortunately, no drawing is available] and the third is quite a fine, long and narrowly proportioned instrument, well-finished (Fig: 68b). Unfortunately it has lost both its cutting and hafting ends, but the remaining fragment makes it appear very regular, of the same width top and bottom.

The final implement, also of a dark brownish-grey basaltic material, is actually more like a hammer. It has a broad, blunt head, semi-circular or "u"-shaped in cross-section, with battering marks on its percussion end (Fig: 68a). The hafting end appears to have broken clean away in a sharp flat plane. Of considerable interest are the regular parallel striations around the width suggestive of cord sawing. The implement is well-finished and partially polished (Pl: 13-2).

Only one axe fragment was found from Punta Brava and it is rather similar in its proportions to Fig: 68c from Guarumal, being of isosceles shape. It is of smoothed, although unpolished basalt and it is far from clear which end constituted the working edge, for the "base" of the triangle" is squared-off in section and hence blunt, whilst what was possibly a pointed apex is now missing.

Estrada, Meggers and Evans describe finds of metate and mano fragments, hammerstones, bark beaters and other worked stones (*ibid*: 497-501) and they note the suggestion of cord-sawing on a fragment of worked serpentine (*ibid*: 501)

Izumi and Terada make no mention of stone artifacts whatever in their assemblages from Pechiche and Garbanzal.

OTHER ARTIFACTS

Other small artifacts of pottery, stone, shell and bone were found at both at Guarumal and Punta Brava and they commonly include beads and rings with other such rare items as shell necklace spacers, a worked shell spoon and a bone awl.

BEADS

The 1976 season produced two fine shell beads of *Spondylus princeps*, one from stratified contexts in Trench A and the second as a surface find (Figs: 70 d&e). In 1980, a rather cruder bead of plain white shell, possibly carved from *Anadara grandis* also came from surface contexts.

Burial 6 from the grave area close to Mound 4 (p: 86) produced ten very fine flat small white shell beads, each around 3-4mm in diameter, together with other beads of bone and the finger rings described below (Pl: 9-6).

Stone beads are less common than their shell counterparts. Four in all were found from at Guarumal: a grey-green polished bead of basaltic material, measuring 15x10mm and 5mm deep was recovered from Trench A in 1976. Another very similar one of dark brownish grey basaltic material came from surface contexts in 1980 (Fig: 40e; Pl: 9-7), as did a small elongated serpentine bead measuring a mere 5mm long by 3mm wide and 2mm in depth, bored with a length-wise hole. Feature 2II of Unit C produced a large fragment of a grey-green ?shale bead (Fig: 40f; Pl: 9-8).

A very uniformly discoid ceramic bead or spindle whorl was also found in surface contexts (Fig: 40c).

Finally, three bone beads were found associated with Burial 6 in the cemetery close to Mound 4. One is 15mm long and the other two are 20mm in length, 10mm in width and the same in depth. Their holes are bored lengthwise and they are quite well smoothed, but there is little indication of the type of bone from which they were fabricated (Pl: 9-6).

RINGS

A number of bone shell and finger rings were found together with the bone and shell beads described above. These are as follows: a small, rather crude white shell ring measuring around 16mm in diameter, 6mm wide and an average thickness of 2-3mm, probably manufactured from a shell of the species *Anadara grandis*. There is another fragment of half a similar ring. Three complete bone rings and the fragments of five

others were also associated with Burial 6. Two of the entire rings are of almost the same dimensions, with an average diameter of 20mm, an average width of 2-3mm and a thickness of 2mm. The other is somewhat larger, being 25mm in average diameter, a width of 3mm and 2mm thick. The fragments vary from one quarter to one half of a ring and they look to have had very similar dimensions to those described above. All these rings are rather crudely fashioned and are polished only on their exteriors, which are a natural, weathered brown colour. The ring interiors are not well-finished and show the unsmoothed bone grain (Figs cited).

BONE AWL

A rather fine bone awl was found in layer 1 of sub-units 3 and 4, Unit C at Guarumal (Fig: 40b; Pl: 9-9) It was undoubtedly fashioned from a long bone, possibly the tibia of a small deer, and measures a total of 77mm in length, from the top to the broken-off end. It is a maximum of 12mm wide and 8-10mm thick. The articulating joint at the head end has been squared off and perforated with a hole some 2-3mm in diameter, presumably to take a thread. Four short ridges interspersed with grooves are carved beneath, converging on the underside of the perforation (Fig.: 82g). A shallow groove runs the length of one side of the awl and the tool is smoothed, but not well-polished.

SHELL-SPACERS

Two rather interesting artifacts of white unidentifiable marine shell were turned up amidst the machine spoil during the construction of the Western Camaronera, close by the burial area (Fig: 40d). Both are approximately of the same dimensions, being rectangular in shape and 38mm long, although one, missing its end perforation, would probably have been some 2mm longer than this. They are both 5mm wide and very slender, a mere 1mm thick, which makes them very brittle. The whole specimen has a total of six perforations: two pairs at either end and two set slightly apart by nearly 10mm in the middle. The other undoubtedly possessed an identical grouping, but is now missing its end hole. It is uncertain as to what exact purpose these two artifacts would have served, but they surely must have held thread of some sort through

their perforations. Considering how delicate they are, it is unlikely that they would have withstood any robust usage, such as in weaving or fish netting, so possibly they were decorative, perhaps being incorporated into a necklace as spacers. Their finding amidst the spoil of the disturbed burial area would tend to lend credence to this idea. Maybe they were a part of a burial offering (as, indeed, we have seen simple bone and shell rings and beads), since despoiled.

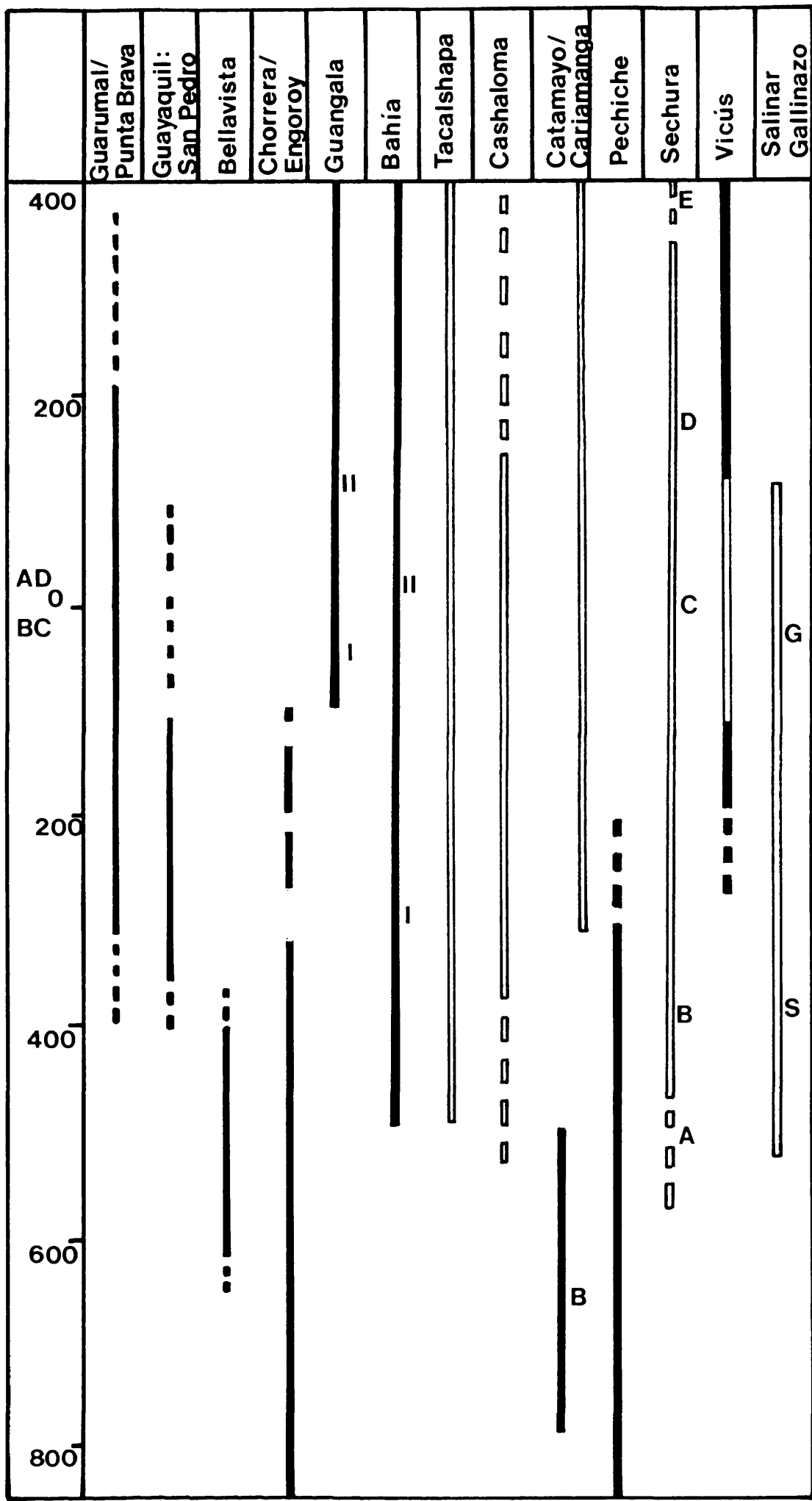
SHELL SPOON

A single worked shell utensil was recovered from stratified contexts in Unit C at Guarumal (sub-unit 8, layer 2). It is fashioned from the anterior portion of the marine bivalve *Ostrea lurida*, is slightly broken at one end and almost certainly served the purpose of a spoon (Fig: 40a).

PART IV

STYLISTIC PARALLELS





— C14 assisted sequence - - - relative sequence

STYLISTIC PARALLELS

INTRODUCTION

The preceding sections have detailed the excavations at the two study sites of OO-SR-SR-01 - **Guarumal** and OO-AR-AR-318 - **Punta Brava**, together with the pottery assemblages and other artefacts found there.

It is the purpose of the rest of this thesis to place the Guarumal and Punta Brava sites into an overall cultural and chronological framework in southern Ecuador within the timescale 300 BC - AD 300 (probably the main occupation span of the sites), and to use some of the issues deriving from an analysis of the material and the occupation of the sites to assess the validity of the Jambelí culture, as defined by Estrada, Meggers and Evans. Questions arising from cultural relationships over southern Ecuador (and parts of northern Peru) are also considered, in terms of the insights or challenges they offer to accepted archaeological theory. Of particular interest is the problem of white-on-red pottery in terms of the traditional phasing of the late Formative and Regional Developmental periods, and this will be referred to at points throughout the sub-sections dealing with the stylistic parallels, and again in the concluding section.

Ignoring present-day political configurations, the natural climatic and geographical boundary to the south of this region occurs around latitude 4° at Punta Pariñas, Peru (Map 1). The Sechura-Vicús complexes of Piura and Chira river are then on the margins of the area outlined, whilst the Pechiche and Garbanzal complexes fall into the well-defined geographical region.

Owing to the particularly close parallels that exist between the pottery assemblages of Guarumal and Punta Brava and those of the Jambelí culture of south coastal Ecuador, and the Pechiche and Garbanzal cultures of the Peruvian far north coast, these cultures are dealt with first and discussed in some detail, as is the important late Formative Guayaquil phase complex, which follows. These will then be followed by a discussion of the pottery from the Chorrera and Engoroy, Guangala and Tejar cultures of the Guayas Basin and Santa Elena Peninsula, the Catamayo and Catacocha material from Loja province on the Peruvian border, the Sechura-Vicús complexes of the Piura-Chira sphere, the

Salinar and Gallinazo cultures of the Peruvian north coast, and lastly, the stylistic influences transmitted from the Tacalshapa-Tuncahuán and Cashaloma groups from the Ecuadorian southern highlands.

There are also other regions which offer interesting comparisons and insights into the broader network of cultural relationships across the Intermediate and Peruvian cultural areas and of these, southern Colombia and the Cajamarca, Huacaloma, Recuay and Kotosh-Wairajirca groups of the north Peruvian highlands are the most significant. It was felt, however, that strictly speaking, these lay beyond the scope and aims of this thesis, as they have been outlined above.

THE JAMBELI CULTURE (as defined by Estrada, Meggers and Evans)

Estrada, Meggers and Evans described archaeological material from sites surveyed along the coastal margins of Guayas and El Oro provinces in southern Ecuador, including the Isle de Puná and the Archipelago Jambelí, whilst their distribution map acknowledges the continuation of these site locations across the present-day Peru-Ecuador frontier to the mangrove regions around Tumbes. They stress that all of their sites are shell middens, located either in present-day mangrove swamps or by the edges of salitrals, which, they reason, are the dessicated remnants of earlier swamps (Estrada, Meggers and Evans, 1964: 486-7). The location of the Guarumal site, together with the fact that it is a group of shell middens would have made it a good candidate for a Jambelí site according to the terms of this definition.

Both Guarumal and Punta Brava have pottery which conforms with many of the styles described by Estrada *et al* for their Jambelí culture and the following list gives the main types which have demonstrable parallels to the Jambelí typology.

POTTERY FORMS:

FORM 1: deep bowl with curved or upright section (eg Figs: 2, 4 & 5);

FORM 5: shallow bowl with upright rim (eg Figs: 7d, 9b, 10a);

FORM 6: shallow bowl with flaring sides (eg Figs: 10c, 11a & 12). These three forms mostly correspond to Form 1: Rounded Shallow to Deep Bowl of the Estrada, Meggers and Evans typology (*ibid*: 507; Fig.: 19). Form 1

also would include some of their Form 7: Deep Bowl with Expanded Rim and Form 10 Rounded Jar with Constricted Mouth. Form 5 is also similar to some of Form 2: Carinated Bowl (*ibid*) Form 6 would also include Form 3: Shallow Bowl with Flat Rim (*ibid*: 510; Fig.: 19).

FORM 7: shallow bowl with interior rim thickening (eg Figs: 15 & 16) exactly corresponds to their Form 6: Shallow Bowl with Interior Rim Thickening (*ibid*: 510; Fig.: 19).

FORM 8b: bowl with broad expanded rim (eg Figs: 19 a-c) has a general resemblance to the Form 7 Deep Bowl with Expanded Rim and also to some of Form 8 Shallow Bowl with Exterior Flange Rim (*ibid*: 510; Figs 19 & 20). They can be large bowls, as suggested by Estrada *et al* for their Form 7 and may have had a similar overall shape.

FORM 9: carinated bowl with interior bevelled rim (eg Figs: 17b-f; 24d&e) has its closest parallel in Form 2: Carinated Bowl (*ibid*: 510; Fig.: 19), although this is a widely varying group of vessels and none of the examples illustrated by Estrada *et al* conspicuously feature the distinctive interior bevelled edge to the rim lip. It is nevertheless possible, however, that the Form 9 carinated bowl with interior bevelled rim is included in this group.

FORM 11: carinated bowl with wedge-shaped section (eg Figs: 21 b-f & 22) corresponds to some examples illustrated of Form 4: Shallow Bowl with Bevelled or Uprturned Rim (*ibid*: 510; Fig.: 19).

FORM 12: shallow bowl with upright wedge-shaped rim (eg Figs: 50a,e&f) would also be included within Estrada *et al*'s Form 4 as another variant illustrated there (*ibid*: 510; Fig.: 19).

FORM 13: "comales" - platter with flat base (eg Figs: 20c-g) correspond to others of Form 4 of the Estrada *et al* typology (*ibid*: 510; Fig.: 19).

FORM 14: coarse bowl with flaring sides (eg Figs: 51-55) would be part of their Form 1: Shallow to Deep Bowl, or Form 7: Deep Bowl with Expanded Rim (*ibid*: 510; Fig.: 19).

FORM 18 a, b and c: bowl/jar with bolstered rim (eg Figs: 23c, 25, 57) would probably all be included within the Form 11: Jar with Exterioally

Thickened Rim (*ibid*: 511; Fig.: 20), as vessels of all three variants, whether fine and shallow with smaller rolled or rounded rims, or coarse and deep with heavy reinforced rims are illustrated within this general group.

FORM 21: jar with medium to long everted rim (eg Figs: 29, 62 & 63)

FORM 22: jar with short everted rim (eg Figs: 27, 28, 59, 60, 61a-c)

FORM 23: jar with constricted mouth (eg Figs: 58a-e)

FORM 24: jar with flattened rim and carinated shoulder (eg Figs: 27c-g).

All four are included in the broad Form 9 group: *Jar with Constricted Neck and Everted Rim* (*ibid*: 510; Fig.: 20), and therefore any chronological associations which might have been apparent, ie Form 22 with the Early 'Floors' phase of Guarumal, are consequently lost.

Estrada, Meggers and Evans include two *compotera* forms in their typology: Form 12: Large *Compotera* with Apron Flange and Form 13: Large *Compotera* (*ibid*: 511; Fig.: 21), neither of which is exactly like any of the *compoteras* illustrated by Izumi and Terada (Izumi and Terada, 1966: Fig.: 11; p.: 34), although one feels that the Garbanzal P7 form is probably similar in some respects to Form 12. Many of the sherds of their Jambeli Incised are apparently associated with Estrada *et al*'s Form 4: Shallow Bowl with Bevelled or Upturned Rim (Estrada *et al*, 1964: 516), which would give a vessel very similar to the form P2 *compotera* of Izumi and Terada's typology (Izumi and Terada, 1966: Fig.: 11; p.: 34).), although, it has to be said, P2 is supposed to be a coarse ware vessel with a plain or rarely decorated pedestal. It is their P6 fineware *compotera* with the heavy pendant rim more similar to Form 5: Bowl with Everted Rim (Estrada *et al*, 1964: 510; Fig.: Fig.: 19) which is typically associated with the elaborately incised designs described for the Jambeli Incised category. The *compotera* illustrated from Guarumal (Figs: 37 b&c) are most similar to the Form 13 variant with the slight flange (*ibid*: Fig.: 21).

Annular bases, annular pedestals and hollow polypods (*ibid*: Fig.: 22) are also well attested from Guarumal (p: 155-157). Bridges and spouts (*ibid*: 532; Fig.: 23a) are similarly represented (p: 154).

Indeed many of the forms described by Estrada, Meggers and Evans are represented in the Guarumal-Punta Brava typology. The same is true of the decorative types which include:

1. *White-on-Red* and *White Painted*, including a general similarity of some motifs (*ibid*: 532-535; Figs.: 34, 36b, 37; Pls: 10a&b and 11.)
2. *Negative*, also in combination with white paint (*ibid*: 524; Figs.: 30-31)
3. *Red-Banded* (*ibid*: 530), basically as for Guarumal-Punta Brava.
4. *White Wash* (*ibid*: 536) represented by one sherd at Guarumal (Fig: 4c)
5. *Incised*, which includes incised with openwork, incised with impressed rings and the adornos in this category (*ibid*: 516-524; Figs.: 24-29).
6. *Punctate* including nicked ribs (*ibid*: 528-530; Figs.: 32-33).
7. *Shell Scraped* (*ibid*: 531-532). This fairly common, especially at Guarumal.

Plain and red slipped vessels make up the balance of the Jambelí ceramic inventory, variously described as *Ayala* or *Jambelí Plain*, *Jambelí Polished Red*, *Jambelí Red Wash* and *Posorja Polished Plain*. The two main ware categories of *Ayala* and *Jambelí Plain* contain micaceous inclusions as does all the pottery from Guarumal and Punta Brava, but unfortunately, the sample was not sufficiently large to allow a convincing differentiation to be made on the basis of fabrics alone.

CHRONOLOGY

One of the central problems of the Jambelí typology is the relative and somewhat hypothetical nature of the chronological sequence, based as it is on arbitrary levels in small excavated units from several sites (Estrada *et al*, 1964: 538). Even where possible to demonstrate the relative early or late position of a pottery type, as claimed for *Posorja Plain* (*ibid*: 540), no Carbon ¹⁴ dates exist to give a firmer chronological framework. The presence of ceramic horizon markers, such as white-on-red and negative painting, compoteras and hollow figurines is used to give credence to the placing of the culture within the Ecuadorian Regional Developmental Period, with the presence of trade pottery from the Bahía and Guangala cultures used as additional evidence.

DISCUSSION AND CONCLUSIONS

Some close similarities can be shown to exist between the Guarumal and Punta Brava assemblages and the Jambelí material as described by Estrada, Meggers and Evans (*ibid*). The broadness of some of their form

categories does make meaningful comparisons difficult to make , however. For example, their Form 4 (*idid*: 510 & fig 19) includes Forms 11, 12 and 13 of the Guarumal-Punta Brava typology, and at least two of these have different temporal associations: Form 11 with the late Floors-Middle phase and Form 13 very definitely with the Late phase of Guarumal. The same is true for their forms 1, 2 and 9, which comprise a great diversity of specific shape. Not all the white-on-red, or white painted pottery, including motifs, are similar, recalling comments made by Aleto when comparing Jambelí white-on-red with Bellavista and Guayaquil phase material (Aleto, ms). Where similarities can be demonstrated to occur, they are often with Late phase material from Trench A, Guarumal. However, the relative paucity of illustrated examples similarly restricts meaningful comparison.

Direct comparison with Guarumal-Punta Brava forms suggests that Estrada *et al* tend to have a similar distribution of Early to Late phase vessels (ie in terms of Guarumal phaseology), although of the forms which seem to be missing altogether, such as Form 3 and 4, 10, 15-17 and 25, there is a slight association of 17 and 25 with the with the Early phase at Guarumal (probably contemporary with most of Punta Brava). These actually have comparable Pechiche phase associations. Overall, what comparisons can be usefully made suggest that Jambelí pottery, as described by Estrada *et al*, probably covers a long time span with much stylistic evolution, diversity of form and decoration. Given that the traditional Ecuadorian Regional Developmental period spanned 1000 years from late Formative to Integration times, this is hardly to be wondered at, and simply confirms the need for a proper analysis and phasing of Jambelí pottery.

THE PECHICHE AND GARBANZAL CULTURES

INTRODUCTION

"...los hallazgos arqueológicos en Garbanzal y Cuchareta abren una nueva página en la historia precolombina del extremo Norte del Litoral peruano, cuyo estudio dará lugar a mayores conocimientos sobre sus relaciones...principalmente con la cultura Guangala, en la costa del Manabí, donde aparacen vasijas de cerámica con soporte anular y cilíndrico, similar a las de Garbanzal."

(Mejia Xesspe, 1960: 211)

Toribio Mejia Xesspe visited the Tumbes and Zarumilla valleys with the University of Tokyo Scientific Expedition in 1958 and published his first impressions of what was then the newly discovered Garbanzal culture, which had forms and styles of pottery offering hitherto unsuspected links between this area of the Peruvian far north coast and south coastal Ecuador.

The presence of such ceramic traits as large hemispherical 'plates' with reinforced rims - with or without annular supports, indented rims, compoteras, white-on-red and negative painted decoration apparently at first suggested links to the Guangala culture, but this was before Estrada, Meggers and Evans had published the results of their own surveys in south coastal Ecuador, carried out between 1958 and 1961. This led, as we have seen, to the discovery and definition of another Ecuadorian Regional Developmental culture - the Jambelí culture - occupying the geographical area between the Guangala regions in Guayas to the north and the Peruvian border to the south.

It is now increasingly accepted by current archaeological wisdom that these two cultures - the Garbanzal and the Jambelí have enough in common to effectively make them the same manifestation. However, although clearly related, both the cultures have long developmental stages, the phaseology of which is still little understood. Because of this, it is not helpful to lump all that has been called Jambelí by Estrada *et al* and endeavour to make it match with everything defined as being Garbanzal. There is, as will be demonstrated below, a significant degree of overlap with the earlier Pechiche culture, especially between forms and styles found in the earlier contexts at Guarumal and at Punta Brava, although both these assemblages would undoubtedly have been labelled as pure Jambelí in the past. These questions are considered and discussed in more detail below.

THE IZUMI AND TERADA TYPOLOGY

Izumi and Terada (1960; 1966) identified two cultural assemblages from their area of investigation near Tumbes on the Peruvian far north coast, differentiated by them on a basis of pottery form, decorative style and fabric. The earlier of these is the Pechiche culture, so-called from the pottery style found predominantly in the lowest strata at the

Pechiche site and the later is the Garbanzal culture, named from the Garbanzal cemetery and present in larger quantities in the later higher strata at Pechiche.

The lowest and earliest level 5 at the Pechiche site produced two C¹⁴ dates of 2800 ± 120 B.P. and 2320 ± 130 B.P. (850 ± 120 BC & 370 ± 130 B.C.), which the authors compare chronologically with the Chavin Horizon of Peru and the somewhat later Gallinazo culture from the north coast (Izumi and Terada, 1966: 71-73; see also p: 262). Although the C¹⁴ dates for the Pechiche culture are rather earlier than for the Guarumal and Punta Brava sites, the earliest date at Guarumal of 2225 ± 95 BC (300 BC) is close to the later of the two Pechiche dates, whilst the error margins on these dates give a substantial degree of overlap, especially at x 2 sigma. There are certainly strong similarities with the pottery forms and decorative styles of the material from Guarumal and Punta Brava. The fact that the authors themselves closely compare their Pechiche culture with the Peruvian Gallinazo: " the datings of Gallinazo, 680 B.C. and 520 B.C., are, however, seemingly closer to the age of Pechiche, which view is backed up by the fact that the Pechiche culture shares many traits with the Gallinazo culture" (*ibid*: 73) and especially the Chorrera and Tejar cultures of Ecuador (*ibid*: 85) is important, for the Guarumal-Punta Brava pottery also shares similarities with these cultural styles, as will be seen below (pp: 262 & 221).

COMPARISON OF FORM

Izumi and Terada divided their pottery into four basic groups: Bowls (D), Jars (B), Beakers and Compoteras (P) (*ibid*: 27-38).

FORM 1: deep bowls with curved or upright section correspond exactly with D7, including the slight variation in rim form and the occasional presence of an annular base (Izumi and Terada, 1966: 32; Fig.: 10. As with D7, they are most usually decorated in white-on-red painting and, rather interestingly, seem to show some of the same divisions in terms of quality of decoration discussed by Izumi and Terada (*ibid*: 48-50).

FORM 2: deep bowls with "beaded" rim and curved or upright section seems rather similar to D11, which is a rather rare form and diagnostic of the Pechiche phase (*ibid*: 32; Pl.27: 2-5). The groove around the exterior of

the rim lip is referred to as Pechiche Broad-Line Incised and is also referred to in the following form category.

FORM 3: grooved deep bowls with curved or upright sectionare to all intent and purpose like Form 1 and therefore correspond to D7. As with Form 2, there is a strong similarity with the Pechiche Broad-Line Incised category, in this case where the groove is more centrally placed, lower down the wall of the vessel (*ibid*: 63; Pl.: 27: 1.).

FORM 4: deep bowls with ridged profile are something of a curiosity as we have seen (p...) There is nothing quite like them from either the Izumi and Terada typology, nor from that of Estrada, Meggers and Evans. They are not really like the Pechiche Broad Line Incised group described above and although Izumi and Terada do illustrate one bowl with a ridged or interrupted profile, D12 is rather different, having the upper portion of its section both thickened and everted (*ibid*: 32; Fig.: 10).

FORM 5: shallow bowl with upright rim is a category not recognised by Izumi and Terada and which would be found included in either D7 or those of their composite silhouette bowl D3 with a less pronounced angle (*ibid*: 29-32; Fig.: 10; Pl.33: 14-17 & 21; Pl.34: 1-3,13,15-16).

FORM 6: shallow bowl with flaring sides similarly is a category not recognised by Izumi and Terada as most of their shallow flaring bowls have been classified on a basis of pure rim form. Thus D1, D2, D4 and D6 are all shallow bowls with flaring sides, but have quite different rim forms (*ibid*: 29-32; Fig.: 10). Those from my typology have quite simple rim forms and those which don't have been classified into different forms, as with Forms 7 and 8 discussed below.

FORM 7: shallow bowl with interior rim thickening is a significant form at Guarumal where, despite its relative scarcity, it is representative of the late 'Floors'/Middle period phases. It is recognised by Estrada, Meggers and Evans as we have already seen (p: 188), but interestingly, not by Izumi and Terada.

FORM 8a: fine bowl with expanded and inturned rim is reminiscent of the bowl element of Izumi and Terada's P2 *compotera* (*ibid*: Fig.: 10; Pl.:33-3; 35-1), but Form 8a is probably a rather deeper vessel, and is not

really like other examples of the same form, especially in its bowl version D2 (*ibid*: Fig.: 10).

FORM 8b: does not appear in the Pechiche or Garbanzal typologies.

FORM 9: carinated bowl with interior bevelled rim is broadly comparable with several of the carinated bowls illustrated by Izumi and Terada, notably Fig: 56e with Pl: 34-16, or Fig: 21a with Pl.34-10 and 24d with Pl: 36-4. The latter example is especially reminiscent of the "classic" Guayaquil phase carinated bowl that Aletto discusses in detail when he describes the variability of this form and its evolutionary phases in terms of the interior bevelled rim edge and straight or concave wall (1987, ms, *ibid*).

FORM 10: does not appear in the Pechiche or Garbanzal typologies.

FORM 11: carinated bowl with wedge-shaped section has its parallel to those of the form D2 bowls with the more inward turned rim and exaggerated wedge-shaped section (*ibid*: 29; Fig.: 10; Pl.: 26-8, 33-10, 13), although there are also composite silhouette bowls included in this class which lack the exaggerated wedge-shaped cross-section and which are more like the form D3 carinated bowl (*ibid*: 29; Fig.: 10; Pl.: 26-9, 11; Pl.: 33: 18-20; Pl.34: 4-7, 14 & 17). However these bowls are classified, the difficulties of which are alluded to elsewhere (p: 134 & 224), there can be no doubting their common place in the Pechiche and Garbanzal inventories.

FORM 12: shallow bowl with upright wedge-shaped rim closely resembles most of the D2 and some of D1 groups (*ibid*: 29; Fig.: 10; Pl.: 26-6, 7; Pl.: 33-4, 5, 8 & 10). D1 and D2 are mainly late phase Garbanzal forms, although they also occur in the earlier Pechiche levels (*ibid*: 29; Table 2).

FORM 13: the platter-like *comales*, do not seem to be a form recognised at Pechiche or Garbanzal.

FORM 14: the coarse bowl with flaring sides probably compares well with D17 and especially D18, which are both large, coarse, thick and deep bowls. This form is more common from Punta Brava, as we have seen (p: 138-9), but it has no particular chronological significance for the

Izumi and Terada seriation (*ibid*: 33; Fig.: 10; Pl.: 17b: 1-4; Pl.:27: 16).

Form 15, the carinated bowl with out-turned rim, does not seem to have a counterpart in the Izumi and Terada classification.

FORM 16: deep bowl with upright rim is rather similar to form D20 (*ibid*: 33; Fig.: 10; Pl. 36: 16), although there were few sherds of this type and no indication that they had the scalloped edged rim typical of D20.

FORM 17: bowl with straight sides corresponds to the simpler variety of form D8 and is similarly associated with a low annular base (*ibid*: 32; Fig.: 10; Pl.: 28: 1-3, 6). This form is found only in the earlier and middle strata of the Pechiche and Garbanzal sites.

FORM 18 a,b & c: the bowl/jar with bolstered rim is not present in the Izumi and Terada classification as such, although a few of the smaller, finer vessels of this category (Fig: 57d) and particularly a unique sherd 56g are reminiscent of D15.

FORM 19: the funnel-necked jar with flaring rim has its counterpart in B 8 which is a large coarse jar with a long flaring neck (*ibid*: 37; Fig.: 11; Pl.: 30: 22; 31: 20; 32: 10-12, 19). Many of these vessels from Guarumal and Punta Brava are shell-scraped, as indeed they are in the Jambeli culture (Estrada, Meggers and Evans, 1964: 531-2), but Izumi and Terada do not mention whether their B8 is thus treated. B8 is a feature of the early Pechiche phase, being limited to the lower strata, and although it is not particularly common at Guarumal, with no obvious stratigraphic association, it is relatively common at Punta Brava, which has a C¹⁴ date of 2160 ± 75 BP (210 BC), and is taken to be approximately contemporary with the Early 'Floors' phase at Guarumal.

FORM 20: jar with upright neck and curled rim, which is not a common form, seems to correspond to B7 of the Izumi and Terada typology (*ibid*: 37; Fig.: 11; Pl.: 31-11, 18), although their vessel seems to be rather fine and well finished, whereas Form 20, apart from one sherd with white painted decoration, is fairly coarse. B7, as B8, is associated with the middle and especially the lower levels at the Pechiche site and therefore the early phase. Form 20 has been found in the latest levels at the Guarumal site, dated to around AD 420 - 540 (although this date

may well be earlier by some 250 C¹⁴ years), so this should be remembered when comparing this vessel to its Pechiche counterpart.

FORM 21: jar with medium to long everted neck is a very common jar and would include most of forms B1, B2 (*ibid*: 37; Fig.: 11; Pl.: 31-9,13,19; Pl.: 41-5; 42-5&6; Pl.:31-1&3; Pl.:40-1,2,4&6) and occasionally B5 (*ibid*: Pl.:30-2&20). The first of these two are very common and none of them have any chronological significance.

FORM 22: jar with short everted rim is the common decorated category of jar in the Guarumal and Punta Brava assemblages and as such should be compared with forms B6 and B11 from Pechiche and Garbanzal (*ibid*: 37; 51; Fig.: 11; Pls.: 30-12; 31-5&6; 32- 1-9), although in terms of shape, some of Form 22 seem to better compare with B10, which has a pronounced ridge on the inner wall of the vessel with a rounded or horizontally cut lip (*ibid*: 37; Fig.:11; Pl.: 30- 24). It is a rare form, however, and not one ever associated with decoration.

FORM 23: jar with constricted mouth is not recognised by Izumi and Terada, being included in any of their other jar categories according to their specific rim form only.

FORM 24: jar with flattened rim and carinated shoulder does not appear in the Pechiche and Garbanzal typology.

FORM 25: jar with vestigial rim is a limited category, as we have seen and whilst there does not seem to be a specific form group for this vessel in the Izumi and Terada typology, there is nevertheless an almost exact parallel with a sherd from Punta Brava, including the decoration (Fig: 58f and Izumi and Terada, 1966: Pl.: 32-16)

FORM 26: long-necked jar with "blister" adorno occurs only at Punta Brava and somewhat resembles the late phase B4 jars of the Izumi and Terada typology (*ibid*: Pl.: 30-21, 25; Pl.: 41-6).

FORM 27: jar with recurved neck also occurs only at Punta Brava and is similarly not classified by Izumi and Terada, but illustrated in their material, although with appliqué decorations (*ibid*: Pl.: 41: 3). This is also a Garbanzal (late) phase sherd.

There is another, unique sherd from Punta Brava (Fig: 56g) which is a fine bowl with exterior rim thickening. The rim sherd is rather small, but looks very similar to Izumi and Terada's D15 *ibid*: 32-33; Fig.:10; Pl.: 27- 8-11). This is interesting, for this form is "one of the characteristic forms of the lower levels of Pechiche" (*ibid*: 32). It was not found at Guarumal.

COMPOTERAS

Bowls on pedestal bases - compoteras - are reportedly a distinguishing features of the Ecuadorian Regional Developmental period, occurring in such cultures as Formative Chorrera (p: 221), as well as Guangala (p: 228), Tejar (p: 238), Jambelí (p: 187) and the late Cerro Nariño and Cashaloma cultures of the southern highlands (p: 269). That they are a feature of the Pechiche and Garbanzal cultures is another indication of how much a part of the southern Ecuadorian cultural tradition the Tumbes region of the Peruvian far north coast was. Further south in Piura-Chira, compoteras have also been also reported for the Upper Piura Vicús culture (p: 258).

Izumi and Terada recognise eight compotera forms: P1 - P8, the first six corresponding to their bowl categories (*ibid*: Fig. 11; pp. 33-5) and they acknowledge the difficulty in distinguishing the sherds of ordinary bowls, from those belonging to the compotera class (*ibid*: 33).

No whole compoteras were found at either Guarumal or Punta Brava and sherds which were unequivocally from such a vessel were a rarity. Whilst most of the bowl forms and therefore those probably deriving from compoteras have fairly simple upright or slightly flattened rims (Figs: 9b; 11a; 13a; 14b; 18a), bowls corresponding to forms D1 - D5 do occur at these sites, albeit uncommonly, so there is a likelihood that they also occur as compoteras. Examples of such are figures 57:c and 60:e which slightly resemble P1 and figures 13e and 45g which may well correspond to the form P5. Although three of these are bowl fragments, it was felt that they probably did belong to the compotera class (see p: 153 above). They are, however, fine and well decorated in polished red slip and white-on-red paint, and differ from P1 and P5 which, together with P2 - P4, are described as relatively coarse vessels, compared to the fine P6. Bowls of this form, however, have been found at neither site.

Fragments of fine, unslipped, geometrically incised pottery found at Guarumal (Figs: 38 c and d, 39 i and j) probably come from the pedestals of such coarser *compoteras* as P1 - 5 (Izumi and Terada, 1966: Pl.: 38:5). Fine, polished, red-slipped sherds with incised and punctate decoration, also from Guarumal, (Fig: 32) are almost certainly from *compotera* pedestal bases, although Izumi and Terada do not describe such a category. We have already seen that Estrada *et al* recognise these as part of their Jambelí Incised with openwork (p: 190).

One large and heavy *compotera* sherd from Guarumal possibly resembled P7 (Fig: 37d). It is a very eroded sherd although once possessed a red slipped interior and an encircling flange, both of which have since been lost. Three other *compotera* sherds from Guarumal (Fig: 37 a-c) seem intermediate between the finer P1 - P6 forms and P7, being largely unslipped and undecorated (save for a red "S" design within 37c). Little else can be said for them.

Izumi and Terada associate a high frequency of *compoteras* with the Garbanzal cemetery and with the late Garbanzal phase at their Pechiche site (*ibid*: 33). Scrutiny of the table of stratigraphic distribution (*ibid*: Table 3) shows that whilst a general increase from early to late is demonstrated, there are actually more *compoteras* present in the uppermost layer 3 of the lower stratigraphic group (early Pechiche phase) than in the late upper layer 1, whilst the largest proportion of all occurs in the middle stratigraphic context layer 2. The implications of this are discussed below.

BEAKERS

This is a very small group and peculiar to Pechiche, where a total of twelve sherds are found distributed throughout the strata. No sherds of this form were recognised at Guarumal or Punta Brava, although a handle, very similar to those depicted upon Pechiche beakers (*ibid*: Pl.: 28: 9, 13 & 17) was found in an unstratified context at Guarumal (Fig:.....).

OTHER FORMS

Vessels with spouts or bridges and spouts and polypods evidently occurred at Pechiche and Garbanzal as fragments of such are illustrated (*ibid*: Pl.: 22), but are not included in the ceramic typology and

therefore could hardly constituted a major element in it. This also seems to be the case at Guarumal and Punta Brava, as we have seen (p: 154 and 155).

WARES AND DECORATIVE CATEGORIES

Most of the decorative techniques listed by Izumi and Terada for their Pechiche and Garbanzal cultures (Izumi and Terada, 1966: 38-55) are found in the material from Guarumal and Punta Brava, especially white-on-red painting, incision, notching, appliqué and modelling. Negative painting, whilst present, forms only a small percentage of the total, as indeed is also the case for Pechiche vessels, where there are a mere total of 11 sherds out of a total of 1552, although the impression received is of a more significant number. This may be due partly to the presence of larger numbers at the Garbanzal cemetery, where finer, more elaborated wares predominated (*ibid*: 46-7).

Post-fired painting cannot be demonstrated at Guarumal or Punta Brava, not only because it is associated with a narrow group at Pechiche, namely forms D12 and beakers which, as previously noted, are either not present, or rarely so, but also possibly because it is a technique demonstrably associated with the earliest Lower levels 4 and 5 at Pechiche and thus too early for the El Oro sites (*ibid*: 45). There is also the chance that whatever few post-fired painted sherds were present have been subjected to the effects of erosion and are thus no longer recognisable for what they were. Similarly, the technique of engraving designs onto the fired surface of pottery cannot be adequately demonstrated at either Guarumal or Punta Brava. One common form of surface treatment found with both Guarumal and Punta Brava medium and coarser plain wares is the practise of scraping the surface of the still-wet clay, sometimes upon the exterior but more usually on the inside with the serated edge of a large shell, probably *Anadara grandis*. This technique was also noted as a common one by Estrada *et al* for their assemblages (1964: 531), but it seems not to have been a significant one in the Pechiche and Garbanzal pottery, for it is not mentioned by Izumi and Terada. It is hard to imagine that they should have passed over reference to this if it was present, considering the very distinctive ridged surface that is produced (Fig: 30).

The different ware categories from Pechiche and Garbanzal will now be examined more closely, for sherds of both phases occur at Guarumal and Punta Brava.

GARBANZAL (late) wares are sub-classified into: White-on-Red, White Slipped, Negative, Coarse, Three Colour and Unpainted.

PECHICHE (early) wares are sub-classified into: White-on-Red Fine, White-on-Red, White Slipped, Red, Orange, Incised, Broad-Line Incised, Negative, Engraved and Unpainted.

For detailed descriptions of these ware categories, the reader is advised to refer directly to the Izumi and Terada classification (*ibid*: 56-64).

The principal difference occurs between the white-on-red categories, since these constitute the largest groups of wares outside of the Garbanzal Unpainted and affects such aspects as the quality, depth of colour and degree of polish of the red base slip and the thickness of the white painted motifs. Izumi and Terada say that "If the preservation is good, sherds of the two types Pechiche White-on-Red Fine and Garbanzal White-on-Red are easily discriminated (*ibid*: 60-1).

Briefly, the Pechiche White-on-Red Fine ware is very hard and the red base slip is darker, tending to brownish or purplish hue and well polished. The white painted motifs tend to be executed in thinner paint and are rather more complex than for Garbanzal White-on-Red, including arcs, spirals, frets and curved and irregular lines as well as the white bands typical of the latter. This difference is particularly noticeable with the bowls, where Izumi and Terada claim three distinguishable categories for their D7 simple silhouette bowl, according to the differences described above. The first of these, D7g has the thinner, lighter and less well polished slip of the Garbanzal White-on-Red group, with the simpler designs and as a whole rather resembles sherds of their D1 - D6 bowls, which are of the late phase. D7a and D7b both have slip and surface treatment like that of Pechiche White-on-Red Fine wares and differ from one another only in the complexity of the white painted designs, D7b having the more intricate motifs typical of the early phase ware.

Pechiche White-on-Red is a very specific category and limited to the jar form B11 and to another jar of indeterminate rim shape. It is associated with a design of white dots and longitudinal lines in white upon the red slip and also with a black curvilinear line with white dots.

Garbanzal White-on-Red (*ibid*: 57-8) is associated with white bands in one or several parallel lines, hatching and cross hatching on the interior of bowls or jar rims or exterior of jar shoulders which in particular is held to be "one of the conspicuous traits of the late phase" (*ibid*: 53; Pl.: 21a). A narrow necked jar with white bands and arc designs was also attributed to the Garbanzal phase.

PECHICHE AND GARBANZAL WARES CONSIDERED

A significant problem lies in trying to identify sherds of distinctly Pechiche or Garbanzal kinds in the pottery from Guarumal or Punta Brava. The impression received is that much of the fine ware more closely corresponds to the descriptions of Pechiche than of Garbanzal, especially in the white-on-red category, with many of the sherds being hard and well-fired with deep red to brownish, well-polished base slip bearing quite complex white-painted motifs (Figs: 6a-d; 8 d&e; 9; 13a&e; 14; 15; 15e; 16; 22; 36; 43c; 44-46). Many of these are forms 1-5 bowls which, as we have seen, broadly correspond to Izumi and Terada's D7 and Form 11 which, being something of a composite of D2 and D3 should rather be indicative of late Garbanzal phase, were it not for the distinctively Pechiche White-on-Red Fine nature of the decorative treatment in many cases (Figs: 21b&c; 22a,c&e). One example of D9, another early or Pechiche phase form, was found at Guarumal (Fig: 17a). The Pechiche Broad-Line Incised technique is certainly demonstrable at both Guarumal and Punta Brava, as we have seen, although one fine Form 3 bowl sherd (Fig: 6c) occurs above stratified contexts which have been C¹⁴ dated to between AD 420 and 540 (1475 ± 35 BP, although this date may be up to 250 radiocarbon years earlier at AD 100-350: p: 92), thereby putting it beyond the dates projected for the early Pechiche phase. This, of course, may be a secondary or intrusive situation. It is also important to remember that at x2 sigma the C¹⁴ dates, whilst still not overlapping (even reading the 1475 BP date 250 years older with a deviation of ± 125 years), are brought much closer together (youngest Pechiche: 110 BC and Layer 4 Trench A: 25 BC). Similarly, it should also be pointed out that even at the Pechiche site, the Broad-Line Incised technique occurs

throughout the sequence, in late phase contexts as well as early, together with such "late" phase elements as hatch and cross-hatch (which at Guarumal and Punta Brava occurs predominantly in the Early 'Floors' contexts of sub-units 3 & 4, and also at the Punta Brava site).

In terms of actual design elements, there is much in common between the El Oro and the Tumbes sites (see p: 161) with the emphasis being on geometric motifs such as concentric circles in white upon red, paired longitudinal stripes, hatch and cross-hatch and more complex motifs of blocks of colour - usually white in rectangles or triangles together with arcs, spirals, frets and key patterns, dots and zig-zags (p: 162-165). Many of these same elements are also reproduced in decorative incision (p: 170-72). Sherds of pottery conforming to the descriptions given for Garbanzal types, especially the white-on-red group do occur and are usually associated with Form 1 deep bowls or Forms 5 and 6 shallow bowls, some of which are probably fineware compoteras (Figs: 1-3; 7d; 10; 11a* & b; 12c). Interestingly these, in the main, do tend to cluster in the later dated strata of Trench A at Guarumal (Table 2).

The hatch and cross-hatch motif, held to be characteristic of the late Garbanzal phase (Izumi and Terada, 1966: 53-4) is found on both bowls and jars at Guarumal and Punta Brava, but occurs in earlier as well as later contexts (cf.: sub-unit 3& 4 especially, pp: 69-74).

Negative and red and black, whilst rare, are nevertheless demonstrable at Guarumal and Punta Brava. The negative seems to correspond more closely to the description of the Pechiche style, which is less elaborate than the Garbanzal, being small circles on the background red slip, framed by black paint (Figs: 6e; 13b; 49a). One surface example from Guarumal is of a Form 3 grooved deep bowl, corresponding to Pechiche Broad Line Incised. There is one example of a Form 7 sherd with small dark circles resist marked onto the white circumferential line thus being a reversal of the black line with white dots described for the Pechiche phase (*ibid*: 54-5). Of the two red and black jar sherds from layer 8 at Punta Brava, one (59d) is from a jar that would certainly correspond to Izumi and Terada's form B11, which is typical of the Pechiche site and the early phase, as is the red and black decoration. The other (62a) is more akin to form B2 (*ibid*: 37; 54-56; tables: 17, 20-21).

The more complex motifs including the stylised animal figures on the Garbanzal Negative wares were not found, although this may be due, in part, to the smallness of the sample size and the relatively high degree of fragmentation of the sherds. The nature of Garbanzal site itself, being a cemetery however, probably accounts for the high incidence of such elaborate pottery kinds. The same may be said of the mythological figure characteristic of the Pechiche Incised A and post-fired painted group, which is also sometimes associated with Chavinoid elements (*ibid*: 62-3). There is, however, the stylised jaguar or cayman figure from Punta Brava and probably Guarumal, which is possibly suggestive of Chavinoid influence and would thus be significant in this respect.

There is one Form 9 sherd at Guarumal (from Trench B, layer 1) which conforms to the description of the Pechiche Incised B group in terms of paste, surface and decorative technique, being a brownish colour with a surface gritty from protruding quartz temper grains (Fig: 24e).

CHRONOLOGY AND STRATIGRAPHY CONSIDERED

The Izumi and Terada classification seems to be a coherent and well analysed seriation deriving from adequate, if somewhat broad stratigraphic groups, the earliest level of which has been C¹⁴ dated. The dates for their latest level 1 and thus for the Garbanzal phase are felt by them to be unacceptable and probably justifiably so, for they place it contemporary with the Milagro culture of the Ecuadorian Integration period between AD 1000 and 1100, which does seem rather late (1966: 71. An earlier date of AD 220±70 was also rejected as unreliable, as it was associated with a Milagro-like assemblage). Richardson *et al*, however, feel that these late dates are correct, although they do not precisely say why (Richardson *et al*, 1974: 3-4). We are not told from exactly where in layer 5 the two earlier samples derive, but it is interesting to note the large timespan between the two dates, a discrepancy with a minimum of 230 and a maximum of 730 years (2800 ± 120 BC and 2320 ± 130 BC ie: 850 ± 120 BC and 370 ± 130 BC). The two dates were assessed at different laboratories, which may be a reason for the large range (Izumi and Terada, 1966: 71). Taking the two dates together, however, one should also consider that at x2 sigma, the youngest age of 850 BC is 610 BC and the oldest age of 370 BC is 630 BC, giving a statistical overlap at a 98% certainty level.

Izumi and Terada feel that the stylistic parallels suggest the Pechiche phase is broadly contemporary with the Late Cupisnique (coastal Chavin Horizon), and with the Gallinazo culture further south (*ibid*: 73). Although there is some variation in the literature over the actual and relative dating of Cupisnique, Salinar and Gallinazo (pp: 262-268), dates of between 1000 (or more) and 500 BC for Cupisnique and 500 BC - AD 100 for Salinar and Gallinazo seem to be the consensus, the latter being, perhaps, somewhat later than Izumi and Terada had in mind for Pechiche. They themselves cite (without giving references) dates of 850 or 720 BC for Cupisnique and 680 and 520 BC for Gallinazo (*ibid*: 73). The latter seems rather too early for the Gallinazo culture.

Levels 1 - 4 are, however, a chronological void. It would have been interesting to have had a secure date for levels 2 and 3 especially, for these seem to be transitional in that they often contain significant proportions of sherds of both the late and the early phases and an examination of the chronological distribution of important wares or decorative features at the Pechiche site will bear this out. It must also be born in mind that levels 4 and 5 are artificial divisions in one larger stratigraphic unit and that the stratigraphic divisions can tend to diminish the significance of the total number of so-called late-phase sherds actually present in the early levels. Thus, with the "late" bowls D1, 4 and 5, there are sherds throughout the levels, from early to late, with the highest percentage actually in the Middle stratigraphic unit Level 2 and not insignificant numbers in the Lower group Level 3 (*ibid*: 28, Table 2). D15, "one of the characteristic forms of the lower levels of Pechiche" (*ibid*: 32), whilst certainly concentrated here, nevertheless also occurs in the Middle and Upper levels. Compoteras, which are held to be a feature of the late phase and are certainly present in large numbers in the Upper Level 1, are nevertheless more numerous in the Middle Level 2 and even slightly more so in the Lower level Level 3 (*ibid*: 28, Table 1). The same is also true of "one of the conspicuous traits of the late phase", hatch and cross-hatch painting, where the highest percentage of sherds occur in the Middle Level 2, then the Upper Level 1 and a not inconsiderable percentage are present in the latest of the Lower Level group, Level 3. There is only a marked drop to 0 in Levels 4 and 5 (Izumi and Terada, 1966: 53, Table 18).

An examination of the Chronological Distribution of Pottery Types in the Pechiche Site (*ibid*: 60, Table 23) will show that Garbanzal White-on-Red

is found in every level of the Pechiche site, although admittedly in more substantial percentages in Levels 1 and 2 and that Pechiche White-on-Red Fine occurs in Level 1 and in its greatest numbers in Level 2. Garbanzal Unpainted is found in large quantities throughout the sequence.

CONCLUSION

In the last few pages a detailed comparison has been made between the pottery from Pechiche and Garbanzal and that from Guarumal and Punta Brava. This has been necessary because of the strong parallels that exist between the two groups of material.

The most potentially confusing factor is the presence of both Pechiche and Garbanzal wares and forms in the El Oro sites in associated stratigraphic contexts, or where apparently earlier sherds are stratified in later contexts than late sherds. Since we have seen that this can also be the case at the Pechiche site itself, and that Levels 2 and 3 do, in fact, contain significant percentages of both early and late material together, it may be wise to regard these as transitional phases which are possibly more or less contemporary with the early - middle phases at Guarumal and the single early phase at Punta Brava (pp.:.....). Discussion of the C¹⁴ evidence indicates that the Pechiche phase, with a latest date of 370 ± 130 BC and the Guarumal and Punta Brava sites may be more nearly contemporary than would at first appear. The dates at x1 and x2 sigma are as follows:

	x 1 SIGMA	x 2 SIGMA
Pechiche:	850 ± 120 BC = 970 - 730 BC	= 1090 - 610 BC
	370 ± 130 BC = 500 - 240 BC	= 630 - 110 BC
Guarumal:	300 ± 95 BC = 395 - 205 BC	= 490 - 110 BC
Punta Brava:	210 ± 75 BC = 285 - 135 BC	= 360 - 60 BC

With the later of the two Pechiche dates taken at its youngest date, there is a considerable degree of overlap with both Guarumal and Punta Brava at x2 sigma.

LOMA SAAVEDRA

The Peru-Ecuador border is an interesting and under-researched area, which has in recent years generated more systematic archaeological survey and study (eg Dillehay and Netherly), with the expectation of clarifying some of the questions concerning the relationship between Ecuadorian and Peruvian cultures in precolumbian times. One would expect, for example, to find archaeological sites in this area which demonstrate the close relationship between the Jambelí group of sites in Ecuador and the Pechiche and Garbanzal in Peru.

Rógger Ravines (1973: 81-90) recorded the presence of shell-mounds of around a metre in height at Loma Saavedra, Rio Zarumilla on the far northern Peruvian coast, close to the present-day border with Ecuador. He describes a high preponderance of mangrove and littoral dwelling shell-fish, with such species as *Ostrea chilensis* (possibly related to the large oyster *Crassostrea* at Guarumal: Appendix 1), *Ostrea columbiensis*, *Arca tuberculosa*, *Anomalocardia subrugosa* and *Arca grandis*) which also comprise much of the shell debris at Guarumal. These occur together with a pottery complex which includes types closely comparable with both Jambelí and Garbanzal cultures as Ravines notes, with such features as punctate decoration, scalloped rims and pedestal bases common to the three styles.

He mentions the use of red slip and thin red wash, occurring on the inside of bowls and sometimes the exteriors of jars and also the red banding of rims, although there is no mention of the white-on-red painted decoration so typical of the fine pottery at Guarumal and Punta Brava and also so common in the Jambelí and Pechiche/Garbanzal complexes. This may be due to the effects of erosion, of course. Otherwise, incised, impressed and punctate motifs seem to be the only type of decoration found here.

Excepting forms A and I, all other forms described by Ravines also occur at Guarumal and Punta Brava, especially forms B, C and D (*ibid*: 84), which conform to Form 22: Jar with Short Everted Rim, Form 18: Coarse Bowl/Jar with Bolstered Rim and Forms 1 Deep Bowls with Curved or Upright Section and 6 Shallow Bowls with Flaring sides, both of which seem to be included in Ravines' Form D.

Ravines argues that the pottery complex found at Loma Saavedra represents only one phase of a relatively simple occupation of non-agricultural peoples whose economy was based on the exploitation of shell-fish. Stylistically he feels that this culture is late, post-dating the Early Horizon and is probably more or less contemporary with the Intermediate Moche 1 or 11 and although there seems to be little hard data to support this, neither is there any good reason to suggest he is greatly mistaken.

In acknowledging the natural conformity of this region of the Peruvian far north coast with southern Ecuadorian cultural sphere, Ravines stresses the probable closer links with the Ecuadorian rather than Peruvian coast, whilst noting the clear relationship with the Garbanzal culture, also of Tumbes.

This is certainly a rather limited collection of pottery, as notable for its lack of certain conspicuous Jambelí and Garbanzal features as for its possession of them (cf. the white-on-red decoration, although this absence may, of course, be owing to effects of erosion), which is a point not missed by Ravines himself, with respect to the Jambelí (*ibid*: 88-90).

CONCLUSIONS

Overall, there appears to be demonstrable associations between at least some of the Jambelí and the Pechiche-Garbanzal assemblages, noted by both Estrada, Meggers and Evans (although they distinguish only Garbanzal; 1964 *ibid*: 544-5) and Izumi and Terada themselves (*ibid*: 79). This has been shown through an overall comparison with the pottery from the two sites of Guarumal and Punta Brava. A better phaseology of Jambelí pottery may better clarify the manner in which it relates to its far north coastal Peruvian cousin. These questions will be returned to in the concluding section and discussed again (p: 276).

THE GUAYAQUIL PHASE AND RELATED CULTURES

INTRODUCTION

Recent archaeological research in the Santa Elena Peninsula, the Cuenca de Guayas and more especially the Gulf of Guayaquil, has gone some way toward improving the understanding of the Late Formative - Regional Developmental period transition. Amongst such Late Formative period cultures as Bahía 1, Chorrera and Engoroy (p: 221), another culture has been identified: the so-called Guayaquil phase, whose main distinguishing features include the use of white-on-red and negative decorated pottery, features which may previously have led to sites of this phase being mistaken for later Regional Developmental cultures, such as the Jambelí, in this area.

The Guayaquil phase was first identified at San Pedro to the north of Guayaquil by Resfa and Abraham Parducci, who defined the culture (Parducci Z and Parducci Z, 1970, 1973 and 1975). The pottery assemblage includes a range of types characteristic of both Late Formative and what, until recently, had been considered diagnostic attributes of the succeeding Regional Developmental period, namely white-on-red and negative decorated pottery, together with plates on annular pedestal bases. These characteristics interestingly occurred together with such distinctively Late Formative techniques as burnished line, iridescent and finger painting (techniques which actually continue down into the Guangala culture). Influenced by the usual period definitions, Parducci and Parducci placed their Guayaquil phase "dentro del gran horizonte del Desarrollo Regional como una Nueva Fase" (Parducci and Parducci, 1975: 250). The three C¹⁴ assays of 225 ± 60 BC, 235 ± 80 BC and 340 ± 100 BC, together with the use of white-on-red painting, seemed to convince them of this.

More recently, work undertaken by Aleto (1987) on the Isla de Puná revealed the existence of a pre-Regional Developmental period assemblage, the Bellavista Phase, which has its closest stylistic connections to the San Pedro Fase Guayaquil, although some two centuries earlier, at ca. 510 ± 110 BC. Much of the assemblage of the Early-Middle period at Guarumal seems likely to be related to these two cultures. Aleto argued that white-on-red painting could no longer artificially be

diagnostic of the Regional Developmental periods it certainly occurred in the Late Formative (Aletto, 1987: *ibid*).

COMPARISON OF VESSEL FORM

FORM 1: *Bowl with direct rim* is basically the same as Guarumal Form 5: bowl with upright rim, but this form in its Guayaquil Phase context is mainly associated with *Polished Grey or Brown (Gris o Marron Pulido)* or with *Polished Red (Rojo Pulido)* wares, whereas at Guarumal and Punta Brava it is also associated with white-on-red painted decoration (compare eg 13a). There is some variation of this form according to the illustrations (Parducci and Parducci *ibid*: Figs: 32a & 34a-a) and it is capable of having quite a widely flaring rim, in which case it would compare more closely with Guarumal-Punta Brava Form 6, shallow bowl with flaring sides.

FORM 2: *Bowl and Compotera with notched flange and direct rim* in *Polished Red (Rojo Pulido)* and *Bi and Tri-coloured Negative (Negativo Bicolor y Tricolor)*. This vessel has a direct rim and the flange is always decorated with notching, shell-scraping or incision. The most comparable example is a vessel from Punta Brava (Fig: 48a) which is probably a sherd from a compotera with a deeply notched flange and decorated in well-polished white-on-red. There are also certain similarities to Fig: 37b here, which has a plain flange or possibly to Fig: 9d, which is, however, probably more likely to be a simple bowl on a low annular base.

FORM 3: *Bowl with Expanded Rim*, in terms of overall shape, has similarities to certain examples of forms 1, 5 and 6 bowls, especially from Punta Brava, some of which have slightly thickened rim lips (Figs: 8g; 14a; 43f; 46a*; 47c*; 49d; 50b). The two ware groups associated with it are the *Polished Grey or Brown (Gris o Marron Pulido)* and *Red Rimmed (Borde Rojo)*, although the Guarumal-Punta Brava group tend to have either polished red-slipped surfaces, or well-finished, white-on-red banded decoration. The Parducci illustrations show *Form 3* to be of rather variable shape in terms of rim angle and thickness, varying between a narrow-thickened inward-pointing rim (compare 8g and 46a), to upright (as Form 5 shallow bowl with upright rim), to thickened and outwardly flaring, closer to some Form 6 vessels (compare 14a; 43f; 47c; 50b). *Form 3* at all times seems to be a shallow bowl, which

distinguishes it from many Guarumal-Punta Brava Form 1 bowls, which tend to be of rather deeper shape.

FORM 4: *Carinated bowl in Red and White (Rojo y Blanco), White-on-Red (Blanco sobre Rojo) and Red on Buff (Rojo sobre Ante).* This carinated bowl with out-turned rim is one of the most characteristic forms of the Guayaquil phase and also of the earlier, related Bellavista phase (p: 220). Aleto described it in some detail:

"The most characteristic vessel....is a composite unrestricted or carinated bowl...The exterior wall of the bowl may be straight or concave and the rim may be rounded or interiorly beveled. Any combination of wall and rim may co-occur". (Aleto, *ibid*).

This point is a fairly crucial one, since most of the forms figured by Parducci and Parducci are of the concave walled variety of which only one good example is found in the Guarumal-Punta Brava assemblage (Fig: 24d). The straight-walled variant is (a little) more common, however, and sometimes occurs in combination with the characteristic interiorly beveled rim mentioned by Aleto. They are painted with the finest quality red slip, with white decoration, usually upon the interior, in bands of white paint around the rim (Figs: 17b-f). The majority derive from the lower floor levels of the sub-units 3 and 4, with one good example from Trench B Layer 1 having a slightly concave wall and out-turned rim more characteristic of the San Pedro Guayaquil Phase examples (Fig: 24e). Another from sub-units 3 and 4 has a notched rim and shoulder (Fig: 21a). Aleto says that "there is a statistically significant change through time from straight wall-rounded rim bowls to concave wall-beveled rim bowls in the Bellavista assemblage". This is interesting given the likely dating of the relevant strata at Guarumal, with the straight wall-bevelled rim bowls ("mid" Bellavista sequence forms) deriving from contexts dated in comparable strata to around 300 BC of the "Early" Guarumal phase (which actually post-dates the Bellavista phase, but about contemporary with the earlier of the Guayaquil dates (Aleto, *ibid*)), to the slightly concave wall-bevelled rim vessel deriving from the later context in Trench B. The one "true" San Pedro form derives from the late 'Floors'/ Middle Guarumal phase (Fig:24d).

FORM 5: *Bowl with everted rim and angular shoulder* broadly compares with Guarumal-Punta Brava Form 15: carinated bowl with out-turned rim, but the illustrated examples (Figs: 24c; 58g) do not closely resemble those figured by Parducci & Parducci (1975: Fig.32 c) and the actual category

has too limited a sample, with some diversity of form, ware and decorative finish to make a convincing parallel. This form is associated with *Grey or Brown Polished (Gris o Marron Pulido)*.

FORM 6: *Bowl with straight rim in Polished Red (Rojo Pulido)* is rather like a form of carinated bowl and is thus similar to the occasional carinated bowl from Guarumal-Punta Brava (eg. Fig: 21a). There is not sufficient similarity here to show a definite link, however.

FORM 7: *Bowl with vertical walls and a direct, thickened rim in Bi and Tricolour Negative (Negativo Bicolor y Tricolor),* *ibid:* 194; Fig 39c. This form almost certainly occurs at Guarumal, the most convincing example deriving from the floor levels of sub-units 3 and 4 (Layer 4): Fig: 14d. This sherd has a fairly eroded surface, so it is not really possible to say for certain whether it was ever decorated in negative painting or not. The remaining patches of surface are of a very fine, well-polished red, which looks as though it may have been painted in white-on-red (see also Figs: 8a; 49c).

FORM 8: *Plate with everted rim in Red on Buff (Rojo sobre Ante), Three Colour (Tricolor), Bi and Tri-colour Negative (Negativo Bicolor y Tricolor)* *ibid:* 190; Fig 38a; 39c. Occasional vessels similar to this form occur in the Guarumal-Punta Brava assemblage (Fig: 46c), although it does not seem to be at all well-represented here.

FORM 9: *Plate with full everted rim in Three colour (Tricolor), Bi and Tri-colour Negative (Negativo Bicolor y Tricolor)* *ibid:* 190; Fig 39d; 38b. Form 6 shallow bowl with flaring sides would be the closest to *Form 9* here, but it is not common to find examples with this degree of exaggeratedly outward curving rim.

FORM 10: *Plate/Bowl with wide rim in Red on Buff (Rojo sobre Ante)* and those with *Embellished Rims (Bordes Embellecidos)* can also be in *Red, White-on-Red, Red and White and Three-colour ware* *ibid:* 186; Fig 37c. The closest vessel to this form from the Guarumal-Punta Brava assemblage would be Form 7, shallow bowl with interior rim thickening, but it lacks the distinctive "step" on the exterior of the vessel wall and is also somewhat shallower. (Note the similarity to Pechiche Form D12 and D13, however).

FORM 11: Plate with annular base and direct expanded rim in Polished Red (*Rojo Pulido*) and Red and White (*Rojo y Blanco*). This form seems very similar to the Form 6 Shallow bowl with flaring sides from Guarumal and Punta Brava, although there are no surviving annular bases to this form. Many of the examples are in polished red and white-on-red.

FORM 12: *Compotera* with low truncated pedestal has a correlation both with the Guarumal-Punta Brava Form 5, which defines a bowl shape probably quite common for *compoteras* (eg Fig: 14b), and also Form 8a (Fig: 18a). Three rim styles are actually figured for this form (Parducci & Parducci, *ibid*: Figs. 32d; 34e & 37d), each of which can be paralleled to examples from the Guarumal-Punta Brava assemblage (see Figs: 14b; 9b&c; 18a-c; 46c; ?49d), although only the first is unequivocally a *compotera*. The Guayaquil Phase examples are of either Grey or Brown Polished, Red Polished (*Rojo Pulido*) or Red on Buff (*Rojo Sobre Ante*), whilst in the Guarumal-Punta Brava assemblage there is a strong correlation with either polished red slip or especially white-on-red decoration.

FORM 13: *Compotera* with bell-shaped pedestal (*ibid* Fig: 36c & e) in Red and White (*Rojo y Blanco*), White-on-Red (*Blanco sobre Rojo*) and Three Colour (*Tricolor*). This has a widely everted and shallow bowl form, similar to the Guarumal-Punta Brava Form 6: shallow bowl with flaring sides, although the Form 13 vessel has such an exaggerated outwardly flaring rim as to have a slightly concave profile, unlike Form 6. This form is also common from the Bellavista phase on La Puná Island, described by Aletto (1988), although his illustrations show a somewhat straighter walled profile, closer to the Guarumal-Punta Brava examples. The same comments follow here as elsewhere for the *compotera* form (see above), ie that few examples remain with fragments of the pedestal attached, so it is impossible to say for certain whether this form was indeed present or not, although what evidence there is would tend to suggest it was. Certainly shallow flaring bowls with polished red slip and white painted geometric decoration occur (Figs: 12a & b), and it is very likely that many of the plain sherds of Form 28: *compotera* pedestals, were indeed the flaring pedestal bases of such *compoteras*. Some of these sherds do bear the same sort of white painted bands described by Parducci and Parducci (*ibid*, 1975: 181). These usually derive from the lowest layers of sub-units 3 and 4 in the earliest floor levels there and date to the Early Guarumal period around 300 BC.

FORM 14: *Polypods with tubular feet in Polished Grey or Brown (Gris o Marron Pulido), Polished Red (Rojo Pulido) and Iridescent (Iridiscente)*, whilst those with *Embellished Rims (Bordes Embellecidos)* can also be in *White-on-Red, Red and White or Three-colour ware*. There is no direct evidence for the presence of tubular footed polypods at Guarumal or Punta Brava, although bowls with rim forms similar to these do occur (eg. compare Fig. 32f with Fig 37b).

Form 15: *Polypods with solid conical feet in Polished Grey or Brown (Gris o Marron Pulido), Polished Red (Rojo Pulido) and Iridescent (Iridiscente)*. Those with *Embellished Rims (Bordes Embellecidos)* can also be in *White-on-Red, Red and White or Three-colour ware*. Fragments of mainly hollow conical polypods were found at Guarumal (pp: 155-56), although the rare small solid conical polypod (*ibid*: Fig. 44c) also occurs (Fig: 40g). Solid feet in the form of stylised animal feet are also present (Fig: 41f). There are none from Punta Brava. No whole or reconstructed vessels remain, although there are sherds which retain the impressions of a polypod attachment (Figs: 10c & 12c). There are bowls with rim forms comparable to those figured in Parducci and Parducci and many of these are in polished red (Figs: 7d; 13a; 37b). It is interesting to compare the stepped interior rim of Fig. 34g with Form 7 shallow bowl with interior rim thickening, although the only reconstructed vessel of this form was a simple bowl or platter. *Hollow conical polypods* occur in the Guayaquil phase as a minority element (*ibid*: 226) and are commonly called "*patas Rio Daule*", according to the Parduccis (*ibid*); they are less pointed and not perfectly conical in shape. The fact that hollow conical polypods are the ones found at Guarumal may not be particularly significant given that the sample is not large. One hollow conical foot apparently pertaining to the Jambelí culture derives from the Parducci collection and is the one figured in Estrada, Meggers and Evans (1964: Fig 22c). It is not really clear upon what criteria they differentiate hollow Jambelí polypods from those of the Guayaquil phase and comparison with the Guarumal fragments is thus correspondingly unclear.

Form 16: *Small tetrapods with Solid Conical Feet (Patas Conicas Solidas)*. Small "nubbins"/?feet do occur occasionally from Guarumal and Punta brava (Fig: 40g), although it isn't always clear if they were indeed feet, or the small protruding adornos of some compotera pedestals (pp: 174-75).

FORM 17: "*Spittoon*" with flange in *Bi and Tri-colour Negative (Negativo Bicolor y Tricolor)* *ibid*: 194; 39e. This is not a common form at San Pedro, Guayaquil. It is not certain whether this form occurs in the Guarumal-Punta Brava assemblage or not, as the majority of the sherds are too fragmented to be able to positively identify the more complex body shapes. Parallels do present themselves, however (Figs: 37c). There is a chance some sherds identified as Jar Form 21 could also be this form (eg Figs: 62 c & d).

FORM 18: "*Spittoon*" with low body and everted rim and FORM 19: "*Spittoon*" with truncated body are the two least common vessel shapes from the San Pedro Guayaquil phase. It is not clear with which ware categories they are associated, however respecting the form, the same, in general, may be said of these as for Form 17.

FORM 20: *Semi-spherical bowl with everted rim in Red Polished (Rojo Pulido)* *ibid*: 176; Fig 34 b-1. This is a fairly common form from San Pedro, Guayaquil and is probably present at Guarumal and Punta Brava. The best comparable sherds derive from Punta Brava (Figs: 60a&b; 61c) and were classified as Form 22: Jar with short everted rim, so it is possible that some of these are, in fact, bowls with everted rims, as too little of the body portion remained to classify them accurately. The Form 15 Carinated bowl with out-turned rim (Fig: 24c) is another parallel, but this has a marked shoulder carination, which *Form 20* does not.

FORM 21: *Small globular jar with everted rim and constricted neck in Finger Painted ware (Pintura a Dedos)* *ibid*: 197; Fig 40a. It is not clear if this form was present at Guarumal-Punta Brava or not. The general shape of this jar, with its short, everted neck and rounded rim lip makes it broadly comparable to Form 22 jar with short everted rim, although most examples of this form from Guarumal-Punta Brava have rim diameters in excess of the average 5 - 8cm described by Parducci and Parducci. There are no examples of finger painting in red paint from either of the two sites in this study, although there is one possible example of finger painting in black on a natural buff background (Fig: 39a).

FORM 22: *Spherical jar with constricted neck and everted rim in Incised, Punctate and Appliqué ware (Inciso, Punteado y Botones)* *ibid*: 204; Fig

41a. There are no sherds with this particular rim form from the Guarumal-Punta Brava assemblage, although apparently "El tipo es mayor..." for the Guayaquil phase (*ibid*: 204). Spherical jars are nevertheless quite common in the assemblage and the jar forms 21 - 24 were probably all of this basic shape. Of particular interest is the ware category: Incised, Punctate and Appliqué, which was well represented at Guarumal and Punta Brava, with many of the same decorative motifs and combinations of techniques (cf *Bands 6e-i & 7 of Cuadro 10* for more egs; and pp: 170-76).

FORM 23: *Globular/spherical jar with very constricted neck and everted rim in Horizontally Grooved Ware with Notches.* This form parallels Guarumal-Punta Brava Form 23: Jar with Constricted Neck (Figs: 58a-e), although none of the sherds of this form are to be found in this category of ware. There is one sherd, however, which greatly resembles the illustration in *Fig: 42* (Parducci, *ibid*), although it appears to lack the notches. It is a unique piece (Fig: 71h) and one which has no other really convincing parallel in the published literature, so it is of interest to find one here. The sherd derives from one of the floor contexts (Layer 3) of sub-units 3 and 4.

FORMS 24 and 25: *Elipsoidal Jar and Large Jar* *ibid*: 166; *Fig 31a&b* relate in a general way to the large coarse jar forms from the Guarumal-Punta Brava inventory. They have the short everted neck of **Form 22** jars and probably resemble the larger heavier examples of this type, which rarely carry the painted decoration of the smaller, finer examples. There is a general likeness in terms of body shape with **Form 24**. This form is mainly associated with the Plain (*Ordinario*) ware, as are many of the large and coarser vessels from Guarumal-Punta Brava, although a small (4.4%) number occur as *Red Rimmed (Borde Rojo)*.

OPENWORK IN COMPOTERA BASES (*Calados en Bases de Compoteras*) *ibid*: 227 occurs as a minority element outside of the Parduccis' sequence, but is nevertheless very interesting given its parallels with the openwork and incised compotera bases from Guarumal (Fig: 32). Two almost complete bases with circular perforations are mentioned, followed by two sherds with openwork oval in form, executed in combination with incised motifs. These are evidently not felt to be of Jambelí cultural origin, for the Parduccis later mention a large compotera fragment, decorated with openwork, which they do believe to be Jambelí. The few comparable sherds

from Guarumal (there are none from Punta Brava) all have oval openwork with incised decoration and sound very similar, although the Parduccis do not illustrate their examples.

INCISED JAMBELI COMPOTERA (*Incisós en Compotera Jambelí*) (*ibid*: 227) are four sherds of large compoteras with broad flanges circling the entire vessel (presumably very similar to Izumi and Terada's P8 form, 1966: Fig. 11; Pl. 39-1&2). These flanges are decorated with incised lines representing stylised human faces, similar, the Parduccis say, to the Jambelí zoomorphic and geometric decoration of such vessels. Two of the fragments they mention are incised in such a way to make eyes and a nose, similar, perhaps, to Fig: 33e. It is difficult to know if these are supposed to be Jambelí intrusives or merely sherds which exhibit close similarities to Jambelí types.

BORDE DOBLADO of which just one fragment occurs in the Parducci sample and is speculated as being another possible Jambelí element. It is likened to examples of nicked rib pottery from Estrada, Meggers and Evans which also have thickened rims (1964: Fig. 32 a-d). It is not clear whether they mean Estrada *et al*'s Form 11: Jar with exteriorly thickened rim (*ibid*: 511; Fig.20) and if so, why this form wasn't mentioned more directly. It maybe akin to the Guarumal-Punta Brava general Form 18: bowl/jar with bolstered rim, a fairly common form (p: 142), but the description given by the Parduccis of a "borde vertical doblado" (*ibid*: 228) seems closer to the unique sherd from Punta Brava (Fig: 56g). Whichever the case, the vessel with exteriorly thickened rim is not a common one from the Guayaquil phase and is one the Parduccis evidently feel to be closer to Jambelí pottery, where it does occur commonly. The coarse form 18a is actually associated with the Late Guarumal phase, and is rare at Punta Brava (Table 1: 115).

GRATERS with four different varieties of scraping surface can be found in the Guayaquil phase assemblage. As mentioned in the section on Guangala pottery (p: 232), the Guarumal-Punta Brava Form 14: coarse bowl with flaring sides might include examples of graters, as some of the sample do have deep incisions on their interior surfaces. The Form 13 Comal is rather similar to the *rallador* with flat base and short straight flaring sides (Parducci and Parducci, *ibid*: Fig.: 49a), but none of these had any recognisably interior grating surface and they tend to be associated with the Late Guarumal phase (Table 1).

FIGURINES: The two figurine fragments from Guarumal and Punta Brava are too fragmented to be able to compare adequately with the five types of the Guayaquil phase (*Naupe, Guayaquil Sólido, Guayaquil Hueco, Guayaquil Colgante and Guayaquil a Pastillaje*; Parducci, 1970: 93-112). The figurine from Punta Brava however, does bear a likeness to both the *Naupe* and *Guayaquil Sólido* types, having an identical method of producing the eyes and a similar incised outline around the hairline to indicate, perhaps, some form of headgear, although there are no decorative incised lines across the face as with the *Naupe* type (pp: 158; Fig: 42e). The fragment from Guarumal is rather harder to compare, being more fragmented (p: 158; Fig: 42a). It was probably hollow and shares the method of producing the eyes; the nose is intact, unlike the example from Punta Brava and being well formed and prominent, could compare well with any of the five Guayaquil phase types. There is a vestigial hairline/headress remaining and a prominent ear, which compares to none of the five types. On the whole it also seems to be a hybrid of the *Naupe* and *Guayaquil Sólido* types. That standing figurines probably occurred at the Guarumal site is evident by the finding of fragments of feet (Figs: 38f&i; 41a&b,e&f). All but Fig: 41e are fairly naturalistic (figs: 41a&b are almost certainly of small dogs) and not at all like stylised feet of the *Guayaquil Colgante* or *Guayaquil a Pastillaje* types of the Guayaquil phase, which seem to be the only two types shown standing (although the "*Colgante*" type, is, of course, a small pendant). It is significant that these two Guarumal-Punta Brava figurine fragments have more in common with the Guayaquil phase figurines than they do with those of the *Jambelí* culture (Estrada, Meggers and Evans, 1964: Figs.: 14 & 15), a point alluded to earlier (p: 161). Although the method of producing the eyes is identical and in one case, the ears (*ibid*: Fig. 14c), the overall impression is quite different, with the *Jambelí* figurines being far more stylised.

COMPARISON OF WARES AND DECORATIVE STYLES

The Guayaquil phase and the Guarumal-Punta Brava pottery assemblage share several of the same wares and decorative styles, which include the following:

- Plain (*ordinario*)
- Grey or Brown Polished (*Gris o Marron Pulido*) - probably
- Red Polished (*Rajo Pulido*)

- Incised, Punctate and Appliqué (*Inciso, Punteado y Botones*)
- Light Red Wash (*Ligero Baño Rojo*)
- Red and White (*Rojo y Blanco*)
- Three colour ware (*Tricolor*)
- White-on-Red (*Blanco sobre Rojo*)
- Negative (*Negativo*)
- Red Rimmed (*Borde Rojo*)
- Nicked Rim (*Borde Embellecidos*)
- Notched Flange (*Muecas al Reborde*)
- ? Grooved Ware (*Ancanalado con Muecas*): one sherd of grooved ware, but without conspicuous notches
- ? Finger Painted Ware (*Pintura a Dedos*): one possible sherd

SHARED ELEMENTS (*Elementos*)

- Solid Conical Polypods (*Patas Cónicas Sólidas*)
- Bottle Spouts (*Picas de Botellas*)
- Bridge of Double Compotera (*Puente de Compotera Doble*): certainly bridge of Double Spout and Bridge vessels

Iridescent ware was not found at either Guarumal or Punta Brava, although as it is an uncommon enough ware, and its absence may be explicable in terms of the rather small overall sample size of the combined Guarumal-Punta Brava assemblages. One sherd of Grooved Ware - without notches was found from floor contexts in sub-units 3 and 4 (Fig: 71h) and one sherd of probably dubious Finger-Painted ware (Fig: 39a). Shared elements (as they are called by the Parduccis) include the polypods, although, it must be stressed, these are not common. Ceramic bridges from double spout and bridge vessels occur (eg Fig: 38a) but it is unlikely that these derive from double compoteras and one must wonder whether, in fact, any of those described by Parducci and Parducci (1975, *ibid*: 223-25) actually belong to such vessels, as no whole or partially complete reconstructions appear to be used. All other above listed wares, decorative styles and elements are demonstrable in the Guarumal-Punta Brava group and serve to exemplify the general parity of the two assemblages.

DISCUSSION

As indicated earlier in this section, Bellavista pottery from the Isle de Puná has been shown to be an earlier manifestation of the same Late Formative period complex to which the Guayaquil phase at San Pedro belongs (Aleto, *ibid*). Several of the forms illustrated by Aleto, including the carinated bowl with interior bevelled rim (*Form 4* of the Parducci seriation; Aleto *ibid*: Fig. 8) and probably also the annular based bowl (*ibid*: Fig 9) are found at Guarumal, many of them from the early floor contexts of sub-units 3 and 4, which has an associated C¹⁴ date of 300 ± 95 BC, and represents the earliest part of the occupation currently known from the site (pp: 69-74). Similarities in pottery form go beyond those discussed above, to include the coarseware bowls illustrated by Aleto (*ibid*: Fig. 11 a-c), which correspond well with similar examples from Guarumal and especially Punta Brava (Figs: 53-55).

Aleto is at pains to distinguish the white-on-red and negative designs of Guayaquil and his Bellavista pottery from that of cultures such as Jambelí, although he nevertheless admits that, whilst uncommon, 'a few Guayaquil-like motifs occur in Jambelí pottery' (Aleto, *ibid*). In Guarumal and Punta Brava pottery, negative painting is as rare as it is in general for Estrada *et al*'s Jambelí assemblage, or the Pechiche phase (although apparently rather commoner in Bellavista and Guayaquil pottery). One important motif shared with the Bellavista and Guayaquil assemblages is the negative design of a black 'ribbon' with open resist dots in a row through the centre, although only fragments of this design have been found (Figs: 6e; 13b; 49a). In general, decorative motifs, eg white-on-red or incised designs, do compare favourably with the Bellavista and Guayaquil examples (see 1975, *ibid*: Cuadro 10), particularly those associated with sherds from the earlier floor level contexts, which have similar broad white bands, and certain triangular motifs (eg Figs: 9d-f; 15b&e; 56a). Those from later contexts, such as Trench A in Mound 1 or the Machine-cut section are much closer to so-called typical Jambelí white-on-red designs (eg Figs: 1b; 2b; 3b&c; 5d). One of the main problems lies in what actually constitutes Jambelí pottery in the first place. Estrada, Meggers and Evans collected and endeavoured to seriate a large collection of sherds from different shell midden sites all around the Gulf of Guayaquil, the Isla de Puná, coastal El Oro, and the Archipelago Jambelí, down into the far north Peruvian coast around Tumbes. They had little material from stratified contexts,

no C¹⁴ dates and only the principles of comparative typology to guide them. They placed their Jambelí culture within the broad confines of the Ecuadorian Regional Developmental Period, currently still placed between the two dates 500 BC to AD 500, based purely on the presence of negative and white-on-red decorated pottery. There increasing reason to believe that at least some their Jambelí pottery could be earlier, late Formative Guayaquil phase material. This question will be reconsidered and discussed in more detail in the concluding section (p: 276).

CONCLUSION

Whilst there are clear parallels in both vessel form, decorative technique and motif between the Guayaquil culture (with its related Bellavista phase) and Guarumal-Punta Brava pottery, the differences which occur serve to emphasise the need for caution before drawing too close a parallel which would effectively call these two one and the same complex. Rather, they more plausibly may be two closely related manifestations of cultures which both share similar Formative period origins.

CHORRERA-ENGOROY

INTRODUCTION

The terms Chorrera and Engoroy each refer to stylistically similar cultural complexes which occupy different regions of the Guayas and Manabí provinces (Lathrap, 1975). Taken together the terms epitomise the late Formative in this area (Bischof, 1975). The Engoroy culture was first identified by Bushnell from La Libertad in the Santa Elena peninsula where he was correct in identifying the assemblage for what it was, but mistook its chronological position as post-dating the Guangala. Jijon y Caamaño also identified similar material at the Chorrera site in the Guayas basin itself and noted its antiquity there (1951: 170).

Paulsen and McDougale (1974) and Bischof (1971) have produced somewhat differing analyses of the Machalilla and Chorrera-Engoroy phases. Bischof places more emphasis on the dissimilarities between the coastal (Engoroy) and Guayas Basin (Chorrera) manifestations of these later Formative cultures, noting the occurrence of a pre-Guangala assemblage

at Palmar, which although similar to the Chorrera of Guayas Basin and sharing such diagnostic traits as the use of iridescent painting, is nevertheless not identical to it. He stresses the fact that differences do exist between the material from the Guayas Basin and that of the coastal zone and employs the term "Chorreroid" for describing those assemblages which, whilst sharing certain traits with Chorrera proper, nevertheless have their differences too. Simmons (1970), following Lanning (1967), also sees the Engoroy and Chorrera cultures as distinct from each other, with part of Engoroy being the Santa Elena peninsula manifestation of Chorrera (*ibid*: 423).

The Chorrera and Engoroy cultures have strong antecedents in both Valdivia and especially the Machalilla phases. Although in general post-dating the Machalilla culture, they are not altogether a direct out-growth from it, being in part and in places contemporary with late Machalilla sub-phases. Whilst continuing a number of ceramic traits of the preceding phases, Chorrera-Engoroy also includes a number of innovations, the most notable being the introduction of iridescent painting and the refinement of the double-bridge-and-spout bottle form of the Machalilla period into the single-spout and bridge-handle whistling jar, so characteristic of this phase. Meggers notes that "the closed, angular bowls of the Machalilla Phase are replaced by open forms with out-flaring walls and low annular bases 16-20cm in diameter" (1966: 58), whilst extensive use of both creamish-white slip and resist decoration all seem to presage features common to the later Regional Developmental cultures, including the rare occurrence of white-on-red decoration at Chorrera sites in the Guayas Basin (Evans and Meggers, 1982: 123). Despite such developments, Chorrera-Engoroy continued rather late on the Guayas coast and Santa Elena peninsula, to around 300 BC Braun argues that the coast was not the impetus for the transition to the Regional Developmental Period, with the Chorrera culture continuing "but slightly influenced by the white-on-red 'Horizon'" (Braun, 1982: 51).

CORRELATIONS BETWEEN CHORRERA-ENGOROI AND JAMBELI

Significant temporal and geographic dichotomies clearly existed between the Chorrera-Engoroy cultures of late Formative Guayas and the Jambeli culture of Regional Developmental El Oro. There are correlations, however and they should be better understood following the recent

intensive archaeological surveys of El Oro province in the region of the Rio Arenillas, which are known to have uncovered extensive Formative period Machalilla and especially Chorrera-like occupations in these parts (Netherly, p.c. 1988). Little of the prehistory of this region has been known until late, especially of the Formative period. Surveys by researchers such as Christensen (1956) and Estrada, Meggers and Evans (*ibid*) were rather *ad hoc* and tended to concentrate upon the coastal margins of El Oro, producing archaeological material mainly from the Regional Developmental and Integration periods. It is probably the case that correlations between Jambelí and Chorrera in reality derive from local Chorrera-like antecedents, rather than close contacts with the Guayas and Manabí provinces. Additionally, the Fase Guayaquil may well prove critical to the understanding of these cultural relationships, representing something of a transitional culture containing elements of both the Late Formative and Regional Developmental Periods as it does. A full discussion of the Guayaquil culture is presented on pages 209-221

POTTERY CORRELATIONS WITH GUARUMAL AND PUNTA BRAVA SITES

The highly naturalistic figurine tradition of Chorrera is one of its distinguishing characteristics, with the dog figurines of particular interest here, as there is some suggestion that similar forms occurred at the Guarumal site. The figurine fragments from Guarumal and Punta Brava have been discussed in an earlier section (pp: 158-61), where the point was made that they do not much resemble the very stylised and anthropomorphic figurines described by Estrada, Meggers and Evans as diagnostic of their Jambelí phase. Since the evidence is very fragmentary, it can only be suggested that a naturalistic, hollow figurine tradition, with parallels closer to Chorrera than to Jambelí (as defined by Estrada, Meggers and Evans, 1964: 502-506) existed at Guarumal, and that fragments of what were almost certainly hollow dog effigies derive from contexts dated to around $2,250 \pm 95$ BP (300 BC; Figs: 41 a & b; Pl:4-1).

There are several basic vessel forms which are shared by Chorrera-Engoroy and the pottery assemblage at Guarumal and Punta Brava, and the most significant of these are certain of the carinated or composite silhouette bowls and a shallow platter.

The enclosed composite silhouette bowl of the Machalilla and Engoroy periods, sometimes decorated with notching on the rim and shoulder carination, clearly resembles the Middle period Guarumal Form 11 carinated bowl in general (Figs: 21; 22), while there is a particular likeness to one sherd which is something of a hybrid between Form 9 and Form 11: Fig: 21a, classified here as Form 9. Another Form 9 sherd: 24d, shares similarities to other forms of everted rim carinated bowls (see also: Bischof, 1975: Fig: 3d-f,h; 5d; 6b & c; Simmons, 1970 eg: Figs: 7-1/2/5; 52-a; 56-d&e; Meggers, Evans and Estrada, 1965: Fig. 73-1,3; 78-1, 4&5; Figs: 84-2-4; 85-4-5).

There is a generalised similarity between the Form 11 carinated bowl and some examples of Simmons' Engoroy forms 1 and 2 (*ibid*: Fig. 7; pp 302-3), whilst Guarumal Forms 8a: fine bowl with expanded and inturned rim and Form 8b: bowl with broad expanded rim have interesting parallels with Simmon's form 3 (*ibid*: Figs. 7; 55-a; 56-d; 57-a, especially no.4; p: 303). There is one unique sherd from the lower floors contexts at Guarumal, a deep, 'tulip' profile bowl (17a), which has similarities to some of the sherds illustrated by Simmons (*ibid*: Fig. 54-b/5; incidentally, this is also the Pechiche form D9. The implications of ceramic parallels with the Pechiche culture, which include other of the forms cited above, are discussed on pp: 195 & 202).

Another vessel form characteristic of the Chorrera-Engoroy cultures is Form 7, the shallow bowl with interior rim thickening, which is described by Evans and Meggers in the initial report of their excavations at La Chorrera (1957: 240) and also by Simmons as Engoroy general form 8 (1970, *ibid*: 36; 304; Fig. 55-b). Paulsen mentions what could be the same vessel in her description of 'typical Engoroy shallow plates' which, she feels, may be antecedent to the Guangala white-on-red bowl (Paulsen, 1971: 73).

As we have seen in an earlier section (p: 154), spouted and bridge and spout vessels do occur at Guarumal, although no whole or nearly complete specimens survive intact from the site itself to enable a proper reconstruction. The figure, bridge and spout pot discovered in mangrove swamps close to the Guarumal midden has a broadly similar profile to some middle Formative Machalilla vessels (Col.P1: 2). It may well be that such a vessel form, rather reminiscent of the Formative period prototypes (which almost certainly influenced later Peruvian forms

(Lathrap, 1975: 57), was present in the pottery inventory at Guarumal too.

Jars and bowls with short everted rims are also common to both Chorrera-Engoroy and the Guarumal-Punta Brava assemblages (Form 22, p: 147), where they tend to be associated with the Early to Middle Guarumal period, which is broadly contemporary with the excavated material at Punta Brava (compare Figs: 60a&b; 61a-c. Some of the Engoroy eggs are nearly identical to the Guayaquil phase Form 20; see p: 215 & Bischof *ibid*: Figs: 4f; 5g; 7d&e). It is interesting to note that most of the forms which have close parallels to Chorrera-Engoroy types, including the hollow figurine fragments discussed above, are mainly associated with the Early or 'Floors' phase at Guarumal, dated to around 300 BC, and broadly contemporary with the later Engoroy phases on the Santa Elena peninsula.

The use of red slip and especially highly polished orange-red paint is also common to both Chorrera-Engoroy and to the pottery from Guarumal and Punta Brava, but then use of red slip and polished red paint is a trait found in many cultures throughout Ecuador and Peru around this time. White-on-red decorative painting was until recently thought to be absent from Chorrera-Engoroy pottery, but there are clear examples of this style in later Chorrera deposits, although uncommon (Evans and Meggers, 1982: 123). The decorative use of incision and punctation is also a shared tradition, but overall, the designs and their organisation upon the vessel surface are dissimilar in Chorrera-Engoroy from the styles found at Guarumal and Punta Brava and for Jambelí Incised and Punctate pottery as a whole. Much of Chorrera-Engoroy incised decoration is actually engraved upon the vessel after firing.

Notable absences of decorative technique include iridescent painting, rocker-stamping, differential red and black zones of colour defined by incision and extensive use of black and creamish white polished slips. There is but one rare example of smudge-resist decoration upon the inside rim band of a Form 7 sherd from Trench A, Guarumal, which is nevertheless interesting precisely because of the rarity of this technique, where black paint is normally used to produce the negative designs.

DISCUSSION

Whilst there are elements common to both Chorrera-Engoroy and to Guarumal-Punta Brava pottery, it would be unwise to exaggerate the overall similarity of the two pottery styles, for there is also much to distinguish them from each other. As noted above, correlations between the Jambelí culture in general, or particularly between the Guarumal and Punta Brava assemblages and Chorrera-Engoroy probably derive from local Chorrera-like antecedents. Similarities between diagnostic forms of Chorrera/Engoroy and Guarumal-Punta Brava actually appear to have antecedents in the preceding Machalilla period. The Form 11 carinated bowls, for example, show quite close affinities with earlier Machalilla vessels from the Santa Elena Peninsula (Bischof *ibid*: Figs: 2; 3; 5a,c,d&e & 7a-f). Other examples of close similarities include some of the vessels classified as Form 22 jars and examples of Engoroy everted rim bowls. Another unique sherd from Punta Brava (Fig: 61f) compares with certain Machalilla forms (eg Bischof, *ibid*: Machalilla Fig: 2c; 5f & 6a*). Such parallels serve to emphasise the strong underlying and continuing Formative period associations of the Guarumal-Punta Brava pottery assemblage.

Whilst the exact chronology of the Chorrera-Engoroy cultures is still a matter of debate, they are known to have lasted at least until 300 BC in the Guayas Basin before the transition to Tejar, and probably until 100 BC on the Guayas coast before the advent of Guangala 1 (Paulsen, 1971; Bischof *ibid*), the [?] which dates tie in well with the early phase at Guarumal. What we may have at Guarumal in this early phase is a local Chorrera-like transition to Jambelí taking place, and certainly most of the close links between pottery forms tend to occur both in the early levels at Guarumal and also at Punta Brava, which is probably contemporary with the Early and early-Middle Guarumal period and which has several Engoroy-like forms finished in the typical polished red slip.

CONCLUSIONS

Given the close temporal and geographical proximity of the Bellavista and San Pedro sites of the Fase Guayaquil on the Isle de Puná and the Gulf of Guayaquil, between around 500 BC and AD 100, with their use of white-on-red and negative decorated pottery, it is highly probable that

a similar or related culture of late Formative/early Regional Developmental Period transition also existed in the locality of the study sites of this thesis in south coastal Ecuador, with such traits as fine white-on-red pottery and a naturalistic figurine tradition derived from earlier Chorrera-like antecedents. As it evolved through subsequent phases, pottery forms and decorative styles closer to some of those described by Estrada, Meggers and Evans developed (Netherly also describes her belief in such a process: Netherly, pc, 1988). Much of the Estrada *et al* Jambelí material is a mixture of finds from the surfaces of eroded coastal middens, whilst those proceeding from excavations have a dubious chronological value, lacking absolute dating or proper stratified context. In discussing his Bellavista material, Tom Aletto makes a similar point respecting misidentification of Guayaquil phase for Jambelí pottery (Aletto, pc 1988).

It is possible to argue that such an early culture as described above also shared close affinities with the Pechiche culture on the Tumbes coast, in terms of having fine white-on-red pottery with similar design motifs and certain vessel forms in common (pp: 191-206). Parallels also exist between Chorrera-Engoroy and the Pechiche culture, as Izumi and Terada themselves note (Izumi and Terada, 1966: 85). For example, there is an interesting parallel between the Engoroy open carinated bowl (Bischof, 1975: Fig. 3 e-f) and certain Pechiche forms, especially D14 (Izumi and Terada, 1966: Fig.10, pp 32; Pl.28-8). This form is also close to the characteristic Fase Guayaquil carinated bowl described by the Parduccis as their form 4 carinated bowl (although not illustrated with annular base as the Pechiche and Engoroy forms are shown).

The overall balance of the evidence set out and discussed above seems to confirm the essentially Formative period roots, in the form of Chorrera-Engoroy (and even Machalilla) associations, in the pottery assemblages of Guarumal and Punta Brava. This is true, despite the overwhelming preponderance of white-on-red decorated pottery, for many of the actual vessel shapes seem to carry over traits characteristic of the Formative period, rather than presaging those of the following Regional Developmental. Traits apparently typical of the later period, such as the figurine tradition, compoteras, white-on-red and negative decorated pottery can all be shown to be present in the Formative. An examination of one geographically close culture of the Regional Developmental Period will serve to demonstrate these points.

THE GUANGALA CULTURE

INTRODUCTION

The Guangala culture has a geographical spread covering much of the Santa Elena peninsula, including the coastal portions of Guayas and parts of Manabí province eastward into the Guayas Basin. It was first properly studied and described by G.H.S. Bushnell, who published his findings in "The archaeology of the Santa Elena peninsula in south-west Ecuador" (Bushnell, 1951). Twenty years later, Alison Paulsen produced a more detailed study and seriation of Guangala and Libertad pottery in her "A chronology of Guangala and Libertad ceramics of the Santa Elena Peninsula in south coastal Ecuador" (Paulsen, 1971), whilst more recently Richard Zeller and Henning Bischof have conducted excavations at sites such as Palmar, which has deposits ranging from the Guangala culture back to Chorrera-Engoroy.

Based on a series of radiocarbon dates of archaeological strata from several sites, Paulsen places the Guangala culture into eight sub-phases, between 100 BC and AD 800, deriving from Engoroy antecedents, with each sub-phase denoted by a series of style markers. The following appraisal of the Guangala culture has been based largely upon the Paulsen seriation, although frequent reference is made to the Bushnell descriptions whenever this has been appropriate. Indeed Paulsen herself uses Bushnell's work extensively, especially with respect to his illustrations which are often cited to exemplify her own style markers.

COMPARISON OF FORMS AND DECORATIVE STYLE

The white-on-red bowls of Guangala 1 (Paulsen, 1971: 69; 72) are also noted by Bushnell in his white-on-red section (Bushnell, 1951: 43-44) and probably constitute the single most comparable pottery style of all the Guangala group. Paulsen describes them as being shallow with slightly incurved wall and direct rim. As such, they sound much like the Form 1 bowl of Guarumal-Punta Brava (Paulsen, 1971: Fig. 1b; Bushnell, 1951: Fig. 15; see also eg Figs: 1-5). Paulsen indicates a local variation in this style, with most examples having a polished red slip upon the interior of the bowl and the upper half of the exterior only, which also bears the geometric white painted motif, whilst "local variants" or "prototypes" may carry red slip all over the exterior and

have white horizontally striped white bands on the interior red slip. These latter sound especially like some examples from Guarumal-Punta Brava, although the generality of white-on-red bowls are diverse and may bear white painted designs upon both the interior and exterior.

The Bichrome and Polychrome wares, conversely, which together represent the most striking and distinguishing pottery of the Guangala complex, exhibit the greatest divergence from that at Guarumal and Punta Brava. (These are: *Linear Bichrome* [Guangala 2 - 5 (Paulsen, 1971: 77-80)] and *Guangala Bichrome* [Guangala 3 (Paulsen, 1971:81-83, 85)], which together comprise Bushnell's original "Guangala Two-Colour Ware" (Bushnell, 1951: 75-77) and *Polychrome wares: Guangala Polychrome* [Guangala 4 (Paulsen, 1971: 86-87; 89-90)]: Bushnell's "Guangala Three-Colour Ware" (Bushnell, 1951: 77; Figs: 30t & u; Fig.: 8b,c,d, & e) and *Feather Polychrome* [Guangala 5 (Paulsen, 1971: 91-92; 94-98)]). Certainly Jambelí pottery has nothing like it.

In both types, the main background colour is buff, pale yellow or tan, either as a slip or as fired and the decoration in brown (Bichrome) or red and black (Polychrome) is typically geometric and complex, consisting of vertical or slightly diagonal straight parallel and wavy lines, step motifs, triangles, cross-hatching. It is this complexity and organisation of design which sets it apart from the rather simpler motifs of the Jambelí white-on-red. There is, however, one sherd of a white-on-red Form 11 bowl from Guarumal (Fig: 22e) which recalls the *feathered polychrome* motif of arced line with white dots (the highly stylised and devolved pelican motif (Paulsen, 1971: 91-2, 94-98; Bushnell, 1951: 33-35; Fig.9). As we have seen (p: 167), the use of two and three colour painting occurs as a rarity at Guarumal and Punta Brava, and being black and red, or black with white-on-red, is quite unlike the styles described by Paulsen or Bushnell for the Bichrome and Polychrome wares.

Izumi and Terada note that Bushnell's La Libertad Three Colour ware (part of Paulsen's Guangala polychrome (Paulsen, 1971: 86)) is "different in many traits" to their Garbanzal Three Colour (Izumi and Terada, 1966: 80), which is black with white and red (*ibid*: 54,59), as is that at Guarumal and Punta Brava. They do note, however, the similarity of the black wave and spiral design from a *compotera* of Guangala Red ware (Bushnell, 1951: Fig.12e) with motifs in Garbanzal

pottery (Izumi and Terada, 1966: pl.39-10). Other vessel shapes which are common to the Guangala culture and the pottery inventory from Guarumal-Punta Brava include the shallow, carinated bowl bearing the Linear Bichrome decoration, which can be rather similar to certain bowls included within the Forms 1 and 5 categories (Paulsen, 1971: 77; 79; see Figs: 43d; 44a; 47b). The more steeply carinated somberware bowl, with its exterior iridescent painting and interior pattern burnishing is close in shape to the Form 11 carinated bowl with wedge-shaped section (*ibid*: 69; 78; see Figs: 21-22).

Paulsen notes the origin of the carinated bowl as representing "a continuation into Guangala of a very ancient Engoroy shape" (*ibid*, 1971: 79), and goes on to stress that "The shape of Linear Bichrome is quite different from the white-on-red bowls..." (*ibid*: 79), which is in itself rather interesting, considering that the Form 11 steeply carinated shallow bowl from Guarumal is a form decorated with white-on-red painting. The Guangala white-on-red bowls, according to Paulsen, are new to the inventory. They are simple profile bowls with direct rims and apparently do not imply the continuation of any ancient form such as the carinated bowl tradition. The use of white-on-red in Guangala 1 is also innovative and apparently separated from any earlier tradition, despite the fact that we now know white-on-red painting occurred in late Formative complexes such as (rarely) Chorrera, and particularly the Guayaquil culture with its Bellavista and San Pedro phases, which predate Guangala. This helps to distinguish the Guarumal-Punta Brava white-on-red bowls from their Guangala counterparts, as the former seem to share closer parallels with the late Formative traditions, in that the white-on-red motifs appear on the carinated bowls as well as simple ones. Jorge Marcos also reported finding white-on-red pottery in the intermediary strata (between pure Engoroy and Guangala levels) at Los Morros. Comparing his material with the finer quality San Pedro pottery, he suggests that the Guayaquil phase white-on-red could be antecedent to that of Guangala (Marcos, 1982: 179; 181).

Of the other carinated forms, only single examples are comparable, as the Form 9 sherd (21a), which has a more upright profile, and somewhat resembles the composite silhouette bowls in Bushnell, Fig: 30a-e, j, o, m, s & y, yet save a notched rim and shoulder, it is plain. In this it is closer to earlier Engoroy forms, where notching of rims and shoulders also occurs as a decorative feature (Bushnell, 1951: Fig.37g;

Bischof, 1975: Figs. 3e; 4a&c; 5b,c,d; 6b & c; also pp: 221-27). The Form 9 carinated group as a whole is not comparable with any Guangala form, being associated with the early 'floors' phase at Guarumal and particularly comparable to Bellavista and San Pedro examples. The Form 15: carinated bowl with out-turned rim (Fig: 24c) resembles Bushnell's *bowls with everted lips* (1951: 37: Fig. 11c,e&h) and Form 16: deep bowl with upright rim (Fig: 24a) resembles Bushnell's Fig. 11f.

The distinctive *compotera* is one of the distinguishing traits of the Regional Developmental Period, although it also occurs in the Pechiche and succeeding Garbanzal culture of the Peruvian far north coast and occurs as far away as Vicús. It is a form demonstrable from both Guarumal and Punta Brava. In Paulsen's seriation the "thickware *compotera*" is one of the phase markers for Guangala Phase 4 [5th century AD] (Paulsen, 1971: 87; 89). As such, it would not seem to have been present earlier than this in Guangala, and it is not at all clear whether it continued beyond this timespan.

Fineware pedestal bowls, or *compoteras*, have a pedigree dating as far back as the Machalilla period, from whence they may derive, in turn, from earlier pottery traditions of the Amazon and Orinoco basins (Lathrap, 1975: 33), and continue into the succeeding Chorrera (*ibid*: 37), appear to be "lost" in the Guangala culture until Phase 4. Here they seemingly reappear as massive vessels, which Bushnell refers to as *plates on annular feet*, which are "thick and massive", although "of surprisingly fine textured ware" (Bushnell, 1951: 39; Fig.: 12a). Commenting upon their origin, Paulsen says: "The whole concept of a thickware compare...is foreign to the Engoroy style. These are now believed to be a foreign addition at the beginning of the Guangala style" (*ibid*: 68). Paulsen describes them as being "slipped with red paint, with some features, such as plate rims, or horizontal bands on the skirt, decorated with thick shiny white paint" (*ibid*: 87). They seem to be very like Izumi and Terada's Form P7 of the Garbanzal culture in general shape, with such features in common as having a hole pierced through the centre of the upper plate or dish and with such distinctive characteristics as notching of the flanges (Izumi and Terada, 1966: 78). Sherds of thickware *compoteras* do occur at Guarumal and Punta Brava (Figs: 37d; 66a), although they are of fairly coarse ware and are not common. The Guarumal sherd (37d) derived from Late phase contexts in Trench A. They bear little in the way of decoration, other than traces

of red slip and have probably suffered considerably from the effects of erosion. More common are the fineware compoteras on tall polished red pedestals, but there is no evidence that vessels such as these derive from Guangala; rather they are more directly comparable to Pechiche and Garbanzal forms.

Other pottery styles which distinguish the Guangala assemblage include various jar forms in polished *sombreware* (Paulsen, 1971: 70), *frogware* (*ibid*: 92; 98-99) and *black/gray fine polished jars* (*ibid*: 101-2). Few of the forms described or illustrated bear much resemblance to the Guarumal-Punta Brava assemblages, other than through the generalised description "... jar with constricted neck and flaring rim, decorated with incision, punctation or appliqué.... (Paulsen, 1971: 61). Sombreware is distinguished not only by its fine, hard grey or grey brown ware and surface colour or grey, dull red, brown or black, but by the predominance of the burnished line technique and iridescent paint, frequently used to decorate it. No such decorative technique is found in the Jambelí, Pechiche-Garbanzal cultures further south in Peru, or at the Guarumal and Punta Brava sites. Most Guangala jars are well-polished, unlike those at Guarumal and Punta Brava. Whilst some of the incised motifs on the black/grey fine polished jars (which presumably would include Bushnell's *Grey Incised Ware*) can have a slight resemblance to some of the incised designs from Guarumal-Punta Brava pottery (Fig: 24e and Bushnell, 1951: Fig. 17j), mostly the forms they represent are quite at variance (Paulsen, 1971: Fig. 5; 10).

Polypod bowls characterise the assemblages of Guangala, Jambelí and most Regional Developmental cultures, although it is a form with antecedents in the Late Formative period. Guangala supported vessels are usually solid conical hexapods and range from being plain, to decorated with a variety of appliqués. As such, they differ from the rare polypods found at Guarumal, which are hollow and plain and have more in common with the preceding Engoroy period, although Estrada *et al* do illustrate solid as well as hollow polypods for their Jambelí culture (Estrada *et al*, 1964: 515; Fig.: 22). The impression is that probably mainly tripod vessels occurred at Guarumal (p: 156).

Rather more comparable forms are the "*graters*" (Paulsen, 1971: 61), and *comales* (Bischof, 1975: 24), which Paulsen does not refer to. "Graters", described as "shallow unsupported plate with incised design on inner

surface" (Paulsen, *ibid*) probably compare to the Form 14 coarse bowl with flaring sides, which is common at Punta Brava, where several examples are distinguished with incised patterns on their interiors (Figs: 51 & 52). *Comales* are the Form 13 platter with flat base (p: 138), which Bischof discusses in relation to the new elements associated with the initial appearance of the Guangala culture (Bischof, *ibid*). The *comal* is more common at Guarumal, where 80% of sherds derive from Late period contexts (Trench A). This may be broadly contemporary with its appearance in Guangala 1 at ca 100 BC (Table 1 &2).

COMPARISON OF WARES

Paulsen makes little reference to wares types as a whole. In her sub-phase Guangala 6 (AD 600-650), she describes *red or orange slipped hemispherical bowls*, which have direct rim, are square in section and apparently "derive from the fine red and orange bowls of earlier Guangala phases which were the base for the polychrome styles of Guangala 5" (Paulsen, 1971: 102-3). It is impossible to say whether these would be included in Bushnell's *Guangala Red ware* or not, of which he says "the finer varieties are burnished, and are in many cases covered with a thin red slip or wash" (Bushnell, 1951: 36). There are coarse unslipped varieties which sometimes have simple designs in red and white-slipped vessels do occur, although rarely. Together these resemble the bulk of the pottery at Guarumal and Punta Brava, with surface colour varying from brick-red to buff and ranging between coarse, normal and fine, just as we have seen with the material in section III on the typology. Actual tempering of the ware differs, containing black and white quartzite and silicified shale as opposed to the white quartzite and heavily micaceous temper so typical of far south coastal Ecuador and the Tumbes region. Bushnell's reference to the presence of mica in two of his white-on-red sherds is discussed elsewhere in this section.

FIGURINES

As a rule, Guangala figurines are not particularly like those found either at Guarumal or Punta Brava (Bushnell, 1951: 53-6, Fig.20; see above p: 158). Nor are they at all like the figurines ascribed to the Jambelí culture by Estrada, Meggers and Evans, although, as we have seen, these also bear little resemblance to the Guarumal and Punta Brava

style (Estrada *et al*, 1964: 502-506). They do, however, show one such in their publication to suggest contact with the Guangala culture (*ibid*: Fig.17). There is a certain generalised similarity inasmuch as the figurines are usually hollow and fairly realistic (unlike the totally anthropomorphised Jambelí examples), but such specific treatment as execution of the eye is quite different. There is, however, one small engraved face from the Guangala culture which is reminiscent of a fragment from Guarumal (Fig: 42b). Here the "startled eye" motif is used in both pieces and the use of incised or engraved lines around the nose and face area rather similar (Bushnell, 1951: Fig.20c).

DISCUSSION

Guangala 1 sub-phase is interesting both for its being the first recognisable appearance of the new culture and for the brief appearance in Guangala of white-on-red decoration, which is apparently limited to this phase only (in which case one wonders at the presence of the red-slipped, thickware *compoteras* of Guangala 4 being decorated with 'thick, shiny white paint' as they are duly described as being).

According to Paulsen, the white-on-red bowl, "the most striking phase marker" (*ibid*: 71), probably derived from the late Engoroy style, although the white paint is a "new and striking addition to the peninsula style" and "is without local precedent" (*ibid*: 73). However, Evans and Meggers claim rare white-on-red painting from Chorrera sites in the Guayas Basin (Evans and Meggers, 1982: 123; 1957: Fig.3 a, b & c), (whilst noting it as really diagnostic of the following Regional Developmental period) and Parducci and Parducci (1975 etc) and Aleto (ms, 1987) have clearly established the occurrence of white-on-red, as well as negative decorated pottery, for their Late Formative period Guayaquil and Bellavista phases from the Gulf of Guayaquil and La Puná Island, respectively. The question of white-on-red decorated pottery and the implications it has for the phasing of the late Formative - Regional Developmental periods in southern Ecuadorian cultural development, is discussed again in the concluding section.

At least some of the Guangala 1 period white-on-red bowls apparently contain mica in their paste (although it is hardly clear how many). Paulsen's definition of the white-on-red bowl actually refers to the inclusion of mica in the paste (Paulsen, 1971: 69), whilst Bushnell

reports that two of his white-on-red sherds contained mica, which both he and Paulsen, acknowledging Bushnell, note is foreign to the Santa Elena peninsula. Both suggest that at least some of the Guangala 1 white-on-red bowls were not indigenous to the area, but must derive from granitic regions, where mica is found (Bushnell, 1951: 43-44; Paulsen, *ibid*: 72). From whence, then, do these so-called Guangala white-on-red bowls come? The implication seems to be that they were introduced from outside the area, possibly from further south, where mica is a conspicuous element in the pottery of these areas.

Marcos feels that the white-on-red style moved from the interior (Cerro Nariño) to the coast, arriving around the same time at Esmeraldas, and suggests an ultimate Saladoide origin for it (*ibid*: 181; p: 276 for discussion). Apparently this is a style which can have both antecedents in local and earlier traditions, but in part also represents outside influence. Bushnell says that only two of his sherds actually contained mica, and the impression received from him is of an intrusive ware which serves to influence a change in style for a few generations, at least until the introduction of Linear Bichrome ware in Guangala 2, between AD 100 - 200, which is, as Paulsen points out "not stylistically related to or derived from the white-on-red style" (*ibid*: 79).

Its true relationship to the "intrusives" mentioned by Paulsen (*ibid*: 76-77; 173) is of interest here, given that Estrada, Meggers and Evans claim that "Jambelí white-on-red is practically identical to Guangala White-on-Red in vessel shape, surface finish, and decorative technique and motif" (Estrada, Meggers and Evans, 1964: 541). They go on to speculate: "While the type seems too common in Guangala sites to have originated by trade, this possibility cannot be ruled out until more detailed analysis has been made of the Guangala ceramic sequence" (*ibid*). Neither Bushnell nor Paulsen, however, suggest that the white-on-red bowls they are describing are as common as implied by Estrada et al. Paulsen would evidently disagree that these two groups of white-on-red are at all the same. Both she and Bischof (1975: 26) discuss the occurrence of Jambelí styles: *Punctate*, *White Wash*, *White-on-Red* and *Nicked* in various combinations at Guangala sites, where they seem to be associated with the earliest phase 1 only. In her section on "Intrusive Pottery" (Paulsen, 1971: 76-77; 172), where she discusses the white-on-red style,

Paulsen is actually dismissive of the concept of a Jambelí culture altogether: "Straight-sided bowls with areas of white paint or slip on the outside walls, plainware jars with appliqué nicked fillets and incised-punctate jars with red paint have all been subsumed under the rubric "Jambelí".....Since this term lumps at least three local styles, without distinction as to site, more precise provenience is impossible" (*ibid*: 173). One is not told what 'three local styles' Paulsen believes have been erroneously included under the 'rubric "Jambelí"', however from evidence presented in this thesis, it does seem that the Guayaquil phase with its distribution of sites around the Gulf of Guayaquil and La Puná island and the presence of white-on-red pottery in its assemblage would certainly be one. Aleto also agrees with this view (Aleto, pc 1988). Paulsen speculates that "Some of the nicked fillet ware...probably belongs to the end of the Paita period in northwest Peru (Lanning: personal communication), estimated at about 100 BC. This agrees with the radiocarbon date for Guangala levels at OGSE-166E-1 of 100 BC± 100. All these sherds point towards trade or other relations with the Guayas basin and northern Peru in Guangala 1. Bushnell drew the same conclusion about the white-on-red bowl of Guangala 1 (Bushnell 1951: 44)" (*ibid*: 173).

Richardson's radiocarbon evidence has actually pushed the dating of the Paita phases right back in time (pp: 250-51) and Braun envisages the final Paita D phase as ending around 850 BC, at about the start of the Engoroy period in the Santa Elena peninsula, and the Pechiche culture on the far north coast of Peru (Richardson: 1978; Braun, 1982; Sarma, 1969: 81). Whilst there is still some considerable variation even in recent chronologies available for all the sub-phases of these different cultures (see also Meyers, 1984 m.s. & discussion p: 270), it nevertheless seems more likely that the north Peruvian culture most nearly contemporary with the Guangala as dated by Paulsen would have been one of the sub-phases of the Sechura culture, possibly Sechura B, which also has nicked fillet ware. Indeed nicked fillet ware is demonstrable up until Piura B (Lanning, 1963: 171; 184; see also pp: 253-54).

One is hard-pressed to solve the white-on-red question without undertaking a fuller study of the pottery used in the seriation, which

would be outside the scope of this work. However, if the sherds illustrated by Estrada, Meggers and Evans are indeed of Guangala White-on-Red pottery (*ibid*: 1964: Pl. 12), then they are certainly practically identical to sherds from Guarumal (Fig: 1b & 2c), dated to the Late Guarumal period (AD 120 - AD 340).

CONCLUSIONS

Estrada, Meggers and Evans remark that the Jambelí culture is most closely affiliated with the Guangala complex of the northern portion of the Guayas coast, citing the near identical appearance of the white-on-red pottery from each culture as proof (1964: 541). They also remark upon "strong affinities with the Garbanzal to the south (*ibid*: 544). Izumi and Terada also claim that the pottery most similar to the Garbanzal types is found in the Guangala culture in Manabí and the Guayas coast and that "although there must have been a close relationship between the two cultures, each developed its own local traits" (1966: 544). However, after an opportunity to study the Jambelí material from Estrada, Meggers and Evans' survey and excavations, they remark in a footnote that "Garbanzal and Jambelí pottery is practically identical in most respects...", apparently modifying their original view.

The Guangala, Jambelí and Garbanzal cultures all occupy the same natural geographic area which, as we have seen, reached its southernmost extension in prehistoric times at Punta Paríñas, so it is unsurprising that certain similarities between the different pottery styles can be demonstrated. These similarities notwithstanding, one cannot help but be struck as much by the divergence and disparity of many of the pottery forms and decorative styles, as by the occasional likenesses.

Any similarity between pottery styles of the Jambelí culture and that of the Guangala seem limited to the earliest Guangala phase 1, where sherds of intrusive so-called Jambelí styles apparently occur. The most important of these are the white-on-red bowls, some of which may actually represent trade items from further south. Other specific categories of vessel common to both cultures, such as the *compotera*, apparently occurred later in the Guangala sequence.

There is currently much debate as to what actually is Jambelí and what has been erroneously called by that name, which, in reality, belongs to other preceding cultures from the same area, notably the Late Formative Guayaquil phase. The cultural sequence at Guarumal ranges from the earliest excavated deposits dated to around 300 BC. containing just such Late Formative Guayaquil phase-like material, to the latest 4th century AD deposits bearing what would probably be considered more "classic" Jambelí pottery. It is this latest group of material which bears the sort of similarities discussed by Estrada, Meggers and Evans (*ibid*), including the examples of white-on-red decorated bowls which are purportedly identical to Guangala white-on-red (Figs: 1b; 2c; 3c; 5d).

TEJAR AND DAULE AFFILIATIONS

The predominantly midden sites of the Tejar and Daule cultures are located in the basin of the Rio Guayas, along the many tributaries of the river. As such, they are somewhat to the north of the Jambelí area and abutt the Guangala regions to the west (Map 1). They are broadly contemporary, belonging to the Ecuadorian Regional Developmental period and share many of the same stylistic attributes, including white-on-red and negative painted pottery and compoteras. Little work has been carried out in this region and consequently one depends upon the description of wares published by Evans and Meggers (Evans and Meggers, 1957). Unfortunately published illustrations are few.

Descriptions of pottery forms and decorative styles conform in a generalised way to those of the Guarumal and Punta Brava sites and also for the Jambelí and Pechiche-Garbanzal complexes. Meggers says that the "pottery of the Daule and Tejar Phases resembles that of the Jambelí Phase in emphasis on white-on-red and negative painted decoration, while sharing with the Guangala Phase such vessel shapes as rattle-based goblets and angular-shouldered bowls" (Meggers, 1966: 84). Unlike the Guangala and Jambelí cultures, and what is inferred at Guarumal and possibly Punta Brava, tripod and polypod vessels are rather rare, whistling jars and strap-handled bottles being more common, indicating influence from the nearby Chorrera culture, which partially chronologically overlaps with the Tejar in this area. There is some evidence, as we have seen, for the presence of such forms at Guarumal too. Most of the vessels are apparently medium to large utility jars

and ollas which are often decorated with designs composed of broad lines, bands, dots or blotches applied to their thickened and everted rims or shoulders (Evans and Meggers, 1957).

Decorative motifs include narrow to broad bands and wavy lines, dots and scallops in negative or white upon plain or polished red-slipped surfaces. The *compotera* is the vessel most commonly associated with this decoration. Polished white slips also occur, another indication of the proximity of and relationship to the Chorrera culture. Incised line decoration is an important feature of the Tejar phase and as Meggers stresses "If one technique can be said to be diagnostic of this region, however, it is the execution of zoned designs on unpolished surfaces with incision defining bands or triangular or stepped areas alternately filled with punctation and painted red" (Meggers, 1966: 84). Iridescent painting and burnished line decoration from the mainly preceding Chorrera period continues into the Tejar, although slowly diminishing in significance.

The paucity of published material makes any attempt at direct comparison out of the question, a point also made by Aletto (*ibid*, ms). In general, the description of the white-on-red styles seems similar enough to Guarumal-Punta Brava material, together with some of the reference to incision and punctation, although the refinement and complexity of these latter designs is unlikely to match the relatively straightforward geometric styles of the material from Guarumal and Punta Brava. The same can be said for Jambelí and Garbanzal pottery.

Izumi and Terada note that "The Tejar culture may be contemporaneous with the Garbanzal culture" and that "The white wares of the two regions may be considered the survival of a northern Formative element" (Izumi and Terada, 1966: 79). They cite several other comparable elements such as notching, finger impressing and punctation (*ibid*: 78) and note that Tejar coarse ware is similar to their Garbanzal Coarse (*ibid*: 80). Considering all this then, it is rather surprising to have them draw far closer parallels to their earlier Pechiche culture, although they also stress that "the Pechiche pottery types are in most cases quite distinct and do not show resemblances with those of any other cultures if compared as a whole" (*ibid*: 81).

The typological phasing of the Pechiche and Garbanzal cultures has already been questioned above (p: 202-206), but it does seem rather strange that a culture which is recognised to be broadly the contemporary of the later, should then be argued to have a "significant" comparison with the pottery of the earlier. These comparable elements include "bowls with vertical walls, some special forms of the rim, straight-necked jars with handles, white slip, zoned-polished red slip or paint, negative painting, annular base and ear-spool" (*ibid*: 85). It is not surprising that some of these: the bowls, possibly some special forms of rim (these have not been described), the white slip, zoned polished red slip or paint, negative painting and annular bases should also be found at Guarumal or Punta Brava considering how much in common the pottery from both these sites also has in common with the Pechiche phase material.

CONCLUSIONS

Considering the above, and taking into account the paucity of illustrated material, there may be some parallels between the Tejar culture and that at Guarumal and Punta Brava, as there also is between the Jambelí and Pechiche-Garbanzal complexes further south, which will be reviewed again in the concluding section (p: 276).

ARCHAEOLOGICAL TRADITIONS IN LOJA

INTRODUCTION

The three sub-areas, centered around the Rio Catamayo in Loja: Catamayo, Catacocha and Cariamanga have been the focus of a programme of survey and excavation in the late 1970s and 1980s by the 'Misión Arqueológica Loja', under the direction of Jean Guffroy, and a new archaeological sequence dating from the Formative period through to the Integration has now been established for the region.

There are several interesting parallels between the pottery styles of the Catamayo region and the study sites Guarumal and Punta Brava in coastal El Oro. Given the geographical relationship of the El Oro and Loja provinces and the natural routeways afforded by major river valleys here, this should not be surprising (Map 1).

Although the earliest excavated and dated occupations at the Guarumal and Punta Brava sites are probably around 300 BC, a date which now tends to represent the base-line from which the Ecuadorian Regional Developmental Period is taken to start, there are certain interesting links between pottery styles of the late Formative phases Catamayo C and D which Guffroy places between 950 - 800 BC and 800 - 500 BC respectively. This rather parallels other demonstrable late Formative period roots exhibited by the Guarumal-Punta Brava assemblages, which also shows close links to the Pechiche culture (p: 191), the Chorrera-Engoroy culture (pp....) and to the Guayaquil phase (p: 209.). It should also be born in mind that although the earliest excavated and dated occupation at the Guarumal site is around 300 BC, there are good indications that the occupation of the site is earlier by an unknown period of time and may possibly even go back to preceramic times (pp: 32-3 and 96-7).

CATAMAYO C AND D

The interesting feature of the Loja pottery assemblages, particularly in the Formative period, is the paucity of such vessels as bowls and bottles, also figurines, anthropomorphic and zoomorphic decoration, and iridescent and negative painting. Guffroy emphasises the essential differences between the Loja and coastal Formative traditions, the first with its emphasis on short everted necked globular vessels, straight necked globular jars with thickened rim lips often painted in red and neckless jars, also with thickened rim lips, which are rare or absent in the coastal cultures. Coastal Formative traditions have an overwhelming preponderance of bowls, both simple and carinated, bottles and figurines. Guffroy feels overall that the two groups of traits seem to have developed independently from each other, and the occasional points of similarity are not necessarily indicative of any particular contact, but rather represent the diffusion of certain basic pan-Andean traits (Guffroy, 1987: 112).

It is of particular interest that the pottery assemblage at the Guarumal and Punta Brava sites includes both these stylistic groups, which are found together in the same archaeological contexts, although the comparable jars with straight necks and thickened rims (forms 19 and 20)

and the neckless jars with thickened rims Form 18 and also 25) are not altogether common in comparison with the open bowl tradition.

The large globular jar Form D of the Catamayo C tradition (Guffroy, *ibid*: 86; Fig 13) shares similarities both with Forms 19 and especially 20 of the Guarumal-Punta Brava typology. Form 20 **jar with upright neck and curled rim** is a very limited group of just three sherds found in different contexts at Guarumal only and is distinguished from the preceding Form 19 by the vertical nature of the neck profile and the rolled appearance of the rim lip (Figs: 31e&f). In terms of its shape, it seems exactly like that of Catamayo Form D. One of the sherds from Guarumal has somewhat similar painted decoration, being painted in red around the rim, but with a white band on the exterior beneath the red; it also derives from a very late context in layer 1 of Trench A, unless this represents a secondary context. The two other examples are undecorated (unless badly eroded) and derive from the floors contexts of Unit C, from upper (2) and lower (6) layers respectively. Although Guarumal-Punta Brava Form 19 **funnel necked jar with flaring rim** is in some ways closer to Catamayo Form F, with its long flaring rim, there are nevertheless examples which have quite vertical sections, with slightly everted rim lips, thickened, although without the 'rolled' look typical of Form 20. The interesting feature of these is that the rim lips are occasionally painted in red and the wall of the vessel's neck can be deeply grooved with decorative striations. In most instances these seem to be produced by combing the wet surface of the clay with the edge of the shell *Anadara grandis*, but the overall effect is sometimes quite close to that of Catamayo C Form D (Figs: 30a, b & c*).

Catamayo D Form F (Guffroy, *ibid*: 92; Fig 17 a-c), which is the large globular jar with flared neck and everted bevelled rim is not a very common form, but rather recalls some of Guarumal-Punta Brava Form 19. There are three sherds from Punta Brava - where the type is in any case more common, which also have a slight bevel to the everted rim lip, as the form F from Catamayo (Figs: 64a-c with Guffroy *ibid*: Fig 17 c)).

Other relevant comparisons between Catamayo D phase include another globular jar Form G which has similarities to Guarumal-Punta Brava Form 21 - **jar with medium to long everted neck** (Figs: 29; 62 & 63; Guffroy *ibid*: 92; Fig 17 d-g). The Catamayo vessel is a small one and often decorated with bands of orange coloured slip about the neck, whereas the

Guarumal-Punta Brava pots, if painted or slipped, are usually done so in red, or orange-red pigment.

Form H, the neckless jar with thickened rim lip (Guffroy, *ibid*: 94; Fig 18 a&b) can be generally compared to Guarumal-Punta Brava Form 18 bowl/jar with bolstered rim, although the latter is not marked by decorative perforations along the rim as the Catamayo version often is. The Catamayo vessel generally seems to be a finer, smaller vessel, with rim diameters between 10 and 20 cm, whereas even the finer sub-groups 18b and c tend to have diameters in excess of 20 cm, although starting from 13 cm (pp: 142; Figs: 25 and 57). Sub-groups of Form H (*ibid*: Fig 18 c&d) are in point of fact more directly comparable to Guarumal-Punta Brava Form 25 jar with vestigial rim - a form found in the Pechiche culture from Tumbes and not very common. Guffroy says this sub-group is of smaller size than the main group and can be finely decorated, although not on the body. A fine sherd of this form from Punta Brava is actually painted in white-on-red (Fig: 58f).

Although open bowls do not form a major part of the Formative Catamayo traditions, there are four basic types Forms U (Guffroy, *ibid*: 86; Fig 15-b), V (*ibid*: 86; Fig 15-c), W (*ibid*: 90; Fig 15-d) and T (*ibid*: 94; Fig 18-e), which are included in the Catamayo C and D traditions. Forms U, V and Y are basically straight-sided, flat based vessels, which compare in a general way to Form 17 bowl with straight sides, although none of these have the slightly everted rim lip of Form U (which are, incidentally, very similar to Pechiche form D8; Izumi & Terada, 1966:30). One unique sherd from the lower floor levels of Guarumal has a similar 'tulip' profile, with slightly everted rim lip and apparently also straight sides, but as it is a short rim sherd, it is impossible to do more than speculate upon its overall original shape (Fig: 17a). It is a very fine, well-polished specimen which is painted in white-on red both inside and out. Catamayo tradition bowls, when painted, are either partially painted in red, or, as with Form W, in red and black or white. Form W is a simple profile bowl, which is the same as Guarumal-Punta Brava Form 1. The decoration is interesting, given the combination of colours: red and black or red and white, in large bands around the vessel body. The example illustrated has a black rim area, with a red body beneath, but apparently they can also be red over white or black. At Guarumal and Punta Brava, the usual combination of colour is white-on-red or simple red banded, occasional overall white-slip and rarely

the use of large areas of black on the body of a pot. One such is Fig: 7b, which derived from layer 3 of the floors at Guarumal. Overall it has the profile of a simple bowl, but possesses a slightly 'beaded rim'. It is unique amongst the inventory for having large areas of black decorative pigment.

Catamayo D Form Y is a decorated bowl with straight or slightly convex sides and an exteriorly bevelled rim lip and it is apparently characteristic of this tradition. In terms of its general shape, is broadly comparable to some examples included as Form 1 or Form 17 from the Guarumal-Punta Brava assemblages, although it is usually decorated with post-fired incision delineating areas of polychrome paint (*ibid*: 94; Fig: 18e). The Catamayo vessel actually has a flat base, whereas the Form 1 bowl is generally believed to have had a slightly rounded base, or sometimes with a low annular pedestal. There are, however, no fully reconstructed examples of this form. Figs: 9 e & f and 14 d are straight sides sherds of Form 17 which is thought to have very probably had a flat base. Sherds of this type from the Guarumal-Punta Brava assemblages can be finely decorated in white-on-red, which in itself distinguishes them from the Formative Catamayo cultures, despite the overall similarity of shape. Other comparable examples include Figs: 45b,d&g and 46d. Fig: 45d is interesting because it also has the slightly exteriorly bevelled rim lip and possesses elements of the highly stylised ? cayman/jaguar motif described earlier (p: 164).

Overall, it can be demonstrated that there is some degree of similarity between the globular jar traditions of the two areas, especially in the presence of straight necked vessels with thickened rim lips and neckless jars also with thickened rims which, although characteristic of the Loja region, are rarely found from contemporary coastal cultures, such as Machalilla or Chorrera-Engoroy. It is interesting that they occur in Jambelí pottery, and in the ceramic inventory at Guarumal and Punta Brava, the implications of which will be looked at again in the concluding section (p: 276).

Decorative techniques include the common use of incision, but this is usually in the form of post-fired engraving which is then infilled with coloured pigments and as is taken to be one of the principle links between several contemporary coastal and highland cultures and Catamayo (particularly Catamayo C), including final Valdivia, Machalilla, Cerro

Narrío (Group X wares) and Paita. Post-fired painting also occurs in the Pechiche culture (Izumi and Terada *ibid*: 45). It is not a technique recorded at the Guarumal or Punta Brava sites however, nor is another technique of outlining the painted areas on a vessel with incised or engraved lines. The incised designs at Guarumal and Punta Brava tend to be simple and, as far as it has been able to tell, made while the clay of the vessel was still wet. Red paint or slip was commonly used in Formative Catamayo, often to decorate portions of a vessel, such as the necks of jars or in bands beneath the rim lip; oval patches of red paint on the vessel's wall were also employed. These may be compared in a general way with the frequent use of red paint and slip at the Guarumal and Punta Brava sites, but is too common a mode of pottery surface treatment to signify importantly. Figurines and adornos are present but uncommon in the Formative. More frequent are the use of nicked fillets (*ibid*: Pl 6 c) which are also a feature of Guarumal-Punta Brava pottery. These have a long pedigree and are found in a number of coastal and highland traditions around this time, and continue throughout the following Regional Developmental period.

THE REGIONAL DEVELOPMENTAL PERIOD IN LOJA

There are a number of interesting parallels between material of the succeeding Regional Developmental Period in Loja and pottery from the Guarumal and Punta Brava sites. Lecoq, who has written up this period for the Misión Arqueológica Loja, sees it as commencing from about 300 BC and of having two overall sub-phases in the Loja study areas: phase I which represents a continuation of previous stylistic and decorative elements from the late Formative traditions in Catamayo and phase II in which there is a clear evolution of local forms and techniques. There is one C¹⁴ date of AD 538 ± 61 from the Cariamanga area for this later phase.

Bowls seem to be rather more common from this period, especially the second phase, and here we find the first carinated example of *open vessels* Form 1 (Guffroy, *ibid*: 225; Fig 2 a&b) of which some sherds bear quite a close comparison with Guarumal-Punta Brava Form 11 carinated bowl with wedge-shaped section (Figs: 21 & 22). Although sharing many of the features of Catamayo Form 1, Form 11 has a simple rounded, or slightly pointed rim lip, whilst several of the examples of Lecoq's Form 1 have thickened rim lips or otherwise broadened, interiorally bevelled

edges. There are simple bowls: Form 2 of Lecoq's typology (*ibid*: 225; Fig 2 e-j), with white banded rims over red painted bodies, more characteristic of other Regional Developmental period cultures.

Several of the principle jar forms continue into phase I and sometimes phase II of the Loja Regional Developmental traditions, and these appear to include the tall, straight necked vessels with thickened lips (Forms D & E) and also those with more widely outflaring rims (Form F). The neckless jar with thickened rim (Form H) does not seem to continue through, or at least not to any significant degree. Of second phase *closed vessels*, Form 1, a globular jar with short to medium neck from the Catacocha area recalls some of earlier Catamayo D Form F vessels, with larger examples having broadly flaring rims, often thickened by large flanges around the rim lip; these can be decorated by incised geometric motifs around the neck (*ibid*: 232; Fig 4 a-i).

Other forms of jar with shorter everted necks now seem common from the Regional Developmental Period and some of them, in terms of their general shape - simple short, everted necks and round globular bodies, resemble the Guarumal-Punta Brava Form 22 jar with short everted rim. These include examples from Forms 2 and 3 from Catacocha (*ibid*: 232-3; Fig 4 o-p) and Forms 1-3 from Cariamanga (*ibid*: 238; Fig 6 a-i). Most of these are at least slipped in orange or red pigment. Red and white decorative bands are implied by occasional sherds, although rare. Simple incised geometric motifs and combed decoration also occurs, but is uncommon. Form 22 from Guarumal-Punta Brava, however, includes some of the finest white-on-red and occasionally black or negative decorated jar sherds. The most common mode of decoration consists of white diagonal hatching and cross-hatching upon the background red slip. As such, although there is often much in common in terms of the shape alone, the decorative treatment rather distinguishes the jar forms from Loja and El Oro from each other.

Small modelled figurine heads or adornos have been found at Catamayo (*ibid*: 228; Fig 3 1), Catacocha (*ibid*: 234; Fig 5 1) and Cariamanga (*ibid*: 240; Fig 6 1), which have certain similarities to such adornos from Guarumal as Fig: 38e, but otherwise the figurine tradition of Loja, both Formative or Regional Developmental is a somewhat limited and not at all like the more developed, essentially coastal figurine tradition at the Guarumal and Punta Brava sites.

DISCUSSION

The outstanding pottery styles of the Loja region include jar forms which, as it has been demonstrated above, also seem to occur, at least in terms of their general shape at Guarumal and Punta Brava. Jars with tall straight necks and thickened lips - sometimes painted in red, neckless jars also with thickened lips are present in the pottery assemblages of the two El Oro sites, together with other more distinctively 'coastal' traits such as bowls, bottles (although rare) and figurines. The combination of these traits at Guarumal and Punta Brava is interesting, especially given their association with the late Formative period in Loja, although the continuation of some of these forms into the Loja Regional Developmental period may suggest that any suggested links between the two areas took place at a later time.

The presence of simple profile red and black or red and white decorated bowls can also be demonstrated from Guarumal, although rare; the general shape of the vessel is too common a form to be really significant. Other straight sided and flat based vessels are present in the two areas, but in general, the decorative treatment is dissimilar. Those at Guarumal and Punta Brava are either painted in polished red or with white-on-red designs.

Other common traits include the use of decorative geometric incision upon the necks and shoulders of vessels, although the actual use of post-fired incision with pigment infill, which is a particularly distinctive feature of the Catamayo tradition cannot be demonstrated at Guarumal or Punta Brava, and neither can the use of delineating painted areas by deeply incised lines.

For the Regional Developmental Period in Catamayo, the occasional presence of pottery feet/polypods, simple and double handles and bottle necks testify to the inclusion of other vessel forms also found in coastal Ecuadorian contexts, but they do not seem to be particularly common in Loja.

Modelled adornos and nicked appliqué fillets occur in both the areas, but these, especially the latter, are present in several Formative and Regional Developmental period cultures and are also found in Peruvian traditions such as Paita and Sechura, Salinar and Gallinazo. The

figurine tradition itself was not a well developed one in the Loja area, for either the Formative or Regional Developmental periods, whereas Guarumal and Punta Brava both have examples of quite a sophisticated, natural figurine production, more in common with other late Formative period coastal cultures than with that of the Jambelí culture as defined by Estrada, Meggers and Evans (1964).

Given that Guarumal and Punta Brava are two sites which would have been regarded as essentially Jambelí culture by Estrada, Megger and Evans, it may be useful to review Lecoq's summing up of the possible contacts here.

"L'analyse du matériel de Catamayo et de Catacocha permet cependant de retrouver quelques analogies avec la céramique de la culture de Jambelí caractérisée par B. Meggers et V.E. Estrada..."

(Lecoq in Guffroy, 1987: 248)

Lecoq continues by listing the most relevant links to the Jambelí culture, which include what seems to be a polypod foot rich in mica, certain close jar and bowl forms, similar decorative motifs, such as incised lines and punctations, modelled and appliqué decorations. The list and description broadly parallels the outline of stylistic similarities between the two regions made above. He concludes with the following caveat:

"Il faut cependant admettre que bien que nombreux, ces éléments de comparaison ne suffisent pas pour corroborer pleinement la réalité de ces éventuels contacts ou influences."

(*ibid*: 249)

CONCLUSION

Given the geographical proximity of El Oro and Loja and the presence natural river valley routeways, some degree of contact between the two at different times would be hardly surprising. Guarumal and Punta Brava do possess both coastal and interior stylistic traits in their pottery assemblages, although it is not always easy to properly evaluate their relative significance. Although manifestly possessing late Formative roots, some of the occupation at Guarumal and Punta Brava may still be classified as transitional late Formative/early Regional Developmental and the Regional Developmental period in Loja, carrying over certain jar

forms from the late Formative, does have rather more in common with other disparate contemporary groups, as we have seen with the appearance of a carinated bowl tradition, for example. As Lecoq points out "...le phénomène des Développements régionaux est en partie issu de ces différentes interactions" (*ibid*: 248).

Guffroy discusses the interaction between the archaeological traditions in the Catamayo valley with the rest of Ecuador (*ibid*: 110-125), especially the coast around Santa Elena and Cerro Nariño and also with traditions further to the south, in Peru. These same areas have also featured importantly in the review of stylistic parallels made for the pottery found at Guarumal and Punta Brava and seem to confirm contact at different periods between such regions as the Guayas coast and Santa Elena peninsula, the southern Ecuadorian highlands, the Virú valley and the Piura and Chira valleys of Peru. There have evidently been times when both southern El Oro and Loja have been involved in essentially similar cultural exchanges, which will be discussed and evaluated in the concluding section. In part, this may account for the presence of certain similar traits in their otherwise rather disparate pottery assemblages.

THE PIURA-CHIRA REGION

INTRODUCTION

Many close stylistic parallels were found to exist between the Guarumal and Punta Brava sites and some of the nearest cultural groupings closely associated with them, namely the Jambeli culture of southern Ecuador, the Pechiche and Garbanzal cultures of the Peruvian far north coast, and the Guayaquil culture. Such parallels tend to suggest the existence of a larger cultural grouping over a broader geographical area comprising the coastal lowlands of southern Ecuador below the Guayas basin to the area around Punta Pariñas and the Chira river (Map 1).

Beyond these loosely defined boundaries, the stylistic parallels are, at first sight, less compelling and conspicuous, although present, nevertheless. Braun, for example, speaks of having established cross-ties: "based both on the occurrence of trade wares and on strikingly similar general traditions, between the north-central montaña of Peru,

southern highland Ecuador and the Guayas and far-northern (Chira and Piura) coastal regions of Ecuador and Peru" (Braun, 1980: 42). It is now proposed to examine these regions in closer detail.

THE PIURA-CHIRA REGION

Archaeological surveys of the lower Piura-Chira region have been conducted in the past by several archaeologists, including Kroeber (1925, 1942, 1944), Lothrop (1948), Christensen (1951, 1956), Kelley (MS), Haase (MS) and Tolstoy (MS). Christensen and especially Kelley identified some of the sites and related pottery styles later used by Edward P. Lanning, who produced the most detailed study of this area and published the results in his book "A ceramic sequence for the Piura and Chira coast", (Lanning, 1963), which describes and seriates the Negritos, Paita, Sechura, Piura and Simbilá pottery styles. Richardson later demonstrated that Lanning's earliest style Negritos was, in fact, the latest (Richardson, 1978).

Since the 1960s, interest has turned in particular towards the region of the Upper Piura valley around Morropón and especially Cerro Vicús, where the activities of *huaceros* had revealed the existence of an important archaeological site with tomb lots revealing hitherto unsuspected associations of cultures across a wide area of northern Peru and southern Ecuador, including Moche, Salinar and Gallinazo, Sechura, Garbanzal, Tuncahuán, Cashaloma, Jambelí and others. Archaeologists such as Larco Hoyle (1965, 1967), Horkheimer (1965), Matos (1965-66), Disselhoff (1971), Lumbreras (1978) and Décima-Zamecnik and Richardson (1978), have been amongst those who have studied the area and its complex of interrelated cultures and pottery styles and sought to understand the sequence of archaeological phases there. Although the local Vicús (Vicús/Vicús) pottery is purportedly the same as the Sechura style, which is discussed in some detail in the pages immediately following, it is proposed to deal with some of the more important questions arising from these cultural associations in a short section on Vicús at the end of this section (p: 258-262).

LANNING'S SERIATION

From the Peruvian side of the border, Lanning is very much aware of the similarities that exist between the various cultural groupings of his

study and the southern Ecuadorian material to the north. Thus he notes that despite the strongly regional character of the pottery style throughout, influences were transmitted from areas such as the Ecuadorian highlands and coast, as well as the north Peruvian coast to the south of Piura (Lanning, 1963: 204-5). He feels, however, that these stylistic influences were rarely strong enough to modify the "strong local stylistic tradition found from the beginning to end of the sequence" (*ibid*: 205).

Lanning's summary of the elements of this tradition is reminiscent of the inventory of materials at Guarumal and Punta Brava:

"The predominance of wide-mouth jar forms with fairly short necks, the extreme rarity of small-mouthed jars, bottles and stirrup spouts, neckless ollas, vessel supports, handles and other features common in the surrounding areas; the simplicity of decoration at all times; the overwhelming tendency to geometric designs, the importance of plastic decoration throughout the sequence...."
(*ibid*: 205).

Small-mouthed jars and vessel supports in the form of polypod feet, annular bases, or compotera pedestals especially are, of course, a fairly common feature of the southern Ecuadorian cultures, but otherwise the broad description is a fitting one.

The Ecuadorian influences recognised by Lanning are seen as diffusing down the Catamayo valley and into the Rio Chira in its upper reaches in the southern Ecuadorian highlands of Loja and Azuay. Braun would support this, similarly arguing that the north to south directioned river valleys in southern Ecuador tended to facilitate the flow of culture (more than natural obstacles of mountains or desert constituted barriers) and that long distance east-west contacts were most likely in southern Ecuador through the Ecuadorian and Peruvian tributaries of the Marañon. In this way he sees the earliest Paita complex as brought about by the migration of successive waves of immigrants from Cerro Nario, with population pressure in the southern highlands as the stimulus for this (Braun: 1980: 50).

Braun believes that the Paita complex is much earlier than Lanning had thought, and in this he is supported by Richardson's C¹⁴ dates of 1660 ± 145 BC for Paita B and 1440 ± 125 BC for Paita C (Richardson, 1969; Braun, *ibid*: 48). If this is correct, as now seems likely, the Paita complex can be excluded from the detailed cultural comparisons of the

later periods dealt with here, although the underlying implication for the diffusion of peoples and ceramic styles from the southern Ecuadorian highlands would be important for the succeeding cultural periods, if one accepts this diffusionist interpretation of events.

SECHURA

The Sechura complex which follows on directly from Paita D does share certain similarities with the contemporary southern Ecuadorian cultures of the late Formative and Regional Developmental period. The problem is one of degree, for Lanning feels that his Sechura material does not exhibit as striking a resemblance to these other cultural styles as the preceding Paita phase does with the complexes in the southern Ecuadorian highlands:

"but in the general sense it, too, may be included in a widely diffused southern Ecuadorian complex, of which the principal unifying features are white-on-red designs of bands, discs and dots, two and three colour negative painting and pedestal bowls (the latter lacking from the Sechura style)" (Lanning, 1963: 200)

He concedes that with Sechura A and B and the introduction of the white-on-red band and disc designs, negative painting and engraving: "we seem to have another wave of influence from Ecuador" (*ibid*: 209), thereby seeming to invite another Braun-style diffusionist version of events.

He goes on to list the cultures in this complex which are the Garbanzal in Tumbes, Cashaloma and Tuncahuan of the Cañar valley and Chimborazo; Tejar and Quevado in the Guayas basin and parts of the Guangala culture of Guayas and Manabí. Of these Lanning feels that the Cashaloma and Tejar cultures have the closest similarity with Sechura A and B. In short then, the stylistic similarities of both Sechura A and B are seen as being to southern Ecuadorian rather than north Peruvian white-on-red or negative styles.

It is Sechura A and B which together bear the greatest resemblance to the south coastal Ecuadorian group and their relatives at Pechiche and Garbanzal in the Tumbes valley. With the advent of Sechura A, important new decorative styles appeared, the most important of which were the white-on-red and negative or resist painting techniques, and these are the quintessential features of a widespread tradition embracing large areas of southern Ecuador and northern Peru, both in their highland and

coastal manifestations. In Ecuador at this time these are usually taken to be the Regional Developmental cultures, although in fact, they can be demonstrated to occur in late Formative period contexts and as early as ca 800 BC in the Pechiche culture.

SECHURA A

Lanning describes the common vessel forms of this sub-phase as being:

- Low incurved bowls;
- Jars with short, slightly flared necks and thin rounded lips;
- Thin lipped jars with tall flared collars.

Decoration is described as being:

- All-over red slip on both jars and bowls, continued from Paita D and now very frequent, distinguished from Paita D pottery by having smooth polished surfaces, sometimes highly burnished;
- All-over white slip;
- Small plain and notched fillets probably between the shoulder and the neck of jars;
- White-on-red painting with designs including bands and discs, steps and dots in white upon a usually polished red background;
- Resist negative painting with organic black pigment in bands, dots and discs as the predominant motif;
- Engraving of designs which include bands of diagonal lines, hatched, cross-hatched areas, pendant triangles or steps and zoned punctuation upon the burnished surface of the vessel.

The ware of the Sechura pottery through phases A - C is the Granular Coiled variety (Lanning, 1963: 165). The advent of the paddle and anvil technique in the manufacture of pottery in Sechura C and D helps to remove these later phases from the comparison with the southern Ecuadorian material, which is usually coiled. Estrada, Meggers and Evans (1964), where they do give a method of manufacture for their pottery state that it is coil-made. Izumi and Terada do not always seem to mention the methods of manufacture, but one feels that both Pechiche and Garbanzal wares were probably coil-made, as, indeed, is the pottery from Guarumal and Punta Brava (p: 124).

SECHURA B

Vessel forms of this phase include jars with:

- tall concave flared necks and thin lips continuing from the previous phase;
- similarly flared straight rather than concave profiles with both thin and thicker lips;

- new neck forms including vertical or tapered forms with flaring rims and thin lips;
- tall collars with long flared rims;
- a shorter vertical neck, bulging in the lower part, with a short flared rim and thin rounded lip;
- small concave-sided neck form.

Incurved bowls continue from A, slightly more open. New forms include:

- high flared convex walls and thin rim lip;
- deep rounded bottom and short flared walls.

Ring bases are found in Sechura B as they are in phase A.

Decorative traits continued from phase A include:

- polished red slip;
- white-on-red painting in bands and discs;
- rare resist negative painting;
- rare engraving;
- rare incision;
- small plain and notched appliqué fillets.

New decorative features include:

- overall white and pink slipping;
- contrasting slipped zones, often separated by fillets;
- double slipping;
- zones of organic black paint over slipped or plain surfaces;
- finger indentations on jar necks.

SECHURA C, D and E

Sechura C is associated with changes in style and especially techniques of pottery manufacture, with the shift from coiling to the paddle and anvil production, which characterises the later phases D and E.

Lanning sees these changes as local, especially considering that the paddle and anvil technique is found neither in southern Ecuador nor further south on the Peruvian coast. Of Sechura D and E he says that while they :

"belong in a general sense with the southern Ecuadorian white-on-red and negative painted styles, they are much less similar to any Ecuadorian style than are Sechura A and B. The appliqué and punctate decoration found in Sechura E seems more closely related to that found from the Virú and Pacasmayo regions" (*ibid*: 210).

On closer examination, the bridge and spout vessel (Col. Pl. 2) shows no close affiliation in ware and fabric with the Salinar and Gallinazo styles (pers. comm.: George Bankes), and relates more closely to the fabrics from Guarumal.

There are certain vessel forms and decorative styles common to either or both of these Sechura phases and the sites of Guarumal and Punta Brava.

It is interesting to note that the short flared-neck jar is associated with Sechura A and not B, for this form is like **Form 22: jar with short everted rim** of the Guarumal and Punta Brava typology and it is the common jar form at both sites, although predominantly associated with the Early phase at Guarumal. Here the rim lips tend to range from medium and rounded to thick and rounded, rather than thin (eg Figs: 27 & 28). This type is also similar to Form B6 of the Izumi and Terada typology, which also has the thinner rim lip. Interestingly, in both Guarumal and Punta Brava and at Pechiche and Garbanzal, these pot forms are frequently associated with longitudinal stripe, hatch or cross-hatched design upon the plain or the red-slipped vessel exterior (Izumi and Terada, 1966: 53-4). This design seems to be quite absent from the Piura-Chira cultures, where occasional white bands only decorate the collars of these jars.

Form 21: jar with medium to long everted neck would seem to compare fairly well with Lanning's jars with tall flared concave collars from both Sechura A and B (*ibid*: 168-9), although once again, the Guarumal and Punta Brava forms have thicker rim lips. The variant with the straight sides occasionally has a thicker rim lip according to Lanning, which is, however, quite the reverse of the situation at Guarumal and Punta Brava, where the majority of Form 21 jars have concave necks and thick rim lips and only those few with slightly straighter sides have thinner lips (Figs: 23 a & b; 63b, c & g).

The jar form new to Sechura B, with a vertical or tapered neck with flaring rim (*ibid* Fig.: 23d & e; Fig.: 11a) seems rather like **Form 19: funnel necked jar with flaring rim** (Fig: 30), whilst from Punta Brava alone are two examples of Lanning's jar with shorter vertical neck bulging in the lower part with a short flared rim (*ibid*: Fig. 23l; 11b). This last form seems a particularly interesting connection as it is represented in neither the typologies of Izumi and Terada, or Estrada, Meggers and Evans and, as we have seen, is present only at Punta Brava (Fig: 71 f and g).

Another interesting tie between Punta Brava and the Sechura B phase occurs with a jar form described as having a very tall collar with a long flared rim and broad inner groove. One of these examples is shown to have a representation of a face that is strikingly similar to a unique sherd from Punta Brava (*ibid*: Fig.: 23r and Fig: 65c), although in the Punta Brava example, the vessel collar has a broad horizontally cut surface, unlike the flared rim of the Sechura vessel.

Descriptions and illustrations of the bowl forms (*ibid*: 168-9; Fig.:10h&i; Fig.: 11e&f; Fig.: 23 m,n&s) broadly equate with Form 1, 5 and 6 of my typology. Figure 23s shows a shallow bowl with an upright profile and a notched rim - a feature more conspicuously attributable to the later Sechura D phase (*ibid*: 174), although clearly present from Phase B and certainly found associated with Form 1 and 6 bowls from both Guarumal and Punta Brava.

The generalised descriptions of the decorative traits of Sechura A and B compare well enough with those from Guarumal and Punta Brava and the Jambelí and Pechiche-Garbanzal complexes. Illustrations are few however, and show fragmentary sherds where the only white-on-red designs consist of groups of white spots or broad single white bands (*ibid*: Fig.: 22 & 23). The latter are simple and common enough in the white-on-red category of material, from later Guarumal contexts especially. Not so the white spots, however and certainly not in the way they appear grouped. In all the examples illustrated here, white spots are seen to be one of a precise and balanced element in a group of geometric motifs (Figs: 2b; 15e & 21c), whereas those from the Sechura complex are numerous and haphazardly grouped. Other elements common to the white-on-red style from south coastal Ecuador and the Peruvian far north coast at this time include the longitudinal stripe, hatch and cross-hatched motif already mentioned above and also rectangles, triangles and open, partially or completely blocked-out lozenges in white (p: 164), none of which seem to be represented in the Sechura culture. Lanning also points out that the decorative white discs usually occur on bowl interiors which constitutes "the only instance of interior decoration other than overall slipping in any of the native Piura and Chira styles" (*ibid*: 171). This is quite contrary to the white-on-red style of the south Ecuadorian Regional Developmental and the Pechiche and Garbanzal cultures where bowl interiors are more commonly decorated than the

exteriors and where "it is not uncommon for a pot to have quite intricate motifs both inside and out".

Notched appliqué fillets are found in Sechura A and B (Lanning, 1963, *ibid*: Fig. 22-j, m) and at both Guarumal and Punta Brava. The appliqué fillets from Punta Brava (Pl: 12-2&3) are almost identical to the Sechura type and they are far more prevalent here than they are at Guarumal, where only one rather indifferent example was found (Fig: 39o). Plain varieties have not been found. Estrada, Meggers and Evans represent seemingly identical "nicked ribs" (Estrada, Meggers and Evans, 1964: Fig. 32) from the Jambelí culture, whilst Izumi and Terada describe something similar (Izumi and Terada, 1966: 43). The punctate sherd illustrated in Figure 22n (*Lanning, ibid*) shows a decorative technique which also occurs in the Jambelí, Pechiche and Garbanzal cultures as well as at the Guarumal and Punta Brava sites.

Polished red slip is used in both Sechura A and B, as it is throughout the Jambelí and Pechiche and Garbanzal phases (and, indeed, in several cultures in southern Ecuador at this time). The advent of over-all white and pink slipping and contrasting slipped zones during the Sechura B (Lanning, 1963: 170-1) is, in part, paralleled by the use of white slip and two-tone red painting at Guarumal (p: 169-70). Pink slipping, if indeed present, is most likely to have been treated as a crude form of red slip or "wash", where the colour was too thin or fugitive to appear a strong vermillion (p: 168). White slipping does occur in the Jambelí and Garbanzal cultures, but no mention is made of pink slipping or of colour contrasted zones either.

CONCLUSIONS

Considering the data set out above, one might agree, in part, with Lanning when he plays down too close a connection between the Sechura culture and other seemingly similar styles. Similarities are certainly present, as we have seen in the presence of the white-on-red and negative traditions and in the general pottery forms and some of their decorative elements. These, however, are not universal. The Sechura style apparently lacks some of the diversity and range of pottery forms and styles of decoration in white-on-red alone, which are so prevalent in the Guarumal-Punta Brava typology or in the Jambelí or Pechiche and Garbanzal cultures.

There are important absences in the total lack of the *compotera* form, for example, which is an important feature of both the Ecuadorian Regional Developmental cultures and of the Pechiche and Garbanzal cultures of the Peruvian far north coast (although Matos records the *compotera* form as present in the Garbanzal-like assemblage at Vicús - see below). Lanning remarks upon certain elements common between Sechura D and E forms and bowls from Garbanzal (*ibid*: 201), but clearly sees little else beyond a generalised similarity, eventually concluding that although:

"The Sechura style does not show close similarity to any other style,....in a general sense it, too may be included in a widely diffused south Ecuadorian complex....." (*ibid*: 200).

At this point it will be useful to turn to the Upper Piura manifestation of the Sechura style, and consider how the Vicús culture may influence the overall pattern of cultural relationships in this overall area of southern Ecuador and northern Peru.

THE UPPER PIURA - VICUS

The importance of the Vicús culture in contributing to an understanding of the cultural developments over much of the Intermediate and Central Andean areas has long been recognised by archaeologists such as Lumbreras who stresses:

" Vicus urgently needs study, particularly in view of its potential for clarifying relationships between the sequences of the Central Andes and those of the North, especially Ecuador"

(Lumbreras, 1974: 149)

The Piura-Chira region represents as much of a cultural as a climatic and geographic transition zone (p: 16). Certainly the pottery found at the Vicús sites indicates that this was an area which had contacts both to the south, with the north Peruvian coast and to the north, with the southern Ecuadorian highlands and coast. Tomb lots show associations of the essentially local Vicús style with the Virú-Chicama-Moche Valley cultures of Salinar, Gallinazo and Moche, whilst the style itself is, according to Lumbreras, essentially one and the same as the Sechura culture of the Lower Piura on the coast, as defined by Kelley and Lanning (Lumbreras, 1978: 20-22). The bold negative and negative with

white over-painted designs have much in common with the Tacalshapa/Tuncahuán decorative style of the Cañar Valley, whilst archaeologists such as Matos talk of finding white-on-red pottery much the same as the Garbanzal culture from the Tumbes region of the Peruvian far north coast (Matos, 1965-66: 102).

The extreme selectivity of pottery from the looted Vicús sites has given an unrealistic bias towards the fine and often grotesque negative decorated funerary vessels which typify the local style at the expense of common domestic wares, which could yield important insights into the phasing of the pottery, had they not been ignored. These domestic wares were probably represented by the plain or the white-on-red pottery and may thus be as characteristic of Vicús as the negative special wares. In mentioning the finding of Garbanzal-like pottery, Matos records plates, bowls and compoteras, which have not been mentioned in the published archaeological record.

The overall similarity of the local Vicús style to that of Sechura has allowed Lumbreras to use Lanning's sequence of the Piura-Chira cultures to give a chronological framework for the Vicús material (Lumbreras, 1978: 32). This is also based on tomb-lot associations, wherein the local Vicús style appears related with other styles from the Peruvian north coast, but much of it in such a way as to be essentially locally produced rather than directly imported (Lumbreras, 1978: 20; 39). Thus we have Vicús-Salinar, Vicús-Blanco (white-slip, after first appearance in Sechura B), Vicús-Virú (Gallinazo), Vicús-Anaranjado and Vicús-Moche I. These sub-phases together constitute the early Vicús phases A and B which are contemporary with and, presumably, correspond to Sechura phases A and B, wherein some of the "classic" finely modelled and negative decorated wares derive. The subsequent devolution and dissolution of the Sechura style through sub-phases D - E is apparently paralleled in the late Vicús phases D and E, with a development of different vessel forms (some, like the jar with "market-basket" handle being related to those on the coast), and a decline in the standard of the negative style which is eventually replaced by the white-on-red. This, it must be noted, is an interesting reversal of events in the Virú and Moche sequences, where the Puerto Moorin-Salinar white-on-red precedes and overlaps the Virú-Gallinazo negative by which it is eventually replaced.

C¹⁴ dates for Vicús span the period from 210 ± 65 BC (Kaulicke, 1989), through to AD 750 (Disselhoff, 1969). It is clear that during the lifetime of Vicús, certainly during its early phase, it could well be considered as a part of the northern Andean area, manifesting decorative styles which parallel contemporary cultures in Ecuador. Geographically it occupies a transitional position wherein equally strong influences from the south were channelled at different times. Indeed, following the eventual decline of the Vicús culture after sub-phase E, we see the Piura Valley become one of the northernmost boundaries of imperial Wari. Lanning himself had noted this reversion to Peruvian cultural ties after the transitional Sechura C phase, with advent of new pottery forms, together with a change to paddle and anvil pottery manufacture:

"Insofar as Sechura E shows the influence of a specific phase farther south, it is Moche III. Evidently this was a time when the cultural boundary was moving northward.....The process probably continued during the unstudied period following Sechura E and was completed by the beginning of Piura A" (Lanning, 1963: 210).

DISCUSSION

The local Vicús style (Vicús/Vicús) is purportedly the same as the Sechura culture of the lower Piura valley and a detailed comparison of the different forms and styles of Sechura pottery with those of Guarumal and Punta Brava immediately precedes this section. It has thus already been observed that close similarities between the two groups do exist (as well as certain differences) and that this probably has much to do with the fact that the Sechura culture in its early phases A and B was clearly a part of the northern Andean cultural tradition, sharing certain forms and styles in common with several Ecuadorian cultures, which includes the emphasis on negative, negative and white and white-on-red painting, incision and nicked appliqué ribs.

The importance of the use of white-on-red painting in the local Vicús style tends to be underestimated because it is apparently mainly associated with the domestic pottery, which is so often overlooked in favour of the elaborate and grotesque negative decorated funerary vessels, which have become synonymous with the Vicús style. To this extent it is sometimes hard to draw close parallels between its coastal (Sechura) manifestation and that of the Upper Piura (Vicús/Vicús). The lack of sufficient published domestic wares also hinders a proper

comparison of Vicús pottery with that of Guarumal and Punta Brava. Matos describes white-on-red Vicús pottery similar in form to negative Vicús, but he also notes styles which recall Guayas coast Ecuadorian cultures such as Bahía, Jama-Coaque and Guangala (*ibid*: 106-7). These include one particularly distinctive element which may also represent an important link between Estrada, Meggers and Evan's 'classic' Jambelí culture and Vicús. This is the distinctive cleft-headed or heart-shaped headed Vicús figurine (Matos, *ibid*: 109; Lam.7c), which is very similar to the curious anthropomorphic figurine so characteristic of Estrada, Meggers and Evans' Jambelí culture (*ibid*, 1964: 502; figs 14-a&b; 15-b). The execution of these figurines clearly differs and the overall production is cruder in the Jambelí context than in Vicús, but the overall conception of the form is basically the same.

Matos also describes simple geometric motifs in white-on-red which recall the overall descriptions of the white-on-red pottery at Guarumal and Punta Brava, as well as some of the styles from Pechiche and Garbanzal (Matos, *ibid*: 107). The description of 'Garbanzal' styles at Vicús, including bowls, plates and compoteras, with annular pedestal bases, circular and conical polypod supports and the use of white decoration on the background red slip in particular strongly suggests the existence of a pottery assemblage which in many ways may be broadly comparable with that of the El Oro sites.

Lanning actually points out that pedestal bowls (compoteras) are absent from the Sechura assemblage as described by him, which is interesting given Matos' assertion of their presence in his Garbanzal-like domestic Vicús material. Lanning, however, broadly accepts the overall inclusion of Sechura within "a widely diffused south Ecuadorian complex...members of this complex are Garbanzal in Tumbes; Cashaloma and Tuncahuán of the Cañar Valley and Chimborazo; Tejar and Quevado in the Guayas basin; and, at least in part, Guangala of the Guayas-Manabí coast" (Lanning, *ibid*: 200-201). This is clearly also the case with Vicús, as exemplified by the close similarities between the distinctive Vicús/Vicús negative and negative-with-white decorated funerary vessels and the southern Ecuadorian highland styles of Tacalshapa/Tuncahuán, suggestive of direct cultural interchange. The implication is that Vicús, in some as yet poorly understood way, represents the unifying element in diverse closely related cultural traditions in southern Ecuador and northern Peru at this time.

CONCLUSION

Although no detailed cross-comparison of vessel forms and decorative styles can be properly attempted here, the balance of the evidence strongly suggests interesting and close links between some of the domestic Vicús pottery styles and those of Guarumal and Punta Brava. This would in turn help to confirm the extension of the network of the cultural links of Guarumal and Punta Brava over quite a wide area of northern Peru suggested in the following section, when affiliations with the Salinar and Gallinazo complexes are examined.

SALINAR AND GALLINAZO AFFILIATIONS

INTRODUCTION

The Salinar culture follows from the late coastal Chavín or Cupisnique traditions and represents something of a technological phenomenon, marking the shift from reduced-fired brownish or blackish pottery to the oxidised red wares. This is a process which took place over a very wide area around this time. We have seen in the previous section how this process was represented in the transition between the late Paita and early Sechura phases of the Piura and Chira valleys. Willey sees this technological innovation as the reason behind the whole white-on-red horizon throughout north-central coastal Peru and Ecuador, where it is represented by the Regional Developmental Period (Willey, 1948: 11).

Salinar pottery continues some of the earlier Cupisnique traits in incision and appliqué modelling. There are also new forms and decorative features which include handle and spout or handle and spout with figure, together with established stirrup spout forms. White painted bands and dots and other geometric elements on polished red slip or plain red background, sometimes in zones outlined by areas of incision, are typical of this culture. As a whole the style is very much a transition between the Chavinoid elements of the earlier Cupisnique and the Early Intermediate Moche culture of the Peruvian north coast.

The Salinar style both slightly antedates and overlaps the succeeding Gallinazo phase, which is located in the same region of the Peruvian north coast. Some continuity of form and style with the Salinar suggest at least a partial derivation of the Gallinazo culture from it and

provide other elements of the transition to the later Moche culture. The Gallinazo period, however, seems to have lasted for a greater duration and saw the gradual shift toward negative painting as the predominant decorative style, although incision and white painted designs continued.

The Salinar and Gallinazo cultures are dated from around 500 B.C. to A.D. 200, which approximates to the early part of the Early Intermediate period, after the Chavín and Chavín-related Early Horizon cultures and before the old-style "Florescent" epoch cultures such as the Moche, Lima and Nazca on the Peruvian coast and the Recuay in the highlands. This date span approximates to the much of the Ecuadorian Regional Developmental period, thus indicating a broad contemporaneity with the Jambelí and Pechiche-Garbanzal phases and the cultures related to the occupations at Guarumal and Punta Brava.

Examination of the pottery published from the extensive surveys and excavations conducted on the Peruvian north coast, especially the Virú and Chicama valleys, shows interesting parallels with Guarumal and Punta Brava and also to the Jambelí and Pechiche-Garbanzal cultures. This may seem somewhat surprising considering the distances involved and the difficult and hostile terrain, such as the Sechura desert, which lies between the two coastal areas, but archaeological evidence suggests wide-ranging inter-regional contacts both by sea and along the drainages of major rivers in the highlands, such as the Marañón and its tributaries throughout prehistory.

In the report of their work in the Virú valley, north coastal Peru, Strong and Evans identify several categories of wares and pottery styles which, taken together represent, either the Salinar or the Gallinazo cultures (Strong and Evans, 1952: 210-216; Appendix 1). It is not proposed to examine all of these in close detail, but merely to consider those whose forms or decorative styles most resemble Guarumal and Punta Brava material.

The Puerto Moorin pottery type is thus the main vehicle for the white-on-red style of the Salinar culture, taking its name from a site in the Virú valley (*ibid*: 295-301). Of it is said:

"We have, however, the impression that the major archaeological horizon marker in the Puerto Moorin (Salinar) culture is the

appearance (or wider use) of geometric white decoration on Huacapongo Polished Plain pottery, whereas many of the finer, incised, modeled, or incised and modeled vessels would seem to be artistic hangovers from the Late Guañape (Cupisnique) culture mortuary ceramic tradition" (Strong and Evans, 1952: 211).

Huacapongo Polished Plain is just such an example of a specific ware which, together with Castillo Plain, constitute the two ware types for the Puerto Moorin white-on-red style. The pottery for this style seems to consist solely of jar forms and two types of bottles: with strap handles and with figure, bridge and spout, which at once presents a contrast with the southern Ecuadorian material, for there are no bowl forms illustrated for the Puerto Moorin ware. The majority of the finest white-on-red decorated pottery from Guarumal and Punta Brava are the bowls, whilst the majority of the plainware forms are the jars, although painted decorated jars certainly do occur; this is also the case for the Jambelí and Pechiche-Garbanzal cultures of Southern Ecuador and the Peruvian far north coast.

COMPARISON OF FORMS

Bowl forms of the decorative categories are listed for Gallinazo Negative (Strong and Evans, 1952: 303-4; Fig.: 57: 2&3), Castillo Incised (*ibid*: 323; Fig.: 65: 9-11) and Gallinazo Broad-Line Incised (*ibid*: 325; Fig.: 68: 1&2), where they mostly tend to be of simple shape with smoothly rounded sides, or sometimes with everted lips, which can be notched. Most appear to have rounded bases, although some forms are depicted with annular pedestals (*ibid*: Figs.: 57-3; 68-1). They broadly compare with Form 1 of the Guarumal-Punta Brava typology (p: 125-6; Figs: 2, 4 & 5), or D7 of the Pechiche-Garbanzal equivalent (Izumi and Terada, 1966: 32; Fig.: 10). D9 of the latter group has an everted lip (*ibid*: 32; Fig.: 10) and there is one such form from Guarumal, from early 'Floors' contexts (Fig: 17a). Notching of rims is, as we have seen, a fairly common decorative feature for bowls from southern Ecuador and the Peruvian far north coast.

Plainware categories include Huacapongo Polished Plain (Strong and Evans, 1952: 258-260; Fig.: 37-6), Castillo Plain (*ibid*: 264-267; Fig.: 40-5), Queneto Polished Plain (*ibid*: 272-3, Fig.: 43 1&2) and Tomoval Plain (*ibid*: 275, Fig.: 44 1&2), which similarly have simple forms. The

two latter, whilst appearing at the beginning of the Gallinazo phase in the Virú Valley, do not reach any really significant numbers until Mochica times, or later. Many of the jar forms illustrated for the two main ware categories of Huacapongo Polished Plain, Castillo Plain and also for Puerto Moorin White-on-Red which is composed of these two, are very reminiscent of forms from the Guarumal-Punta Brava typology.

FORM 18a: Large coarse jar with bolstered rim (p: 142). This is a common group at Guarumal, particularly in Late period Trench A contexts, and also appears in the inventory of Jambelí material (Estrada *et al*, 1964: 511 & 513), although, it does not seem to be present in the Pechiche and Garbanzal complexes. Form 4 of Huacapongo Polished Plain: large vertical wall jars with rectangular rim strap (Strong and Evans, 1952: 258-9), Form 4 of Castillo Plain: large egg-shaped jars with wide mouth and thickened rim with an outward flare (*ibid*: 264-6), and Form 1 of Castillo Incised: large ovoid jars with wide mouths and thickened rim bands (*ibid*: 316-325; Fig.:65) are apparently common forms from the Virú valley which resemble Form 18a. Unfortunately the lack of complete, or even nearly whole forms from the pottery in the Guarumal-Punta Brava collection makes it impossible to more than speculate on the parity of the shape as a whole, although there is little reason to suppose that they should differ all that much. There is also some likeness with Form 1 of Valle Plain: large-mouthed, egg-shaped jar with rectangular thickened rim (*ibid*: 267-271), although this ware first appears at the beginning of the Gallinazo period, which may be contemporary with late Guarumal.

FORM 19: Funnel-necked jar with flaring rim (p: 144). This is a large, coarse vessel and most probably used for domestic storage purposes. It is rarely decorated, except for being shell-scraped lengthwise along the exterior of the neck (and possibly also parts of the body). Form 2 of Castillo Plain: jars with long necks and Form 1 of Sarraque Cream: jar with round body and large funnel shaped rim, (*ibid*: 261-5) are both common and have similarities to Form 19, although there is no evidence that the vessels from Guarumal were ever slipped white, as the latter ware is.

FORM 20: Jar with upright neck and out-curved rim-lip (p: 145). There are only three sherds of this form, which may be due in part to the smallness of the sample size. Similar forms from the Salinar and

Gallinazo cultures are Form 5 from Huacapongo Polished Plain: small round jar with short vertical neck and an everted lip (*ibid*: p.: 260; Fig.: 37), which is a very common vessel and in terms of form, the one most similar to Form 20 of this typology. Form 2 of Sarraque Cream: large jar with long vertical neck (*ibid*: Fig.: 38, p.261), Form 6 the effigy jar with tall outflaring neck of Castillo Modeled ware (*ibid*: 309-316; Fig.:62), and Form 6 of Castillo Incised: large ovoid jars with tall necks and everted lips, all of which bear some similarity in rim form and possibly general shape. The effigy jar more closely resembles a form of long-necked jar of the Pechiche phase from the Izumi and Terada typology (Izumi and Terada, 1966: Pl. 32, 19). Long or funnel necked jars of large globular body shape, probably not very different from Form 19, are certainly common through the Salinar and Gallinazo periods.

FORM 21 & 22: Jar with medium to long everted neck and jar with short everted rim (p: 146-47), have many parallels amongst the wares from the Virú valley. These are the commonest jar forms in the Guarumal-Punta Brava typology, as they are for the Jambelí phase (Estrada *et al*, 1964: 510) and in the Pechiche and Garbanzal cultures on the Peruvian far north coast (Izumi and Terada: 1966: Fig. 11; pp.35-38). Gloria Polished Plain, Castillo Plain, Puerto Moorin White-on-Red, Castillo Modeled and Castillo Incised all have examples of one or both of these types. This should not be surprising, as this is probably one of the commonest of all jar forms.

FORM 24: Jar with flattened rim and carinated shoulder (p: 149) is associated with the hatch and cross-hatched motif of white-on-red decoration in our typology. Huacapongo Polished Plain seems to be the only ware group to have a form reminiscent of this type, which is Form 2: large jar with high shoulders and upcurved rim (Strong and Evans, 1952: Fig.: 37; p.259). This form has a slight association with the Early - Middle Guarumal phases, and it could be of interest that it seems limited to this rather early phase of the Salinar culture, rapidly diminishing throughout the later Puerto Moorin and Gallinazo phases. However, whilst there is a general similarity of form, the Virú vessel is large, whereas Form 24 of the Guarumal-Punta Brava typology is always a small - medium sized vessel and probably serving a different function. It would probably be unwise to push the likeness too far.

also commonly associated with fineware bowls, which is not the case with the Salinar or Gallinazo cultures, as we have seen.

Some of the most striking resemblances can be observed with the Castillo Modeled and Incised groups in particular, where notched appliqué fillets and modelled adornos with impressed rings and punctate decoration compare favourably with similar forms from Guarumal and Punta Brava (Figs: 33b-e; 38b,c,e; 39h-o; 41d; 42b,c,d,f&g). They are also virtually identical to sherds and adornos from Jambelí Punctate, nicked rib variety and Jambelí Incised pottery (Estrada, Meggers and Evans, 1964: Figs.: 27-29 & 32). Similarity between the depiction of faces on the effigy jars of Castillo Modeled (Strong and Evans, 1952: Figs.: 62-6&8; 63-D especially) and some Pechiche wares (Izumi and Terada, 1966: Pl.: 32-19) is also worthy of mention. The combining of impressed rings with incised lines seems to be a particularly important feature shared by the Jambelí culture and the related Guarumal-Punta Brava sites and the Pechiche-Garbanzal cultures (cf.: Izumi and Terada, 1966: Pl.29-11), together with such other significant traits as the notching of rims and vessel shoulders.

Particular comparisons include Fig: 42g and a sherd from Gallinazo Broad-Line Incised (*ibid*: Fig.: 681); Fig: 24e with Gallinazo Broad-Line Incised (*ibid*: Fig.: 681) and Fig: 38e with Castillo Modeled (*ibid*: Fig.: 63j-m & t). Perhaps the most striking comparison, however, is between a complete figure, bridge and spout vessel recovered from a mangrove swamp close to the Guarumal midden (Col.Pl: 2) and Fig.: 64c of Castillo Modeled, which shows a virtually identical fragment of a face, with exactly the same punctate treatment for the eyes, ears, nose and mouth. Such jar forms are reflected in Puerto Moorin White-on-Red (*ibid*: Fig.: 55-11) and Castillo Modeled (*ibid*: Fig.: 62-7), although the main body shape of figure, bridge and spout vessels from Gallinazo Negative are not very similar (*ibid*: Fig: 57-9; 58-c-e). Whilst unfortunately from unstratified contexts, the presence of such a piece from the southern Ecuadorian coast is highly significant, for if the vessel was locally made, then certain styles of pottery production are indeed identical to the Peruvian north coast and if not, then it proves trading contact at least, resulting in the importation of actual pottery which clearly influenced local pottery styles, and *vice verce*.

also commonly associated with fineware bowls, which is not the case with the Salinar or Gallinazo cultures, as we have seen.

Some of the most striking resemblances can be observed with the Castillo Modeled and Incised groups in particular, where notched appliqué fillets and modelled adornos with impressed rings and punctate decoration compare favourably with similar forms from Guarumal and Punta Brava (Figs: 33b-e; 38b,c,e; 39h-o; 41d; 42b,c,d,f&g). They are also virtually identical to sherds and adornos from Jambelí Punctate, nicked rib variety and Jambelí Incised pottery (Estrada, Meggers and Evans, 1964: Figs.: 27-29 & 32). Similarity between the depiction of faces on the effigy jars of Castillo Modeled (Strong and Evans, 1952: Figs.: 62-6&8; 63-D especially) and some Pechiche wares (Izumi and Terada, 1966: Pl.: 32-19) is also worthy of mention. The combining of impressed rings with incised lines seems to be a particularly important feature shared by the Jambelí culture and the related Guarumal-Punta Brava sites and the Pechiche-Garbanzal cultures (cf.: Izumi and Terada, 1966: Pl.29-11), together with such other significant traits as the notching of rims and vessel shoulders.

Particular comparisons include Fig: 42g and a sherd from Gallinazo Broad-Line Incised (*ibid*: Fig.: 681); Fig: 24e with Gallinazo Broad-Line Incised (*ibid*: Fig.: 681) and Fig: 38e with Castillo Modeled (*ibid*: Fig.: 63j-m & t). Perhaps the most striking comparison, however, is between a complete figure, bridge and spout vessel recovered from a mangrove swamp close to the Guarumal midden (Col.Pl: 2) and Fig.: 64c of Castillo Modeled, which shows a virtually identical fragment of a face, with exactly the same punctate treatment for the eyes, ears, nose and mouth. Such jar forms are reflected in Puerto Moorin White-on-Red (*ibid*: Fig.: 55-11) and Castillo Modeled (*ibid*: Fig.: 62-7), although the main body shape of figure, bridge and spout vessels from Gallinazo Negative are not very similar (*ibid*: Fig: 57-9; 58-c-e). Whilst unfortunately from unstratified contexts, the presence of such a piece from the southern Ecuadorian coast is highly significant, for if the vessel was locally made, then certain styles of pottery production are indeed identical to the Peruvian north coast and if not, then it proves trading contact at least, resulting in the importation of actual pottery which clearly influenced local pottery styles, and *vice versa*.

SOUTHERN ECUADORIAN HIGHLANDS

INTRODUCTION: The Cañar Valley

The Cañar Valley, with Cerro Narrío at its cultural centre, has long been the focus of intense interest, speculation and study on the part of archaeologists attempting to understand the chronology and cultural development over a wide area from the southern Ecuadorian coast as far as the north Peruvian montaña and the coastal region as far as Trujillo. The first truly scientific study attempted by Collier and Murra (1943) has since been subjected to a variety of critiques, some of the more notable being Jijon y Caamaño (1952), Lanning (1963), Lathrap (1971), Braun (1982) and Meyers (1984, ms). Current and recent past research in the Guayas Basin, Manabí and the Santa Elena Peninsula continues to throw new light upon the degree of contact and influence between Formative period cultures there and Cerro Narrío (cf. Marcos, Muse, Kreig et al), whilst survey and excavations at Pirincay are expected to further clarify the understanding of how this important site interacted with the tropical lowlands to the east of the Andes, occupying as it does, an important natural routeway between the highland valleys and the tropical lowlands of southern Ecuador (Hammond, 1984-5).

Whilst few direct links between Cerro Narrío and the Jambelí-Garbanzal configurations are demonstrable, nevertheless, our understanding of the nature of the origin and dissemination of the white-on-red and negative "horizons", which characterise much of the Regional Developmental period depend upon a better understanding of the cultural development of southern Ecuador and northern Peru from Formative times, to which the Cañar Valley sequence would seem to hold a key.

Albert Meyers has recently formulated a new interim chronology of the cultural development of Southern Ecuador and Northern Peru, based upon the study of museum collections and sherds from the excavations at Ingapirca (Meyers, 1984: ms). In this he questions both Lanning and Braun in their respective reinterpretations of the later part of the sequence in Cañar, and, following Jijon y Caamaño (1952), introduces the local term Tacalshapa, in its sub-phases A, B and C to rationalise the cultural development between Late Cerro Narrío and the Cashaloma culture for the Cañar Valley and the Azuay Basin. This is then matched to the

cultural sequences in both the Puirá-Chira area and the Virú Valley in northern Peru.

THE REGIONAL DEVELOPMENTAL PERIOD IN THE SOUTHERN ECUADORIAN HIGHLANDS

TACALSHAPA

Tacalshapa phases A - C belongs to the Regional Developmental period in Meyers' chronology, more or less contemporary with the Guangala culture from the Guayas Basin, the Sechura and earliest Piura phases of the far north Peruvian coastal sequences and the Salinar through Gallinazo and Moche sequences of the Chicama/Virú region of the Peruvian north coast. He does not mention the Jambelí or the Pechiche-Garbanzal group, but presumably these would similarly be taken to be more or less contemporary with Tacalshapa A - C .

TACALSHAPA A

The transition from the Late Cerro Narrío period to Tacalshapa A is marked by the introduction of new forms and techniques of decoration, including the use of white-on-red, tri-colour and negative painting (although the negative technique in the form of Glossy Red Negative actually occurs in "Group X" of Late Cerro Narrío contexts [Collier and Murra, 1943: 60]). Tacalshapa A is held by Meyers to include elements of Collier and Murra's Tuncahuán Variant D. Diagnostic forms include:

- Keros: flaring sided beakers with flat bases
- Bowls of simple or composite silhouette
- Globular bottles with tall necks that often feature anthropomorphic decoration: the "Face" vessels of Azuay
- Globular jars with annular base and short everted neck
- "Floreros": longer bodied vessels with widely everted necks

Tacalshapa A is the pre-eminent sub-phase to show stylistic connections with southern coastal Ecuador and with northern Peruvian cultures, whilst a description of the stylistic characteristics reveal an inventory not dissimilar to some of the forms and styles found at Guarumal and Punta Brava. Meyers concentrates on illustrating the more distinctive bottles, keros and floreros, especially those with plastic decoration, so it is difficult to more precisely assess the parities of all vessel forms without access to a wider inventory of illustrations.

In the depictions of examples of Tuncahuán Variant D (Collier and Murra, 1943: Pl. 40) are several sherds/vessels which may be directly compared with forms and decorative styles from Guarumal, especially the Form 11 carinated bowl which often bears similar white-on-red decoration, very like at least one particular example shown (*ibid*: Pl. 40-11 with Fig: 21b-k; 22c,d*-f. Lanning includes this example of Collier and Murra's with his phase 4) *Tuncahuán Variants A, F and part of D*, following 3) *Cashaloma White-on-Red* (the reasons for his divisions are based on a combination of vessel form and decoration, which might be regrouped to fit other phase configurations with as much validity). Meyers disagrees, firstly with Lanning for splitting the Cashaloma group in the first place and for mixing Cashaloma vessels with those he denominates Tacalshapa (Tuncahuán) and secondly with Braun for his very early placement of the Cashaloma culture. In his own sequence, Meyers includes vessels 7,8 11-13 (*ibid*: Pl.40) within Cashaloma which he places as late as the Integration period of the Ecuadorian chronology. Given the C¹⁴ date of 1830 ± 80 BP (AD 120) associated with a Form 11 white-on-red sherd and the placement of this form to the Middle Guarumal period (pp: 98; 136 & Table 6), one must either question the placement of this Tuncahuán example to the Cashaloma phase in the first place, or question Meyers' whole dating of the Cashaloma culture. In this respect, perhaps Braun is more correct in his far earlier interpretation of the phase (although possibly not as early as he suggests [Braun, 1982: Table 3]; see below). The white-on-red with negative sherds (Collier and Murra, 1943: Pl.: 40-3, 5) are also not unlike some sherds of Jambeli Negative with white paint (Estrada, Meggers and Evans, 1964: Fig.31).

Meyers himself (*ibid*, ms) emphasises some of the more remarkable parallels to, for example, the Puerto Moorin/Salinar and Gallinazo cultures of the Chicama and Virú valleys, north coastal Peru and especially to the Castillo Modelled sub-style. Identical parallels have already been drawn between some of the material described in this thesis to these groups of wares (pp: 262-68). Suffice it to note here that the use of anthropomorphic and zoomorphic plastic decoration of jar necks and modelled adornos seems to be common practice around this time from the Ecuadorian southern highlands to the south coast and further down at least as far as the Peruvian north coast. Elements of these characteristics have already been demonstrated to occur in the Pechiche culture (pp: 200; Izumi and Terada, 1966: Pl. 32-19), an example which itself compares rather well with a sherd of Castillo Modelled (Strong

and Evans, 1952: Fig. 64 D) and Sechura (Christensen, 1956: Pls. XI G & XII H). Meyers himself believes that these traits are so uniform as to suggest their direct transplant from the southern highlands of Ecuador down into coastal Peru via the Peruvian highlands and thus envisages that the date for Tacalshapa A should take account of this to slightly predate the beginning of the Salinar culture at around 500 BC.

TACALSHAPA B and C

Tacalshapa phase B apparently sees a realignment of regional influence, for comparable Peruvian traits are no longer notable, apart from, apparently, a continuation of the shared tradition of plastic decoration on the pottery. Certainly a study of the illustrated material confirms a general lack of ~~of~~ similarity between this phase and the coast. The advent of the pedestal bowl, or *compotera* around this time is interesting, being somewhat later than one would have supposed. The pedestal bowl of Collier and Murra's Tuncahuán Variant A (Collier and Murra, 1943: Pl. 38-7 & 9), which Meyers includes within his Tacalshapa B category, lacks the grandeur of some of the tall imposing *compoteras* of the coast and if truly absent until the advent of this phase, presents an interesting question given its occurrence, albeit uncommon, in such early contexts as the Pechiche phase of the Tumbes Valley. Aside from this, the other Tuncahuán Variants B, C, E and F (*ibid*: Pls. 39 & 41) bear little resemblance to any of the coastal material, being more directly comparable with such northerly cultures as the so-called northern Tuncahuán (Carchi Negative) (Meyers, *ibid*). This, as we have already observed (p: 260), is confirmed by Lanning who notes the shift of regional influence away from southern Ecuador toward the Virú - Pacasmayo region of northern Peru (Lanning, 1963: 210).

Tacalshapa C sees a burst of Peruvian influence, contrary to the north - south trend of influence suggested by Meyers for the earliest phase. The dissemination of Wari-Tiahuanaco influence possibly brought in new forms to the southern Ecuadorian highlands at this time, which are envisaged as toward the close of the Regional Developmental and the inception of the Integration period. The stylistic connections between this last phase and the Huancaco/Moche sequence are interesting as they serve to exemplify the continued contact of regions of southern Ecuador with Peru, probably via the highlands (Meyers, *ibid*).

Stylistic parallels with the Cashaloma culture of the Cañar Valley and Cuenca Basin have already been referred to above. Collier and Murra do not set out to define a Cashaloma culture as such, simply identifying pottery types from later contexts at Cerro Narrío and from such sites as Joyaczhí, Guasuntos, Macas and Shillu as well as from Cashaloma. They admit the likelihood that certain of the white-on-red decorated pottery included temporarily in their Tuncahuán Variant D, following Jijón y Caamaño (1927: 34-35) should, in fact, be considered as distinct from it, especially considering the fact that it appears without the negative white-on-red at the other sites in the Cañar Valley (Collier and Murra, 1943: 65). Much of the definitive pottery derived, of course, from the Cashaloma site itself.

It is not proposed here to attempt a reinterpretation of the Cerro Narrío sequence, as much of it lies outside the scope of this thesis, but a review of three of the main reinterpretations of the Collier and Murra work is necessary as there is a large degree of disagreement, especially over the dating of this phase. Lanning divides it into an early part (100 BC, Regional Developmental) - Cashaloma White-on-Red, and a later one (Integration) - Cashaloma White Slipped, and Braun places its inception from around 800-900 BC. As we have seen, Meyers disagrees with both, siting it in the Ecuadorian Integration period at around AD800. A one thousand year difference of opinion is certainly a substantial one and not at all helpful in determining a plausible understanding of the cultural developments of the region.

It would certainly be unrealistic to base a chronology on the dating of one pot form, but we have already seen that the Form 11 carinated bowl from the Middle Guarumal period is very much like the white-on-red bowl of Collier and Murra's Tuncahuán Variant D (Collier and Murra, *ibid*: Pl.40-11) and this should at least be born in mind when considering the question of the dating of the Cashaloma culture. In other respects, Cashaloma White-on-Red shares much that is similar in terms of decorative style and technique with the Pechiche culture of the Peruvian far north coast, as well as with the material from Guarumal and Punta Brava. Vessel forms include:

- small, low-cut bowls
- very flat hemispherical plates

- globular jars
- jars with annular base
- compoteras with perforated base
- bottles with tall necks and flaring rims
- water bottles

Decoration includes: painting in white or red bands around rims, alternating bands or areas of red and white and the ornamentation of rims with white dots and crosses. Linear designs, groups of parallel lines and large circles also feature. One or two horizontal rows of white dots ornamenting red or orange bands around the rims of compoteras is also a characteristic feature of this phase. Some of the vessels, especially the bowls, are well polished. Incised, engraved and punctate designs also occur, with, for example, areas of reed punctates defined by incised rectangles or triangles.

Several of the sherds figured may be favourably compared to the coastal cultures, besides the examples referred to above. The reed punctate and incised sherds are reminiscent of the decoration of Garbanzal White-on-Red compotera pedestals (Collier and Murra, 1943: Pl.53-2 with Izumi and Terada, 1966: Pl. 19-a6). This is a style which is found widely into the interior of the El Oro province along such river valleys as that of the Arenillas. Similarly, there are grooved adornos which compare well with examples from Guarumal (Collier and Murra, *ibid*: Pl. 53:10-12 and Figs: 41d and 42d. There is an almost identical treatment of two sherds of Cashaloma and Pechiche type, with parallel white lines on a burnished red background, ornamented by a single row of small white dots (Collier and Murra, 1943: Pl.53-19 and Izumi and Terada, 1966: Pl.23-b5). Bearing all this in mind, it is hard to accept the very late date argued by Meyers. With the Pechiche culture dating from around 850 BC (Izumi and Terada, 1966: 71), one may feel more inclined to agree with the date given to Cashaloma by Braun (1982: Table 3).

DISCUSSION

Meyers argues convincingly in favour of a longer timespan for the development of the Late Cerro Nariño phase than that attributed to it either by Lanning or by Braun and feels that a later date of around 500 BC for its end would be consistent with the complex processes of stylistic evolution involved here (Meyers, 1984: ms). The thus amended Braun's chronology allows Cashaloma White-on-Red to commence at a

somewhat more acceptable 500 BC, more in line with the conventional start of the Ecuadorian Regional Developmental Period. This, then, leaves a problem of where to put the Tacalshapa/Tuncahúan material. The actual definition and structuring of Tacalshapa A - C seems reasonable enough, but one cannot help feeling that in isolating the Cashaloma group from his Tacalshapa phases, Meyers has rather trapped himself into having to put it after the end of Tacalshapa C, in other words in the following Integration period, where some of the material looks distinctly out of place. In some respects Lanning seems to have at least part of the answer, after all, in dividing the material and putting the *Cashaloma white-slipped* high up in the sequence with Inca influence (Lanning, 1963: 218). Overall, it is hard to escape the conclusion that a proper understanding of the later part of the Cañar sequence is far from achieved as yet.

CONCLUSIONS

It is impossible to adequately discuss, let alone re-structure, the phasing of the Cañar sequence without access to the material used by the authors mentioned here. Juggling with endless new possible phase configurations will only serve to confuse at this stage; however, one feels that an early date for Cashaloma White-on-Red is in order, given the many parallels with the earlier coastal cultures, which also include pottery from the Guarumal and Punta Brava sites.

PART V

CONCLUSIONS

CONCLUSIONS

Introduction

It has been the purpose of this thesis to review the Jambelí culture as defined by Estrada, Meggers and Evans (1964) through a close analysis of pottery from the two sites Guarumal and Punta Brava, which would have been classified by them as typical Jambelí style. In Section IV, the stylistic parallels between this pottery and that of several other broadly contemporary cultures of southern Ecuador and northern Peru were examined for the insights which they might give into questions of cultural relationships across this wider area, around this time.

THE GUARUMAL AND PUNTA BRAVA SITES

The first site - Guarumal - is a series of shell middens located close to the mangrove coastline of southern El Oro province. As such, it would have been viewed as a typical Jambelí site, although its large size, comprising at least six individual shell mounds, sets it apart from the sites surveyed and described by Estrada *et al.* The second site - Punta Brava, situated upon the summit of a low spur, slightly inland from the coast, is more like the location of many of the archaeological sites discovered during the Proyecto Tahuin's survey of the Rio Arenillas in 1979, some of which also contained Jambelí-style pottery.

Chronology and phasing

Radiocarbon testing of five contexts at the Guarumal site yielded a span of dates from around 300 BC through to (probably) around AD 225 (given the strong likelihood that the latest Trench A layer 4 date may be earlier by up to 250 radiocarbon years (cf p: 92)). The one assay from Punta Brava places it at around 210 BC. Given the traditional dating and definition of the Ecuadorian Regional Developmental period, which includes the presence of white-on-red decorated pottery, these dates, together with the pottery assemblages would place the two sites firmly in the early - middle part of this period.

Observation of the excavated stratigraphy at Guarumal, together with an analysis of the pottery and reference to the C¹⁴ dates allowed a broad phaseology of the site to be constructed, a summary of which was

presented at the end of Section II (pp: 96-100). A distinct progress of occupation can be demonstrated, from structures with sophisticated floor levels in the earliest phases, through to pile-built and 'construction trench' buildings of the Middle phase, and finally the occupation associated with the upper dumping levels of Mound 1 in the Late period.

Several distinctive pottery forms can be tied into this sequence:

EARLY/'Floors' Phase ca 300 BC - ?100 BC
(sub-units 3 & 4):

Forms 8,9, 17, 22, 24 and 28 and ?dog figurines

MIDDLE/'Structural' Phase ca 100 BC - AD 120
(Upper Unit C and Trench B/'Lower' strata, Trench A)

Forms 7 and 11

LATE Phase ca AD 120 - AD 225/475:
(Upper layers of Trench A/Mound 1)

Forms 1, 5, 13 and 18a

Pottery traditions

Carinated bowls with deep, polished red slip and finely executed white painted motifs characterise the Early to Middle phase of the Guarumal site (probably contemporary with Punta Brava). The presence of fineware compoteras is attested by the Form 28 compotera pedestal bases, several of which are incised and decorated with openwork. A naturalistic, hollow figurine tradition of Chorrera-like affiliations occurs in the form of probable dog effigies.

The simple open Form 1 bowl progresses from 4.5% of all forms in the 'Floors' contexts of sub-units 3 and 4, through to 17.6% in layer 2 of Unit C, 26.3% overall in Trench B, 36.3% in Layer 1 of Unit C and finally 37.7 of all forms in Trench A, of which 75% are found in the latest layers 1-6. A similar increase in the frequency of Form 5 bowls can also be demonstrated. Quality of red slip changes, from the mainly deep, burnished red of the Early - Middle period to the lighter, less well-polished slips with more distinctively geometric, white-painted decoration. Circumferential white bands upon the inside of red slipped shallow bowls also seems to be more prevalent in this Late phase.

Petrology

Petrological analysis of representative samples of pottery from Guarumal validated the broad descriptive categories of fine, medium and coarse pastes/wares used in the initial field analysis. However, Dr Lea Jones, who performed the thin section analysis of the pottery, cautioned that the sample was too small to be able to accurately determine different specific ware types. She felt that all were very probably of local production and that the anomalies present in terms of presence/absence of certain minerals did not necessarily acquaint with discreet ware categories (L. Jones, pers. comm.).

Petrological analysis of pottery can give important insights into the question of which are local and which are imported wares, however, and any future work would endeavour to make use of this technique more fully.

Both the C¹⁴ date of 210 BC and the pottery styles help to link Punta Brava with the Early 'Floors' to early Middle/'Upper Floors' phases of Guarumal. Important forms include the 'early' Form 22 short-necked jar, Form 17 straight-sided bowls, Form 21 medium-long necked jar and the coarse flared bowl, Form 14, the last two of which are much less common at Guarumal. The Form 1 simple bowl represents 14% of all forms in the total sample from Unit 2, whilst the Form 7 shallow bowl with interior rim thickening is rare, and the Form 11 carinated bowl seems to be absent altogether. This may signify that the occupation represented by the pottery from Unit 2 is indeed essentially the same period as that of the Early 'Floors' phase at Guarumal, although it should also be born in mind that the limited nature of the excavation at Punta Brava and relative smallness of the sample size may account for such rarities and absences. It may also point to a difference in the basic pottery inventory of the two sites.

Environment

For much of the period of occupation at Guarumal, the main food resource was provided by the large, uncupped oyster *Crassostrea*, which forms a high proportion of the debris in many of the main shell refuse mounds. A division between the Middle and Late period occupations is characterised by a clear change in the midden refuse to smaller, mangrove-dwelling species of shell fish, such as *Anadara turberculosis*, *Chione subrugosa* and *Arca grandis*, with *Crassostrea* disappearing from the archaeological record completely. This may have been caused by one of the periodic cataclysmic El Niño events, which could have been responsible for wiping out the oyster beds, or even causing a local large river, such as the Jubones, to change its course. The occupation associated with the Late phase is much sparcer, and was very probably of a seasonal character.

Formative period roots

The analysis of the pottery found at the Guarumal and Punta Brava sites, serves to highlight the Formative period roots of the two assemblages, rather than to show any strong connection with neighbouring cultures typical of the Regional Developmental period, such as the Guangala to the north, in the Guayas basin. The Early - Middle period pottery at Guarumal and all of Punta Brava, whilst having a predominance of white-on-red pottery, nevertheless have essentially late Formative period

styles and shapes. The later phases at Guarumal seem to exemplify the slow transition into styles more typical of the Regional Developmental period: more simple open (Form 1) bowls, straightforward white geometrical motifs upon lighter, less well-polished red slipped vessel surfaces, *comales*, coarse thickened rim domestic jars and thickware *compoteras*. The implication also is that the naturalistic figurine tradition associated with the earlier Chorrera-like occupation gradually devolved into the crudely anthropomorphic figurines depicted by Estrada, Meggers and Evans.

THE JAMBELI CULTURE RECONSIDERED

Work currently being undertaken in the valley of the Rio Arenillas through the Proyecto Tahuin should clarify the central problem of which style(s) actually constitute Jambelí pottery, and which do not - a critical issue considering Estrada, Meggers and Evans' tendency to classify any pottery or archaeological site as being Jambelí upon two basic criteria: the presence of white-on-red pottery *per se* and particularly if the site was a shell-midden situated upon the coast of southern Ecuador. Archaeologists working in the area such as Alison Paulsen (1970), Carl Spath (1980) and Tom Aletto (1987) have all questioned these underlying premises of Estrada *et al*, and hence queried the validity of the Jambelí culture itself. What now seems certain is that a long timespan is represented in the material presented as Jambelí by Estrada *et al*, with much stylistic evolution and differentiation within it.

It is becoming increasingly clear that the term Jambelí, as it has been widely used up until now, is too broad to be useful and needs to be redefined upon stricter archaeological principles. The recent surveys and excavations centering upon the Arenillas valley will do much to fill in the picture, and to help lay down the foundations for a proper sequence.

The Proyecto Tahuin, of which the 1980 field excavations at Guarumal and Punta Brava formed a part, has already established that the Jambelí culture was not merely a coastal adaptation of shell-fishing communities, but that it stretched well into the interior and had, as should be expected, Formative period roots, probably dating from as early as Valdivia times, and with fairly intensive Machalilla and

Chorrera-like occupations. Few really large sites or urban agglomerations are recorded for this phase, settlement being principally characterised by a dispersed pattern of occupation, represented by small-scale farming communities (Marcos and Netherley, personal communications).

Critical analysis and comparison of the pottery from the Guarumal and Punta Brava sites reveals an assemblage which has quite close parallels with several late Formative period cultures, of which the Guayaquil phase and the Pechiche culture (being included, here, within the Ecuadorian scheme of periods) are the most significant. Detailed comparisons with such Formative period complexes as the Chorrera-Engoroy (and some Machalilla) cultures of the Guayas Basin and Santa Elena Peninsula indicate that the underlying traditions still present at Guarumal and Punta Brava, are essentially of the Formative period, although the Late phase at Guarumal does seem to demonstrate a slow stylistic evolution into forms and styles more characteristic of the following Regional Developmental period, which in this part of southern coastal Ecuador is the Jambelí culture.

THE REGIONAL DEVELOPMENTAL PERIOD RECONSIDERED

The Regional Developmental Period, which currently is still defined as representing the introduction and widespread use of white-on-red geometrically decorated pottery, negative painting, figurines and compoteras, and which is loosely delineated by the dates 500 BC - AD 500, can actually be shown to develop at different points in the differing regional cultural sequences of southern Ecuador. In the Guayas Basin and Santa Elena Peninsula, for example, the late Formative period cultures of Chorrera and Engoroy continue down to between 300 - 100 BC, when Bahía 1 and Guangala 1 appear in the archaeological record. There is definitely the sense that the Formative period remains more strongly entrenched upon the coast, but the late Formative period included the use of white-on-red pottery. Braun notes that "the coast was not the impetus for the transition to the Regional Developmental period..." (Braun, 1982: 51) and in this he is probably correct, despite his belief that the white-on-red horizon began with the later period.

A revision of the Ecuadorian scheme of periods is required to take account of the findings of archaeological research undertaken over the

past twenty years in southern Ecuador and the far north coast of Peru. Aleteo (1987) has recently challenged the long-standing and still current assumption that white-on-red pottery was introduced together with the new forms and styles characteristic of the Regional Developmental period, and is thus one of the principle distinguishing features of this phase.

OVERVIEW

White-on-red pottery characterises the assemblages of such disparate groups as the Tacalshapa A and Cashaloma cultures of the Cañar valley, the Chorrera and Guayaquil cultures of the Santa Elena Peninsula, Guayas Basin and Isle de Puná, the Pechiche culture of the far north and the Sechura-Vicús and the Puerto-Moorin/Salinar cultures of the Peruvian north coast. On the basis of the available evidence, these cultures are approximately contemporary with the late Formative period of Ecuador and the early part of the succeeding Regional Developmental period, accepting an early date for the Cashaloma of Cañar - perhaps as early as Braun suggests, which, considering the links with the Pechiche culture, would seem quite plausible.

A detailed comparison of forms and wares has revealed an interesting degree of similarity existing between these groups, despite the dispersed regions occupied by them. The degree of trading contact between these areas has been well studied and speculated upon, with much debate centering on, for example, the role of the marine mollusc shell *Spondylus* in long-distance trading and the development of Andean states around this time (Murra, 1975; Paulsen, 1974 & 1976; Topic, 1983; Marcos & Norton, 1984; Burger, 1984). There is not the scope here to undertake a fuller discussion of the dynamics of these long-distance communications, or to speculate upon the the movements of populations in the manner of Braun (*ibid*), for example.

It is clear, however, that this unique transitional area of southern Ecuador and the far north of Peru, occupying the area between two major cultural regions of the Intermediate area to the north and the bulk of Peru to the south, represents a cultural as well as a climatic and geographic transition zone, with its frontier shifting north or south through time, perhaps following shifts in climate, or the movements of people. Burger discusses the frontier problem with respect to the Chavín

Horizon in Peru, arguing for the existence of a cultural boundary which contained the Chavín style to Peru, thus impeding its spread further northward. Indications are that later, however, during the Middle and Late Horizons, the Wari and Inca empires both succeeded in cutting across such a frontier to spread significant influence northward, at least through the Ecuadorian southern highlands, although the same does not seem to be true of the coast.

There are small echoes of these horizon styles, seen for example, in Chavín style motifs in Pechiche, possibly Catamayo C and D and possibly also in the stylised jaguar/cayman representation in the pottery from Guarumal, and particularly Punta Brava (p: 164; Colour pl: 3). Upon the basis of present knowledge it is impossible to do more than speculate upon the nature and scale of these cultural relationships, much of which lies beyond the scope of this thesis.

GENERAL CONCLUSIONS

Guarumal and Punta Brava seem to be Jambelí sites only inasmuch as their pottery assemblages contain some of the same forms and styles which characterise Estrada, Meggers and Evans' description of the culture (*ibid*). However, it is now clear that much of this material was not a homogeneous assemblage, but probably derived from several different cultural sources representing a sequence of development from Formative times down to Regional Developmental.

It would make much sense considering the geographic situation of the Jambelí culture between the Guayas basin and Santa Elena peninsula to the north, and the Tumbes valley to the south, for its pottery types to evolve from earlier Formative traditions. These had connections to both Chorrera and Pechiche antecedents, and gradually developed into the styles represented by the later cultural configurations in these same areas, notably the Guangala and, in the far north coastal area of Peru, the Garbanzal. It seems very likely that in El Oro, there is a parallel situation to that demonstrated by Izumi and Terada for the Tumbes region (1966 *ibid*), where the Pechiche culture developed into the Garbanzal culture, with some forms and decorative features continuing, and others differing.

.....

REFERENCES AND BIBLIOGRAPHY

- ALETO, T F: **A view of the Ecuadorian late Formative and Regional Development periods from the Gulf of Guayaquil**, Paper presented at the 52nd annual meeting of the Society for American Archaeology, Toronto, Ontario, 1987
- AMERICAN ANTIQUITY: Current research; **American Antiquity**: Vol. 47, 1, 1982: 209-211; Vol. 48, 1, 1983: 170-172; Vol. 49, 2, 1984: 417-418; Vol. 50, 1, 1985: 180-182; Vol. 51, 1, 1986: 172-174; Vol. 52, 1, 1987: 181-182; Vol. 53, 1, 1988: 180-181.
- BENNETT, W C: **The north highlands of Peru**; **Anthropological Papers of the American Museum of Natural History**, Vol. 39, 1944
- BENNETT, W C: **Excavations in the Cuenca region, Ecuador**, **Yale University Publications in Anthropology** Vol. 35: 13-83, 1946
- BENNETT, W C (ed): **A reappraisal of Peruvian archaeology**, **Memoirs of the Society for American Archaeology**, No. 4, 1948
- BENNETT, W C: **The Gallinazo group, Viru valley, Peru**, Yale University Press, 1950
- BENNETT, W C: **Excavations at Wari, Ayacucho**; **Yale University publications in anthropology**, No 49, 1953
- BISCHOF, H: **La fase Engoroy - períodos, cronología y relaciones**, in Oberem, U (ed.): **Estudios sobre la arqueología del Ecaudor**, Bonn, 1975
- BRAUN, R: **The Formative as seen from the southern Ecuadorian highlands**, in Marcos, J & Norton P (eds) **Primer simposio de correlaciones antropológicas Andino-Mesoamericano**, 25-31 de julio, Salinas - Ecuador; ESPOL, Guayaquil, 1982
- BROWMAN, D L: **Tectonic movement and agrarian collapse in prehispanic Peru**. **Nature**, 302. 14th April, 1983
- BRUHNS, K & HAMMOND, N: **Investigaciones arqueológicas en Pirincay, Canton Paute, Provincia de Azuay**: Informe preliminar de 1984
- BRUHNS, K O, CECIL, C L *et al*: **Investigaciones arqueológicas en Pirincay, Canton Paute, Provincia del Azuay**: Informe preliminar de 1985
- BURGER, R: **Archaeological areas and prehistoric frontiers: the case of Formative Peru and Ecuador**, in BROWMAN, D L: BURGER, R L & RIVERA, M A: **Social and economic organization in the prehispanic Andes. Proceedings of the International Congress of Americanists, Manchester, 1982**; BAR International Series 194, 1984: 33-72
- BUSHNELL, G H S: **The archaeology of the Santa Elena peninsula in south-west Ecuador**, Cambridge University Press, 1951

- BUSHNELL, G H S: Some archaeological discoveries from the frontier region of Peru and Ecuador, near Jaen. **Congreso Internacional de Americanistas** proceedings XXXVI (36), Vol.1: 501-507, 1966
- BUSHNELL, G H S: The Vicús pottery style of northern Peru: some hitherto undescribed examples, in **Folk** (Dansk Etnografisk Tidsskrift), vol. 8-9, 1966/7: 63-68
- CAVIEDAS, C: El Niño 1972: its climatic, ecological, human and economic implications. **Geographical Review**, 65, 4, 1975: 493-499
- CHRISTENSEN, R T: Preliminary report of excavations in the Piura valley, Peru, **Bulletin of the University Archaeological Society**, no.2, Brigham Young Un., Utah: 36-53
- CHRISTENSEN, R T: **An archaeological study of the Illescas-Jubones coast of northern Peru and southern Ecuador**; PhD thesis, Un. of Arizona, 1956
- COLLIER, D & MURRA, J V: Survey and excavations in southern Ecuador; **Anthropological series of the Field Museum of Natural History**, Chicago, Vol. 35, pub. 528, 1943
- COLLIER, D: Peruvian stylistic influences in Ecuador, in BENNETT, W C (ed) A reappraisal of Peruvian archaeology, **Memoirs of the Society for American Archaeology**, no.4, 1948
- DÉCIMA-ZAMECNIK, E: An analytical study of Vicus ceramics. Proposal for dissertation research submitted to the national Science Foundation, Jan. 1978
- DENEVAN, W M: MATHEWSON, K & KNAPP, G: Pre-hispanic agricultural fields in the Andean region, Parts i & ii; **Proceedings of the International Congress of Americanists**, Bogotá, Colombia, 1985; BAR International Series 359, 1987
- DISSELHOFF, H D: Seis fechas radiocarbónicas de Vicús, in **Verhandlungen des 38 Internationale Amerikanisten Kongresses**, 1968, Munchen-Stuttgart, 1969: 341-345
- ESTRADA, E: **Las culturas pre-clásicas, formativas o arcaicas del Ecuador**, publicacion del Museo Víctor Emilio Estrada, no. 5, 1958
- ESTRADA, E; MEGGERS, B J & EVANS, C: The Jambelí culture of south coastal Ecuador; **Proceedings of the United States National Museum, Smithsonian Institution**, Washington, D.C. No. 3492, 115, 1964: 483-558
- EVANS, C & MEGGERS, B J: Formative period cultures in the Guayas Basin, coastal Ecuador. **American Antiquity**, XXII (22), 3, 1957: 235-246
- EVANS, C & MEGGERS, B J: Técnicas decorativas diagnósticas y variantes regionales Chorrera, un análisis preliminar, in **Primer simposio de correlaciones antropológicas Andino-Mesoamericano**, 25-31 de julio, 1971, Salinas - Ecuador; ESPOL, Guayaquil, 1982

- FERDON, E N jr.: Studies in Ecuadorian geography, *Monographs of the School of American Research*, no. 15, Un. of Southern California, 1950
- GUFFROY, J (ed): Loja préhispanique: recherches archéologique dans les Andes meridionales de l'équateur. Recherche sur les civilisations; travaux de l'Institut Francais d'etudes Andines, Vol XXXII (32), 1987, Paris
- HALCROW, Sir William & Partners (Consultant Engineers): Jubones River Study; Reports 1972 - 1975
- HORKHEIMER, H: Vicús. Ediciones del Instituto de Arte Contemporáneo. Lima, 1965
- ISELL, W: Environmental perturbations and the origin of the Andean state, in REDMAN, C L et al (eds): *Social archaeology: beyond subsistence and dating*, 1978: 303-313
- IZUMI, S & TERADA, K: *Andes 3, Excavations at Pechiche and Garbanzal, Tumbes valley, Peru*, 1960, Tokyo, 1966
- IZUMI, S & TERADA, K: *Excavations at Kotosh, Peru, a report on the third and fourth expeditions*, University of Tokyo Press, 1972
- JIJÓN y CAAMAÑO, J: *Antropología prehispánica del Ecuador 1945*, Quito, 1952
- KEATINGE, R W (ed.): *Peruvian prehistory*, Cambridge University Press, 1988
- KEEN, A MYRA: *Sea shells of tropical west America: marine mollusks from Baja California to Peru*, Stanford University Press, Stanford, California, 1971
- KELLEY, D: *A preliminary report on archaeological reconnaissance and excavation on the north coast of Peru, especially in the Department of Piura. July 1957-1958* : unpublished manuscript
- LARCO HOYLE, R: *La cerámica de Vicús*, Santiago Valverde, Lima, 1965
- LANNING, E P: A ceramic sequence for the Piura and Chira coast, north Peru, *University of California publications in American archaeology and ethnology*, Vol. 46, no. 2, pp: 135-284, University of California Press, 1963
- LANNING, E P: *Peru before the Incas*; Prentice-Hall Inc.; New Jersey, 1967
- LATHRAP, D W: *The Upper Amazon*, Thames and Hudson, 1970
- LATHRAP, D W: *Ancient Ecuador, culture, clay and creativity, 3000-300 BC*, Field Museum of Natural history, Chicago, 1975
- LOTHROP, S K: *Pariñas-Chira archaeology: a preliminary report*, in BENNETT, W C (ed) *A reappraisal of Peruvian archaeology*, *Memoirs of the Society for American Archaeology*, no. 4, 1948

- LUGO, A E & SNEDAKER, S C: The ecology of mangroves. *Annual Review of Ecology and Systematics*, Vol. 5, 1968: 39-64
- LUMBRERAS, L G: *el arte y la vida Vicús*, Banco Popular del Peru, 1978
- MARCOS, J G: Los Morros, in Marcos, J & Norton, P (eds) *Primer simposio de correlaciones antropológicas Andino-Mesoamericano*, 25-31 de julio, 1971, Salinas - Ecuador; ESPOL, Guayaquil, 1982
- MARCOS, J & NORTON, P: From the Yungas of Chinchay Suyo to Cuzco: the role of La Plata island in *spondylus* trade, in BROWMAN, D L: BURGER, R L & RIVERA, M A (eds): *Social and economic organisation in the prehispanic Andes; Proceedings of the International Congress of Americanists, Manchester, 1982*. BAR International Series 194, 1984: 7-20
- MATOS, R MENDIETA: Algunas consideraciones sobre el estilo de Vicús. *Revista del Museo Nacional*, Tomo XXXIV (34), 1965-66: 94-130
- MEGGERS, B J, EVANS, C & ESTRADA, E: Early Formative period of coastal Ecuador: the Valdivia and Machalilla phases, *Smithsonian Contributions to Anthropology*, Vol 1, Washington, 1965
- MEGGERS, B J: *Ecuador. Ancient people and places*, Thames and Hudson, 1966
- MEYERS, A: *Arqueología Cañar: relaciones, estilísticas y problemas cronológicas*, Ponencia presentada en la Primer Simposio Europeo sobre Antropología del Ecuador, Bonn, 28-30 de Junio de 1984
- MEYERS, T P: Formative-period interaction spheres in the Intermediate area: archaeology of Central America and adjacent South America, in BROWMAN, D L (ed): *Advances in Andean archaeology*. Moulton, The Hague; Paris, 1978
- MURPHY, R C: Oceanic and climatic phenomena along the west coast of South America during 1925. *Geographical Review* 16, 1926: 26-54
- PAULSEN, A C: *A chronology of Guangala and Libertad ceramics of the Santa Elena Peninsula in south coastal Ecuador*; PhD thesis, Un. of Columbia, 1970
- PAULSEN, A C: The thorny oyster and the voice of god: *spondylus* and *strombus* in Andean prehistory. *American Antiquity*, 39, 4, 1974 :597-605
- PAULSEN, A C: Environment and Empire: climatic factors in prehistoric Andean culture change. *World Archaeology*, Vol. 8, 2, 1976: 121-130
- PAULSEN, A & McDOUGLE E: The Machalilla and Engoroy occupations of the Santa Elena Peninsula in south coastal Ecuador. Paper presented at the 39th annual meeting of the Society for American Archaeology, Washington DC, 1974

- PARDUCCI Z., R & PARDUCCI Z. I: Un sitio arqueológico al norte de la ciudad: fase Guayaquil, **Cuadernos de Historia y Arqueología**, 37: 57-113, Casa de la Cultura Ecuatoriana, Guayaquil, 1970
- PARDUCCI Z., R & PARDUCCI Z. I: Artefactos de piedra, concha y hueso: fase Guayaquil, **Cuadernos de Historia y Arqueología** 39 (separata), Casa de Cultura Ecuatoriana, Guayaquil, 1973
- PARDUCCI Z. R & PARDUCCI Z. I: Vasijas y elementos diagnósticas: fase Guayaquil, **Cuadernos de Historia y Arqueología** 42: 155-284, Casa de la Cultura Ecuatoriana, Guayaquil, 1975
- PHILANDER, S G H: El Niño southern oscillation phenomena. **Nature**, Vol. 302, March, 1983: 295-301
- PORRAS, P & BRUNO L P: **Ecuador prehistórico**, Quito, 1975
- QUILTER, J: **The Peru-Ecuador frontier in prehistory**, an extended version of papers read at the fourth Andean archaeology colloquium, University of Texas, Austin, and the 46th Annual meeting of the Society for American Archaeology, San Diego, May, 1981
- RAVINES, R: Conchales del río Zarumilla, Peru, **Revista de Museo Nacional**, Vol. 39, 1973: 81-90
- RICHARDSON, J H: The preceramic sequence and the Pleistocene and Post-Pleistocene climate of northwest Peru, in LATHRAP, D W & DOUGLAS, J: **Variations in anthropology: essays in honour of John C McGregor**, Illinois archaeological survey, Urbana, Illinois, 1969
- RICHARDSON, J B **Holocene beach ridges between the Chira river and Punta Pariñas, northwest Peru**; Paper presented at the Society for American Archaeology meetings, Washington DC, 1974
- RICHARDSON, J B & HEAPS de PEÑA, A: **The emergence of the state in the Chira region of northwest Peru**. Paper presented at the Society for American Archaeology meetings, Washington, 1974
- ROWE, J H: Styles and periods in archaeological interpretation. **Southwest Journal of Anthropology**, Vol. 18, 1, 1962: 40-54
- SARMA, A V N: **The cultural implications of Upper Pleistocene and Holocene ecology of the Santa Elena peninsula, Ecuador**; PhD thesis, Un. of Columbia, 1969
- SARMA, A V N: Holocene paleoecology of south coastal Ecuador in **Proceedings of the American Philosophical Society**, 118, 1, Feb. 1974: 93-134
- SIEMENS, A H: **Wetlands in the lowlands of El Oro**, unpublished manuscript, ?1987/1988
- SIMMONS, M: **The ceramic sequence from La Carolina, Santa Elena Peninsula, Ecuador**; PhD thesis, Un. of Arizona, 1970

- SPATH, C D: **The El Encanto focus: a post Pleistocene maritime adaptation to expanding littoral.** PhD thesis, University of Illinois, Urbana-Champaign, 1980
- STRONG, W D & EVANS, C jr: **Cultural stratigraphy in the Virú valley northern Peru,** Columbia University Press, 1952
- SVENSON, H K: **Vegetation of the coast of Ecuador and Peru and its relation to the Galapagos Islands. I. Geographical relations of the flora.** *American Journal of Botany*, 33, 1946: 394-413
- TERADA, K: **Excavations at La Pampa in the north highlands of Peru, 1975 (Part 1).** University of Tokyo Press, 1979
- TERADA, K & ONUKI, Y: **Excavations at Huacaloma in the Cajamarca valley, Peru, 1979, (Part 2);** University of Tokyo Press, 1982
- TOLSTOY, P: **Preliminary report on 1958-1959 (second year) archaeological survey work in Piura valley, north coast of Peru, under Fulbright program.** Unpublished manuscript.
- TOPIC, T LANGE: **The Early Intermediate period and its legacy,** in MOSELEY, M B & DAY, K C (eds): **Chan Chan: Andean desert city.** Santa Fe School of American Research/Albuquerque; University of New Mexico Press, 1982
- TOPIC, J R & TOPIC, T L: **Coast-highland relations in northern Peru: some observations on routes, networks, and scales of interaction:** in LEVENTHAL, R M & KOLATA, A L (eds): **Civilisation in the ancient Americas, essays in honour of Gordon R Willey,** University of New Mexico Press and Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, MASS, 1983
- WEST, R C: **Mangrove swamps of the Pacific coast of Colombia.** *Annals of the Association of American Geographers*, 46, 1956: 98-121
- WILLEY, G R: **An introduction to American archaeology, Volume Two: South America,** Prentice-Hall Inc., Englewood Cliffs, New Jersey, 1971
- XESSPE, T MEJIA: **Algunos nuevos elementos de la civilizacion Recuay-Pasto en el extremo norte del litoral peruano, in Antigo Peru - espacio y tiempo.** Lima, 1960
- YESNER, D R: **Maritime hunter-gatherers: ecology and prehistory.** *Current Anthropology*, 21, 1980: 727-751

APPENDICES 1 - 6

APPENDIX 1: The marine molluscan fauna

During the course of this research, several visits were made to the British Museum of Natural History, Kensington, London for the purpose of identifying the many species of marine molluscs found during the field survey and excavation of the site Guarumal in 1976. In this task, I owe thanks to Dr Solene Wybrowe, who gave me invaluable assistance in the laborious and confusing business of taxonomy.

One species of mollusc proved to be particularly difficult to identify, and this was the large, elongated oyster, which formed such a large percentage of the detritus in many of the shell mounds at Guarumal. In the end, I have decided to call it simply by the genus name only - *Crassostrea*, as neither Solene nor I could decide which species it might be. However, we were inclined to believe that it was a sub-species of *Ostrea columbiensis*, mentioned by Estrada, Meggers and Evans, (1964) as being the main species of oyster found on many of the prehistoric shell middens they visited. The deliberations involved are described in a short paper " A discussion on the different species of the family *Ostreidae*, genus: *Crassostrea* and *ostrea* - Pacific/west American coast", which follows the list of principle species identified at Guarumal.

Extensive use was also made of KEEN, A Myra; *Sea shells of tropical west America, marine molluscs from Baja California to Peru, 1971*, which was also invaluable in aiding difficult identifications.

The following species were identified from the site Guarumal, some of which were later identified from Punta Brava (which are mentioned in the excavation report for this site).

- 1) *Ostrea columbiensis* (Hanley, 1895), common small cupped oyster from the upper, Late phase contexts at Guarumal. It is indicative of brackish water and mangrove conditions, with much silting.
- 2) *Ostrea lurida* (Carpenter, 1864) is the native Pacific oyster, a few examples of which were found throughout the strata at Guarumal. A worked shell spoon of this species was found in Unit C, 1980. It is indicative of intertidal conditions.
- 3) *Anadara (Grandiarca) grandis* (Broderip & Sowerby; Olsson, 1961). Local name concha pato de burro. Found throughout stratified contexts. It indicates mangrove conditions, with much silting, but occasionally can also be found upon open beaches.

- 4) *Strombus galeatus* (Swainson, 1823). Large marine gastropod known locally simply as Concha. One example found from upper Late phase strata at Guarumal. This species is common just below the tide line on open beaches.
- 5) *Anadara (Diluvarca) turberculosa* (Sowerby, 1873; Olsson, 1961). This species is abundant in the upper Late phase contexts at Guarumal. Its local name is concha prieta and it favours muddy mangrove and well-silted conditions.
- 6) *Protothaca (Colonche) ecuatoriana* (Olsson, 1961). This species, known locally as concha bajera, is abundant in the upper Late phase contexts at Guarumal and favours brackish waters and mangrove swamp conditions.
- 7) *Chione (Ilioichione) subrugosa* (Wood, 1828). This species, known locally as concha almeja, is abundant from the upper Late phase contexts at Guarumal and favours lagoonal or mud-flat habitats, in shallow water..
- 8) *Pitar (Lamelliconcha) tortuosis* (Broderip, 1835), from the upper Late phase contexts at Guarumal. It is indicative of mud-flats and sand-bars.
- 9) *Cerithidea valida* and *Cerithidea pulchra* (Adams, 1852), small gastropods abundant from the upper, Late phase contexts at Guarumal, known locally as caracol. *C. pulchra* favours muddy sand or mangrove swamps at high-tide level. *C. valida* is found on mud-flats.
- 10) ?*Thais (Thaisella) kiosquiformis* (Duclos, 1832), occasional from upper contexts, Guarumal. It is common in mangrove swamps, where it feeds on attached oysters, although it may also be found on rocks in muddy areas.

A DISCUSSION ON THE DIFFERENT SPECIES OF THE FAMILY OSTREIDAE, GENUS CRASSOSTREA AND OSTREA - PACIFIC/WEST AMERICAN COAST

"Classification and taxonomy of oysters on the various hierarchical levels above species and superspecies seems extraordinarily difficult and open to divergent interpretations" (Stenzel, 1971: 1095)

The native Pacific oyster, *Ostrea lurida* (Carpenter, 1864), shows some morphological similarities to the two main species of oyster found at Guarumal, but a) is classified as *Ostrea* and b) is no more than 5 - 8 cm in length. The two species at Guarumal are much more typical of the genus *Crassostrea*, but at present remains specifically unidentifiable.

Estrada, Meggers and Evans (1964) call their "small mangrove oyster" *Ostrea columbiensis*, but do not reference the genus, nor the species to give any indication as to how they so identified it. The genus anyway is properly *Crassostrea*, and although the samples from Guarumal do not

bear any resemblance to the one type sample in the British Museum of Natural History (Reeve and Sowerby, 1873), it is believed here that the small oyster from Guarumal and Estrada *et al*'s "small mangrove oyster" are the same type, although whether actually *Crassostrea columbiensis*, or another, is still open to debate.

Whilst specific identification is still open to question and will be discussed below, it now seems plausible to regard the large oyster from the lower strata and the small oyster from the upper strata to be of the same species, or very closely related, either through speciation (Ahmed, 1975), or as the result of ecomorphological changes dependent upon environmental factors. Since the large oyster can reach up to 25 cm in length, and is not cupped in the upper valve, but flat, stratified densely below strata containing the small, very cupped-up oysters, it does seem plausible to regard the latter as an ecomorph of the former. If this is so, then it may raise questions respecting Estrada *et al*'s identification of their small mangrove oyster, which is taken here to be the same as those found at Guarumal, i.e. *Ostrea columbiensis*.

There are problems with respect to every other species bearing any close similarity to the Guarumal oysters, especially the larger type, to the extent that it has not been possible to make any final identification. For example, there are close resemblances to the American oyster *Crassostrea virginica* which, although typically bearing a purple, purple-brown muscle scar in its northern and central habitats, is known to speciate further south into two related sub-species of *C. rhizophorae* and *C. guyanensis*, of the Caribbean and the Gulf of Mexico. Neither bear the pigmented muscle scar in these regions. *C. rhizophorae* is the mangrove oyster of the Caribbean and illustrations of it are markedly similar to the smaller species of oyster (Estrada *et al*'s *Ostrea columbiensis*), at Guarumal. Although *C. virginica* does now occur in the Pacific (and in most parts of the world), it is believed to be a post-columbian introduction, which would rule it out for the classification of the species at Guarumal.

There are three other possibilities, all of which are fairly common and also large oysters, present on the west coast of South America. These are *C. corteziensis* (Herlein, 1951), *O. fischeri* (Dall, 1914), and *O. iridescens* (Hanley, 1854), but examination of illustrations and photographs of type specimens, or perusal of other details, such as

range of habitat, tend to rule them out, certainly for the small mangrove oyster, and also for the larger, especially if, as suspected, the two are closely related to one another.

C. corteziensis, whilst being about the right size, from 150 - 250 mm, has a distribution range from the head of the Gulf of California down to Panama, and does not seem to extend further south. The other two types are both typically *Ostrea*, and when closely examined, do not correspond to the species at Guarumal.

There is at least one identifiable species of oyster stratified in the upper Late phase contexts, together with the "small mangrove oyster", which has been identified as *O. lurida*, the native Pacific oyster, but it bears little resemblance to the two types of *Crassostrea* present in larger quantities.

Whilst there is, at present, no way of positively identifying the two, smaller and larger species of oyster prevalent through the shell mounds at Guarumal, several factors point strongly to the fact that they were indigenous to the region and that the small, cupped-up type is typical of mangrove-adapted forms as reported by Estrada, Meggers and Evans throughout their other midden sites.

CONCLUSIONS

Considering the data available on the environmental adaptation of oysters, and the speed of speciation dependent upon changing environmental factors, it seems most likely that the larger form of *Crassostrea* present in such large quantities in the lower Middle and Early phase contexts at Guarumal represents an earlier type of the small mangrove oyster, which can be found in the later phase contexts in the upper strata of the shell mounds.

There seems little doubt that the later, smaller type is a mangrove adapted species, indicating that the Late phases of occupation at Guarumal saw the spread of mangrove and brackish water/tidal estuarine conditions. The morphology of the earlier, elongated oyster implies a local environment that was more of an open shoreline or intertidal nature, enabling this species to congregate in oyster beds, where little silting and mud accumulation could affect them. The change from an

elongated un-cupped form to a smaller, very cupped-up type implies an adaptation of the species to progressive silting up of the oyster beds from which the occupants of Guarumal were finding their main resource. The presence of other mangrove-loving species, together with a greater diversification of exploitation of marine mollusc species adapted to muddy mangrove and estero conditions, further suggests an environmental change that occurred, separating the Early and Middle from the Late phases of occupation.

In the summary of the occupation at Guarumal (pp: 100 - 102), one possible explanation for this change was put forward as being the aperiodic El Niño events, which are capable of wreaking ecological havoc. Were this the case, then the wiping out of oyster beds would probably have been very swift, but presumably enough individuals or their progeny could have survived, to allow ecomorphological speciation.

Recent reports in Current Research (American Antiquity, 1985: 181) suggest another possible clue in the form of "a series of violent eruptions [which] devastated the 'whole region of Tertiary to Recent volcanism, which extends well south of Quito in the Ecuadorean Andes to the lower Cauca Valley in Colombia'. The Daule River Basin (Guayas) has massive layers of redeposited ash that date to this period..." (*ibid*). Such volcanic events could also be responsible for the progressive silting-up of an ancient Rio Jubones estuary, and have ultimately had the same ecological consequence of destroying oyster beds, perhaps allowing rather more time for the species to change into its cupped-up form, however.

New techniques in the study of ancient molluscs are now available which enable researchers to demonstrate the presence of El Niño events in the archaeological record, according to the response of marine molluscs. "Analysis of molluscs that survived the 1982-1983 event demonstrate a recognizable break in growth...caused by unfavorable changes in the mollusk's environment. Oxygen isotope analysis confirms the changes in water temperature. Rollins and his colleagues hope to identify prehistoric El Niño events by finding the distinctive growth break on shells from...archaeological sites along the Andean coastline (American Antiquity, 1987: 181).

Whatever the precipiating cause, a definite environmental break in the archaeological record can be demonstrated through the abrupt discontinuation of exploitation of the large, elongated *Crassostrea*. It may now be possible, through further analysis of the shells with the aid of new scientific techniques, to say what actually happened to cause the abandonment of the main occupations at Guarumal.

APPENDIX 2: Petrological analysis of pastes

The following is taken from a petrological analysis of a representative sample of pottery from Guarumal, undertaken for me by Dr Lea D Jones. The samples were divided into typical 'coarse', 'medium' and 'fine' categories, so that an analysis of the paste/temper and average granular size of inclusions could be assessed.

FINE

- EC1 frequent weathered quartz 0.4 - 0.01 mm., mostly c. 0.4 mm sub-angular to rounded, weathered 1mm & 0.2mm, blobs occasionally. 0.15 - 0.2 mm rarer clinopyroxene. Matrix birefringent orange & yellow.
- EC2 Anisotropic matrix - yellowish, highly micaceous, degraded particles of mica. 0.4 - 0.5 mm biotite, scattered. 0.2 mm muscovite, scattered 0.2 mm quartz, scattered, weathered, sub-angular - rounded 0.1 mm occasional amphibole
- EC3 0.3 mm quartz - <0.1 mm, frequent, mostly c.0.3 mm 0.1 mm tabular hornblende - infrequent 0.1 mm rounded clinopyroxene, scattered & infrequent 0.2 mm occasional muscovite Matrix birefringent orange-yellow, highly micaceous, degraded particles

MEDIUM

- EC19 0.5 mm polycrystalline quartz occasional 1mm d. rounded quartz - 0.05 mm; av. dimensions 0.15 mm, very frequent 0.4/0.3 mm muscovite laths, occasional 0.1 - 0.2 mm clinopyroxene. Pale green in plain polarised light (PPL) 0.3mm lepidomelane (iron-rich, volcanic biotite) scattered 0.1mm haematite, scattered

COARSE

- EC26 1mm - 0.5 mm sub-angular quartz, down to silt-size in matrix mean of 0.5 mm, fairly frequent 0.2 mm occasional lath of muscovite mica 0.3 mm infrequent opaque cryptocrystalline calcite Haematite & other iron ore scattered throughout

EC27 2mm x 2 mm - 0.5 mm polycrystalline quartz scattered
0.5 - silt-sized, 0.4 av., sub-angular, rounded, frequent
0.1 mm - silty hornblende, scattered but fairly infrequent
0.1 mm - v. small clinopyroxene, scattered, but fairly infrequent
0.5 mm iron ore, infrequent
occasional fine laths of mica

EC28 Very calcareous matrix with opaque clay & fine saccharoidal calcite
speckles scattered throughout
1mm x 0.5 mm cryptocrystalline calcite - 2 pieces
0.5 mm rarer and scattered
0.3 mm - 0.1 mm quartz - scattered & rather infrequent
frequent blobs of ore, 0.1 - 0.01 mm

APPENDIX 3: the landsnail evidence

The following analysis and discussion are copied from a short informal report given to me by Mike Allan, who was then working at the University of London, Institute of Archaeology, Environmental Archaeology department, specialising in the analysis of ancient land molluscan fauna from archaeological sites. He very kindly agreed to look at my sample to see if any environmental information could be obtained. However, as I am sure he would wish me to point out, his expertise is in European and British molluscan fauna, and as a consequence, he made broad identifications of species based upon very similar European and British examples, which indicate/favour different habitats. We both felt that it could be useful to report his ideas, even considering the imprecise nature of these identifications, given that they may give a useful insight into the environmental events at the site Guarumal, which may help to complement interpretations from other, ie marine molluscan, data.

SAMPLES

1976: MOUND 1: A3

The pre-sorted mollusca were examined under an optical stereo microscope at x 50 and x 100. three species types were clearly discernable and were extracted and quantified. These species do not occur in the European record and until a) they are identified to their South American species and b) the basic molluscan ecology is undertaken or referred to, the habitats and thus any environmental data from these samples cannot be concluded.

However, the presence of the mollusca which certainly closely resemble European terrestrial forms is an indicator in itself. The horizon from which these molluscs have been extracted is either a paleosol or is material derived from a vterrestrial land surface. the deposit itself may elucidate this point, but as the horizon occurs in the middle of a shell midden, this represents a period of the accumulation of non-marine m,ollusca and "stability" of the landscape, allowing soil formation or marine deposition of a soil debris onto the midden. The former is more

likely, in view of the examination of this data and photographic evidence from the site.

Although far from conclusive, and dangerous to extrapolate from, it is interesting to note that the three species extracted resemble:

- | | min. no. of species | |
|----------------------|---------------------|---------------------------------|
| 1) <i>Discus</i> | type 26 | (<i>Discus rotundatus</i>) |
| 2) <i>Corchium</i> | type 3 | (<i>Corchium tridentatum</i>) |
| 3) <i>Clausillia</i> | type 22 | (<i>Clausillia spp</i>) |

These are all species found in the European record. Further, these species are, in European contexts, all representative of shade-loving species with *Discus* and *Corchium* often being found in shady habitats, such as long grass land/shrubby and bushy environments.

If mangroves were likely in the area (Currie, pers. comm.), then this assemblage would not be unreasonable [or, more likely, the sort of scrub-thicket 'matorral', which covered Guarumal before it was cleared for survey and excavation]. But it must be remembered that in Ecuador, these species may have different environmental preferences.

Mike Allen, 1984

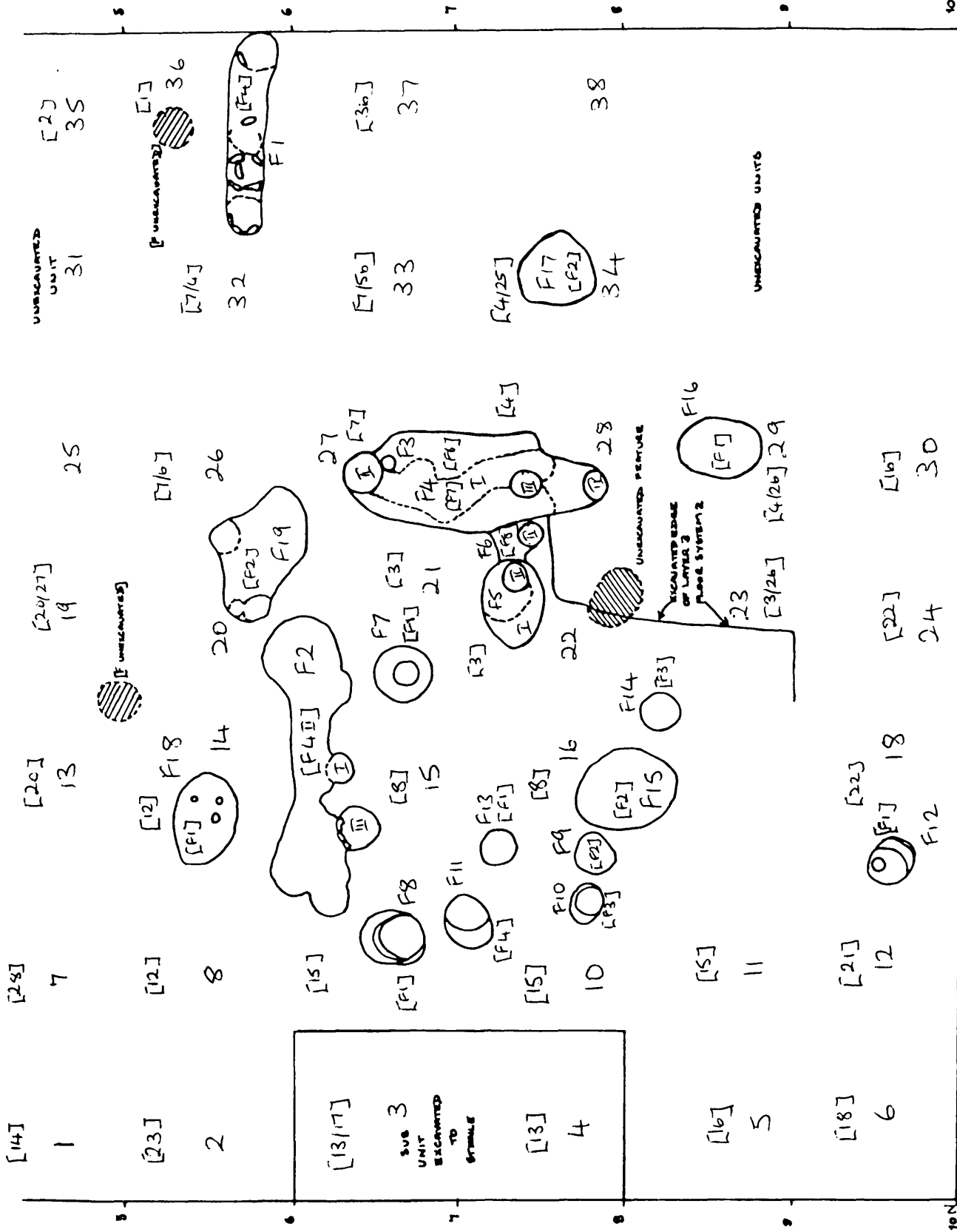
Following from the analysis and comments set out above, it is interesting to note that the sample analysed derived from one of the upper strata of Trench A, Mound 1, and tends to confirm the idea of sparse occupation, prior to site abandonment discussed in the summary section of the excavation report of Guarumal (p: 100-102). The sample is, however, from Mound 1 only, and therefore represents a statement for this Mound alone, and not one for the site as a whole.

APPENDIX 4: Correlation of the 1980 and revised field planning schemes

It was decided during the writing up of the excavation report for the site Guarumal, that a simplified scheme of sub-unit and feature numbering would be used to enable the reader a better chance of understanding the data presented. It is necessary, however, that the revised scheme should be properly correlated to the one used in the field, so that the excavated material can be recognised should any future study require it.

SUB-UNITS		FEATURE NUMBERS	
Current	1980	Current	1980
1	[14]	1	4 [1]
2	[23]	2	4 [8]
3	[13]	3	6 [4]
4	[13]	4	7 [4]
5	[16]	5	5 [8]
6	[18]	6	8 [3]
7	[28]	7	1 [3]
8	[12]	8	1 [15]
9	[15]	9	2 [15]
10	[15]	10	3 [15]
11	[15]	11	4 [15]
12	[21]	12	1 [22]
13	[20]	13	1 [8]
14	[12]	14	3 [8]
15	[8]	15	2 [8]
16	[8]	16	1 [4]
17	[8]	17	2 [4/25]
18	[22]	18	1 [12]
19	[20/27]	19	2 [12]
20	[12/10]		
21	[3]		
22	[3]		
23	[8]		
24	[22/2b]		
25	unexc.		
26	[7/6]		
27	[7]		
28	[4]		
29	[4]		
30	[1b]		
31	unexc.		
32	[7/4]		
33	[7/5b]		
34	[4/25]		
35	[2]		
36	[1]		
37	[3b]		
38	unexc.		

A plan with these changes is included with Appendix 4.



FLOOR / FEMMES PLAN OF UNIT C - GUARANT - CORRELATION OF UNITS 1950 DUNSTON

APPENDIX 5; Analysis of the blackish deposition on A7 *Crassostrea* shells

During the excavations at Guarumal in 1976 and in 1980, it was noticed that all the layers containing predominantly *Crassostrea* were in two 'parts', the lower containing a blackish deposition over the shells, distinguishing them from those in the upper part of the layer, which were quite devoid of any deposition or colour. It was decided to take a sample of the black deposit on these shells and have it analysed for identification. The following is another short report by Mike Allen, then of the Institute of Archaeology, Environmental Department.

SAMPLE: A7a

0.98 grms of material was submitted for analysis to determine whether its dark colour was organic or manganese in nature.

Loss on ignition would be a simple way of determining this, but examination under an optical microscope revealed a high proportion of aciculate crystals, most probably being calcite (CaCO_3), which may also be lost on ignition, thus making this technique invalid as any weight loss would be due to calcite being burnt off, as well as any potential organic matter.

The calcite crystals in acicula form are most probably the result of degradation of molluscan shells, more likely larger marine types than terrestrial, such as *Ostrea* or *Mytilus*. Examination under a high power monocular microscope allowed the isolation of calcite strands(?) and also small (less than 0.5 mm) fragments of shell, with crystalline structure, showing active decay.

The brown mass under high-power observation showed no evidence of manganese nodules. Alkali soluble organic matter showed the matter to have 8.245 mg per gram of soil, thus confirming its organic nature.

CONCLUSION

This is an active organic horizon, possibly equating to an "A" horizon, or a fermentation layer, of a soil profile. However, no recognisable organic pieces were observed.

(Mike Allen, 1984)

Richard Macphail, also of the Institute of Archaeology, Environmental Department had thought that the deposition may have been caused by manganese, caused by the variable high water level, but to my knowledge, he never actually analysed the sample, or did more than look at my photographs and here my descriptions. On the balance of the evidence set out above, I am now inclined to believe the proper scientific analysis carried out on my behalf by Mike Allen.

APPENDIX 6: a note on the bones

I very much regret the lack of an adequate report on the bones found during the excavation at Guarumal in 1976, and at Guarumal and Punta Brava during 1980.

The bones recovered from the 1976 excavations were packaged up and given to reputable persons to undertake the analysis, but I have never received a report since, nor was I able to get the samples returned to me for another person to analyse, despite repeatedly asking. The samples from the 1980 field season were sent to Dr Elizabeth Wing in the USA for analysis, together with other material from the Museo Antropológico del Banco Central del Ecuador. Presumably the report was sent back to them, and has not been passed on.

For what it is worth (having passed a basic level osteology course during my first degree at the University of London, Institute of Archaeology), my memory of the samples includes a high prevalence of small fish vertebrae, much detritus from *crustacea*, and small mammalian bones, such as one distinctive ?tibia/carpule of (probably) a deer. There were also numerous small bones, possibly of birds, or reptiles such as iguanas.

This statement is practically worthless, but the best that can be managed under the circumstances.

DESCRIPTION OF FIGURES

FIGURES: GUARUMAL

1. **White-on-red decorated bowls with interior red slip from Mound 1;**
a) A7, Form 5; b) A3, Form 1; c-d) Machine-cut profile, Form 1
2. **White-on-red bowls with interior red slip from Surface**
a-c) Form 1; d) Form 1 with exterior red-banded rim
3. **White-on-red decorated bowls with interior red slip from Trench A**
a) A2, Form 6 with ext. red rim; b-c) Form 1
4. **Form 1 bowls from Trench A; a & b with interior red slip**
a) A6, Ext. red-banded rim; b) A1, Unpainted rim border-notched
c) A4, plain interior with exterior white paint
5. **Form 1 bowls from Trench B, with interior red slip**
a) Surf. Red-banded, notched rim; b) B1; c) B10; d) B1; e) B10
6. **Forms 3 & 4 white-on-red + neg. decorated bowls**
a) B16, b) red rimmed, plain int. c) A2, red int. d) F12, Red ext.
e) Surface, red ext., negative interior.
7. **Bowls from Trench B and sub-units 3 & 4**
a) B13, Form 1, red int/red rim ext. b) 3/4-3, Form 2, red rim &
black slip int/ext. c) 3/4-3, Form 2, red int/ red rim band ext.
d) B1, Form 5, red int/ plain ext. e) B1, Form 5, red band int/ext
8. **White-on-red decorated bowls from Unit C**
a) L2, Form 1, red int/ext. b) L2, Form 1 w/r int/red ext/notched
c) L2, Form 1 w/r int/red & 'tan' ext. d) L2, Form 1 w/r int/ext
e) L2, Form 1, red rim int/w/r ext. f) F2iii, Form 1, red slipped
g) F19, Form 1, red int/three col. ext.
9. **White-on-red bowls from sub-units 3 and 4, layers 4-6**
a) L4, Form 1, red int/w/r ext. b) L4, Form 5, w/r int/ red ext
c) L4, Form 5, w/r cross-hatch int/ red-banded ext. d) L6, Form 6
w/r int/ext with annular base. e & f) L5 & L6, Form 17, w/r int/ext
10. **Bowls from Surface contexts**
a) Form 5, w/r int/ red-banded ext. b) Form 5, red slipped int/ext
c) Form 6, red-on-buff, polypod
11. **Shallow white-on-red bowls from Trench A**
a) A3, Form 6, ?comp., w/r int/ red-banded ext. b) A4, Form 6
w/r int/ partial red slip ext.
12. **Form 6 bowls from Trenches A and B**
a & b) B2 & B6, Form 6 'orange' & red slip int/plain ext,
notched rim. c) A 'top', Form 6, w/r int/plain ext, polypod
d) A1, Form 6, plain int/ext, notched rim
13. **Shallow bowls from Unit C surface**
a) Form 5, w/r cross-hatch int/red ext. b) Form 6, Neg & white int/
plain with notched rim ext. Form 6 w/r int/ red slipped ext.
d) Form 6, red wash int/ext. e) 3/4-1, Form 6, w/r int/
white on two-tone red slip ext.
14. **White-on-red bowls from Mound 4, Burial 2 & sub-units 3/4**
a) M4, Form 5, w/r int/red-banded ext. b) M4, Form 5 (comp.)
w/r int/ext. c) Bur.2, Form 1, w/r int/ext. d) 3/4-4, Form 1,
int/ext.
15. **Form 7 bowls**
a) Assoc. Burials, red slipped int/ext. b) B5, w/r int/
red slipped ext. c) Unit C, L2, w/r int/ red slipped ext. d) 3/4-3,
w/r int/ red slipped ext. e) M4, w/r int/ red slipped ext.
16. **Form 7 bowls from sub-units 3/4 and Trench B**
a) 3/4-3, red int/w/r ext. b & c) 3/4-4, w/r int/ red slipped ext.
d) 3/4-3, w/r int/ red slipped ext. e) B13, w/r int/ext. f) B12
w/r int/red ext. g) B16, w/r int/red ext. h) B2, w/r int/red ext.

17. **Form 9 bowls from sub-units 3 and 4**
 - a) Unique everted rim deep bowl, w/r int/red slipped ext
 - b) L7, w/r int/red ext. c) L5, w/r int/red ext. d) L5, w/r int/red ext. e) L6, w/r int/red ext. f) red slipped int/ext.
18. **Bowls from Unit C**
 - a) 3/4-4, Form 5, two-tone red/orange slip with white int/two-tone red/orange slip ext. b & c) L2, Form 8a, red slipped int/ext
 - d) L2, Form 10, plain int/ext. e) L2, Form ? plain int/ext incis/int. of rim. f) L1, Form 16, plain int/ext.
19. **Bowls from sub-units 3 and 4**
 - a & b) L6, Form 8b, plain int/ext. c) L8, Form 8b, plain int/ext
 - d) L5, Form 8b red int/ext. e) Unit C, L2, Form 18b, plain int/ext
20. **Forms 10, 12 and 13 bowls**
 - a) C2, Form 10, plain int/ext. b) C2, Form 10, plain int/ext.
 - c) 3/4-3, Form 13, plain/incised int/ext. d) 3/4-4, Form 13 plain int/ext. e) B10, Form 13, plain int/ext. f) A14, Form 13 plain int/ext. g) B10, Form 13, plain int/ext. h) C2, Form 12, red int/ext. i) C2, Form 12, red int/ext.
21. **Forms 9 and 11 carinated bowls**
 - a) 3/4-5, Form 9, plain int/ext. b) C2, Form 11, red int/w/r ext.
 - c) B5, Form 11, w/r int/ext. d) C3, Form 11, w/r int/red ext, with nubbin. e) Surf. Form 11, red slipped int/ext, with modelling. f) C2, Form 11, red int/ext, with modelled adorno.
22. **Form 11 (with one 12) white-on-red carinated bowl**
 - a) B2, red int/w/r ext. b) Surf. Form 12, red int/w/r ext. c) B2, red int/w/r ext. d) B5, red int/ w/r ext. e) F2ii, red int/w/r ext. f) 3/4-3, red rim int/w/r ext. g) 3/4-3, red slip int/w/r with modelled adorno ext.
23. **Forms 18b, 21, 22 jars**
 - a) A'top', Form 21 plain int/ext. b) B6, Form 21, plain int/ext.
 - c) 3/4-3, Form 18b, plain int/ext. d) B1, Form 22, plain int/ext. e) Surf. Form 15, plain int/ext, appliqué nub. f) Surf. incised with openwork base.
24. **Forms 9, 15, 16 bowls**
 - a) 3/4-6, Form 16, red int/ext. b) M4, Form 16, red int/ext.
 - c) F12, Form 15, red int/ext. d) C2, Form 9, red int/ext.
 - e) B1, Form 9, plain int/ext with incised motif.
25. **Form 18 bowls/jars with bolstered rim**
 - a) Surf. Form 18a, plain int/ext. b) B1, Form 18c, plain int/ext.
 - c) F19, Form 18c, plain int/ext. d) C2, Form 18c, plain int/ext.
 - e) F16, Form 18c, plain int/ext.
26. **Form 24 jars (with one 18b & one 8b)**
 - a) 3/4-2, Form 18b, plain int/ext. b) B10, Form 8b variant, plain int/ext. c & d) 3/4-5, Form 24, plain int/ext. e) C2, Form 24, plain int/ext. f) B10, Form 24, Plain int/ext. g) B17, Form 24, plain int/w/r cross-hatch ext. h) Surf. Form 24, plain int/ext.
27. **Form 22 jars from Unit C and sub-units 3 and 4**
 - a) C2, plain int/ext. b) C2, plain int/ext. c) 3/4-3, plain int/ext
 - d) 3/4-5, plain int/w/r long. stripe ext. e) 3/4-5, w/r rim int/w/r long.stripe and cross-hatch ext.
28. **Form 22 jars from sub-units 3 and 4**
 - 3/4-4, plain int/ext. b-c) 3/4-4, w/r stripe int/ext. d) 3/4-4, w/r int/cross-hatch ext. e) 3/4-3, w/r stripe int/red ext. f) 3/4-3, red int/w/r cross hatch ext. g) 3/4-4, plain int/ext
29. **Form 21 jars from sub-units 3 and 4**
 - a)3/4-4, plain int/ext. b-f) plain int/ext.
30. **Form 19 jars**
 - a) Surf., plain int/shell-scraped ext. b) A11, Plain int/shell-scraped ext. c) C2, red rim int/shell-scraped ext.

31. Form 28 compotera pedestals, Form 17 and Form 20
 a & b) 3/4-6, red slipped ext. c) 3/4-5, Form 28, w/r ext
 d) 3/4-7, w/r int/ext. e) 3/4-6, Form 20, plain int/ext. f) A1,
 Form 20, red rim int/ext.
32. Form 28 compotera pedestals
 a) M4, red, incised with openwork ext. b) 3/4-1, red, incised with
 openwork ext. c) C2, w/r with incision ext. d) C2, red ext.
 e) Surf, red ext. incised with openwork. f) 3/4-4 red ext.
 g) F2iii, red ext. incised with openwork.
33. Unique jar forms and body sherds
 a) Surf. plain int/ext b) Surf. plain int/ext with nicked
 modelling on flange. c) Surf. plain int/ext, incised with
 reed impressed. d) B6, plain int/ext, with notches. e) M4,
 ? possum-faced modelled, incised & impressed flange.
34. Form 14 and Unique sherds
 a) 3/4-6, Form 14, plain. b) 3/4-4, Form 14, plain. c) 3/4-3,
 Form 14, plain. d) B1, unique, plain. e) B17, unique,
 red rim int/red band ext.
35. White-on-red decorated body sherds
 a) F12, w/r. b-h) 3/4-4, assortment of w/r, hatch and cross-hatch
 body sherds.
36. White-on-red decorated sherds
 a-d) Form 1, w/r. e) machine-cur sect., ? jar, w/r cross-hatch
 f) B5 w/r. g-i) B10, w/r. j&k) 3/4-3, w/r hatch and stripe.
37. Compoteras
 a) 3/4-4, plain. b) C5, plain. c) C2, red-on-buff int. d) A4,
 thickware compotera pedestal.
38. Bridge, spout, adornos and figurine fragments
 a) A3, frag. bridge & spout. b) A4, sherd with nicked adornos
 and punctate. c & d) A1, incised sherds. f&g) Surf. figurine
 foot, red slipped. h) Surface, spout. i) Surface, fragment of foot,
 red slipped.
39. White-on-red, incised and modelled sherds
 a) B12, black on buff. b-d, f&g) B10, w/r. e) B2 w/two-tone red.
 h) Csurf., incised with impress. i-l) Csurf., incised.
 m) Csurf. nicked appliqué, red. n) Csurf. modelled. o) Csurf.
 nicked fillet, red.
40. Shell, bone and pottery artifacts
 a) C2, worked shell spoon. b) C1, bone awl. c) Csurf.
 ?spindle whorl. d) Surf/burials, ?shell necklace spacers.
 e) Csurf. stone bead. f) F2ii, ?shale bead. g) Csurf,
 small conical polypod. h) C1, frag. bridge & spout, red.
41. Figurine fragments from Unit C
 a) 3/4-4, frag. ?dog figurine, burnished red. b) 3/4-5, frag.
 ? dog's paw white & red. c) 3/4-4, frag. ?fig. leg, w/r.
 d) Csurf. fig. frag. ?headdress/bird tail. e) C1, fig. frag.
 ? leg/foot, red. f) C1, ?foot/paw vessel support, w/red & orange.
42. Figurine fragments, adornos and incised sherds from Guarumal
 and Punta Brava (318)
 a) C3, Fig. head frag. red. b) Csurf. fig frag. incised/impress.
 c) Csurf. bird's head, plain. d) Csurf, nicked adorno, red.
 e) 318/3, fig. head frag. red. f) 318/10, incised & impressed
 serpent, plain. g) 318/1, incised & impressed sherd. h) 318/3
 bird's head adorno, plain/reduced fired. i) 318/2, ceramic disc-
 reworked pottery sherd, red. j) 318/7, small ?lime pot.

POTTERY FROM PUNTA BRAVA (318)

43. **Forms 1 and 6 bowls , with white-on-red decoration**
a) L2, Form 6 w/r int/red ext. b) L7, red int/w/r ext.
c) Surface, Form 1, red int/w/r ext ? cayman/jaguar motif.
d) Surface, Form 1 red int/w/r ext. e) Surface, Form 1,
w/r & burnished line int./w/r ext. f) Surface, Form 6,
w/r int./ red rim ext.
44. **White-on-red bowls, forms 5 and 1**
a) L8, Form 5, red int./ w/r ext. b) L8, red int./w/r ext.-
? part of stylised design.
45. **White-on-red bowls, Forms 1, 5 and 6**
a) L3, Form 6, w/r int/ext & notched rim. b) L4, Form 1,
red int/w/r ext. c) L8, Form 5, plain. d) Surf. red int/w/r ext.
? part stylised motif. e) L3, red int/w/r ext. f) L5, Form 5,
w/r int/ red ext. g) L4, Form 1, w/r int/ red ext.
46. **Red and white-on-red bowl, Forms 1 and 5**
a) Surf. red slipped ext. b) L5, red int/w/r ext. c) L5, Form 5,
w/r int/red ext. d) L4, Form 1, red int/w/r ext. e) L5, Form 1,
red int/w/r ext. f) L5, Form 1, w/r int/ext.
47. **White-on-red bowls, Forms 1, 3 and 5**
a) L7, Form 1, w/r int/ext. b) Surf., Form 5, two-tone int/w/r ext.
c) Surface, Form 5, red. d) L5, Form 1, red int/w/r ext.
d) L5, Form 1, red int/w/r ext. e) L2, Form 3, red int/w/r ext.
48. **White-on-red decorated bowls, Forms 1, 5 and 6**
a) L3, Form 6, w/r int/ red ext, notched flange, ?comp.
b) L2, Form 5, red int/w/r ext. c) L2, Form 1, red int/w/r ext.
d) L2, Form 5, w/r int/red ext. e) L2, Form 6, w/r int/red ext.
notched rim.
49. **Forms 1, 8 and unique bowls**
a) L8, Form 1, neg.int/w/r ext. b) L6, Form 1, red int/ext.
c) L2, Form 1, red int/ext. d) L5, Form 8b variant,
w/r int/ext. e) L7, Form 8b variant, red int/ext.
f) L2, unique, w/r int/ red ext.
50. **Form 12 and 13 shallow bowls**
a) L2, Form 12, red int/red rim ext. b) L7, Form 6 red int/ext.
c) L2, Form 13, plain. d) Surf. Form 13, plain. e) L6, Form 12,
red int/ext. f) L7, Form 12, red int/ext. g) L3, Form 8,
red int/ext.
51. **Form 14 bowl with interior incision**
a-b) L3, plain, incised int. c) L3, with add. int. shell-scrape
52. **Form 14 bowls with notched rims**
a-b) plain, notched rim. c) L3, plain, notched rim.
d) L2, plain, incised int.
53. **Form 14 shallow bowls from Layer 2**
a-b) plain, shell-scraped. c-d) red. e) plain, shell-scraped ext.
54. **Form 14 shallow bowls from Layer 3**
a) red. b-e) red, shell-scraped int.
55. **Form 14 and unique bowl with shell-scraping or notching**
a) L5, plain, shell-scraped int. b) Surface, unique, shell-scraped
int. and 'pie-crust' rim. c) Surface, plain, notched rim.
56. **Form 17, 9 and unique vessels**
a) L5, Form 17, w/r int/ red rim band ext. b) L7, Form 17
red int/w/r ext. c) L5, Form 17, red int/ext. d) L7, Form 9,
w/r int/ext, notched rim. f) L5, unique, red. g) L8, unique
red int/w/r ext.
57. **Form 18b and c carinated bowls with bolstered rims**
a) L5 Form 18b, plain. b) L8, Form 18b, plain. c) L7, Form 18c,
plain. d) L6, Form 18c, red.

58. **Form 23 and 25 jars, Form 15 carinated bowl**
 a) Surface, Form 23, w/r ext. b) Surface, Form 23, red ext.
 c) L2, Form 23, red. d) L3, Form 23, plain. e) L2, Form 23,
 plain. f) L2, Form 25, w/r ext. g) L2, Form 15, w/r ext.
59. **Form 22 jars with painted decoration**
 a) L3, plain. b) L5, w/r ext. horiz. band. c) Surf. red rim int./
 w/r ext, hor. band. d) L8, Red rim with black int/ red ext.
 e) L6, plain. f) L5, w/r ext. g) L8, w/r int rim. h) L6, red int.
60. **Form 22 jars**
 a) Surface, red-rimmed. b) L5, red. c) L3, plain.
61. **Form 21 and 22 jars from Layer 2**
 a-c) Form 22, red rim int. d) Form 21, plain. e) Form 23 plain.
 f) unique, red rim ext.
62. **Form 21 jars**
 a) L8, black, white & red int. b) L6, w/r int/red ext.
 c-f) L2, plain.
63. **Form 21 jars**
 a) L3, plain. b) L8, w/r ext. c) L3, plain. d) L3, shell-
 scraped ext. e) L3, plain. f) L2, plain. g) surf. plain.
 h) L2, w/r ext.
64. **Form 19 and Form 22 jars from Layer 4**
 a-c) Form 19, plain. d-g) Form 22, red.
65. **Unique forms and body sherds**
 a) Surface, jar body w/r hatched ext. b) Surf. Form 26, plain.
 c) Surf. Unique, w/r ext. d) Surf. ? lime pot, plain.
 e-f) L5, w/r body sherds.
66. **Compotera pedestal and white-on-red body sherds**
 a) L9, compotera pedestal, plain. b-g) L8, w/r, w&r sherds.
67. **Basaltic adze fragments from surface contexts, Guarumal**
68. **Hammer/mattock and axe fragments, surface contexts, Guarumal.**
 a) hammer/mattock. b-c) polished axe frags
69. **Basaltic metate from surface contexts, Guarumal**
70. **Mano fragment and hammer stones from surface, Guarumal**
 a) mano. b-c) basaltic hammerstones.
 d&e) Trench A & Surface, *spondylus* beads
71. **Form 21, 26 & 27 jars from Punta Brava**
 a-d) Surface, Form 21, plain. e) Surf. Form 26, plain
 f-g) Surf. Form 27, w/r ext.
 h) Surface, Guarumal, 'ridged' sherd, red.

L=layer, int.=interior, ext.=exterior, w/r=white-on-red, 3/4=sub-units 3
 and 4, C= Unit C, A=Trench A, B=Trench B, M4=Mound 4, surf.=surface.

DESCRIPTION OF PLATES

1. Bowls sherds from Guarumal

- 1) Form 1 w/r machine-cut profile
- 2) Form 1 w/r - surface
- 3) Form 12 w/r - surface
- 4) White-on-red cross-hatched motif - machine-cut profile
- 5) Form 1 negative interior - surface
- 6) Form 6 red-on-buff - surface
- 7) Form 5 'cream'-on-red - surface
- 8) Form 3 fine white-on-red - A2
- 9) Form 7 sherds - Mound 4 and burials area
- 10) Form 6 negative dec. interior - surface
- 11) Form 11 bowl from surface contexts/Burials area

2. Bowl sherds and an adorno from Guarumal

- 1) Form 4 w/r bowl - B16
- 2) Form 1, w/r - A3
- 3) Unique bowl, w/r - B10
- 4) Unique form, incised decoration - B1
- 5) Form 11 sherds, w/r - Trench B
- 6) Ceramic adorno - B1
- 7) Form 9 carinated bowl, incised deco. - B1

3. Incised and punctate sherds from mainly surface contexts, Guarumal

- 1) Form 28, compotera pedestal bases
- 2) Incised flange
- 3) Incised sherds ?compotera pedestal frags - C surface
- 4) Incised and impressed base of jar
- 5) Form 28, compotera pedestal sherd
- 6) Nicked appliqué and punctate sherd - A4
- 7) Incised with openwork 'censer' base
- 8) Incised and impressed ?possum flange
- 9) Incised with openwork 'censer'

4. Figurine fragments and adornos from Guarumal

- 1) ? dog's paw fragment - surface contexts
- 2) ?paw/foot vessel support - C 1
- 3) Incised with impressed ring - C surface
- 4) Incised ?headdress/bird tail - surface contexts
- 5) Bird's head adorno - C surface
- 6) Incised ?possum face with impressed rings - Assoc. Mound 5
- 7) Fragment of figurine foot/leg - surface contexts
- 8) Incised anthropomorph head with impressed rings - C surface

5. Figurine and adorno fragments from Guarumal

- 1) Fragment of large ?figurine head/headdress - surface contexts
- 2) Fragment of human face - C 3
- 3) Form 19 jar with shell-scraped neck - surface contexts
- 4) Incised and nicked adorno - C surface
- 5) Sherd with nicked fillet - C surface
- 6) Nicked adorno - C surface

6. Fine white-on-red sherds from sub-units 3 and 4, Guarumal

- 1) Layer 4
- 2) Layer 4
- 3) Layer 7

7. Fine white-on-red sherds & figurine frags from sub-units 3 & 4

- 1) Layer 7
- 2) Layer 5 interiors
- 3) Layer 5 exteriors
- 4) Layer 4 fragment of ? dog effigy
- 5) Layer 5 fragment of ?dog's paw

- 6) Layer 5 Form 9 bowl with notched shoulder and rim
8. **White-on-red hatch and cross-hatch on jar sherds, sub-units 3 & 4**
 - 1) Layer 4
 - 2) Layer 5 longitudinal paired stripes
 - 3) Layer 8 cross-hatch with white dot motif
9. **Ceramic, bone, shell and stone artifacts, Guarumal**
 - 1) Frag. of burned clay with impression of cane wattling - Surf.
 - 2) Frag. bridge and spout - surface
 - 3) Handle of ?beaker - surface
 - 4) Frag. of spout - surface
 - 5) Shell ?necklace spacers - surface
 - 6) Collection of bone and shell rings and beads - Burial 6
 - 7) Stone bead - surface
 - 8) Fragment of stone bead - F211
 - 9) Bone awl - C 1
10. **White-on-red & white and red sherds from (318) Punta Brava**
 - 1) Layer 5
 - 2) Layer 5
 - 3) Layer 8
11. **White-on-red bowl sherds and red jar fragment from (318) Punta Brava**
 - 1) Layer 8 Form 5 burnished red, white and black
 - 2) Surface Form 1 stylised ?cayman/jaguar motif
 - 3) Layer 8 Form 1 stylised ?cayman/jaguar motif
 - 4) Layer 4 Form 1 stylised 'eye' of ?jaguar/cayman
 - 5) Surface Hatch and cross-hatch motif on jar sherd
 - 6) Layer 7 White-on-red
 - 7) Surface Large red slipped Form 23 jar sherd
12. **Shell-scraped, nicked fillet, notched, incised & impressed wares**
 - 1) Layer 5 Shell-scraped interior of Form 14 bowl
 - 2) Layer 7 Nicked appliqué fillet
 - 3) Layer 3 Nicked appliqué fillet
 - 4) Layer 3 Notched shoulder carination
 - 5) Layer 10 Incised serpent with impressed rings
 - 6) Layer 3 Figurine fragment of human head
 - 7) Layer 1 Incised and impressed sherd
13. **Mano, metate, hammer and adze from Guarumal**
 - 1) Mano and metate - surface
 - 2) Hammer/mattock - surface
 - 3) Adze fragment - surface
14. **Mound 1 and Trench A - Guarumal**
 - 1) Mound 1: looking south-east to Mound 2 - 1976
 - 2) Mound 1: the machine-cut profile - 1976
 - 3) Trench A: showing close-up of stratigraphy - 1976
15. **Mound 2 - Guarumal**
 - 1) Mound 2 looking south - 1976
 - 2) Mound 2 close-up of indentation - 1976
 - 3) Mound 2 machine-cut profile - 1980
16. **Mounds 3 and 4, and mangroves - Guarumal**
 - 1) Mound 4 looking south from western *salitral* - 1976
 - 2) Mound 3 looking south-east from western *salitral* - 1976
 - 3) Mangroves and *ceiba* trees with *tillandsia* - 1976
17. **Mounds 3, 4 and 6 - Guarumal**
 - 1) Mound 4 looking south-east fro western *salitral* - 1976
 - 2) Mound 6 looking north-west - 1976
 - 3) Mound 3 with *Palo Santo* trees looking south-east - 1976
18. **General site and Mound 5 - Guarumal**
 - 1) Southern tip of Guarumal from western *salitral* - 1976
 - 2) 1976 cardboard 'site-hut' with Mound 5 in background
 - 3) Mound 5 with densely packed *Crassostrea*

19. 1980 Field season - Guarumal

1) Burial 6

2) Central sub-units of Unit C, showing features at layer 3

20. 00-AR-AR-318 Punta Brava - 1980

1) The Rio Nuevo

2) Dense scrub thicket of central site area

COLOUR PLATES

1) Mound 1 - machine-cut section face, 1976

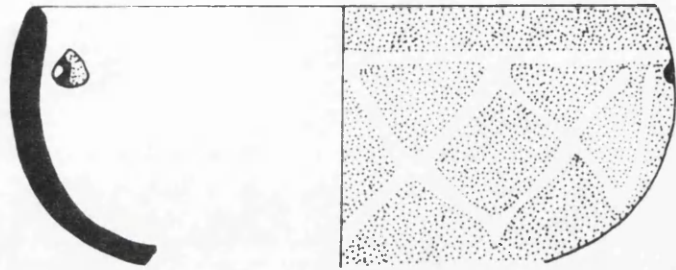
2) Figure, bridge & spout vessel from mangrove swamp nr. Guarumal, 1980

3) i) Fragment of human face - Guarumal

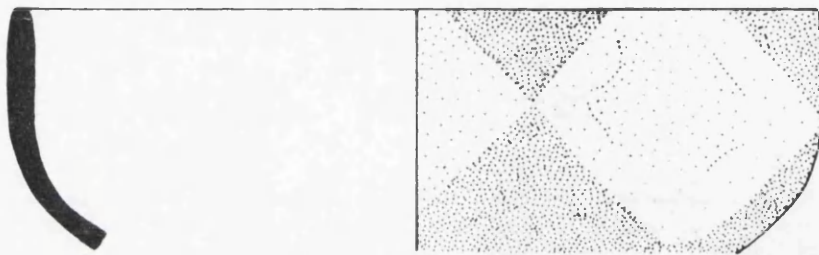
ii) Form 1 sherd with stylised ? cayman/jaguar motif - 318



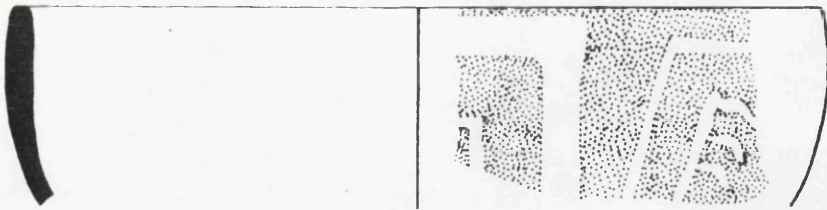
a



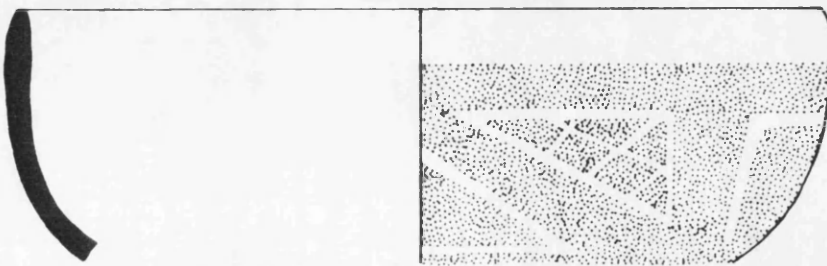
b



c



d

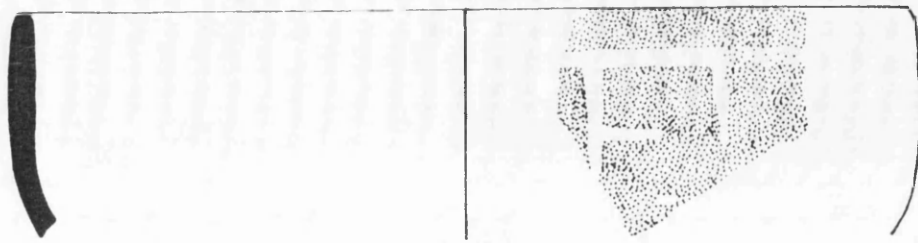


e

fig 1



10 CM



a



b



c

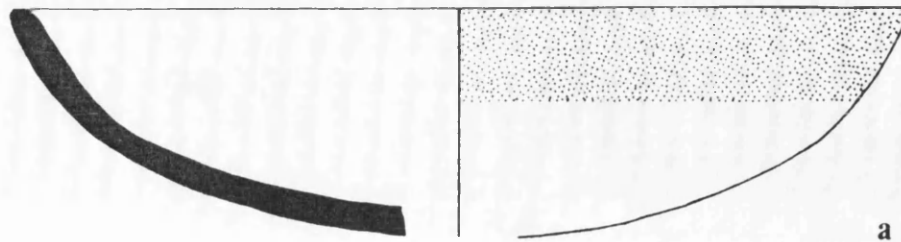


d

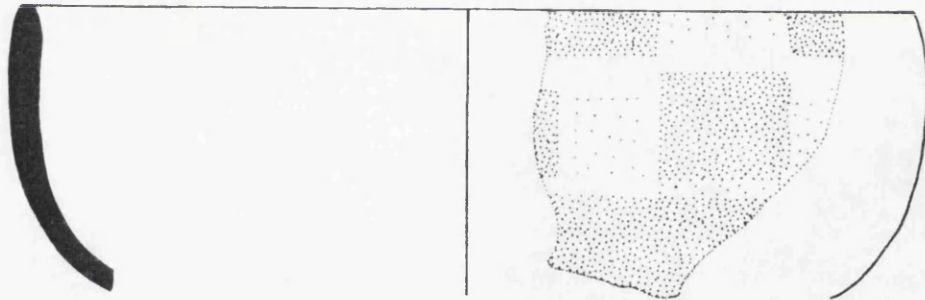
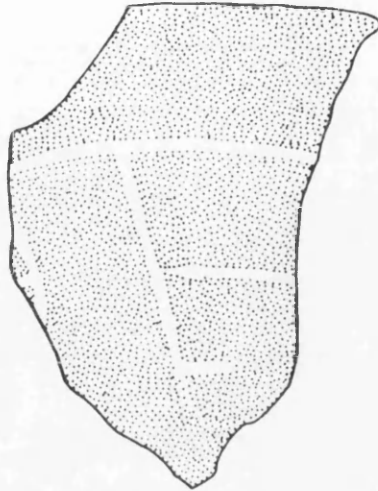


10 CM

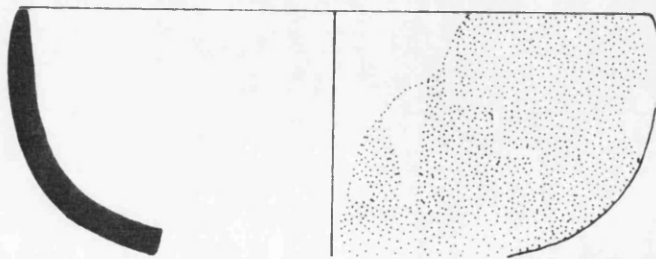
fig 2



a

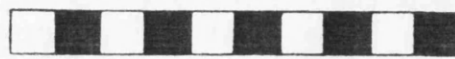


b

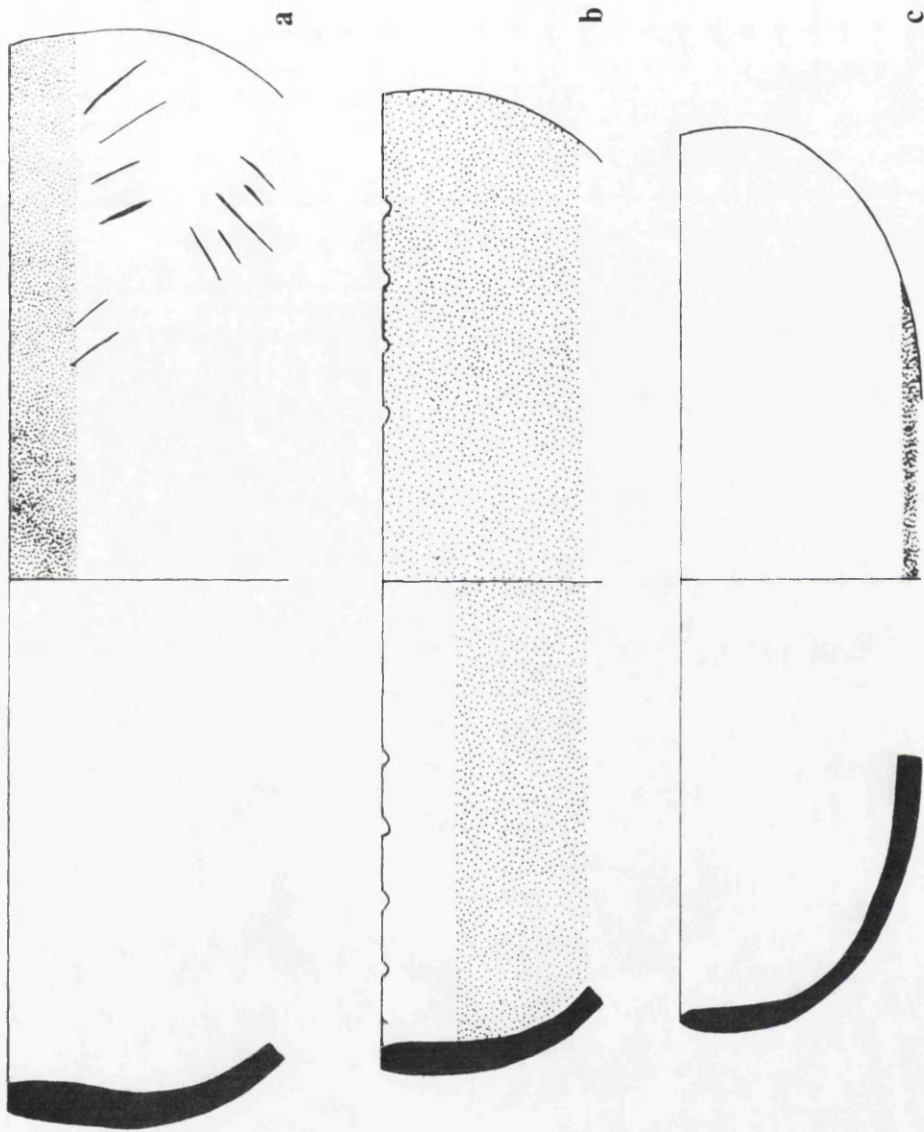


c

fig 3



10 CM

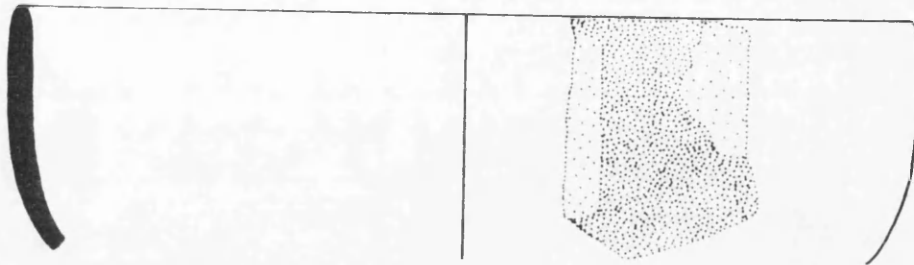


10 CM

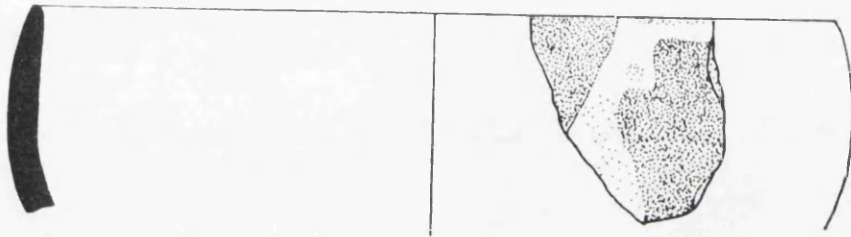
fig4



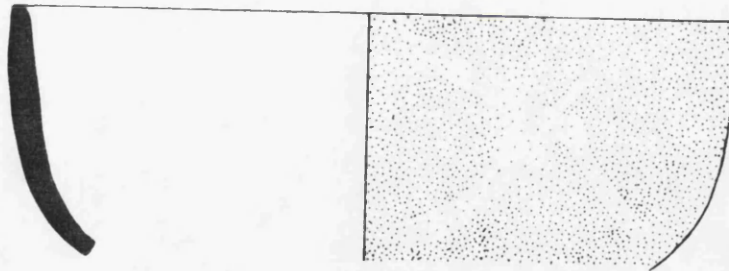
a



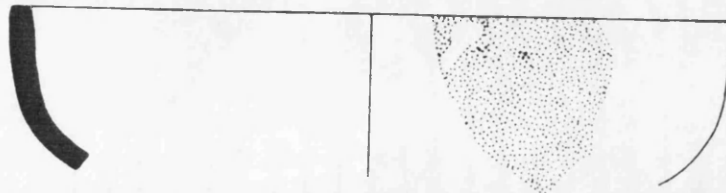
b



c

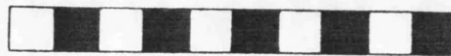


d



e

fig 5



10 CM

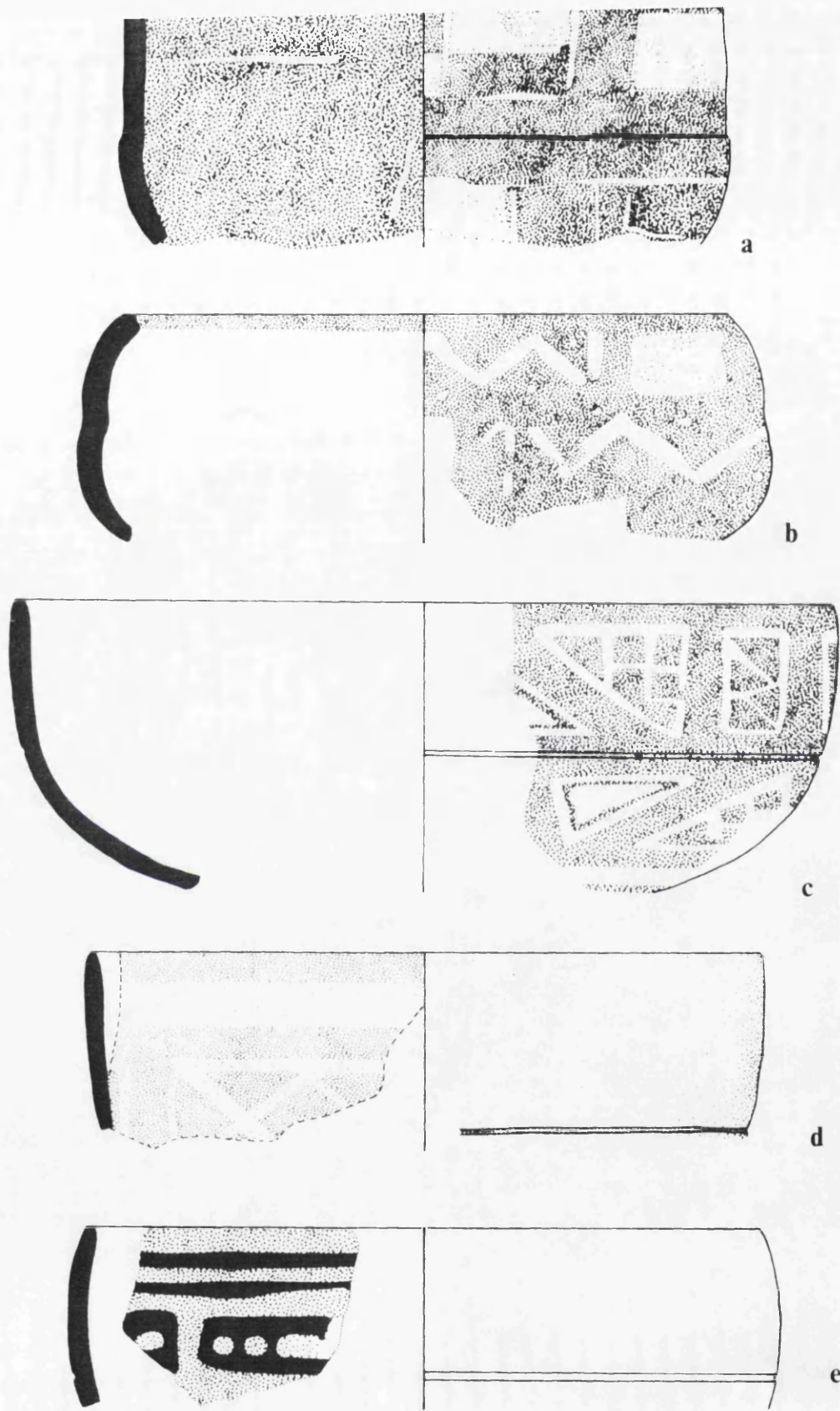
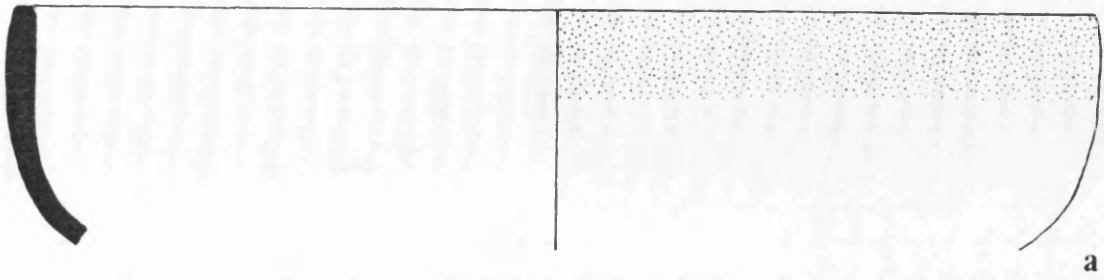


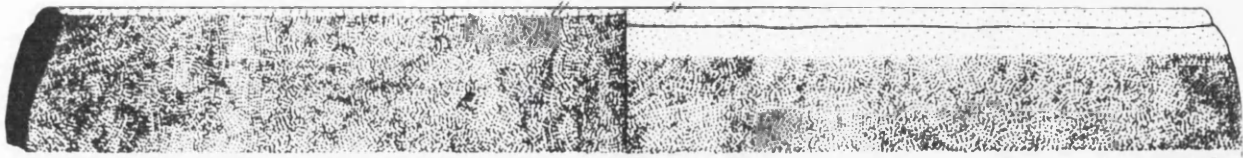
fig 6



10 CM



a



b



c

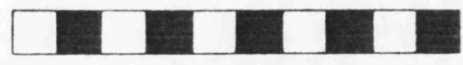


d

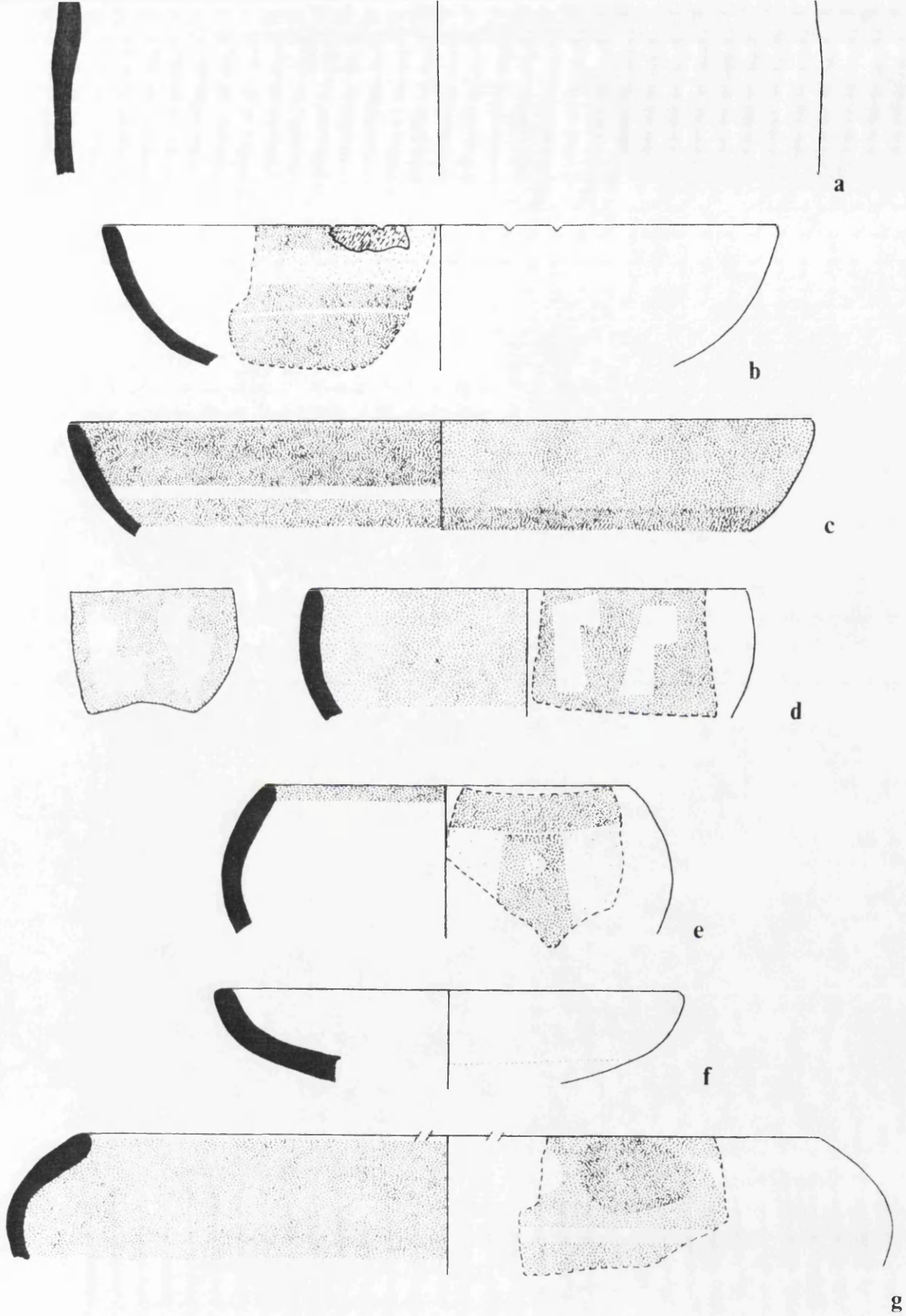


e

fig 7



10 CM



10 CM

fig 8

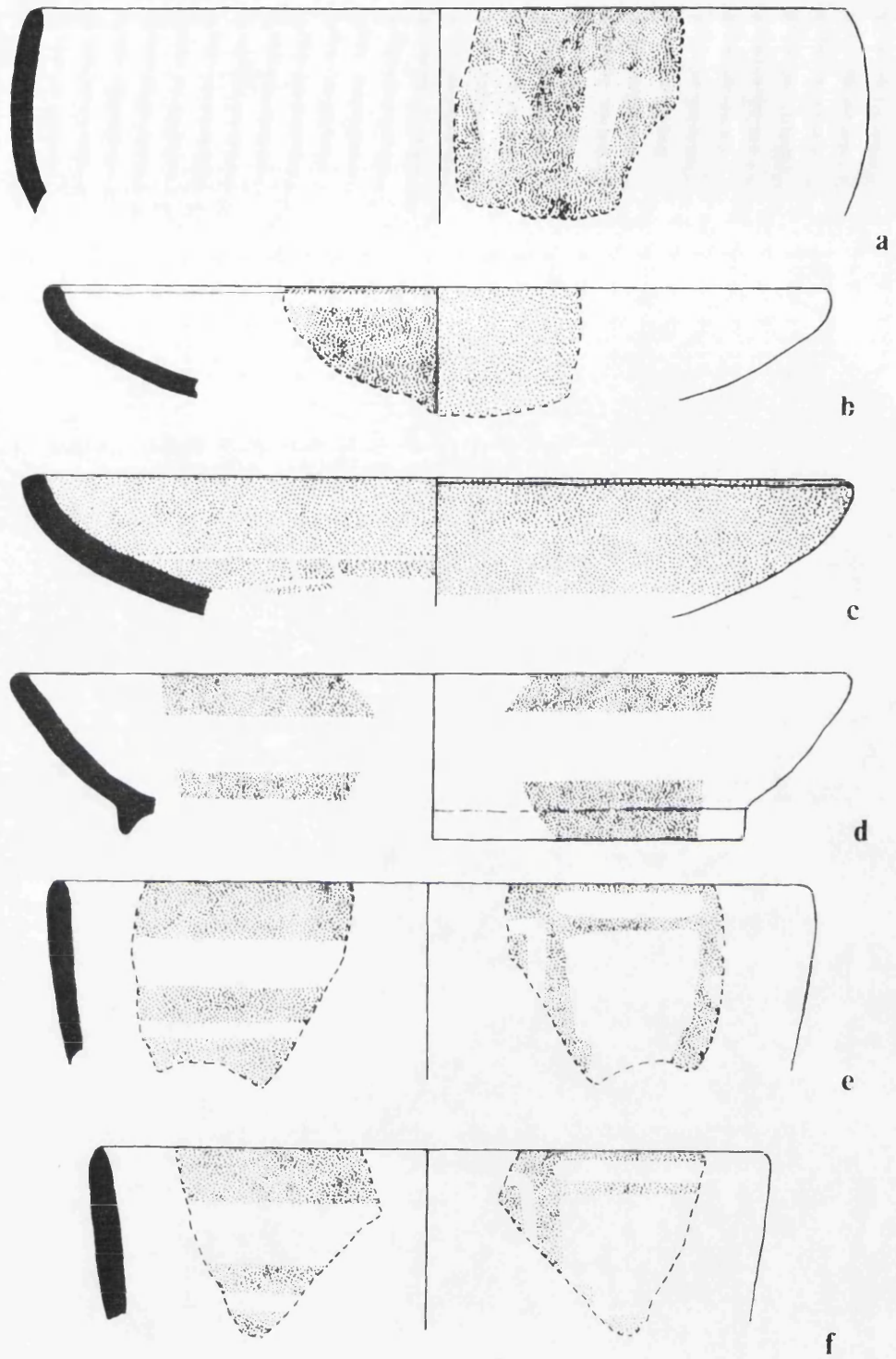
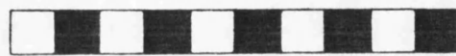
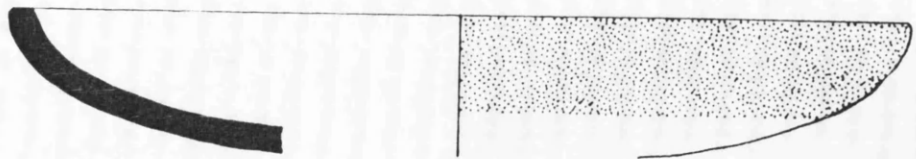


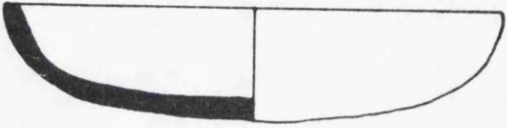
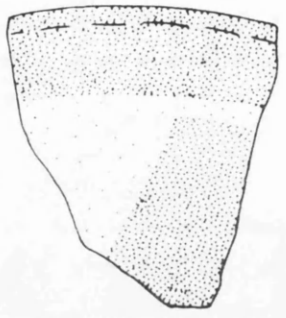
fig 9



10 CM



a



b



c

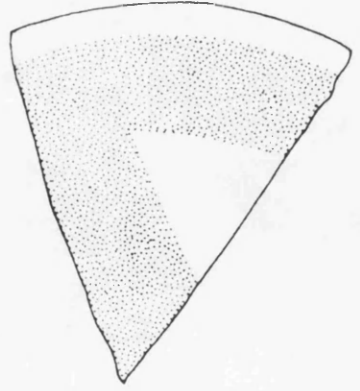
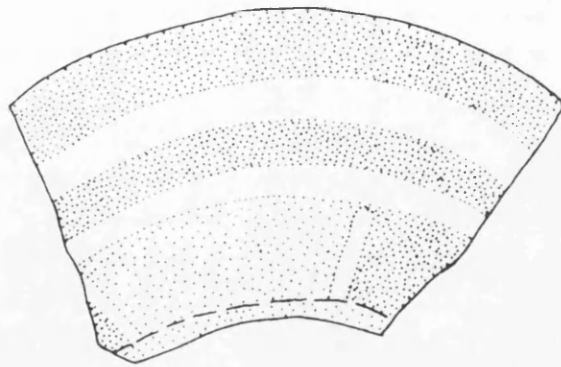
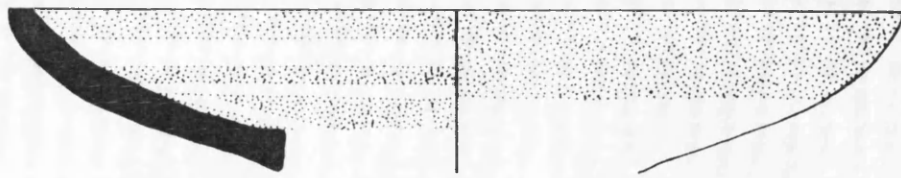


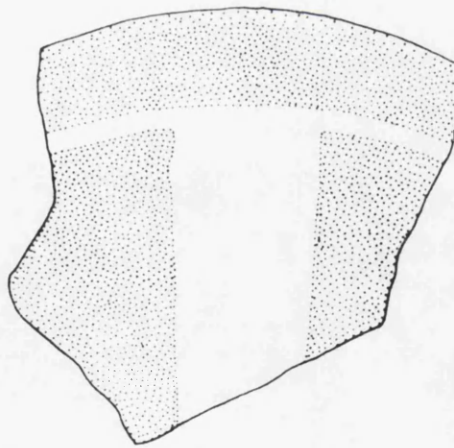
fig 10



10 CM



a

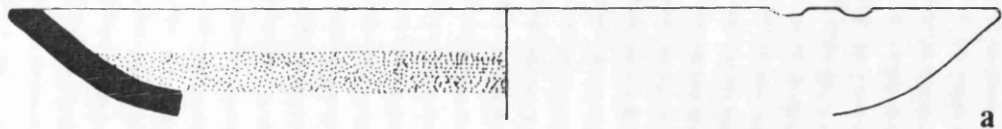


b

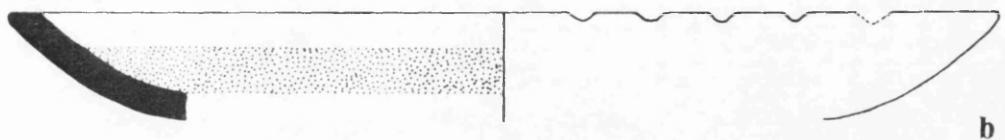


10 CM

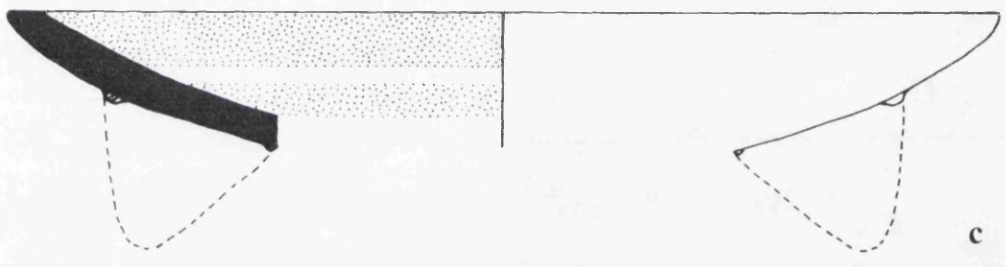
fig 11



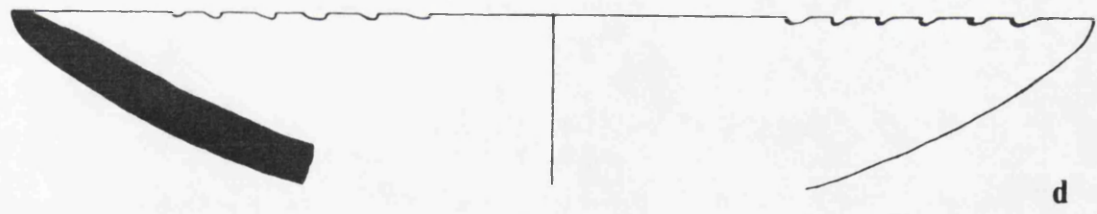
a



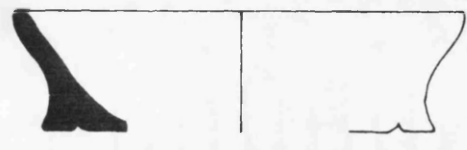
b



c



d

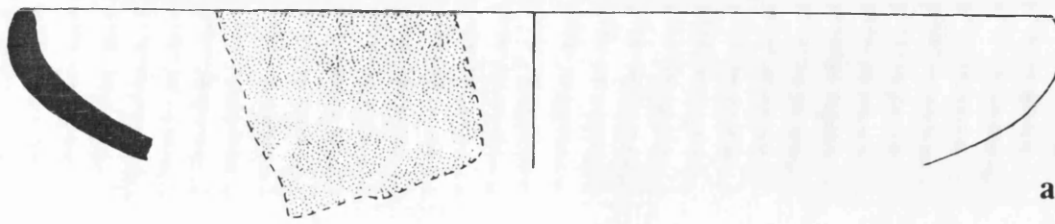


e

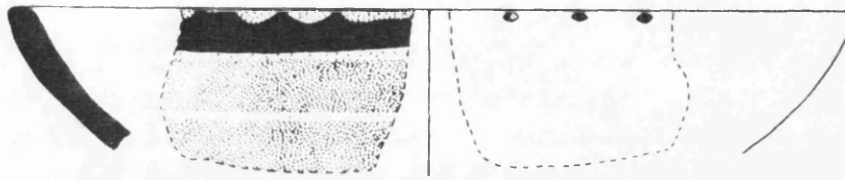
fig 12



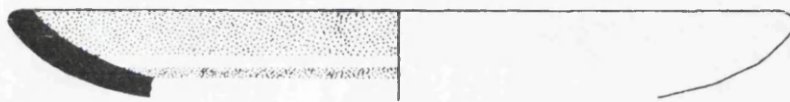
10 CM



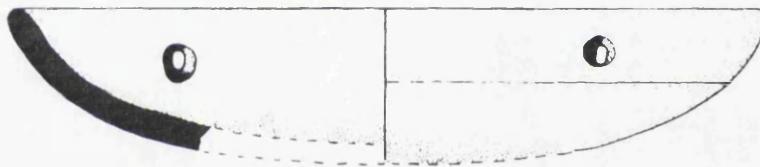
a



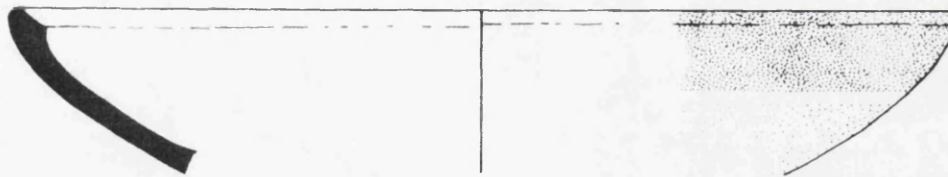
b



c



d



e

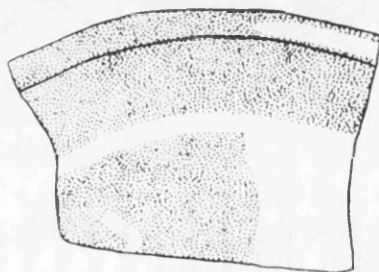
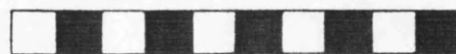
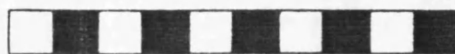
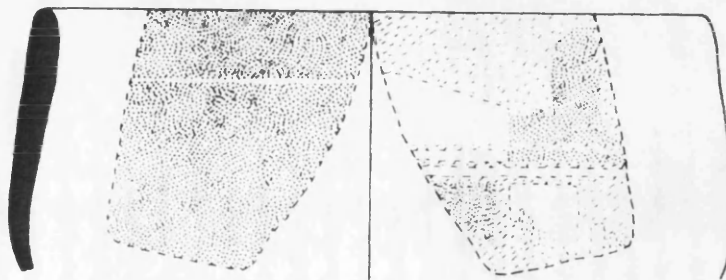
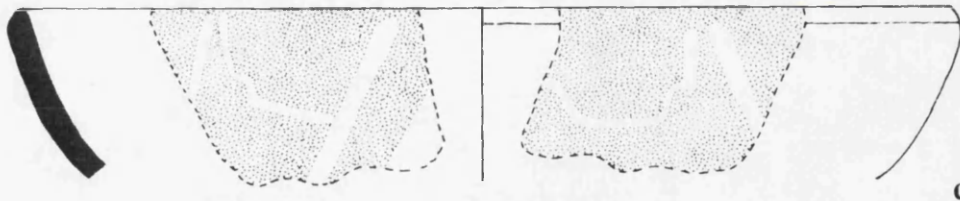
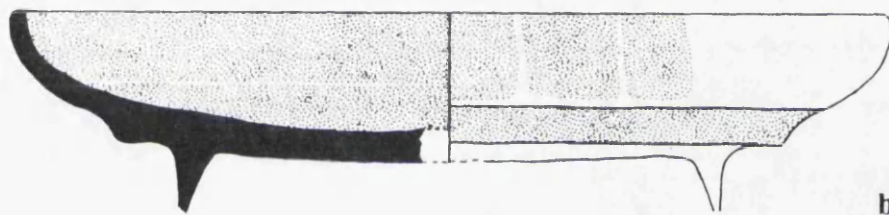
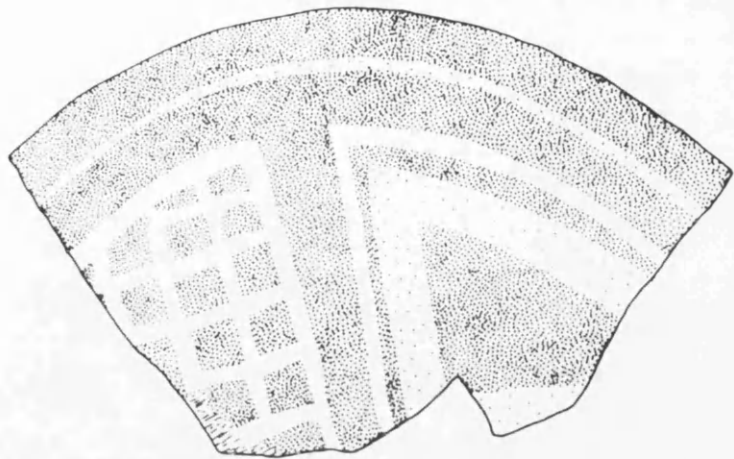
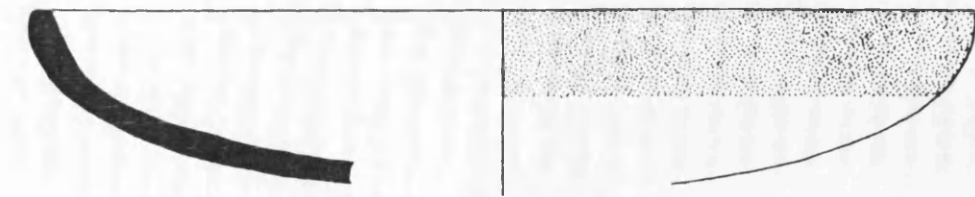


fig 13

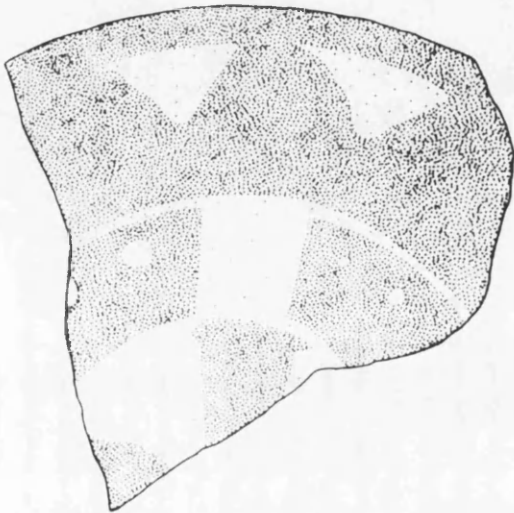
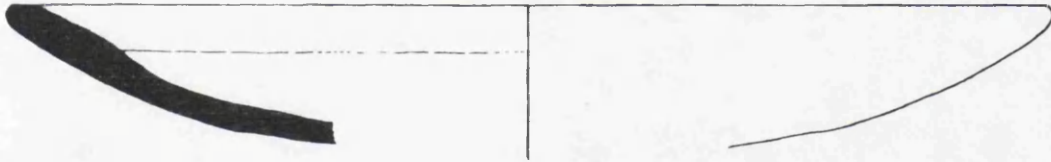
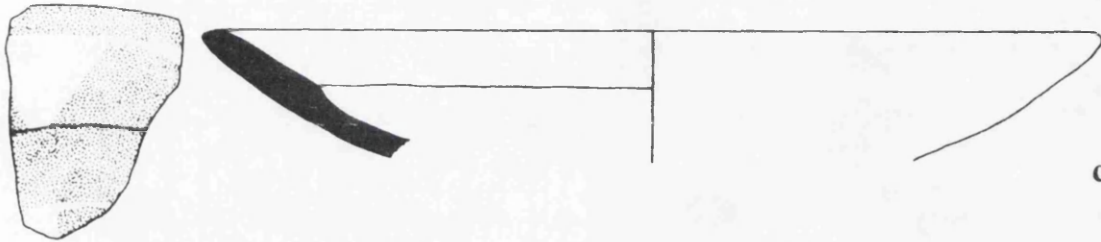
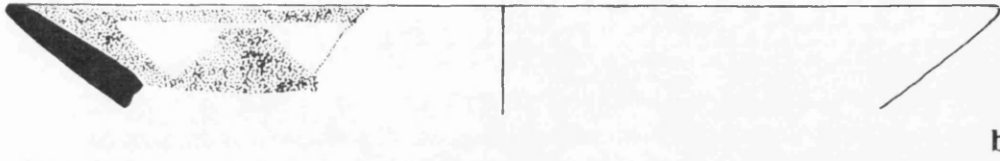
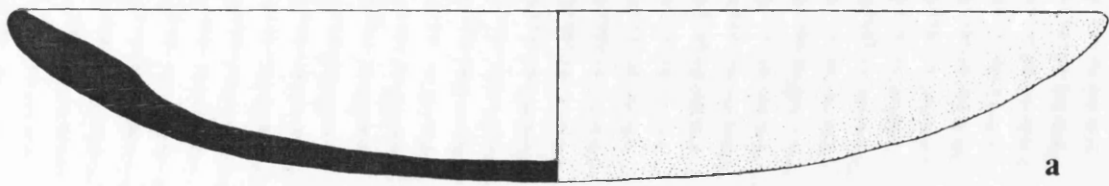


10 CM



10 CM

fig 14



10 CM

fig 15

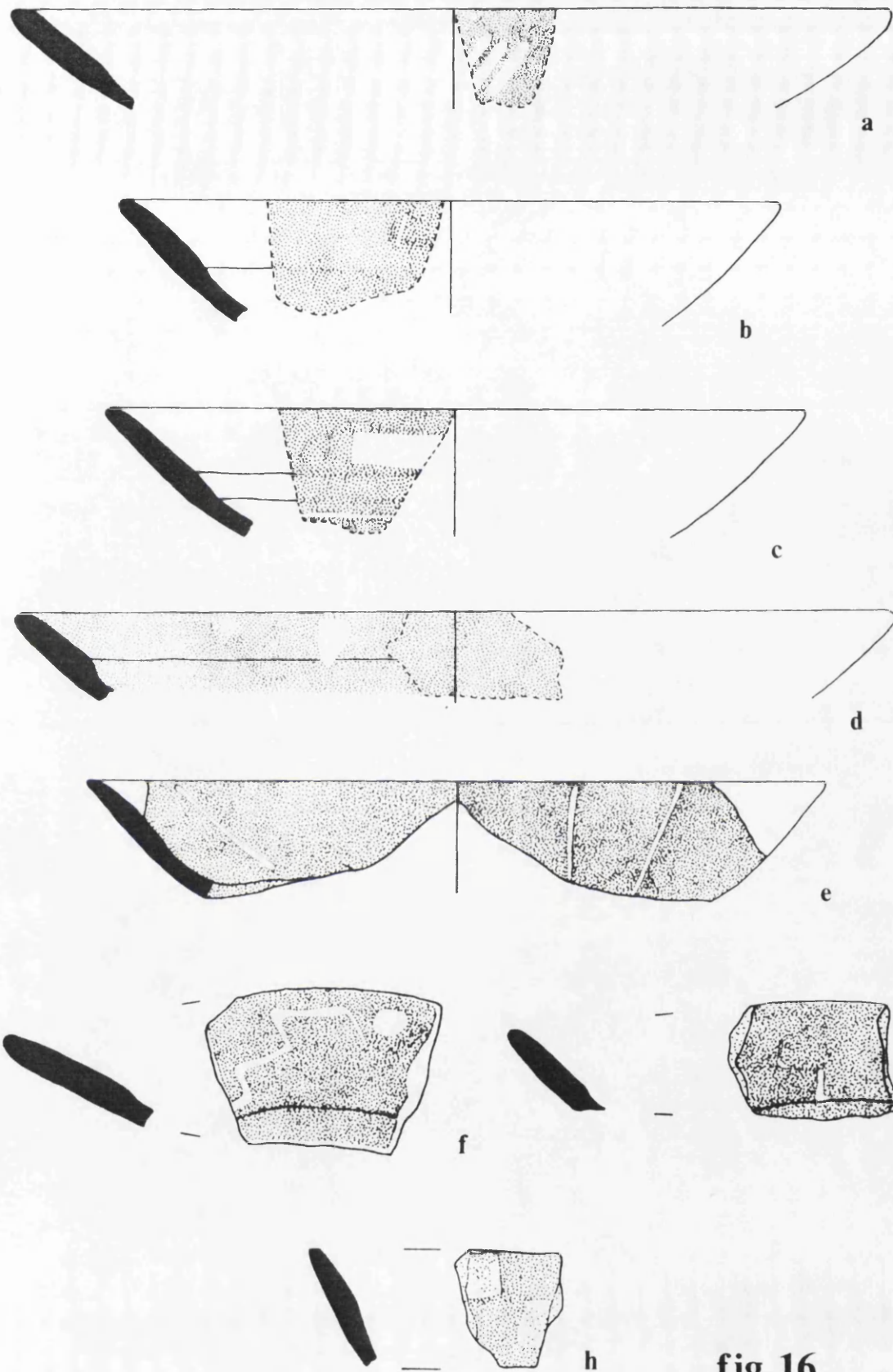
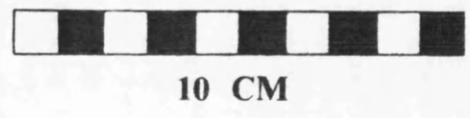


fig 16



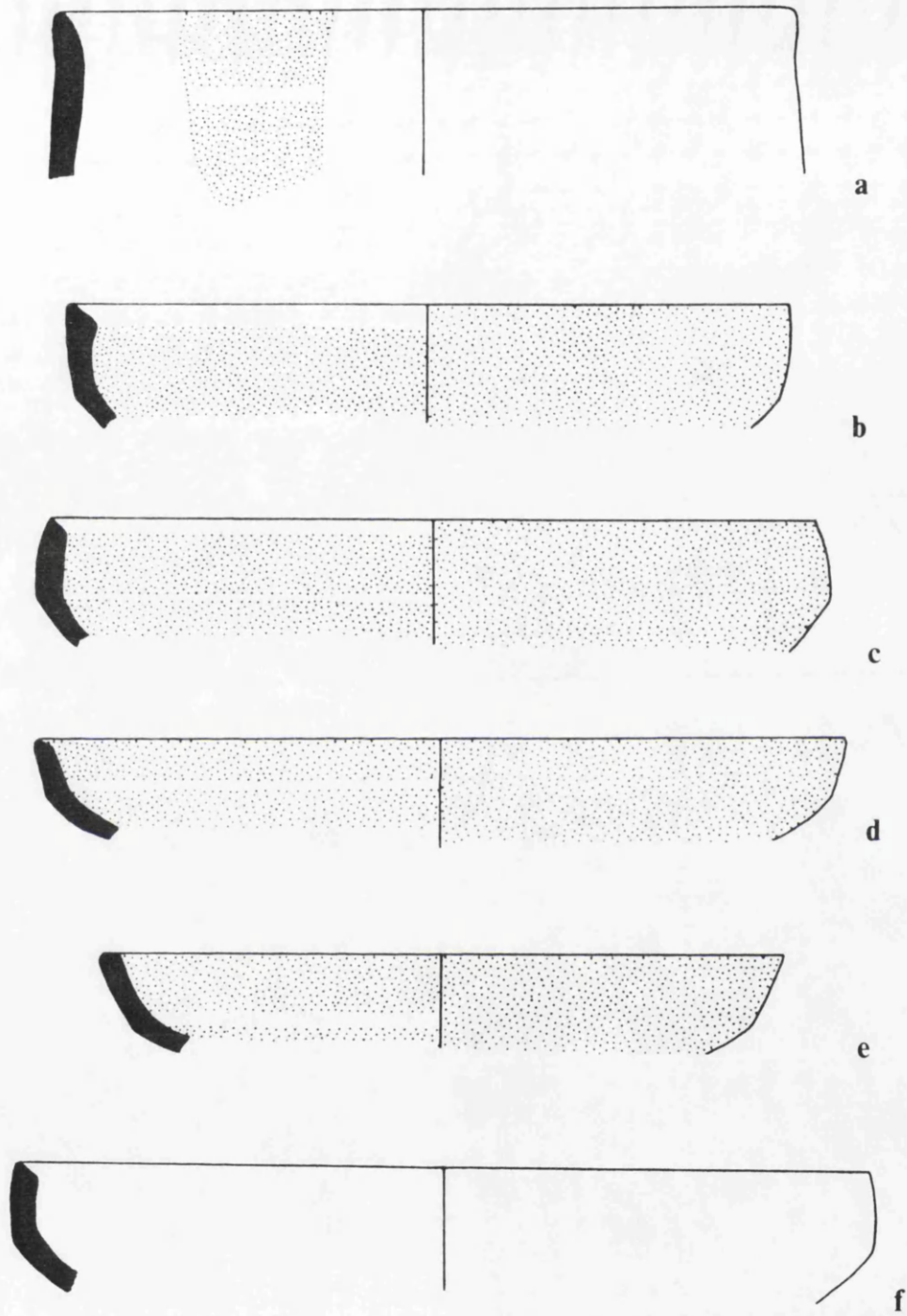
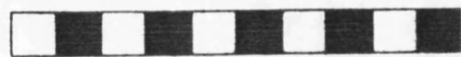
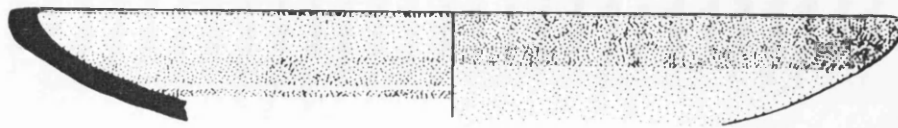


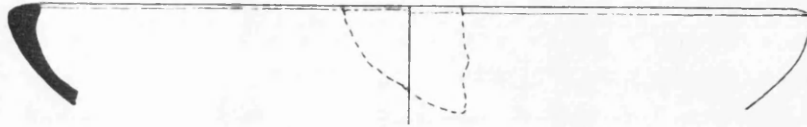
fig 17



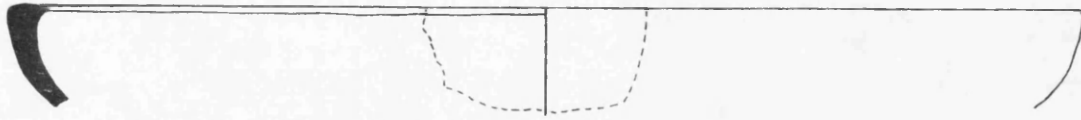
10 CM



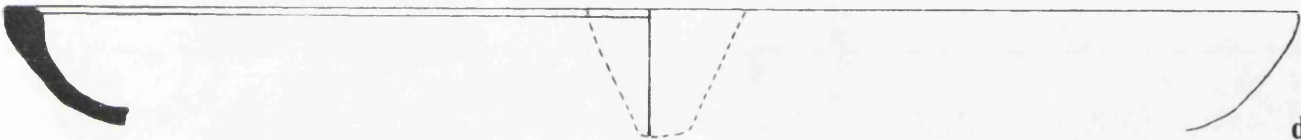
a



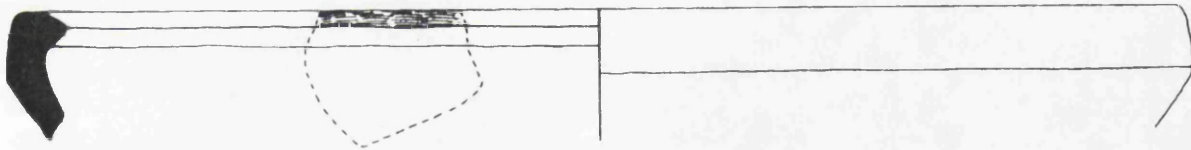
b



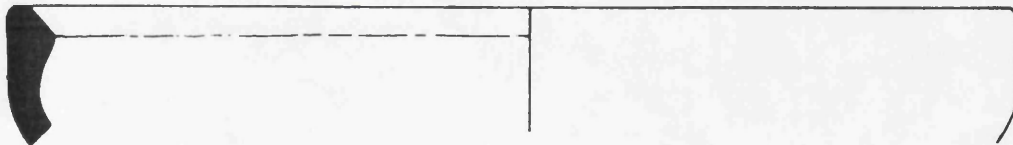
c



d



e



f



10 CM

fig 18

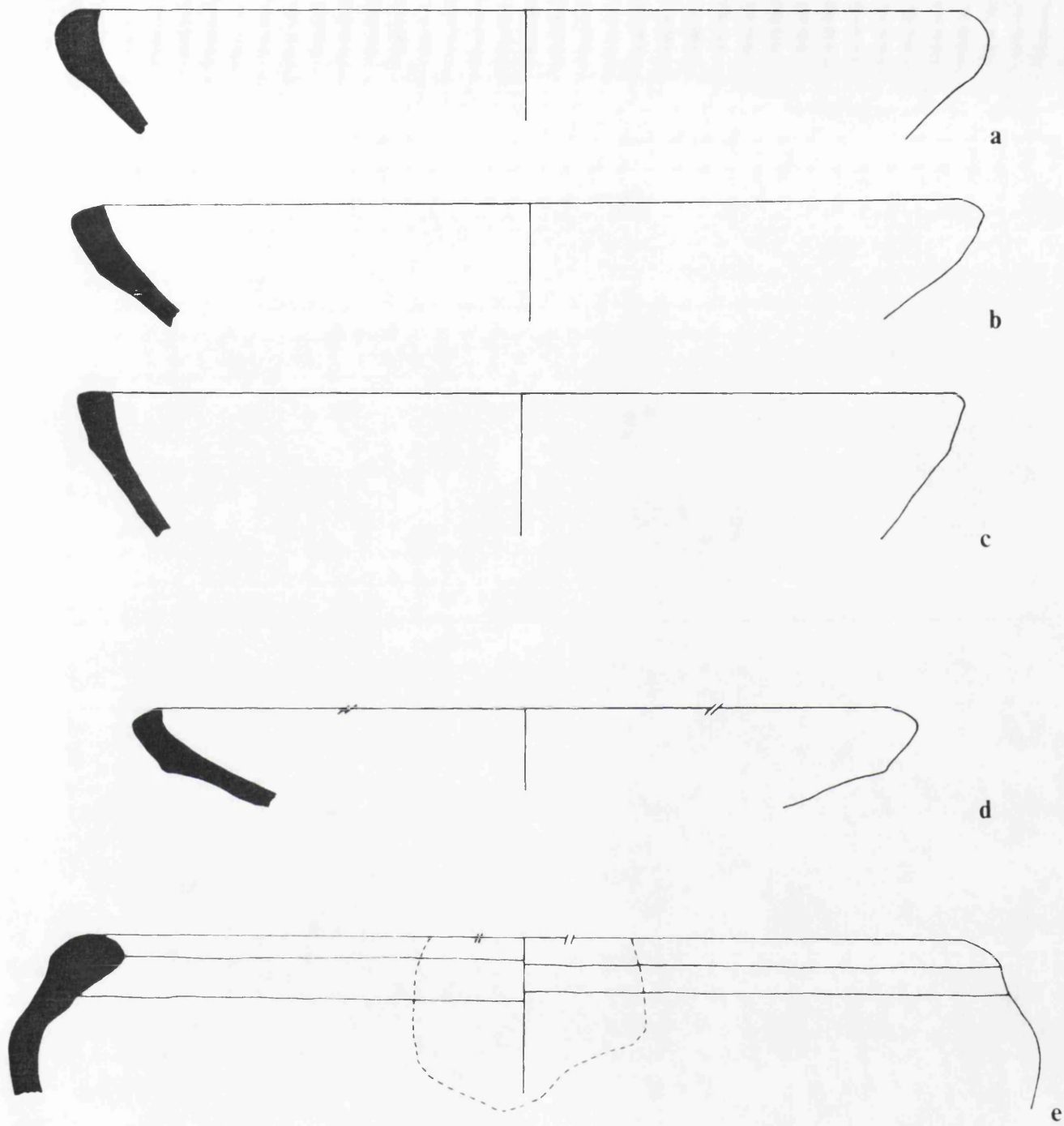
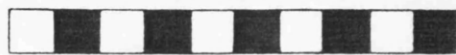


fig 19



10 CM

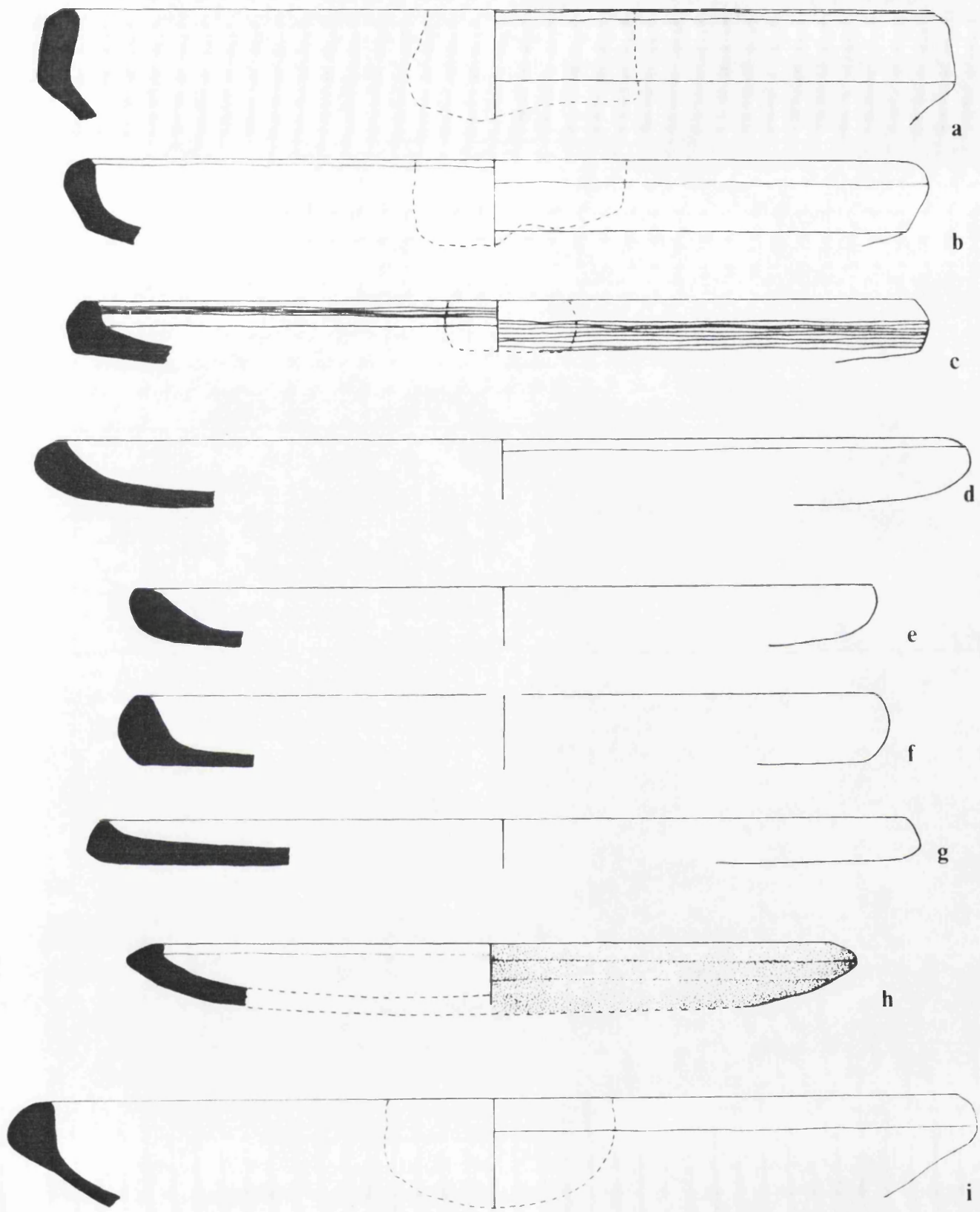
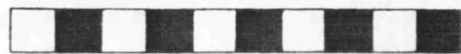
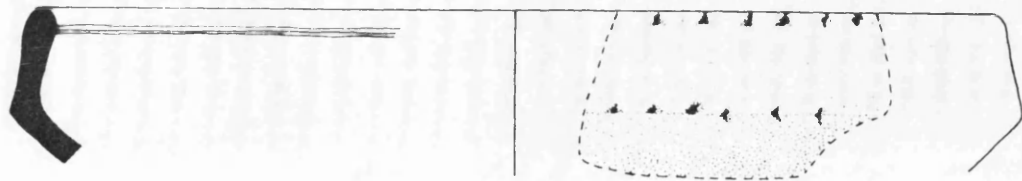


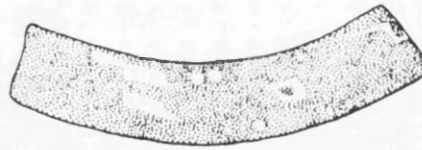
fig 20



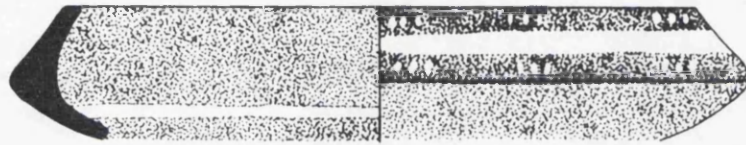
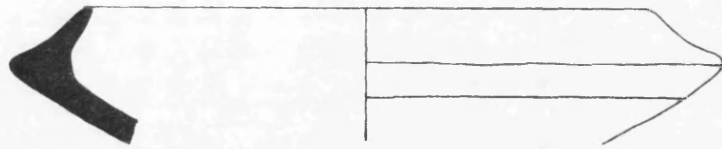
10 CM



a



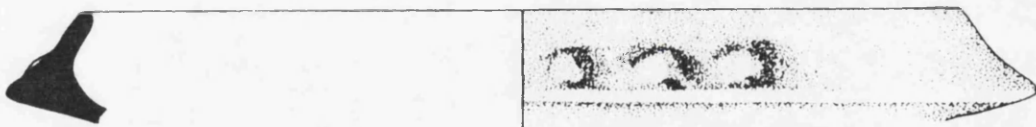
b



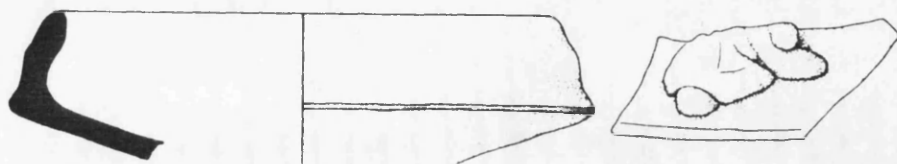
c



d

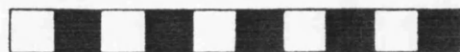


e



f

fig 21



10 CM

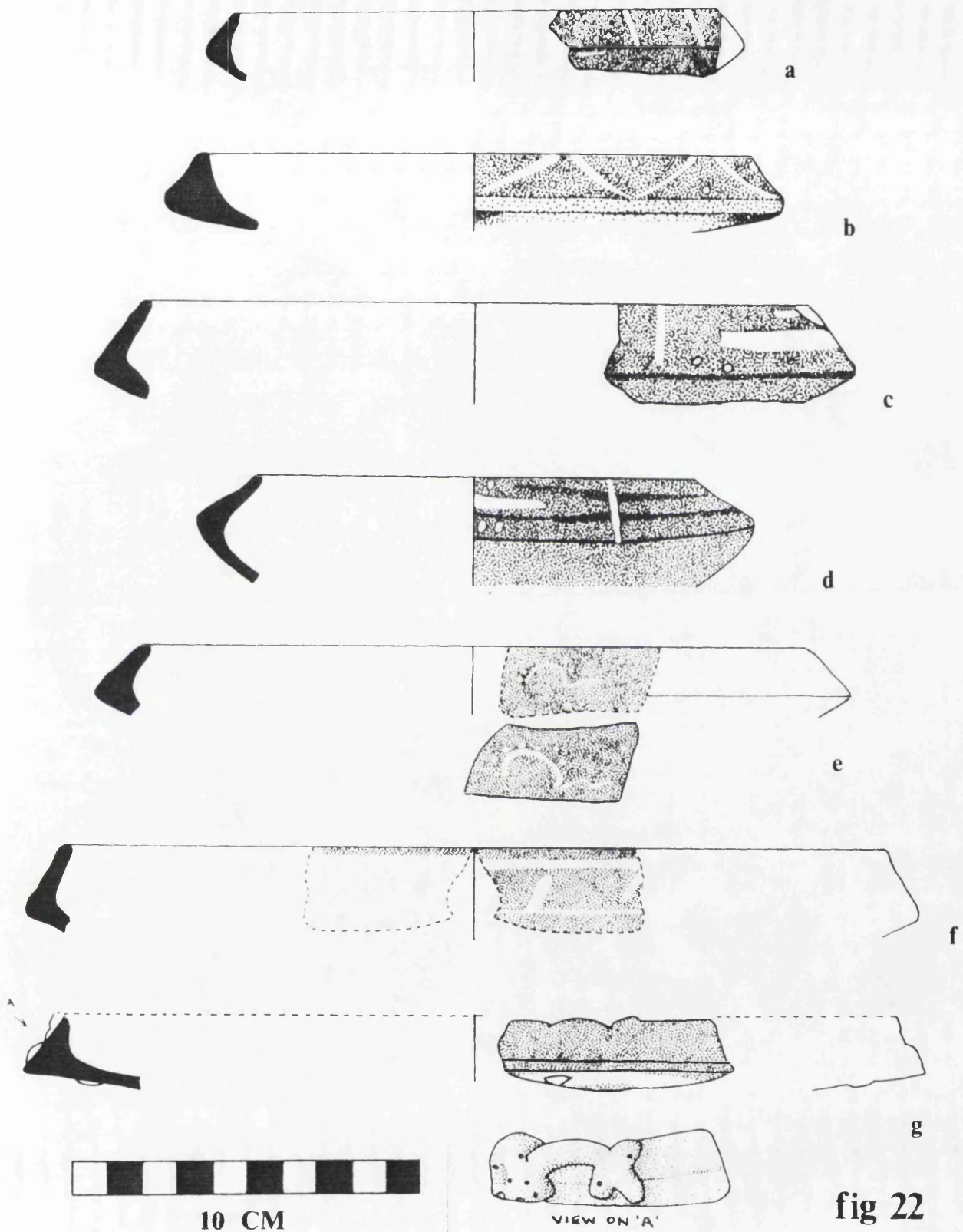
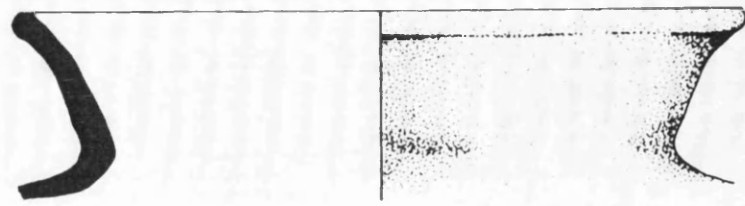


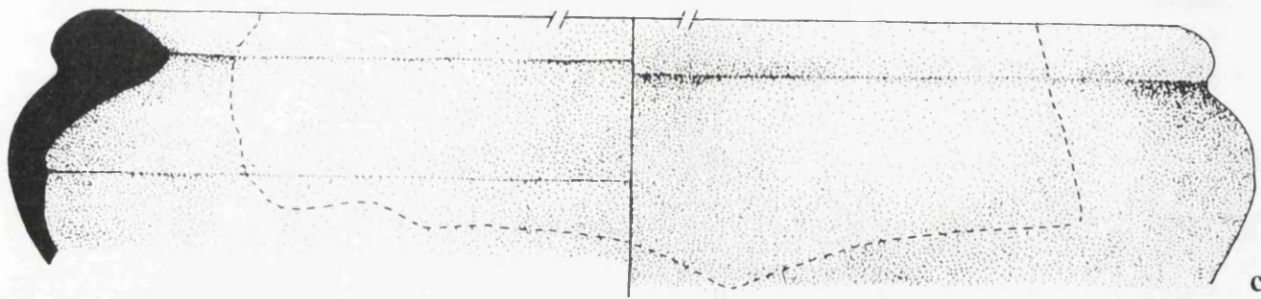
fig 22



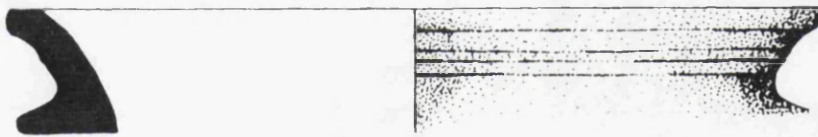
a



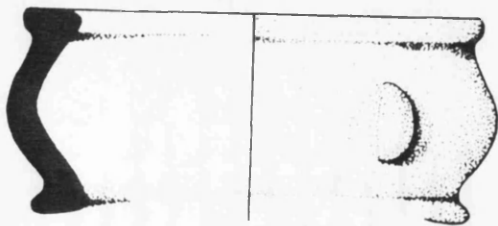
b



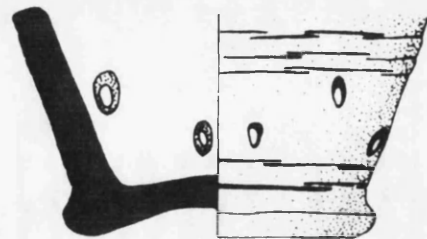
c



d



e

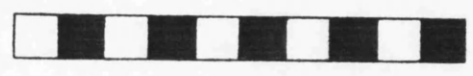
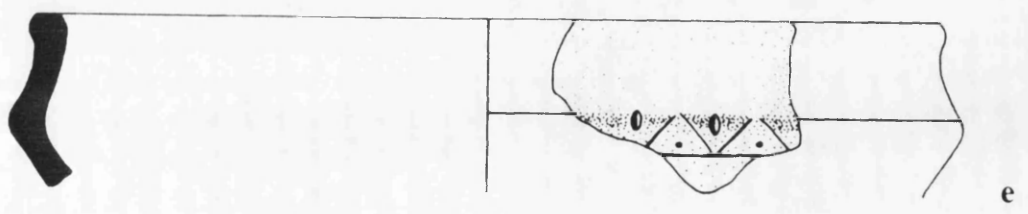
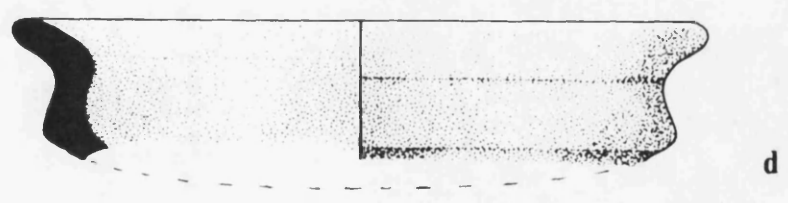
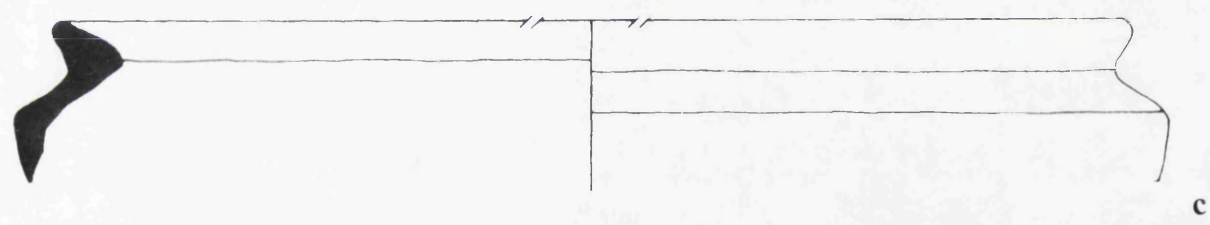
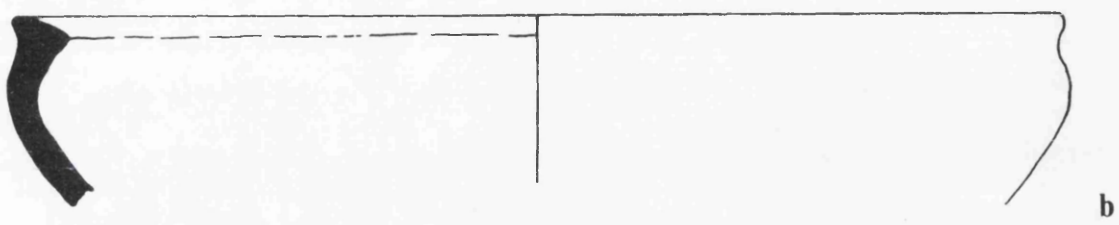
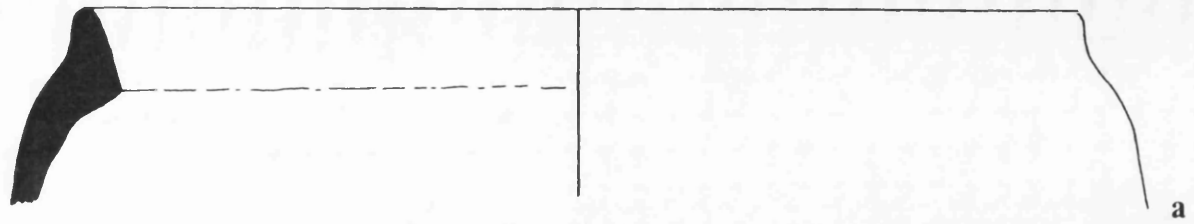


f



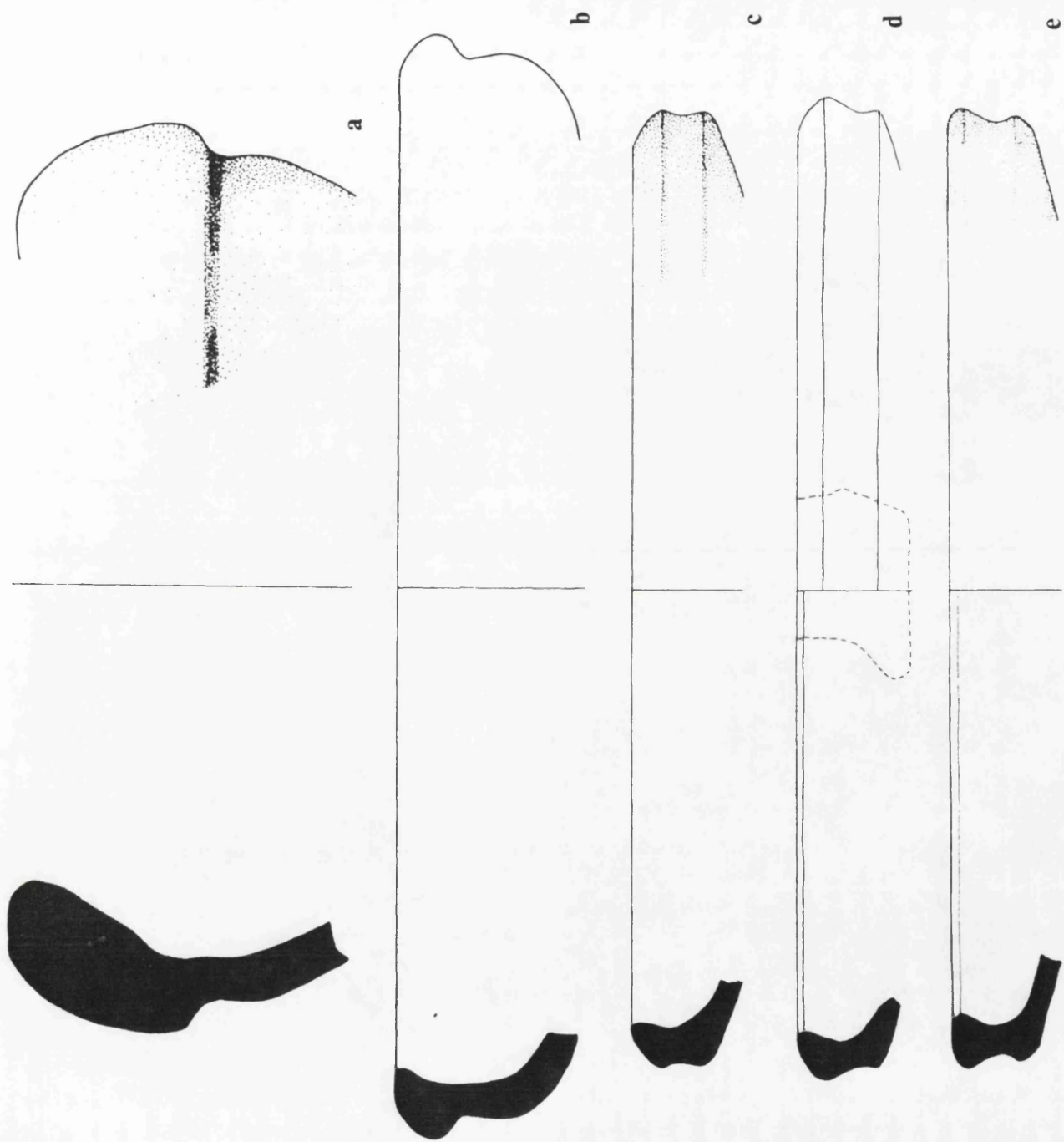
10 CM

fig 23



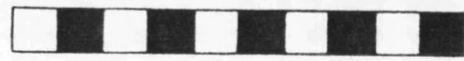
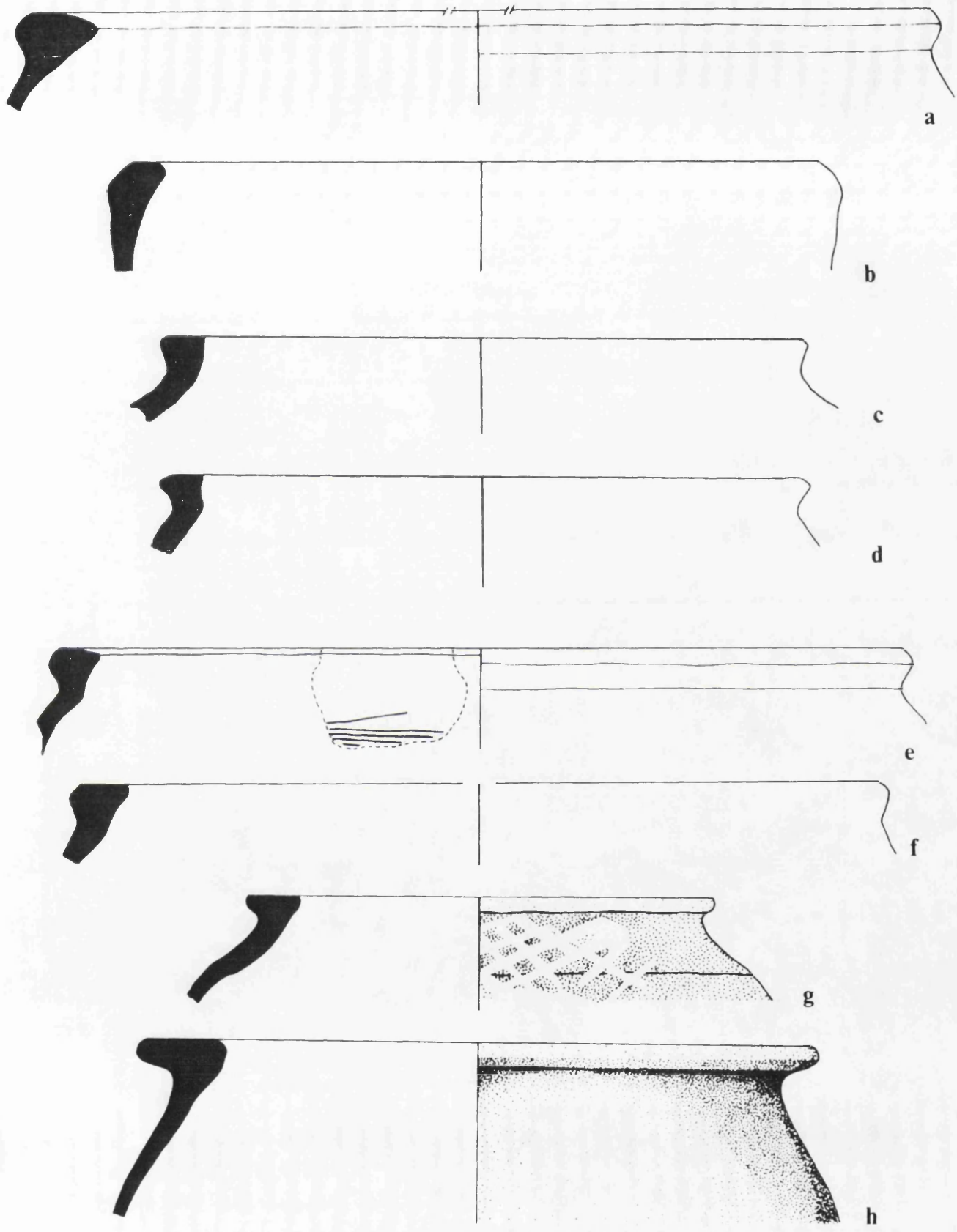
10 CM

fig 24



10 CM

fig 25



10 CM

fig 26

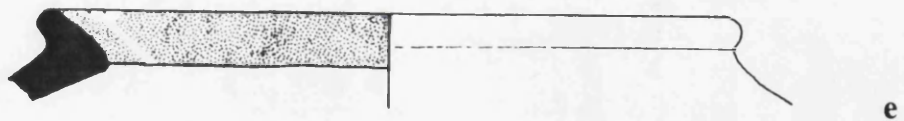
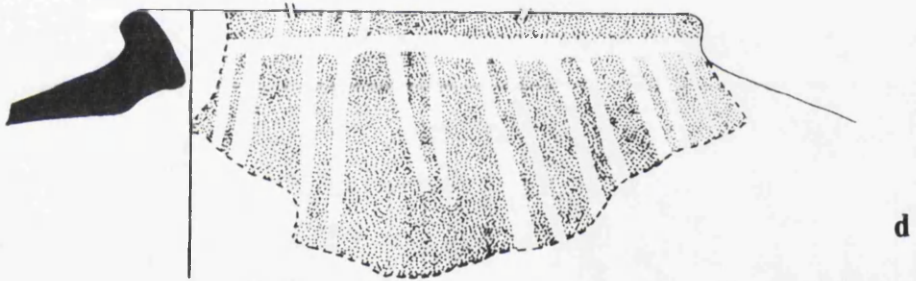
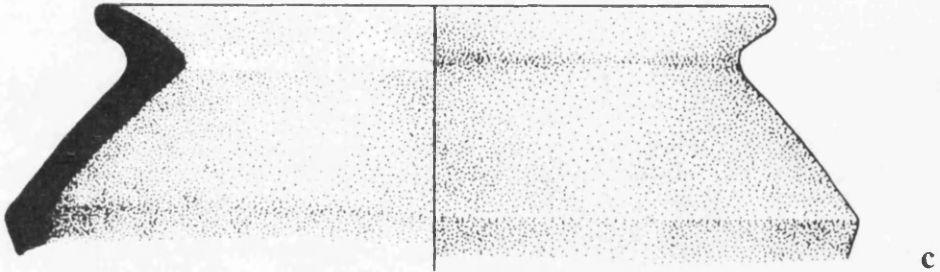
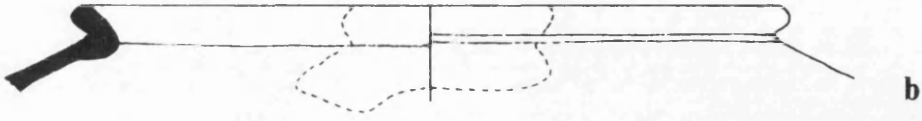
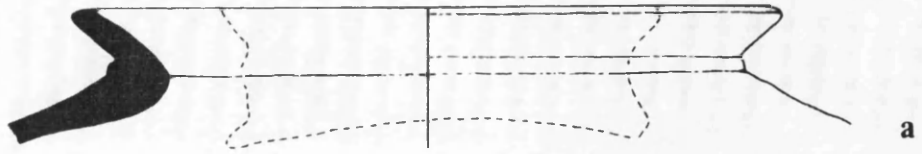


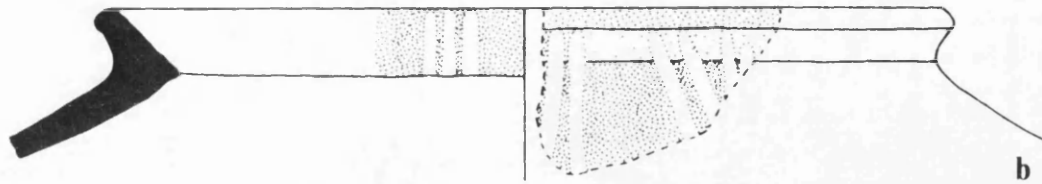
fig 27



10 CM



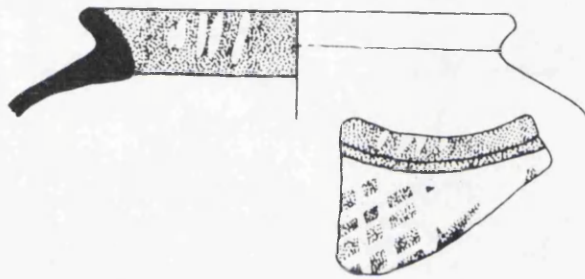
a



b



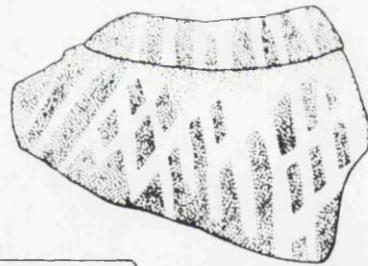
c



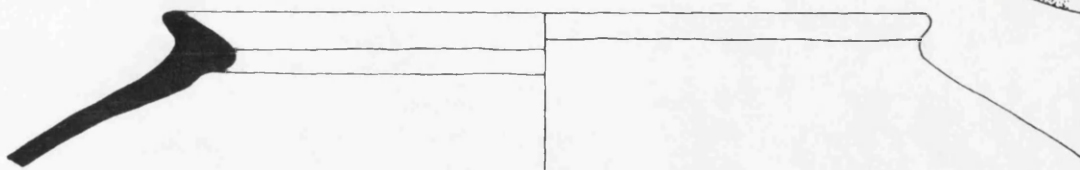
d



e

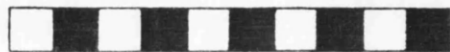


f

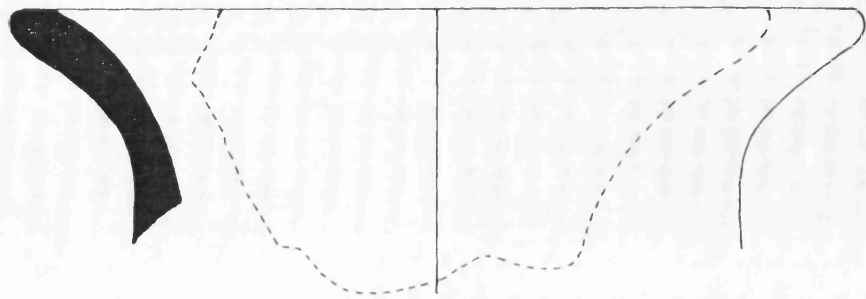


g

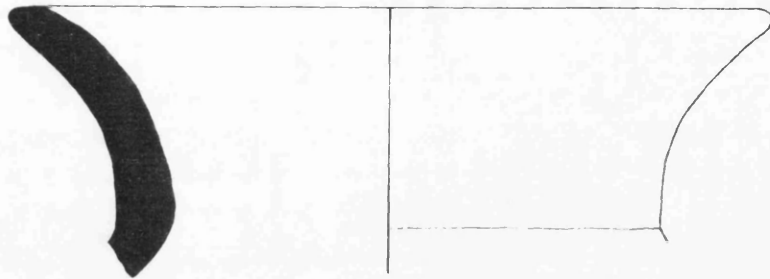
fig 28



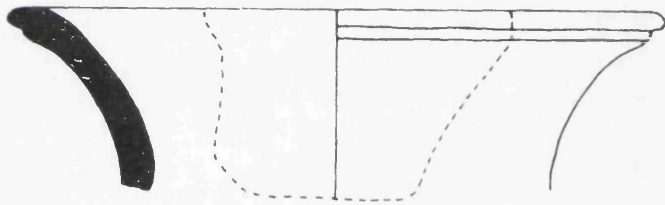
10 CM



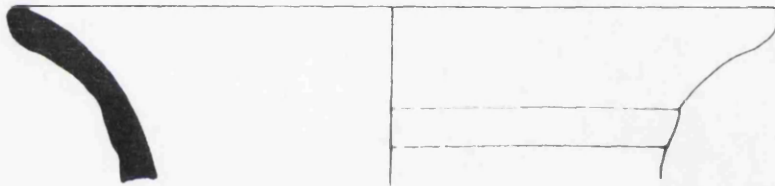
a



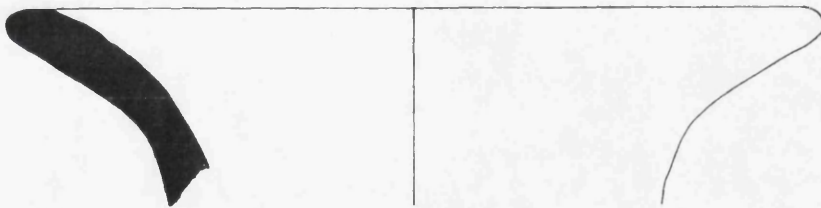
b



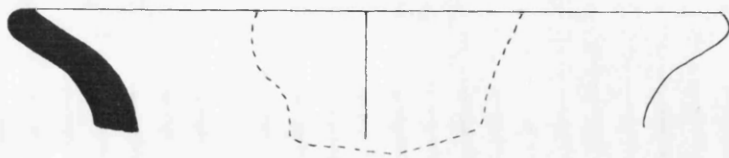
c



d



e



f

fig 29



10 CM

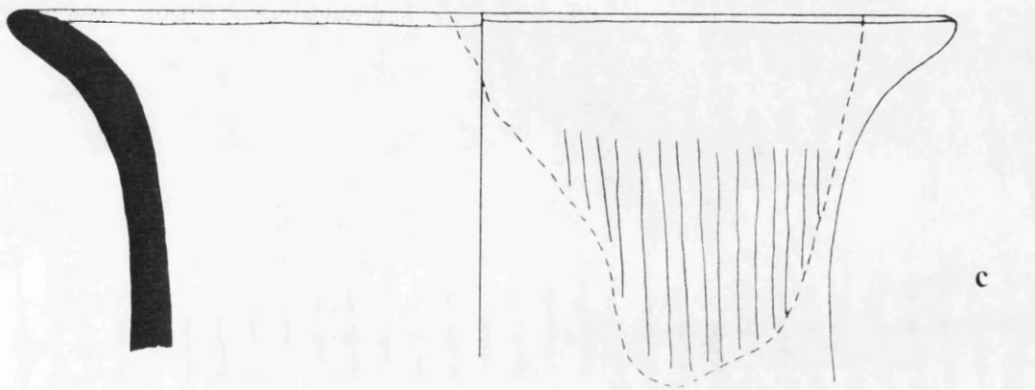
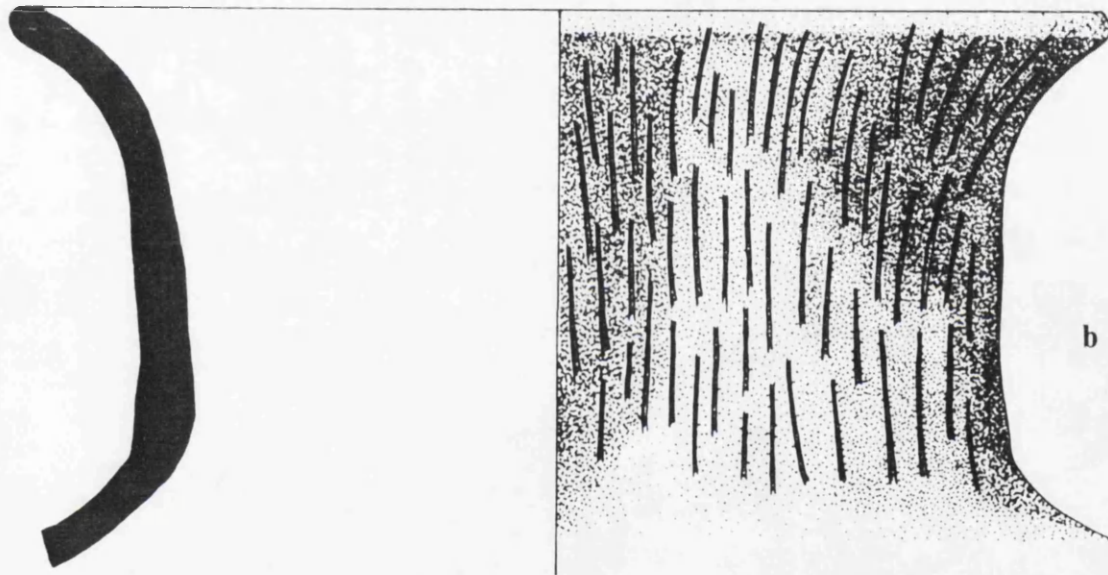
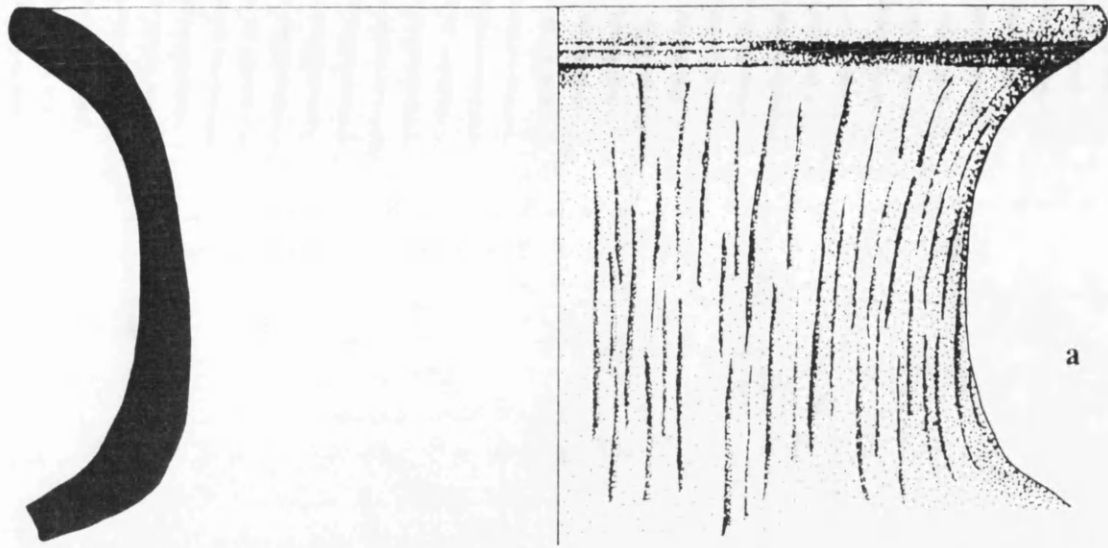
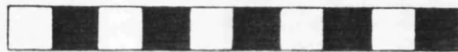
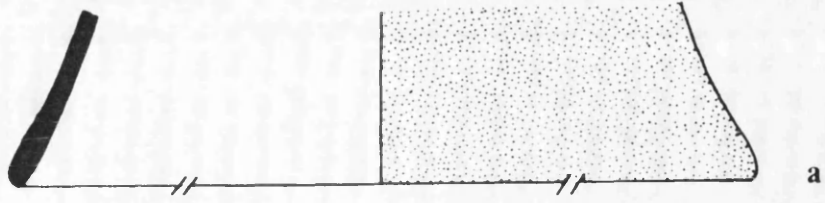


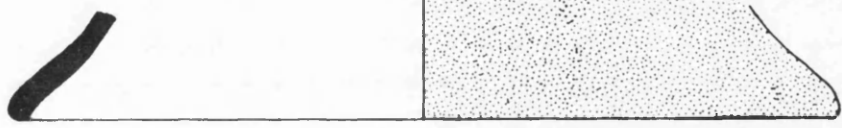
fig 30



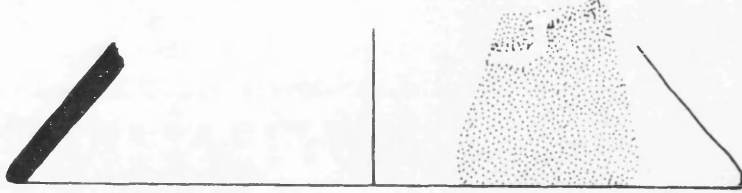
10 CM



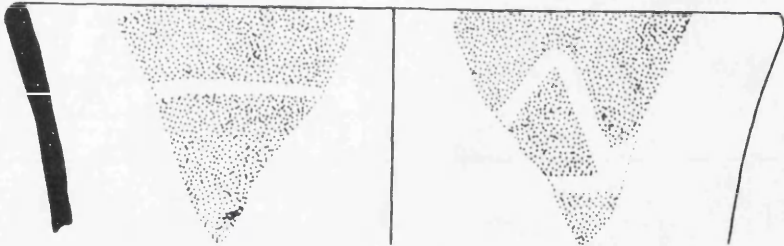
a



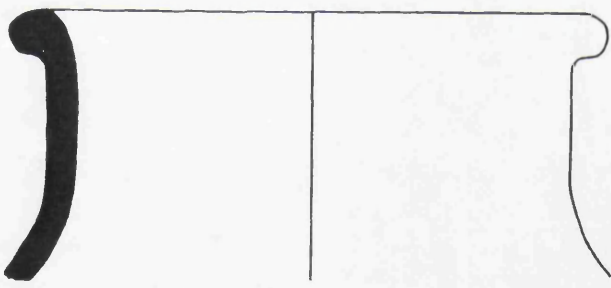
b



c



d



e

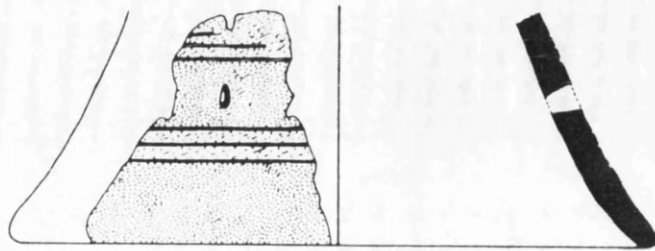


f

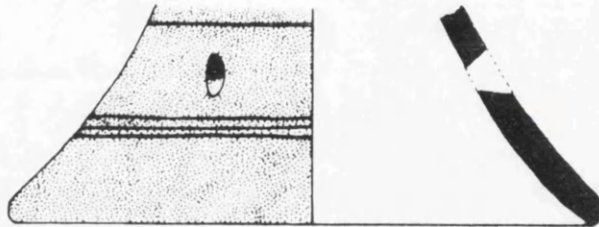


10 CM

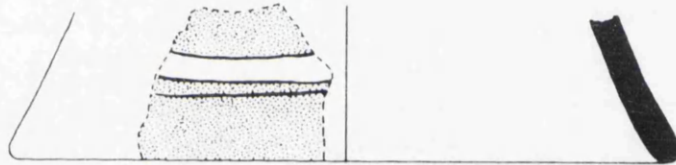
fig 31



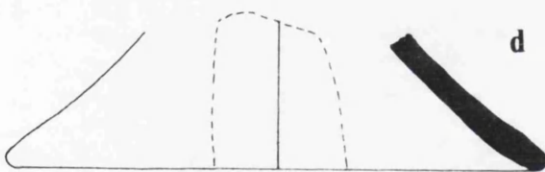
a



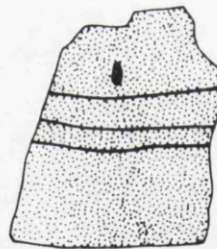
b



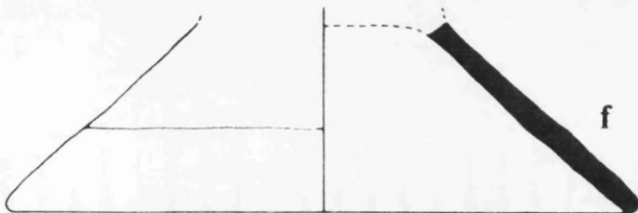
c



d



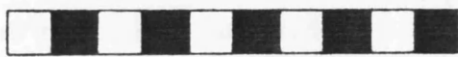
e



f

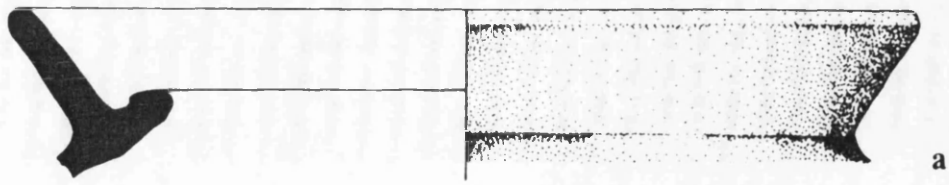


g

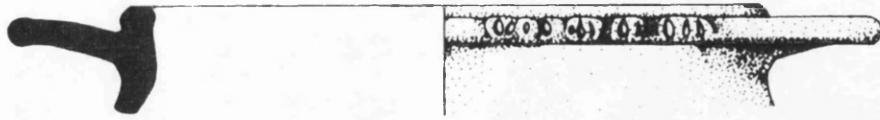


10 CM

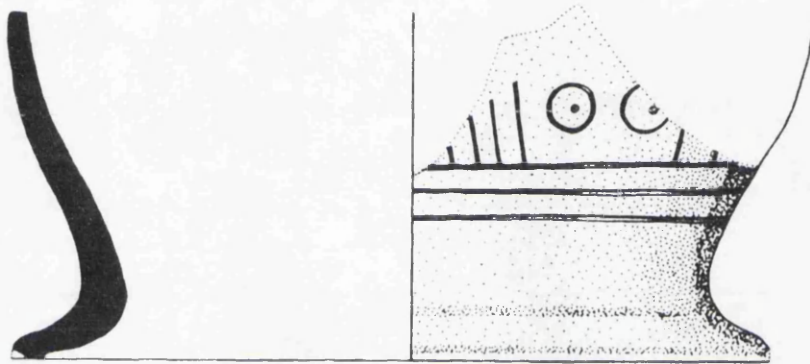
fig 32



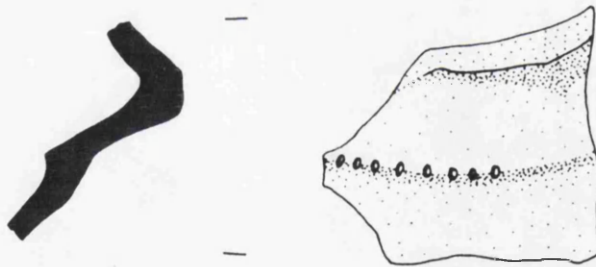
a



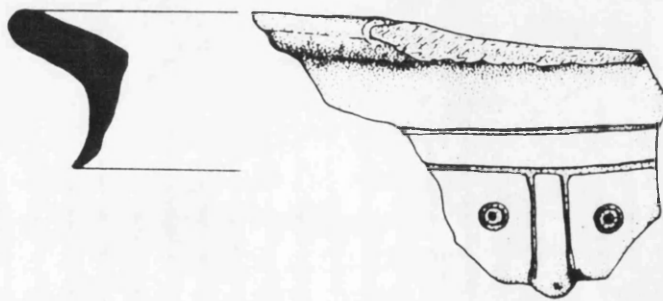
b



c



d

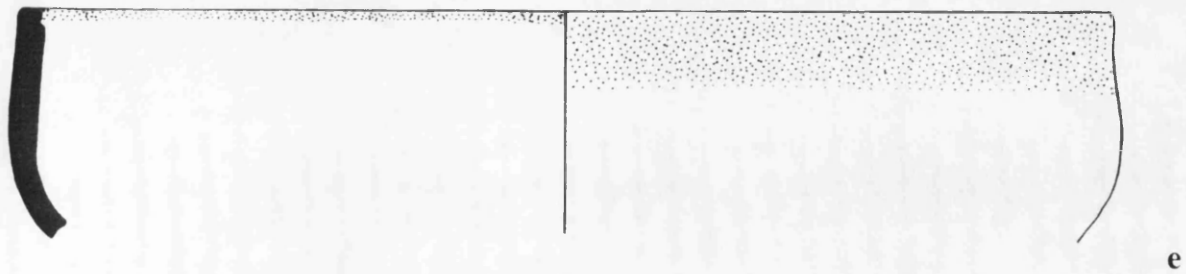
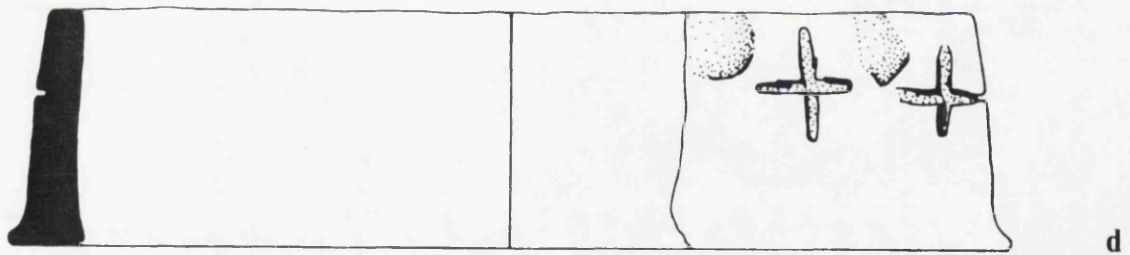
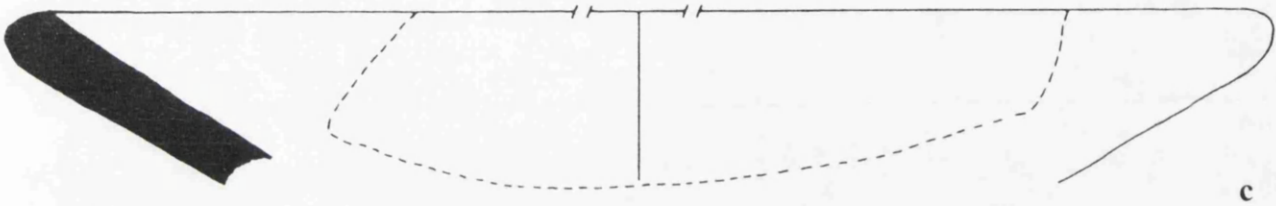
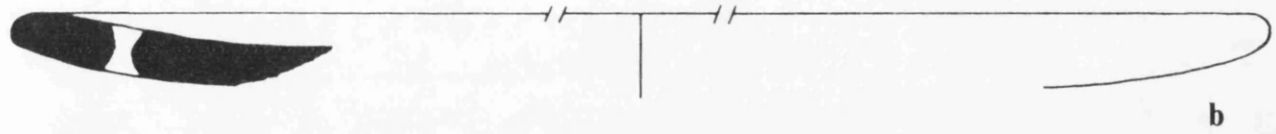
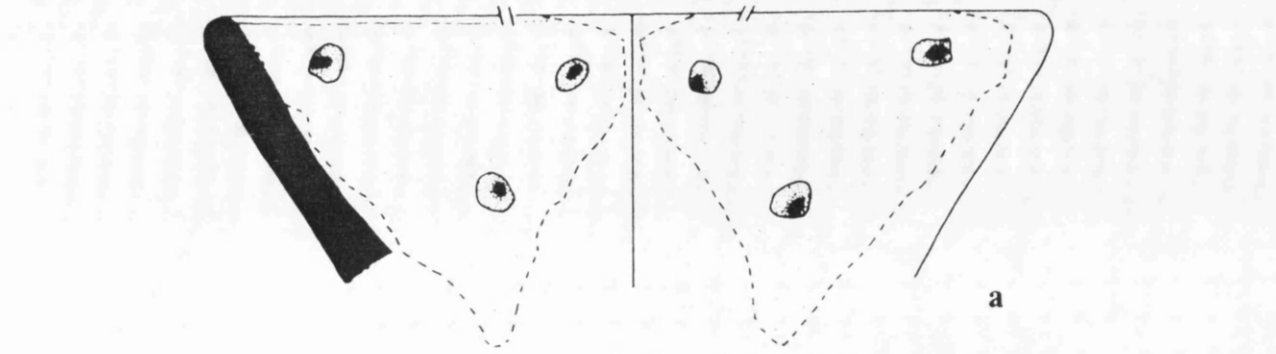


e



10 CM

fig 33



10 CM

fig 34

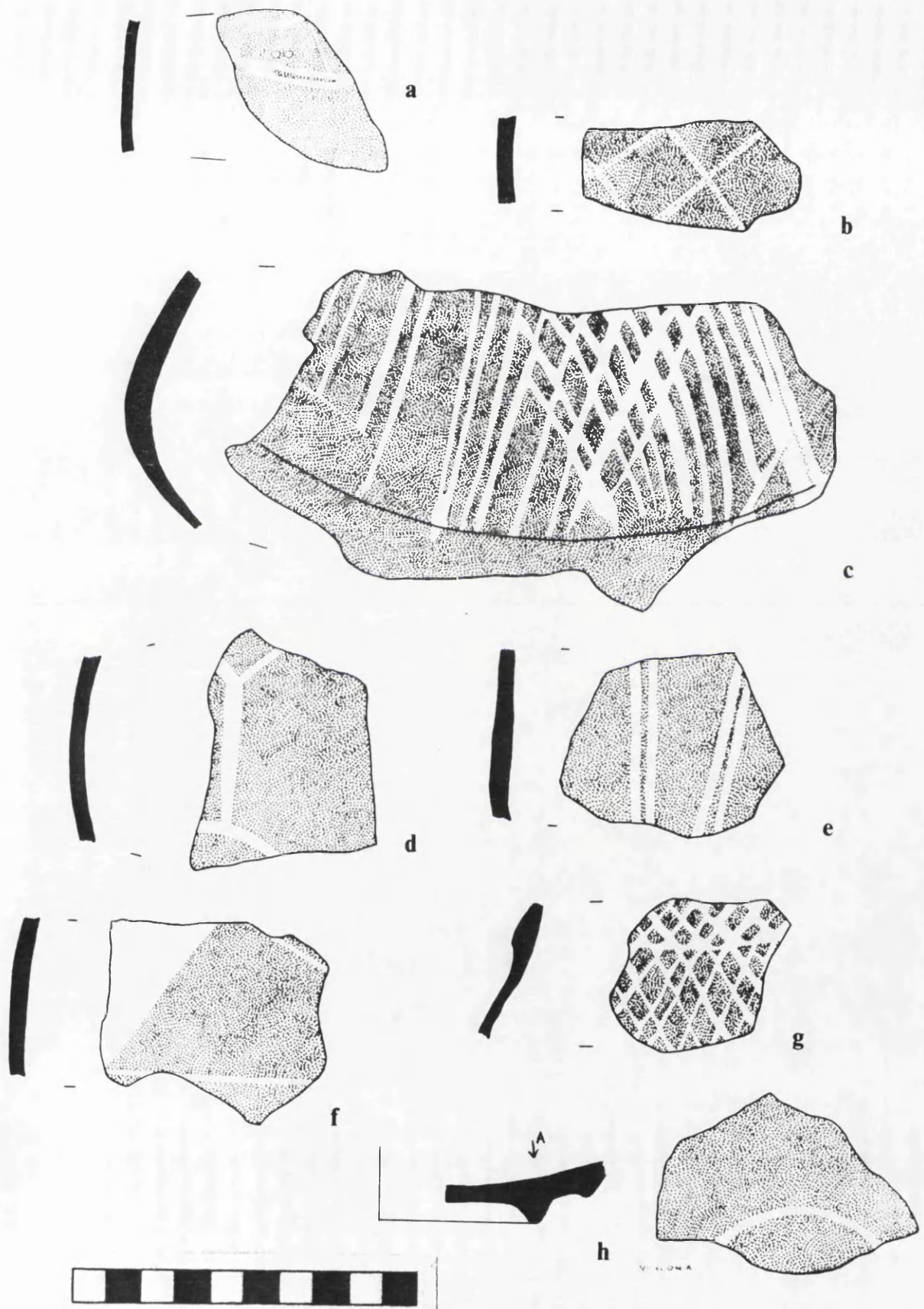
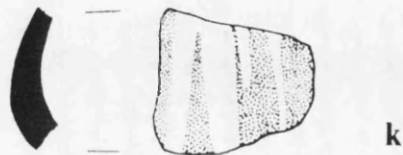
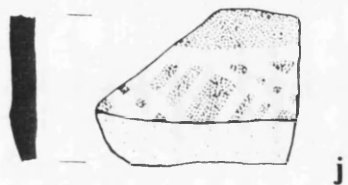
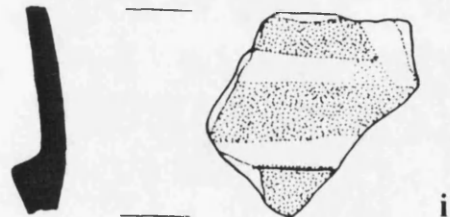
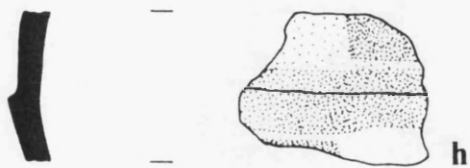
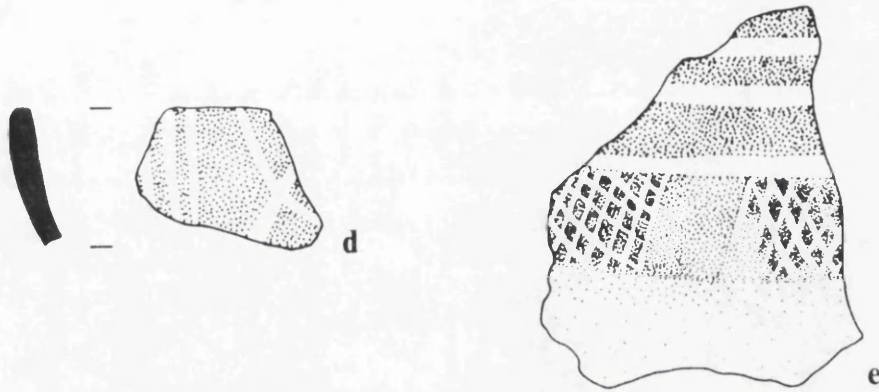
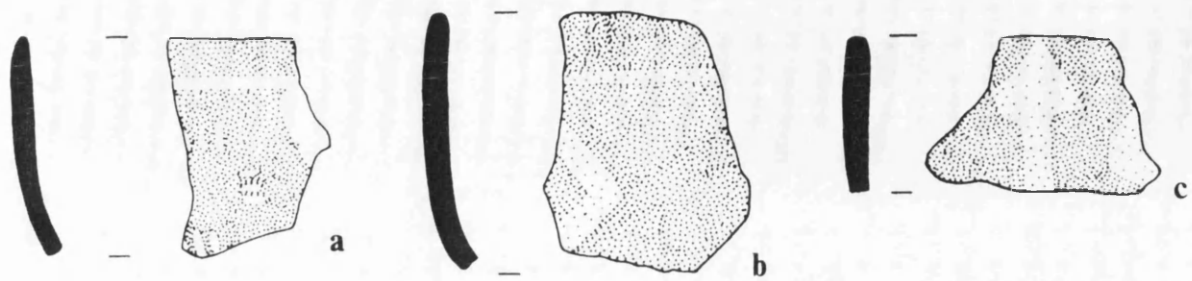
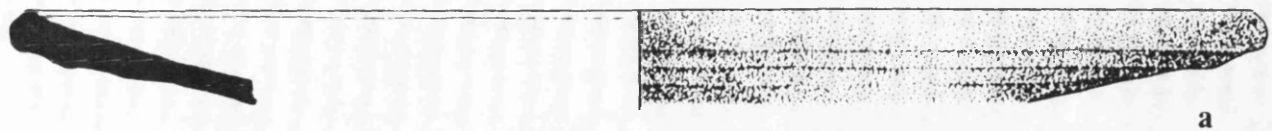


fig 35

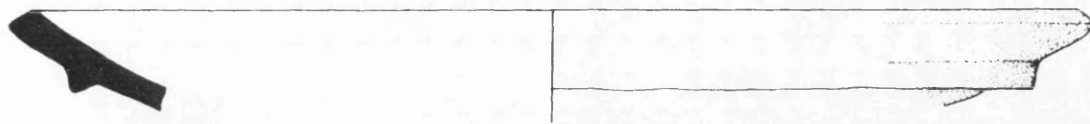


10 CM

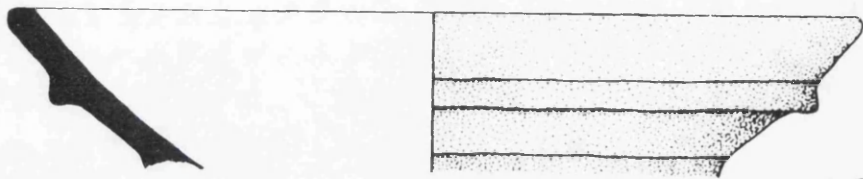
fig 36



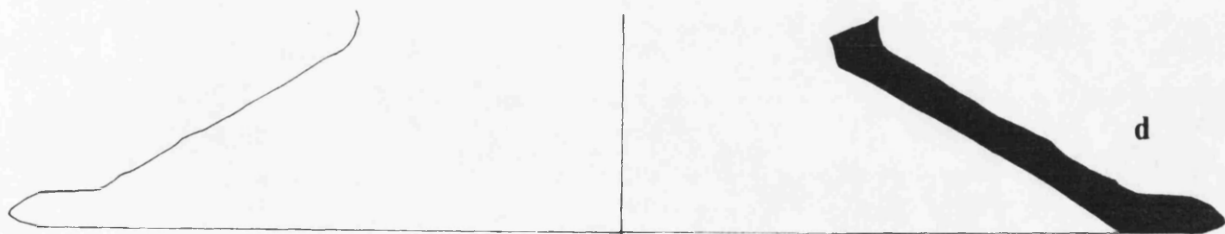
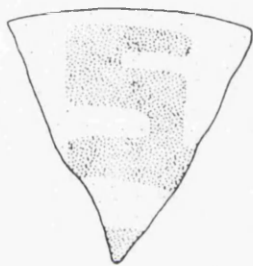
a



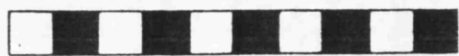
b



c

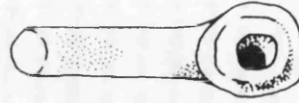
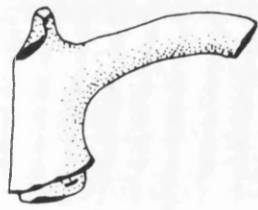


d

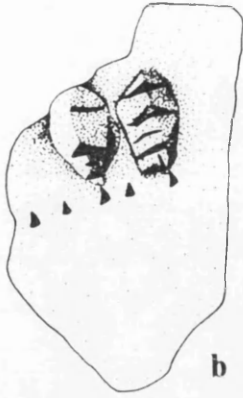


10 CM

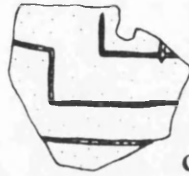
fig 37



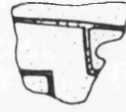
a



b



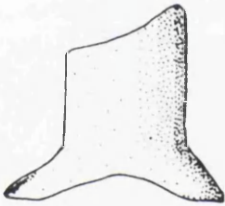
c



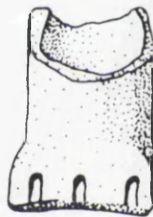
d



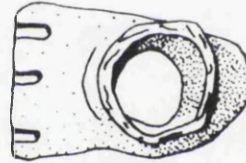
e



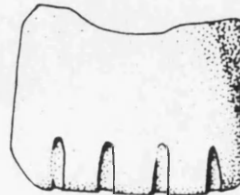
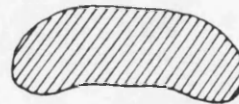
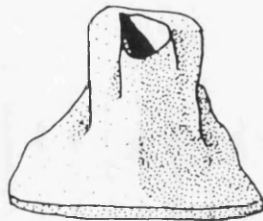
f



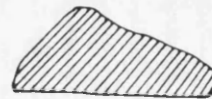
g



h



i



10 CM

fig 38

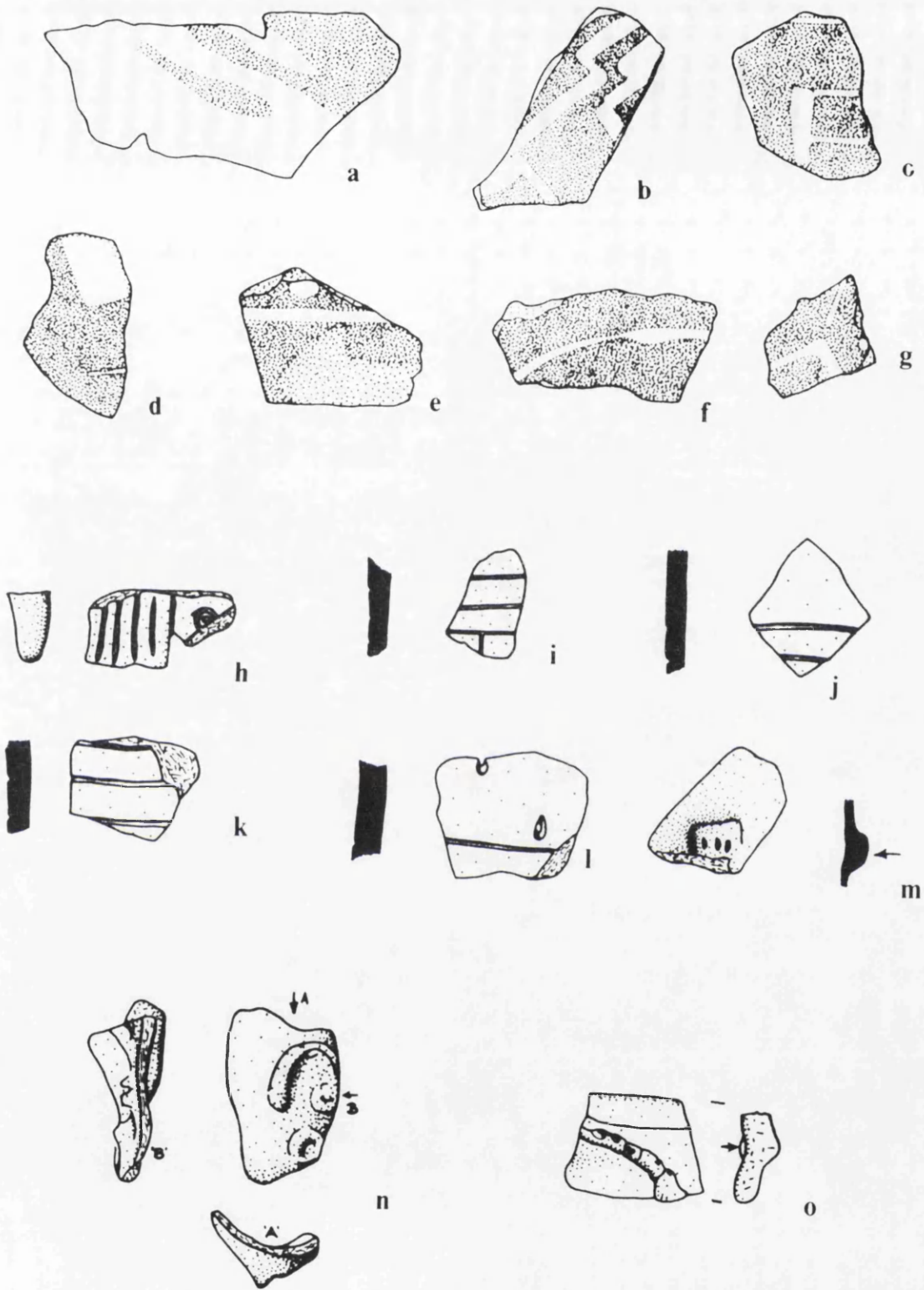
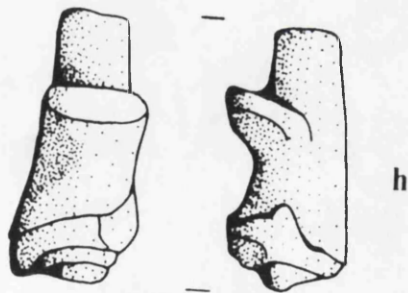
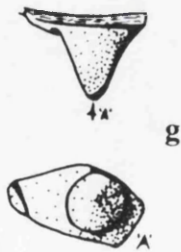
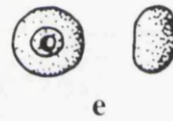
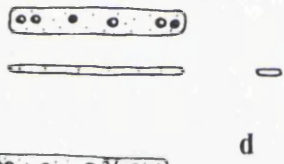
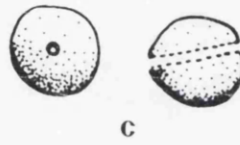
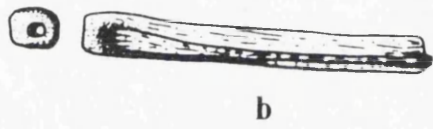
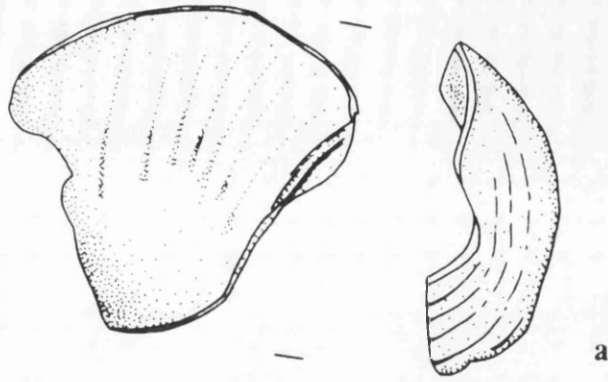
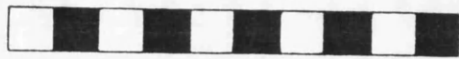
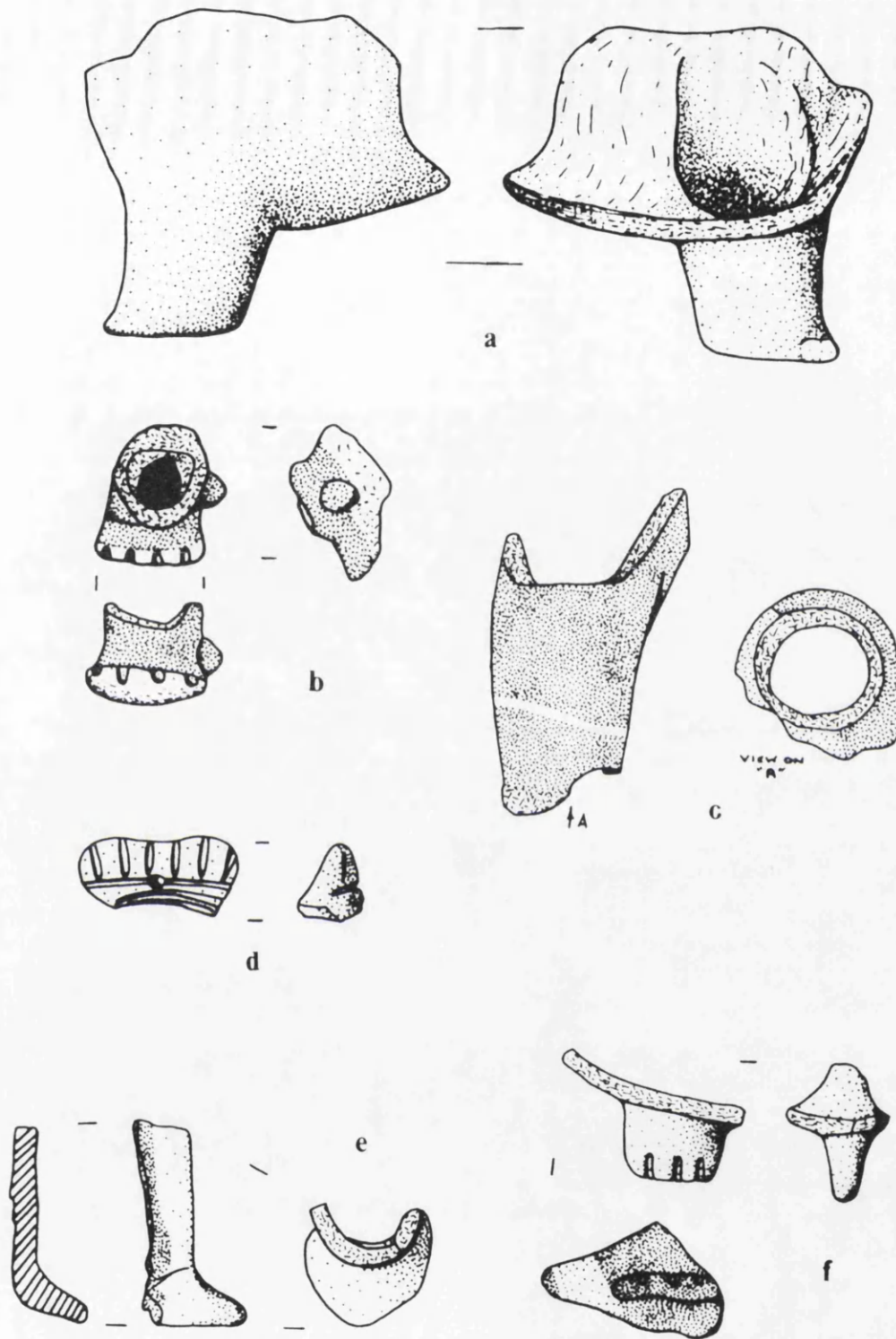


fig 39



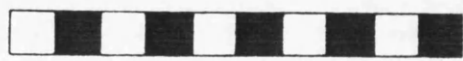
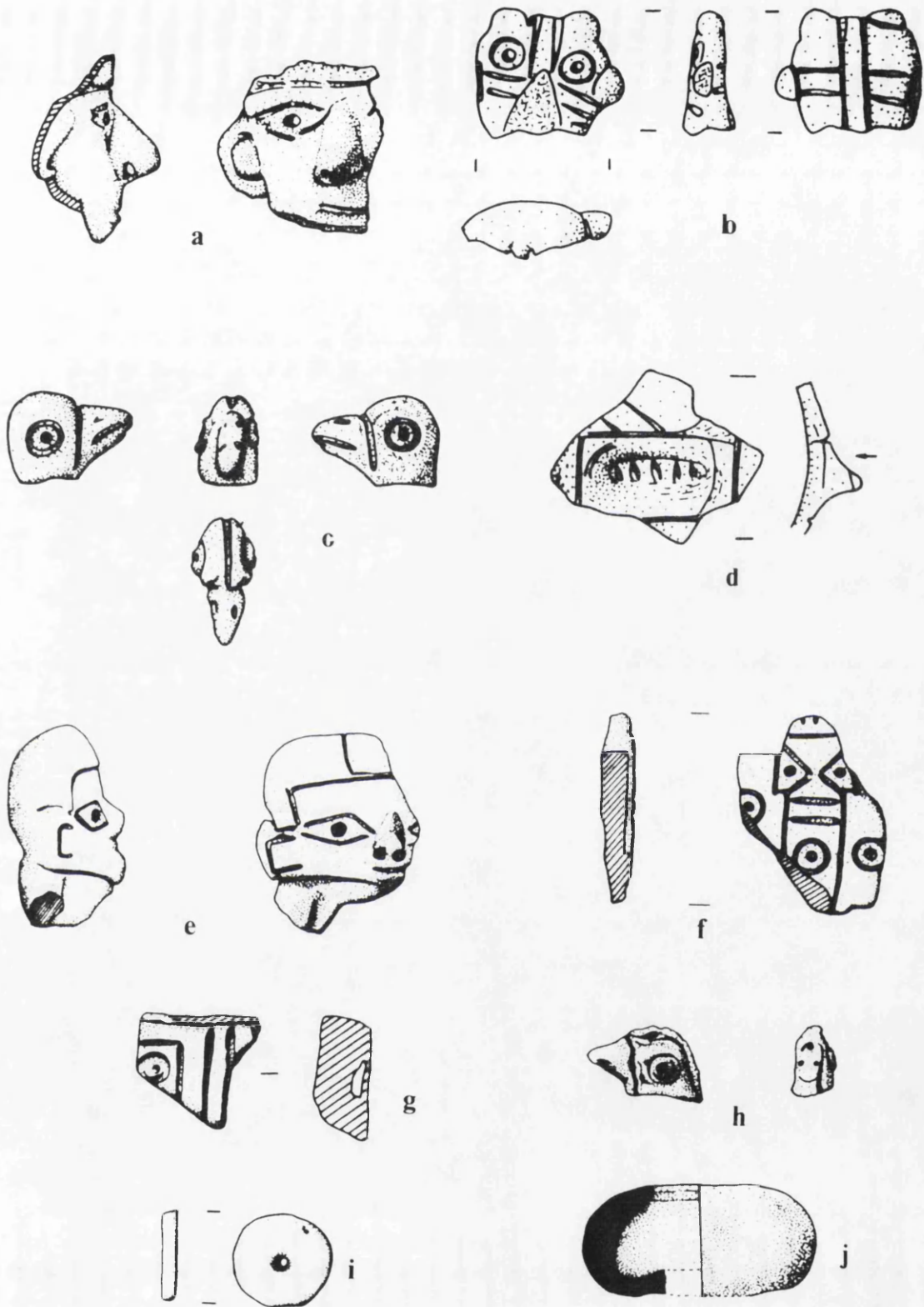
10 CM

fig 40



10 CM

fig 41

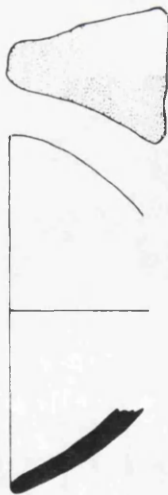


10 CM

fig 42



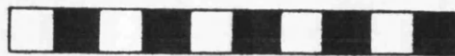
a



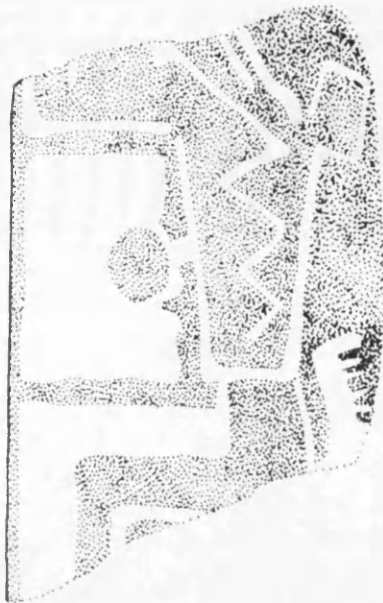
b



c



10 CM



d

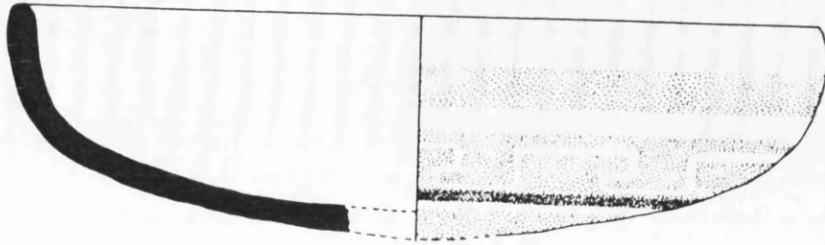


e

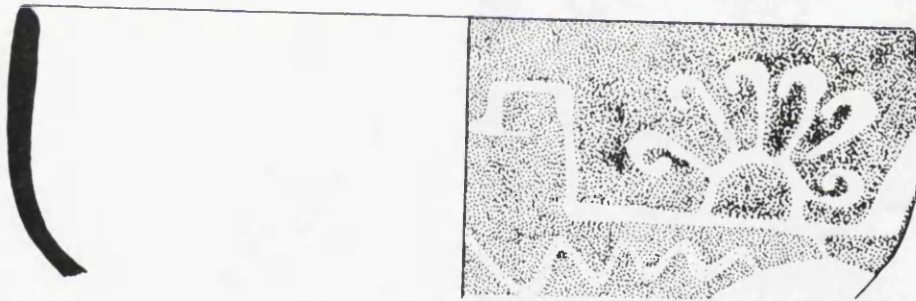
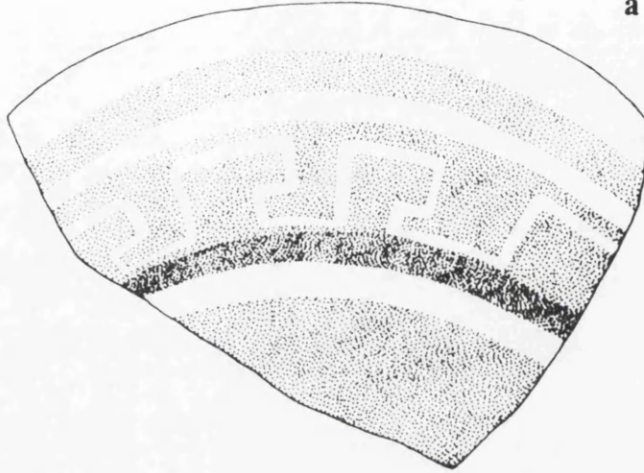


f

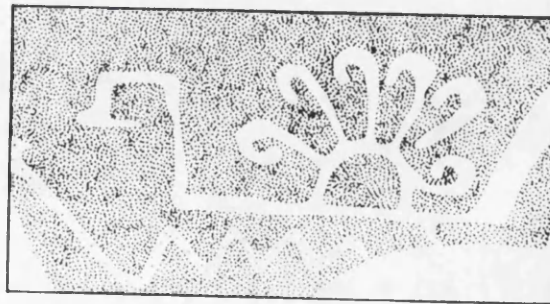
fig43



a

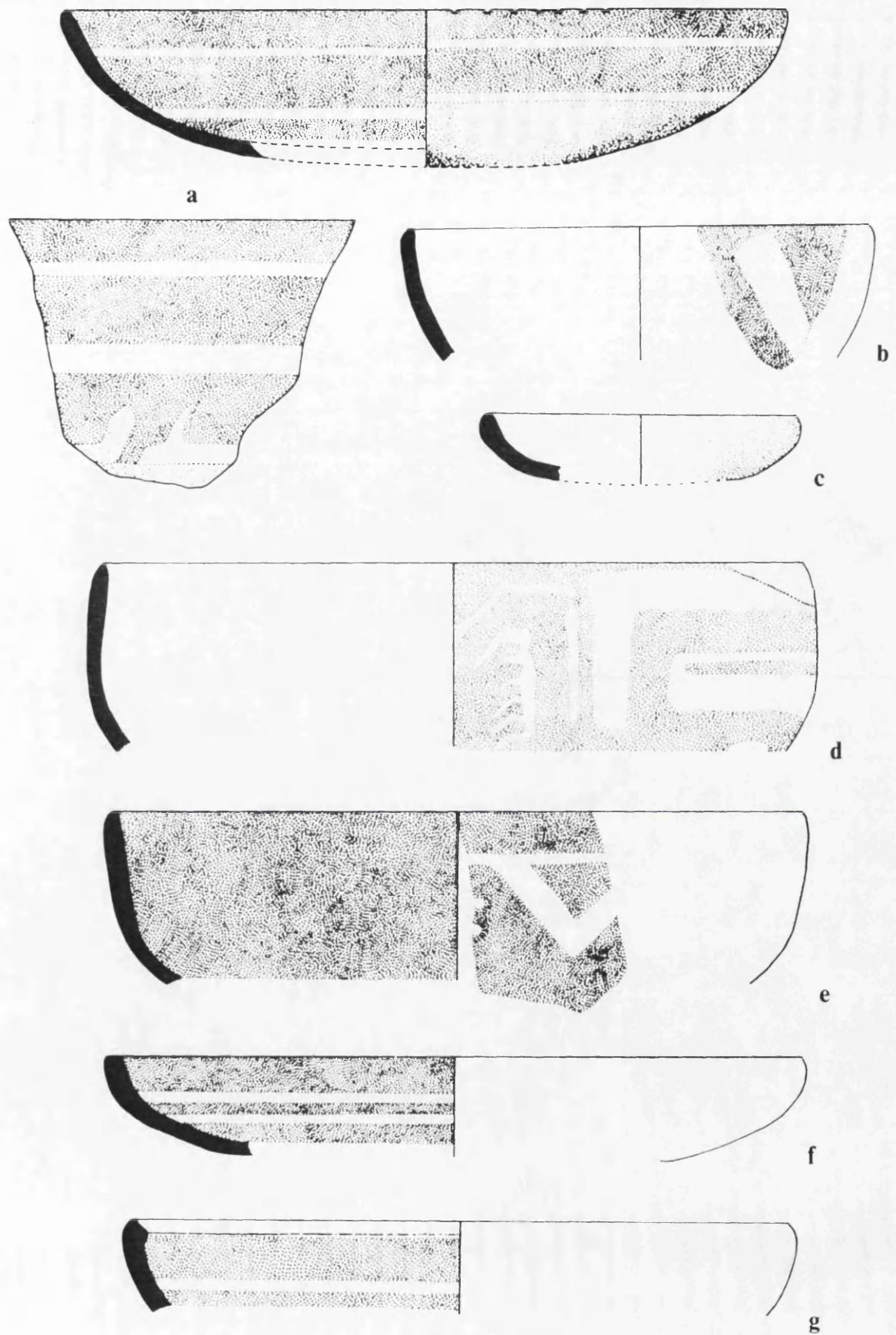


b



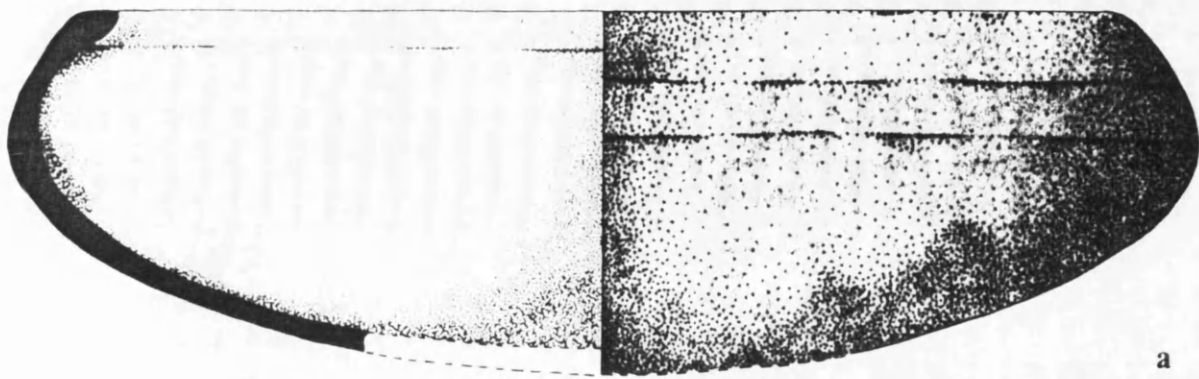
10 CM

fig 44



10 CM

fig 45



a



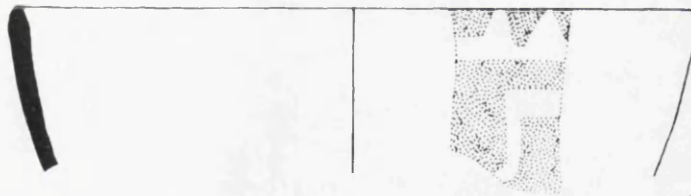
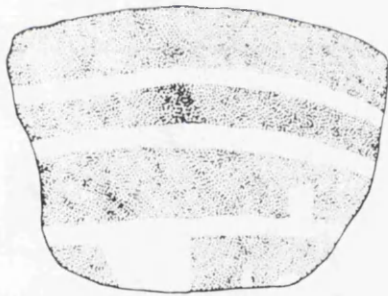
b



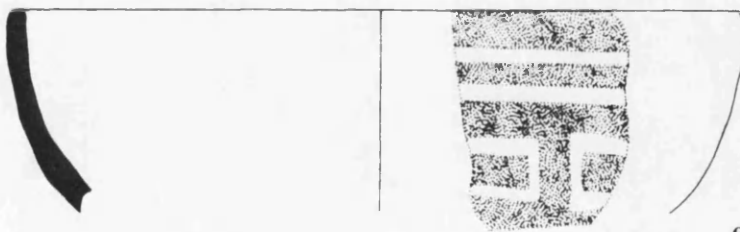
10 CM



c



d



e

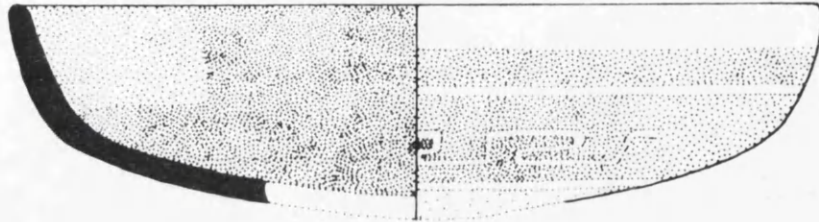


f

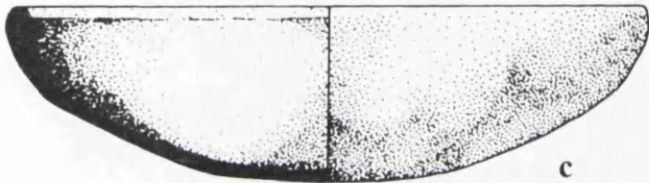
fig 46



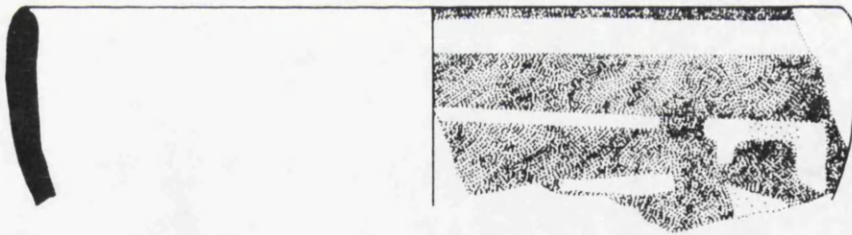
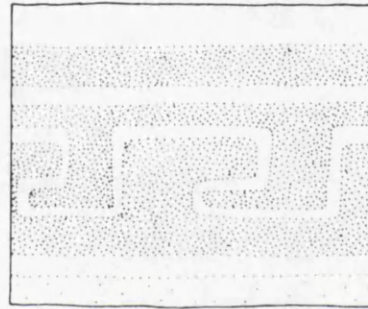
a



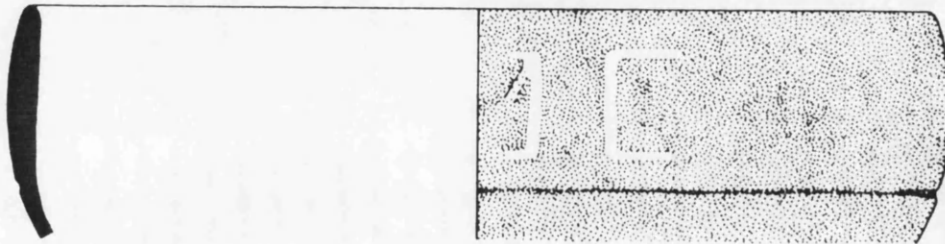
b



c



d

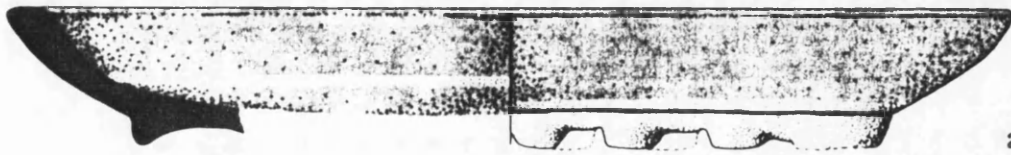


e

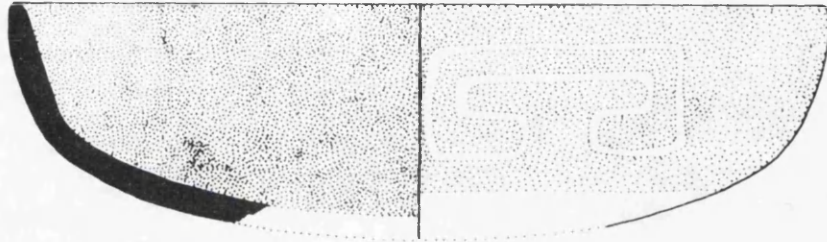


10 CM

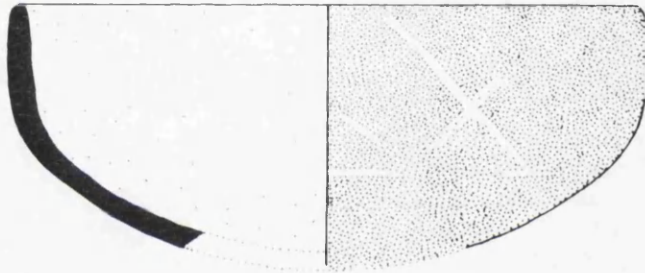
fig 47



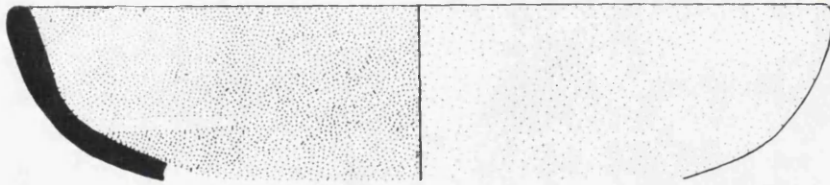
a



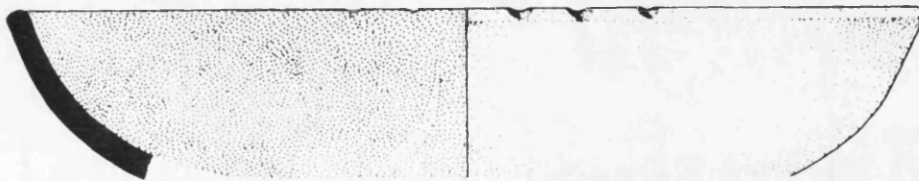
b



c



d



e

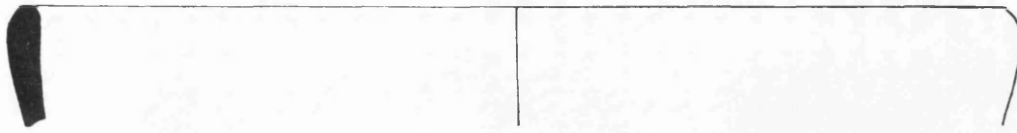


10 CM

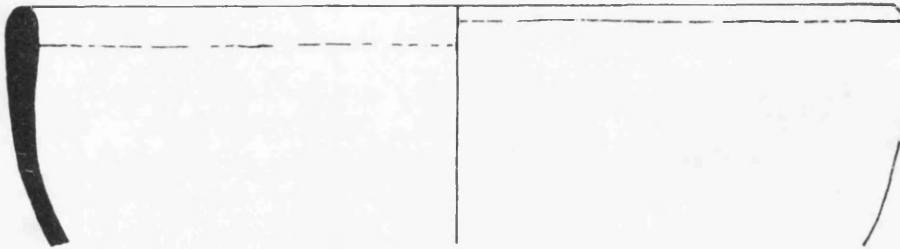
fig 48



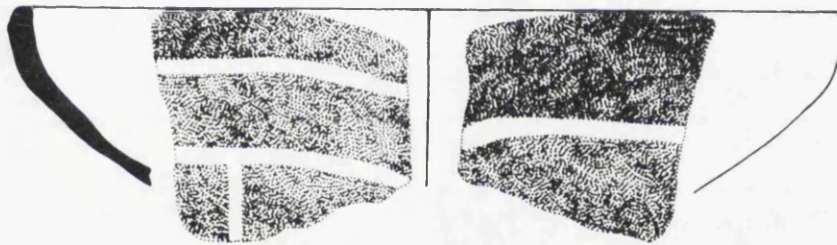
a



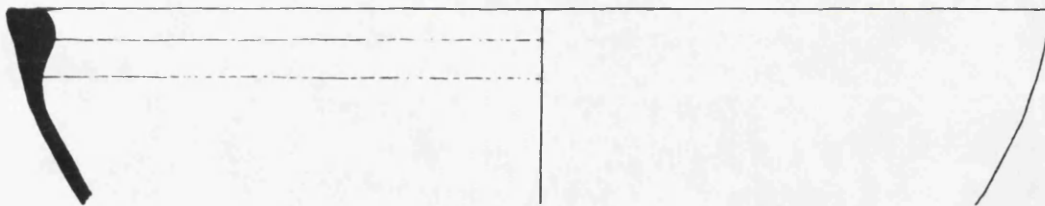
b



c



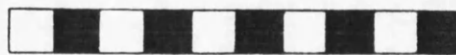
d



e



f



10 CM

fig 49

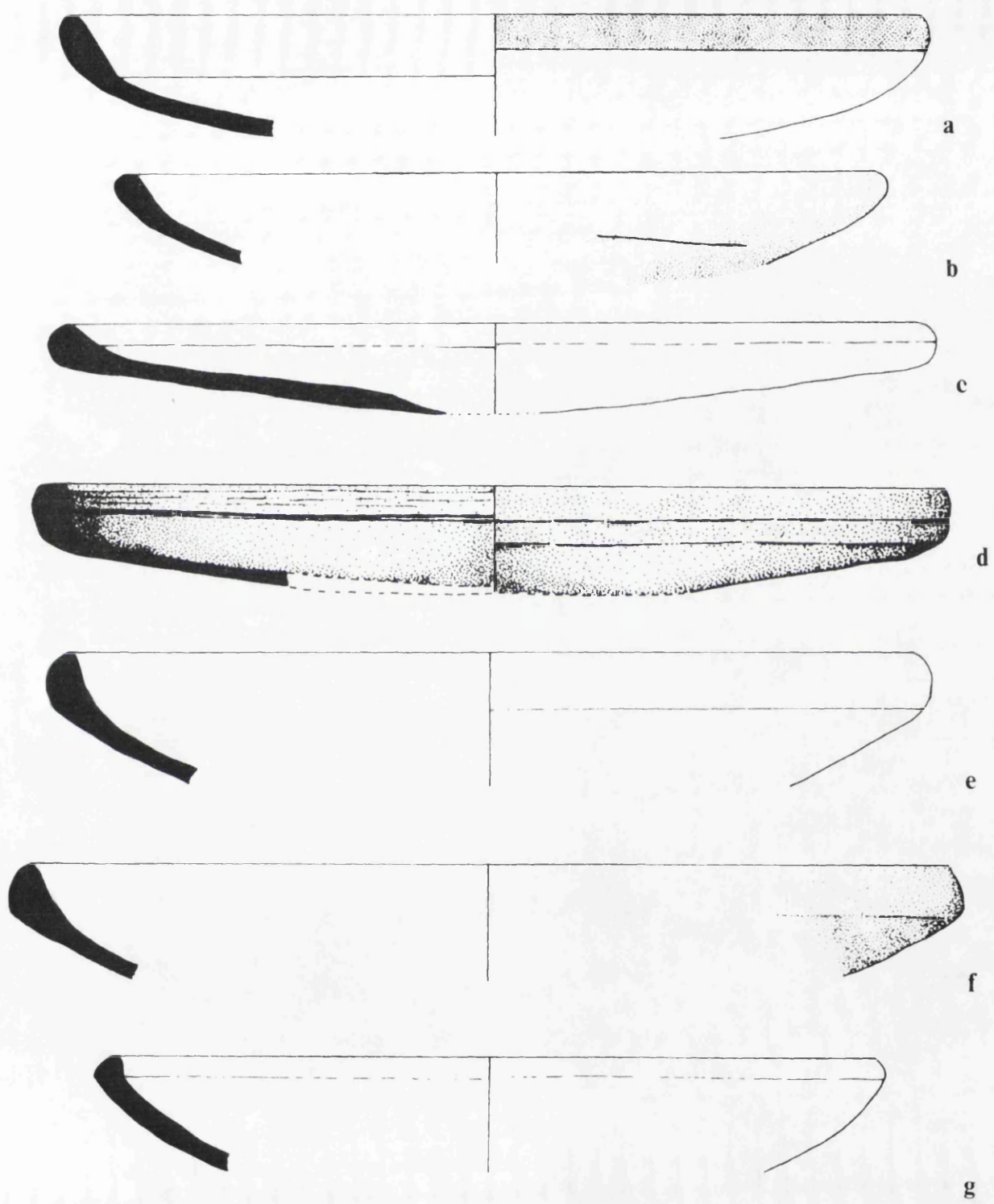
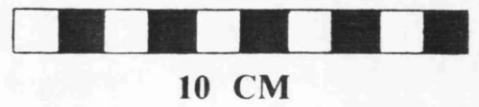
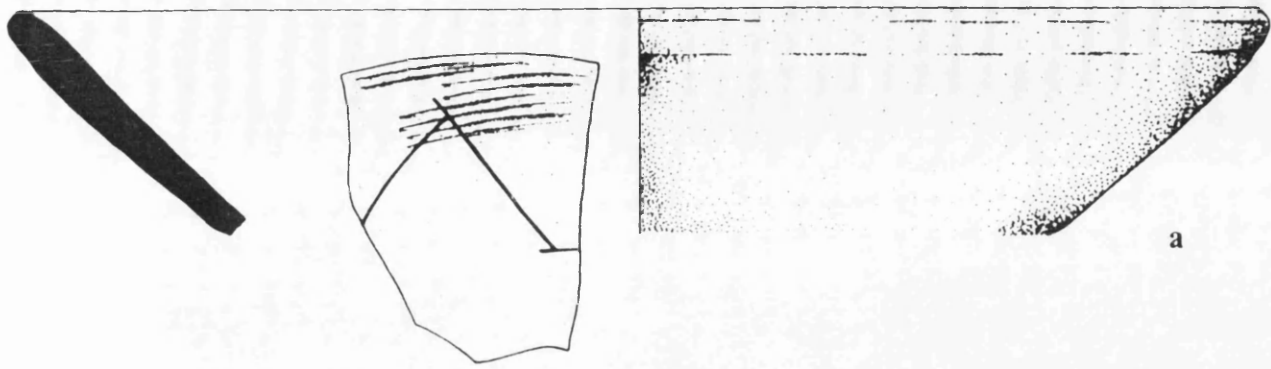
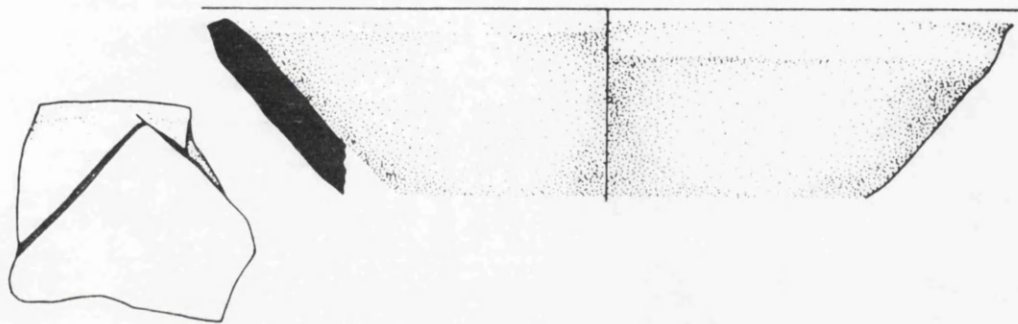


fig 50

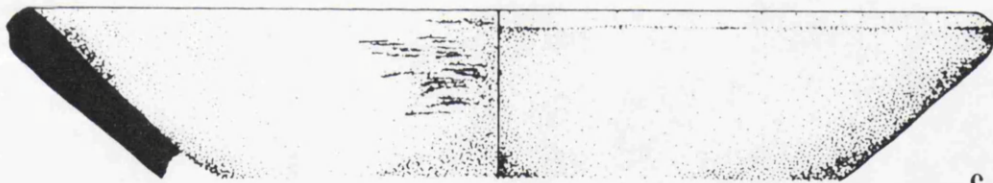




a



b



c



10 CM

fig 51

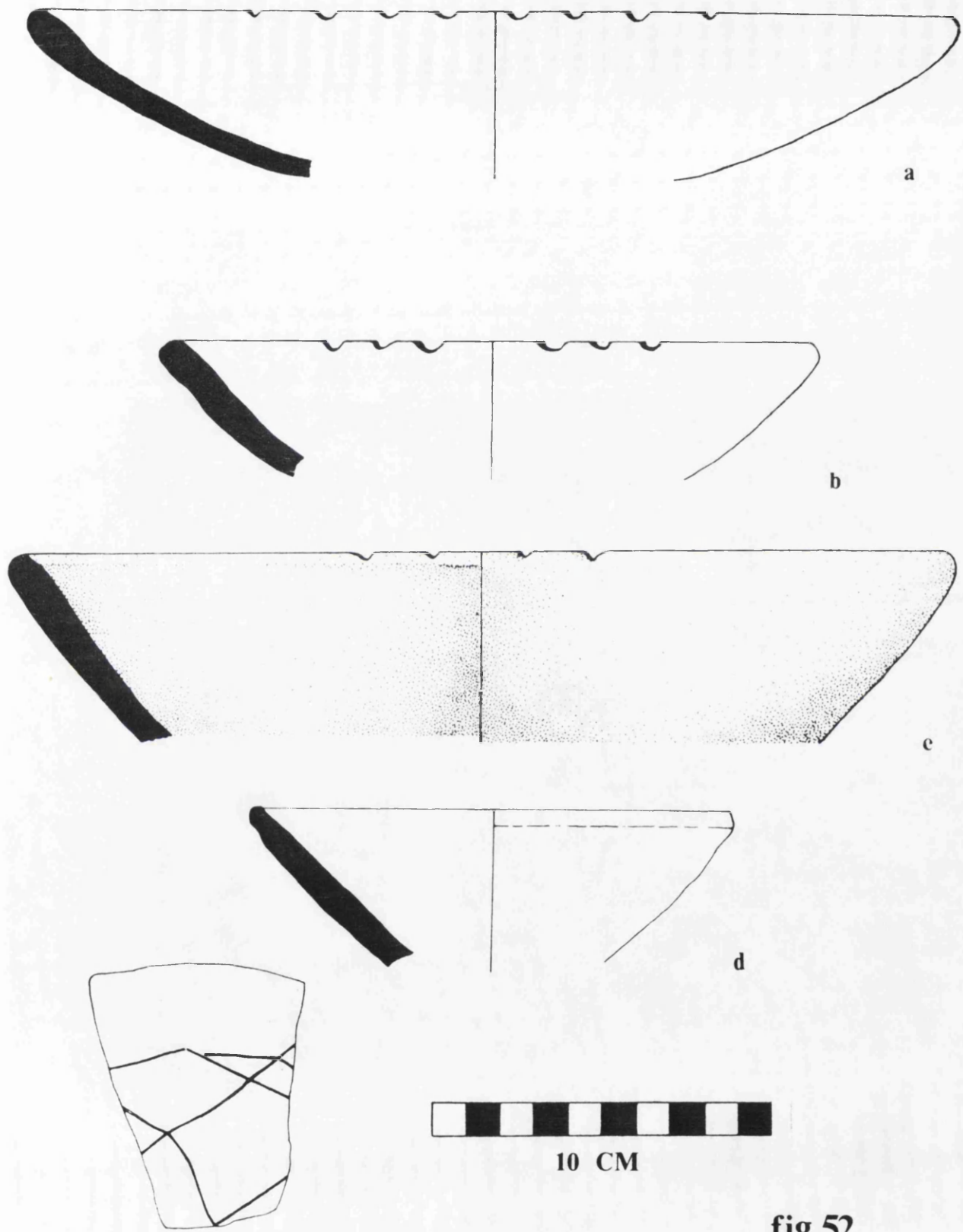
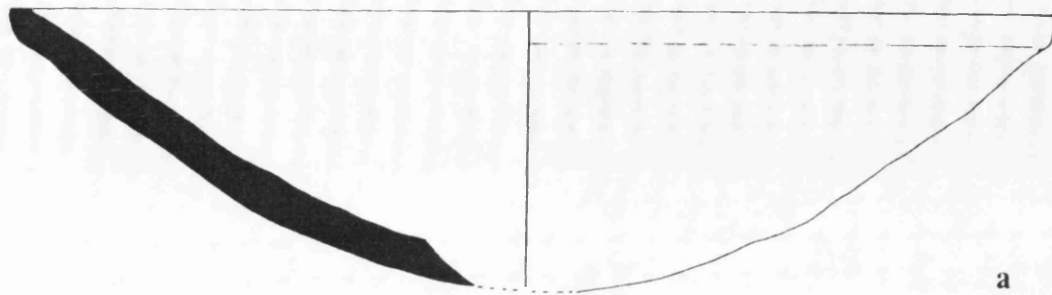
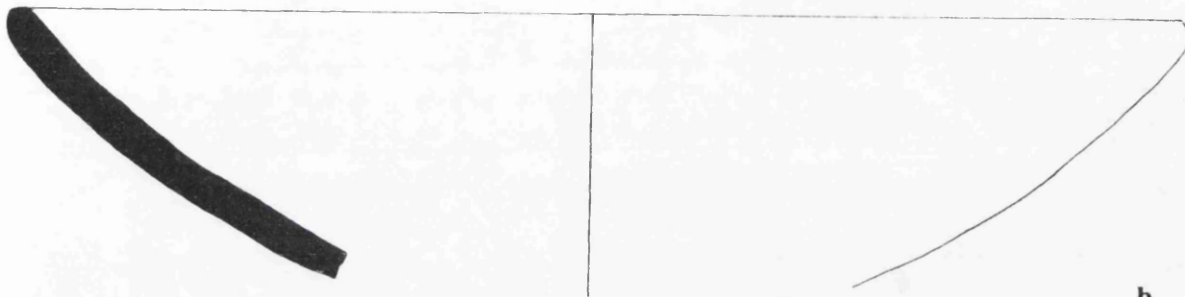


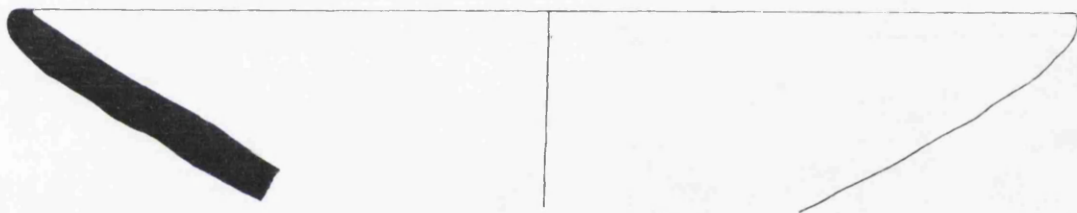
fig 52



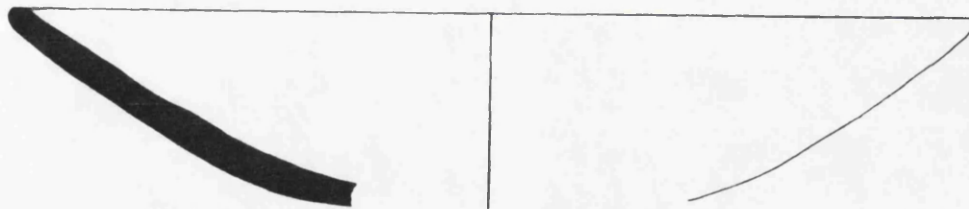
a



b



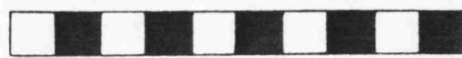
c



d

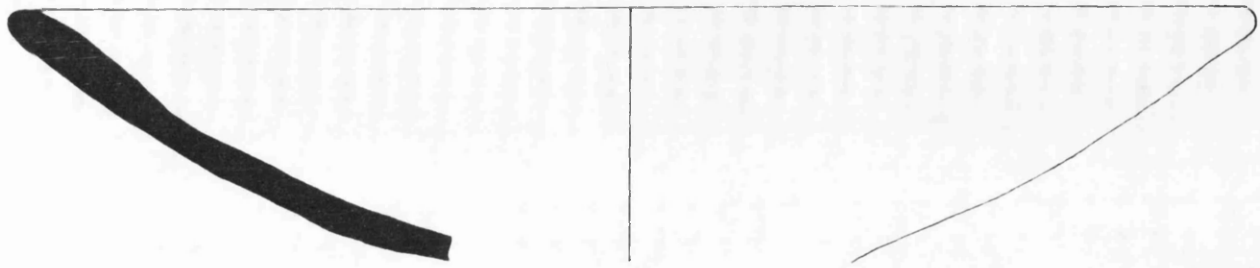


e

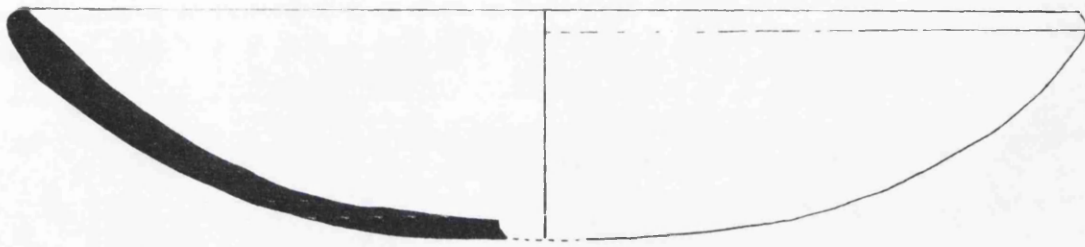


10 CM

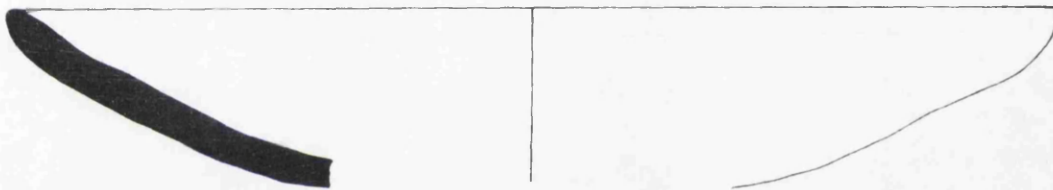
fig 53



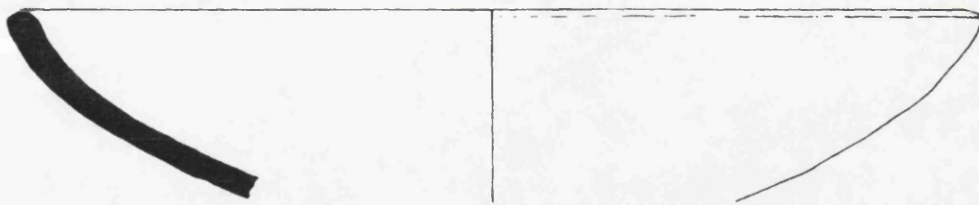
a



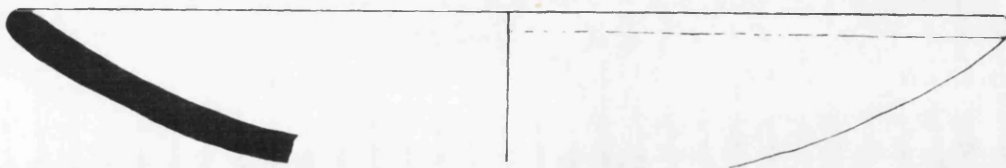
b



c



d



e



10 CM

fig 54

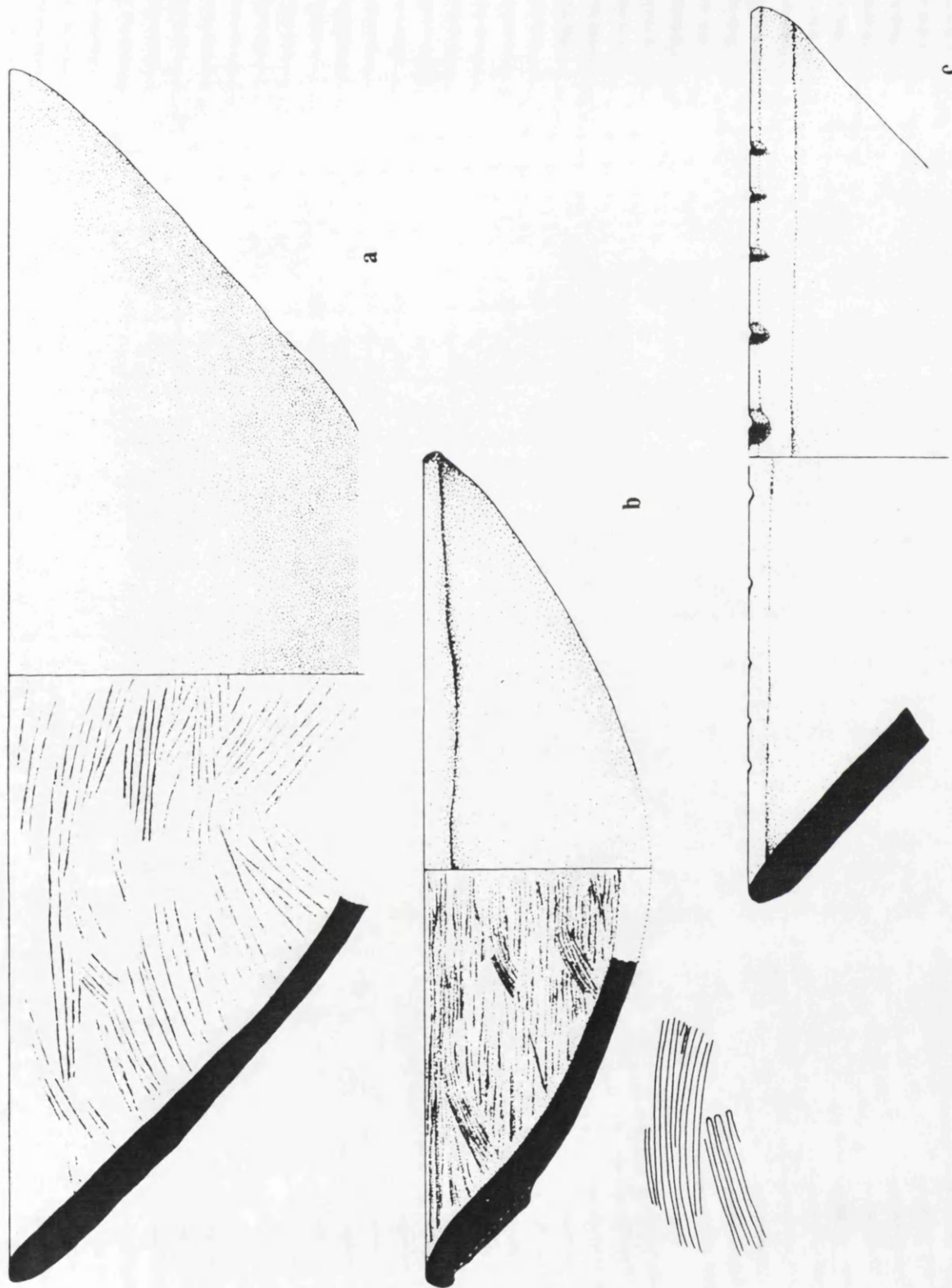
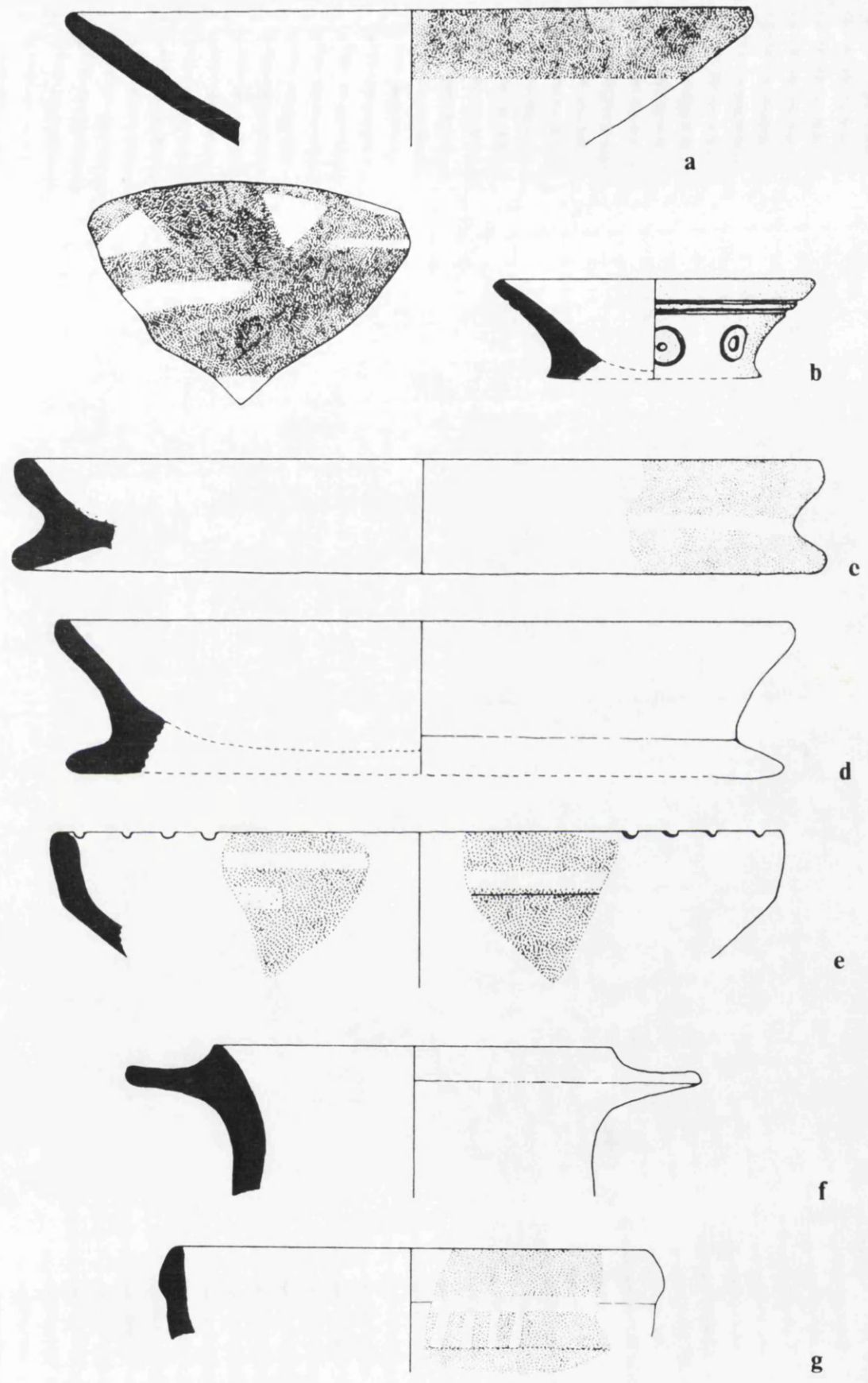


fig 55

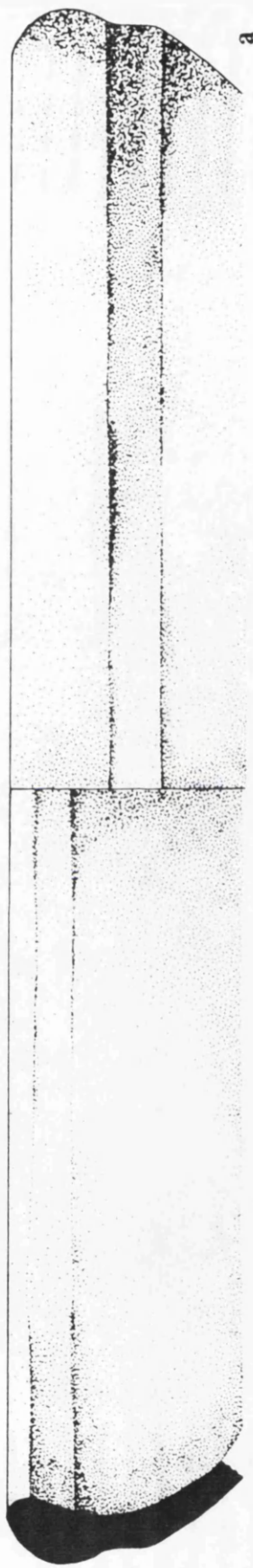


10 CM

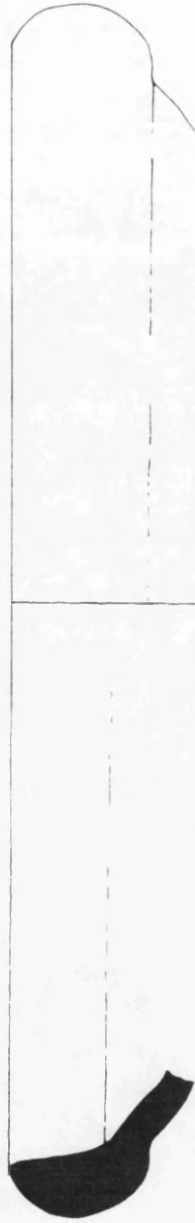


10 CM

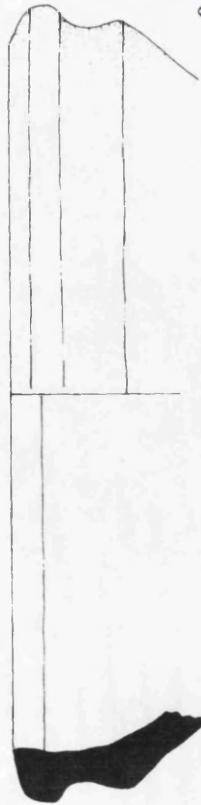
fig 56



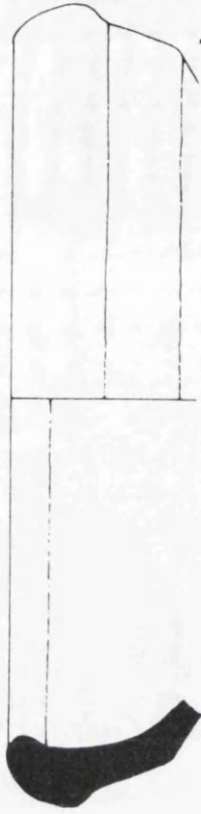
a



b



c

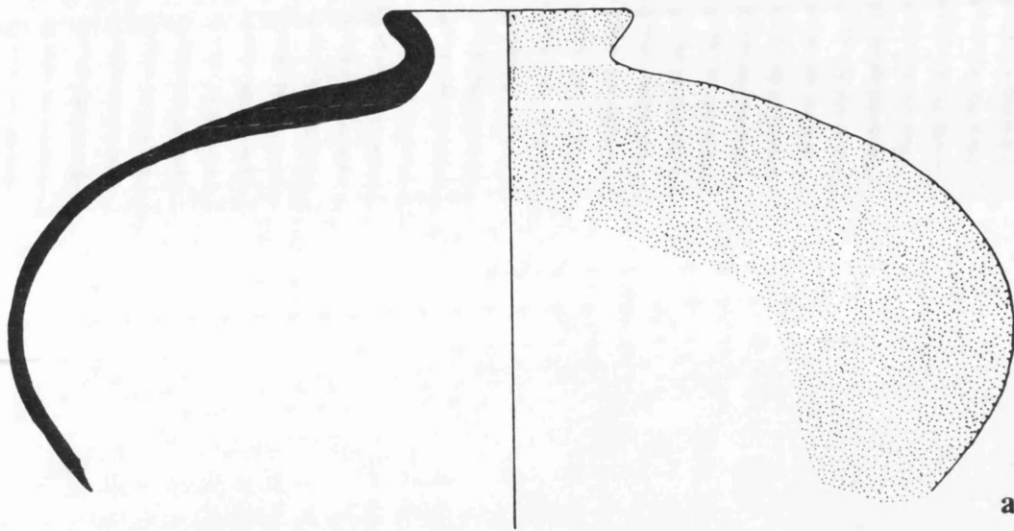


d



10 CM

fig 57



a



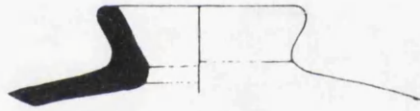
10 CM



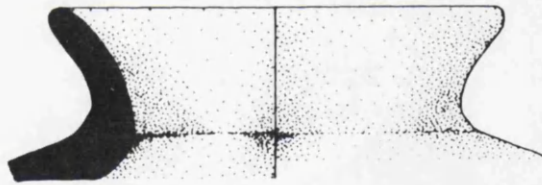
b



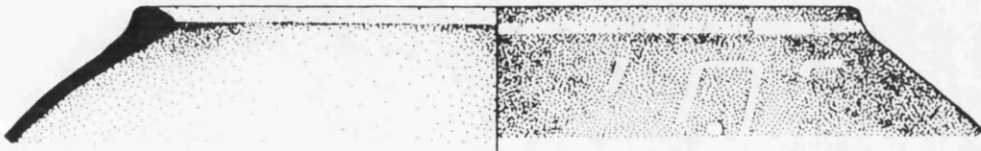
c



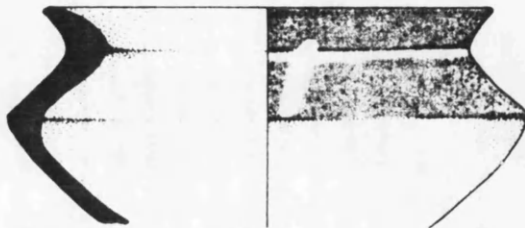
d



e

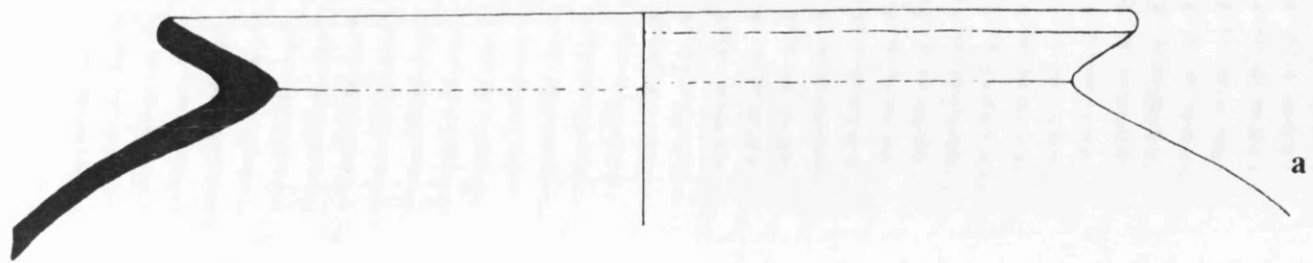


f

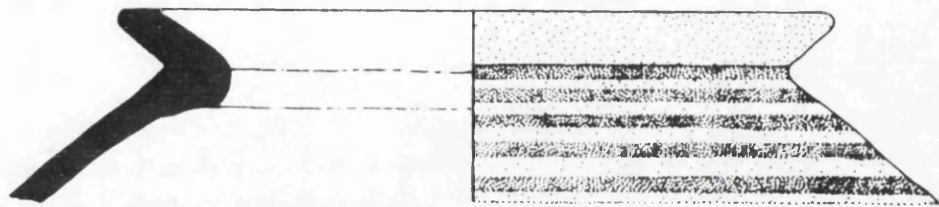


g

fig 58



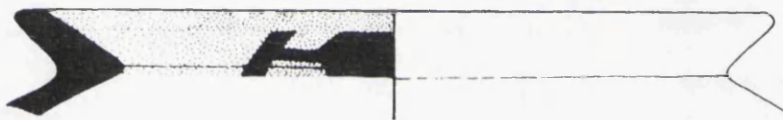
a



b



c



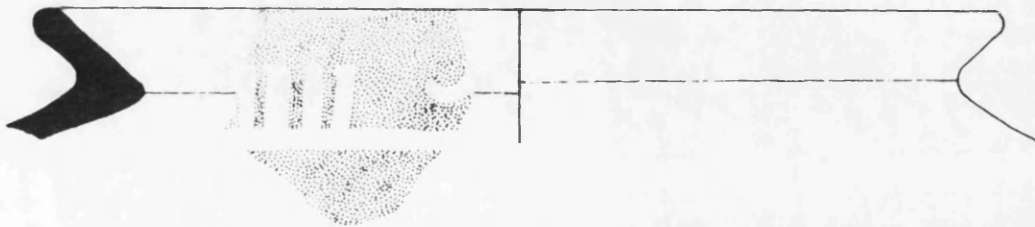
d



e



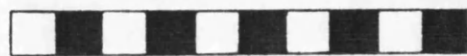
f



g

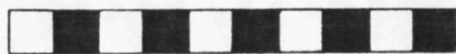
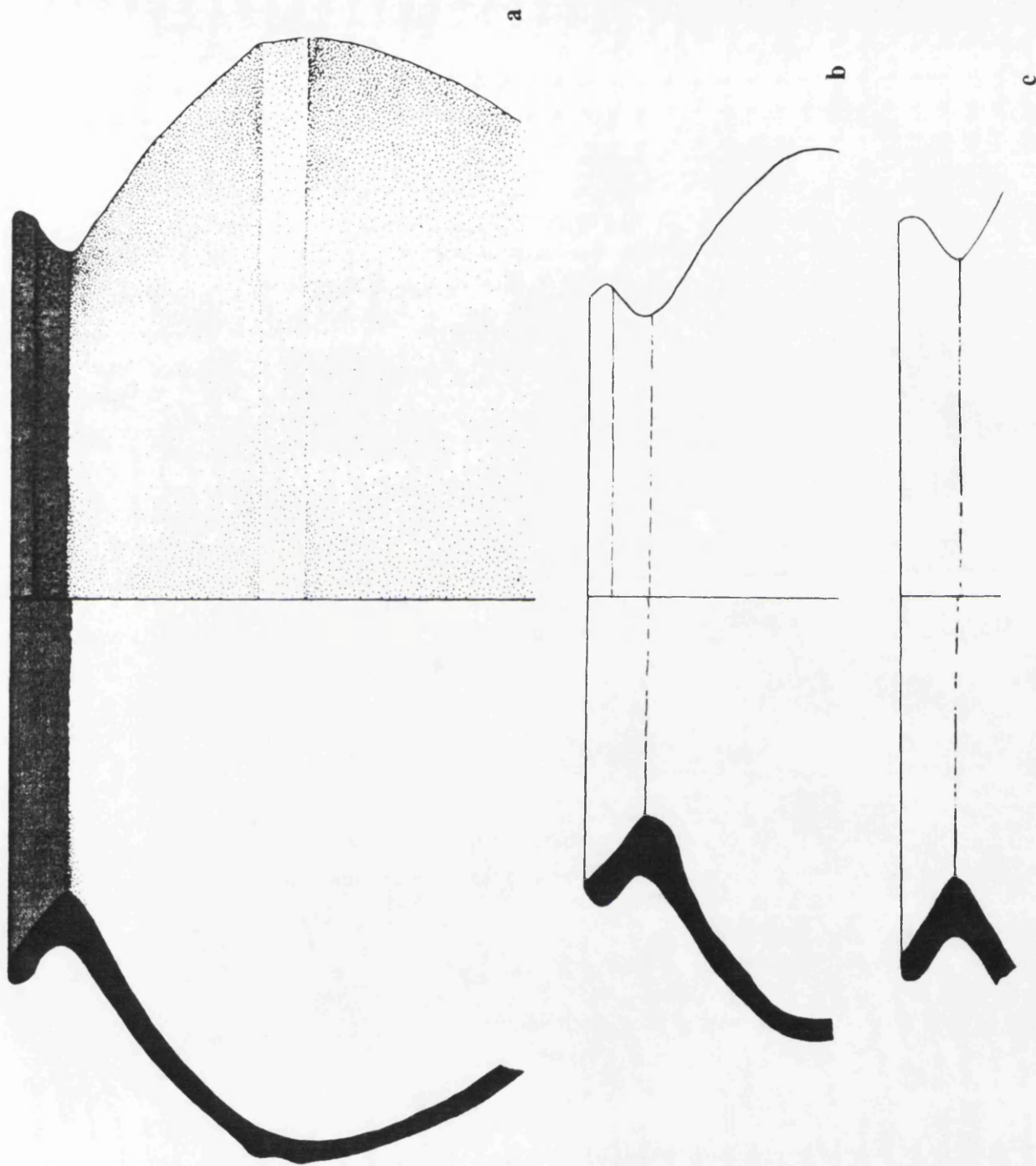


h



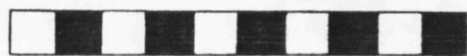
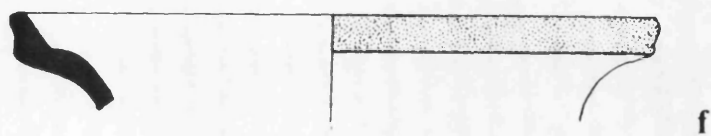
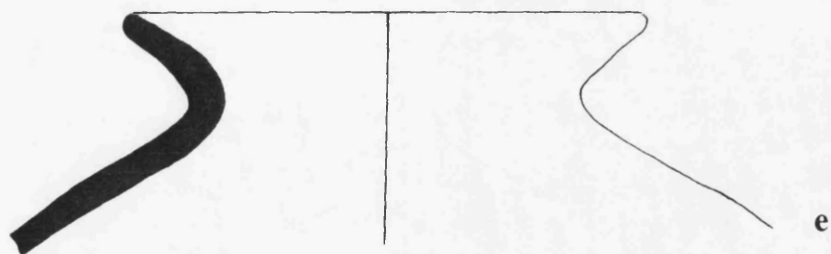
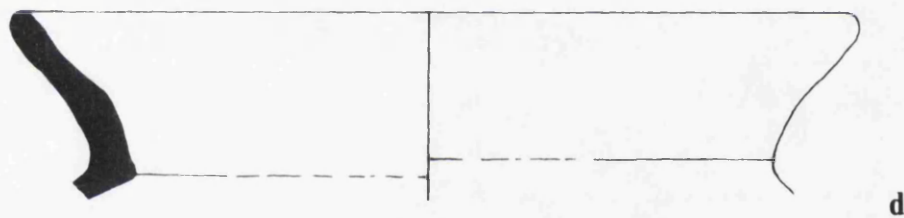
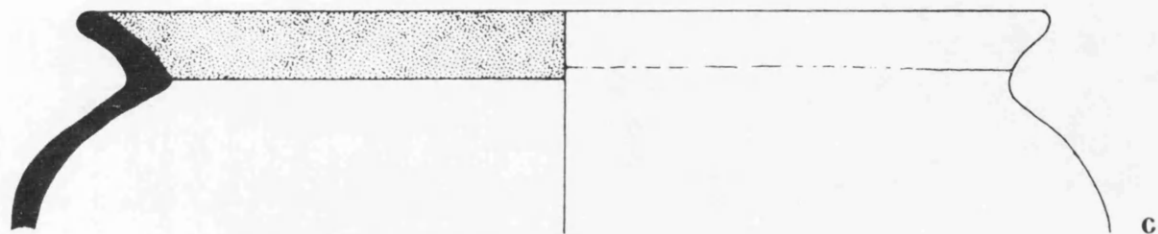
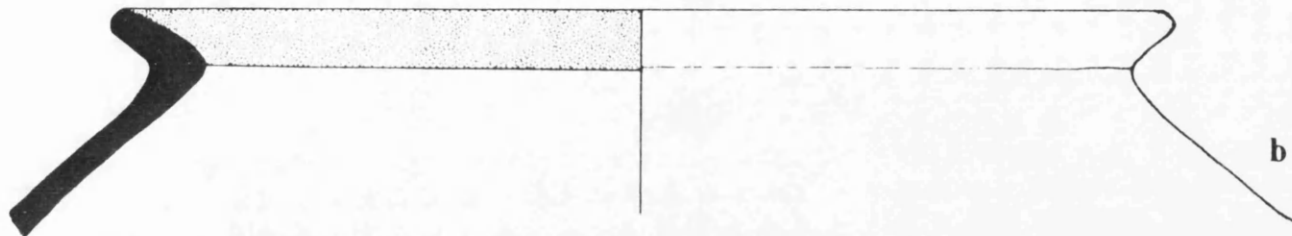
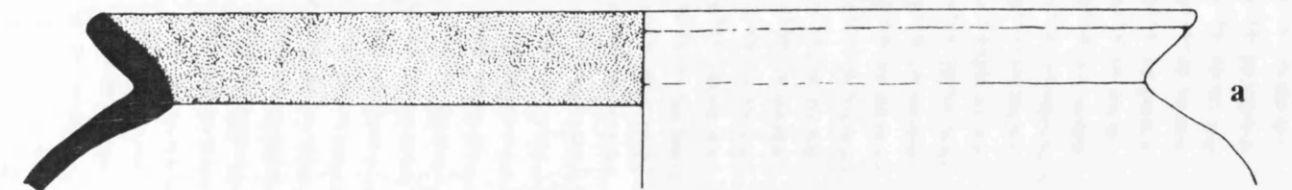
10 CM

fig 59



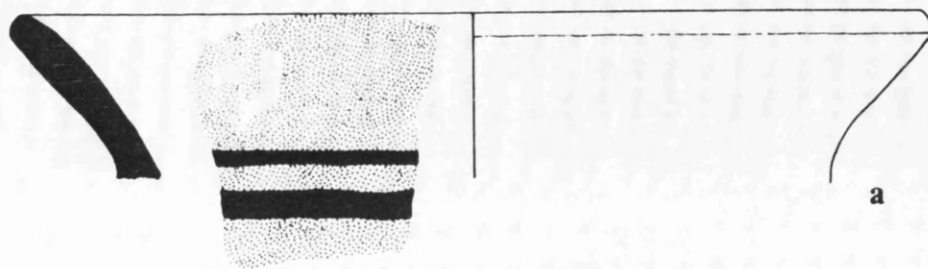
10 CM

fig 60

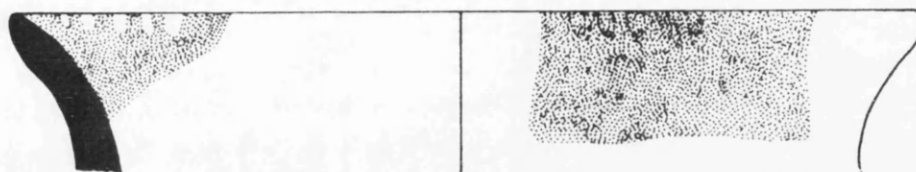


10 CM

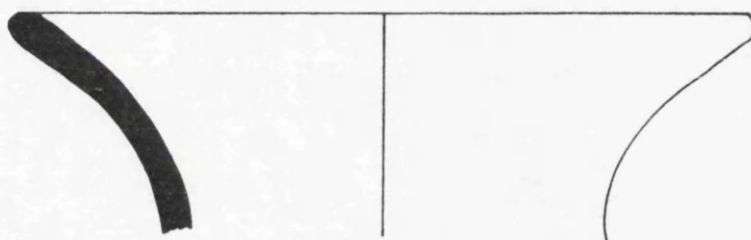
fig 61



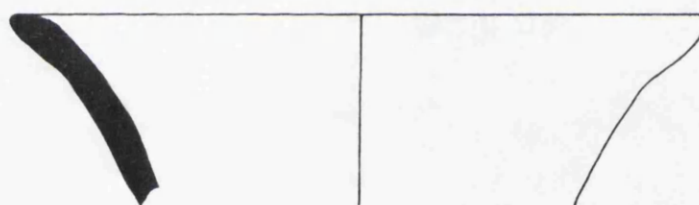
a



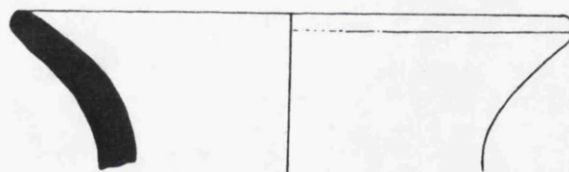
b



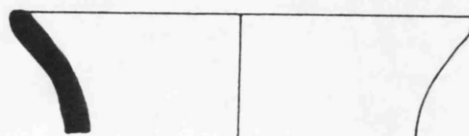
c



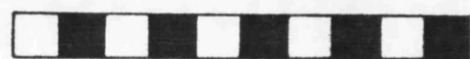
d



e



f



10 CM

fig 62

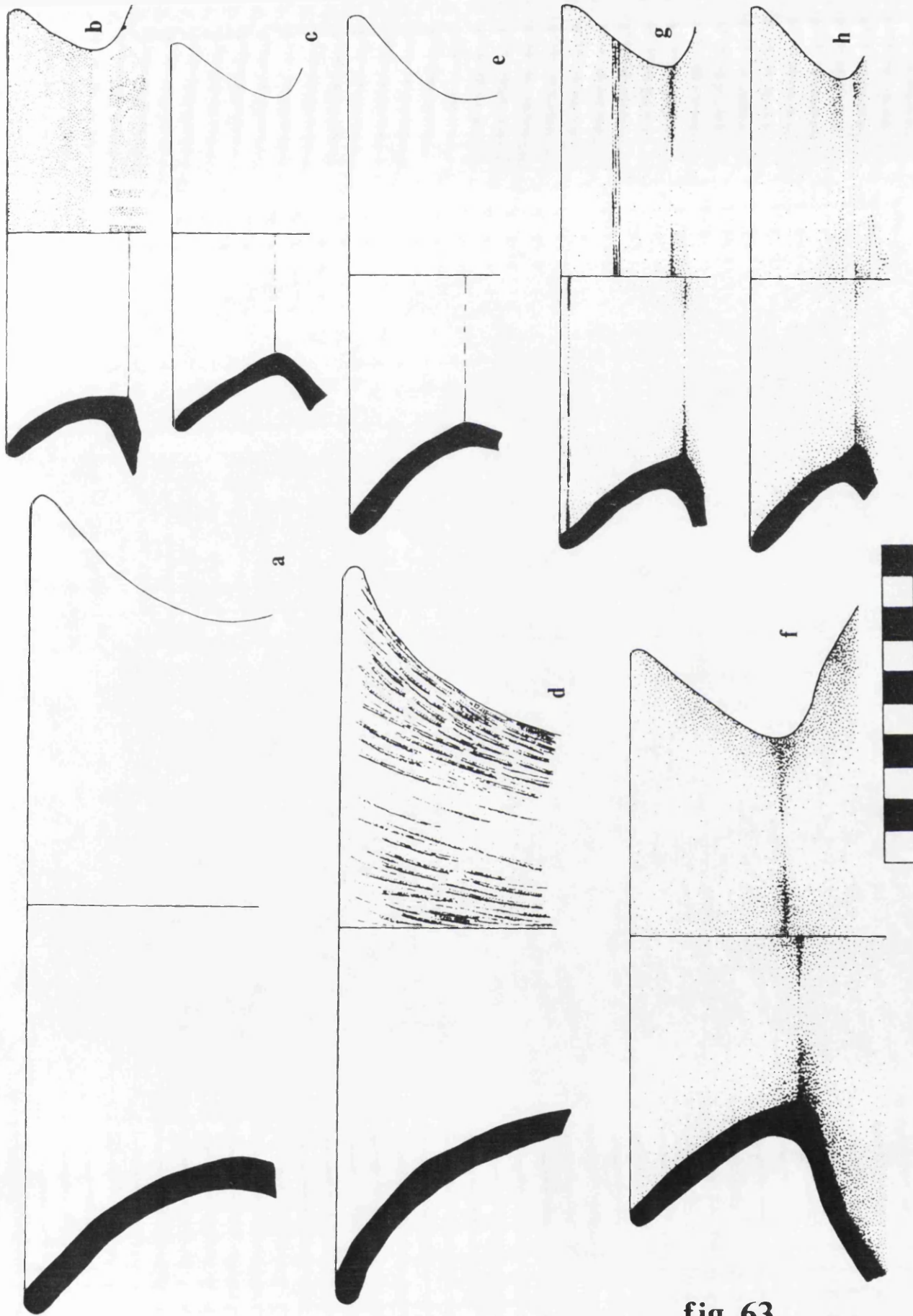
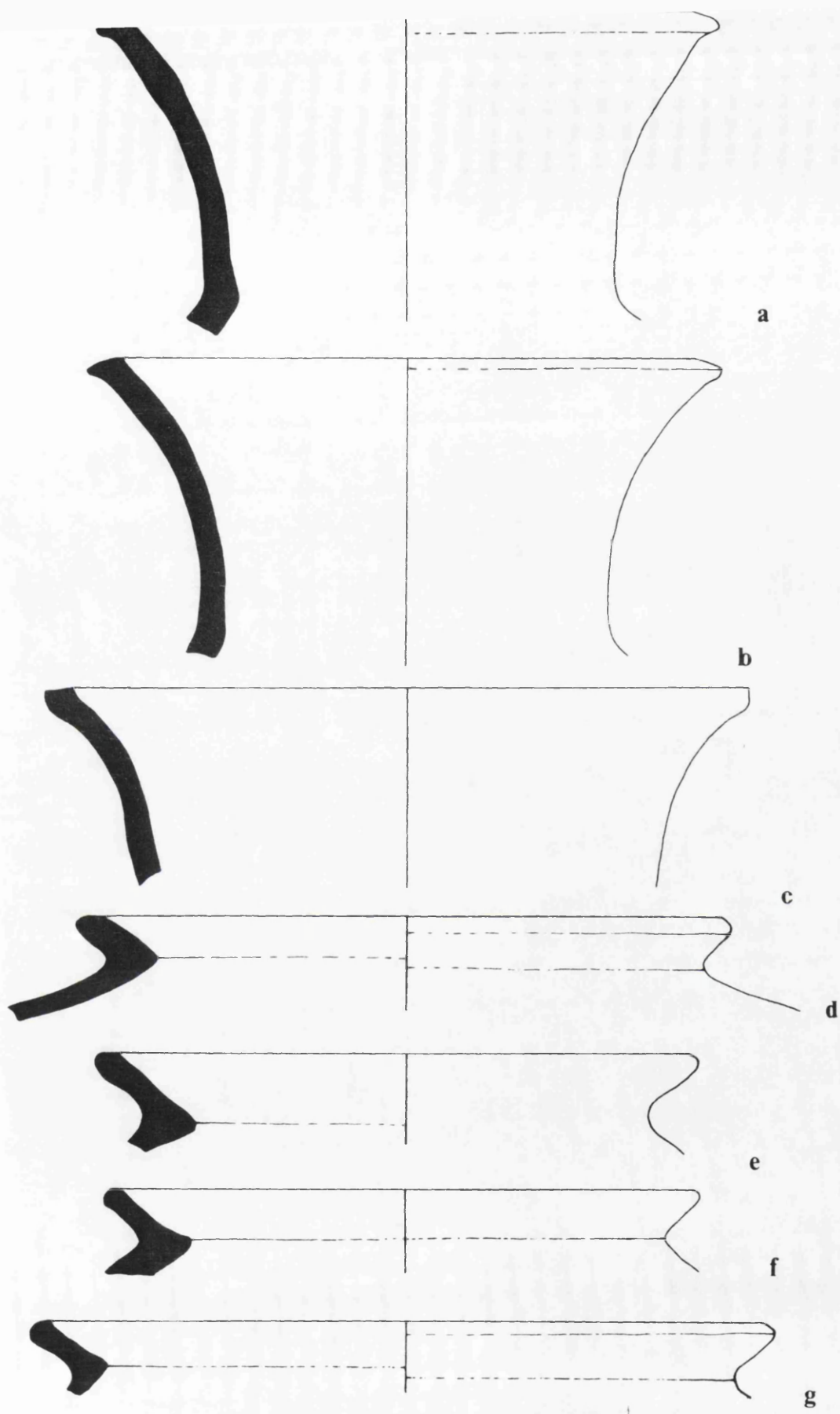
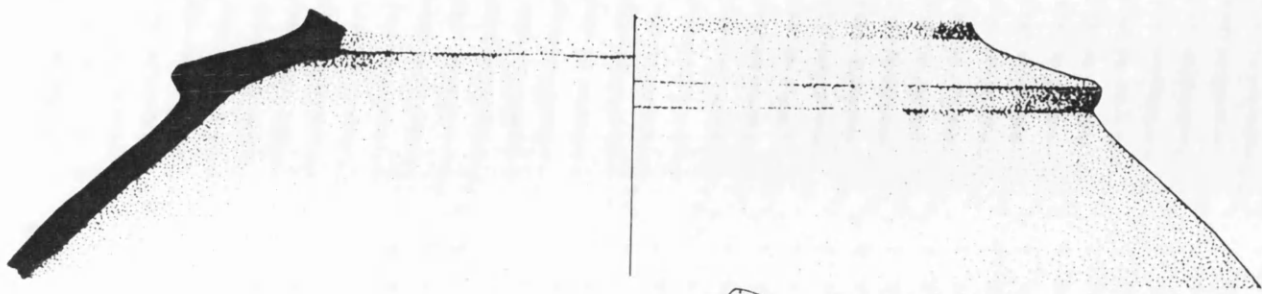


fig 63

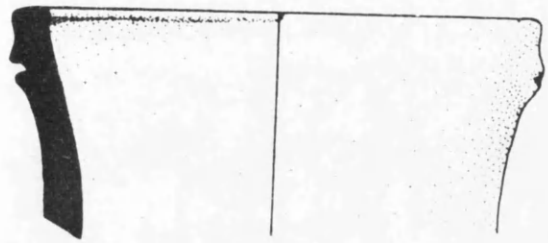
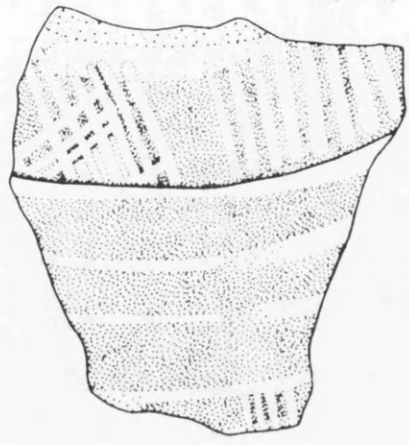


10 CM

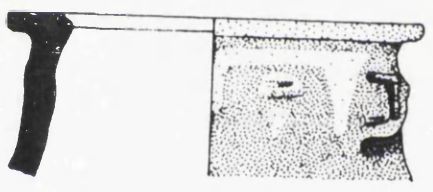
fig 64



a



b



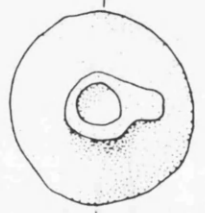
c



e



d



f



10 CM

fig 65

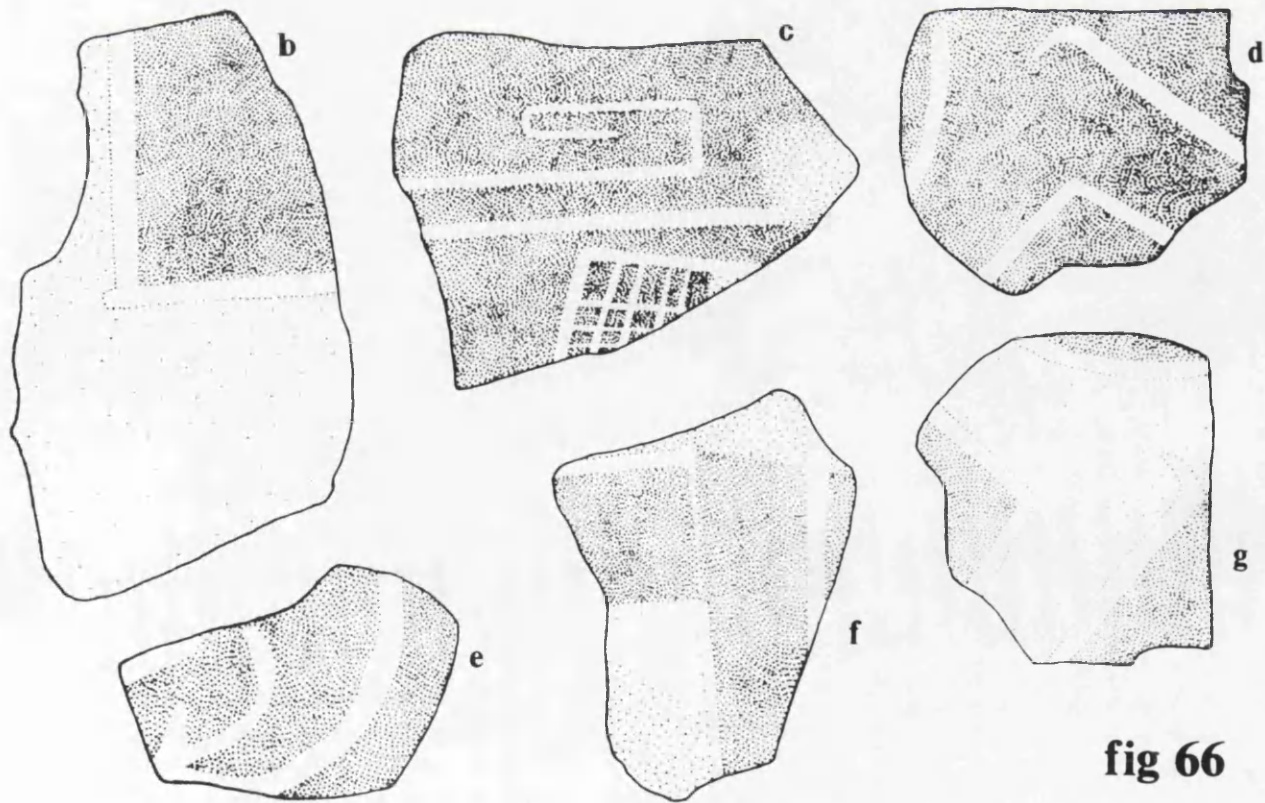
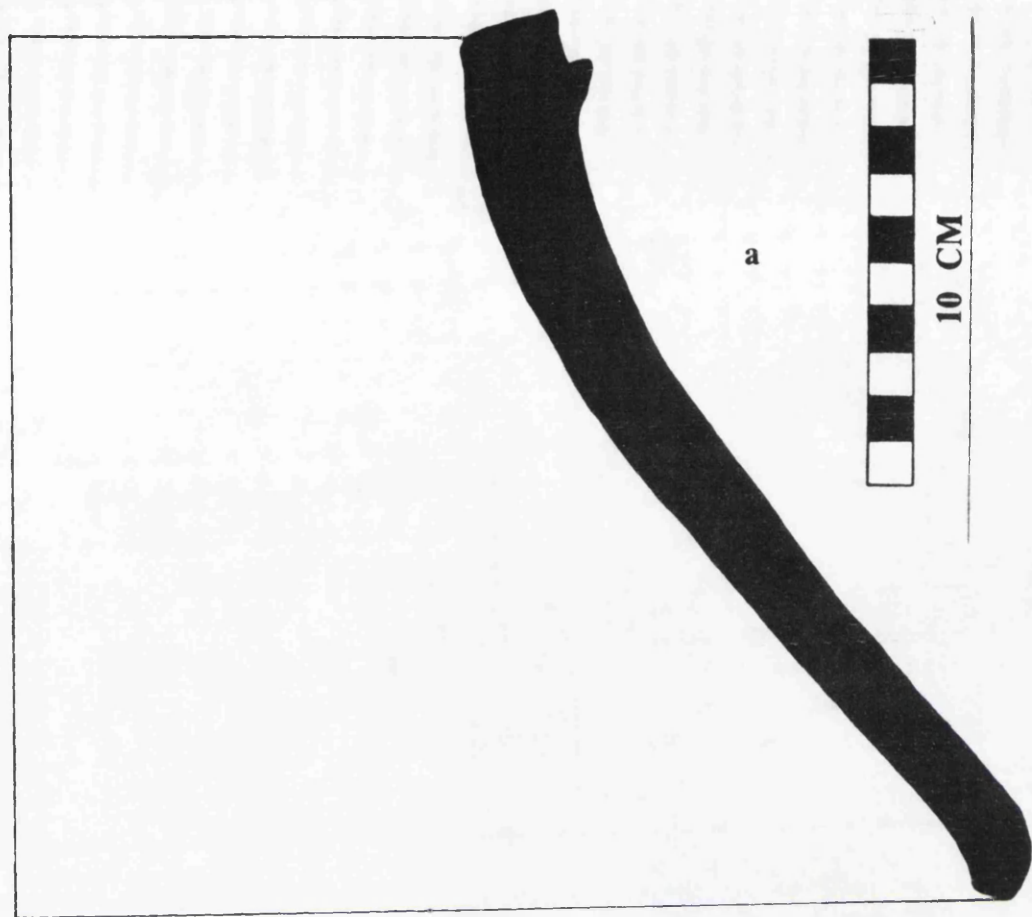
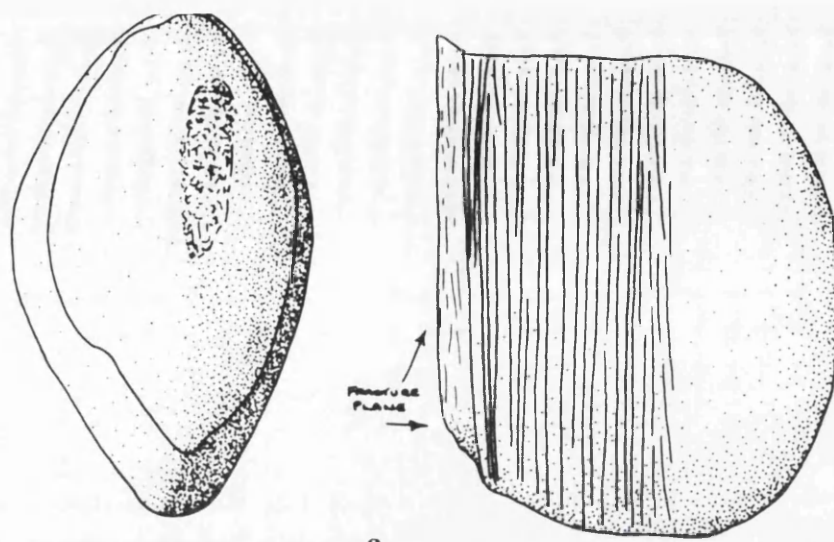
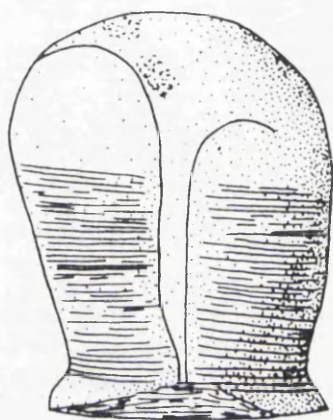


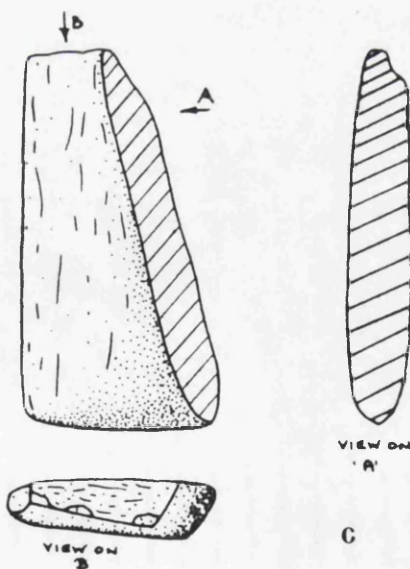
fig 66



a

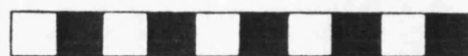


b



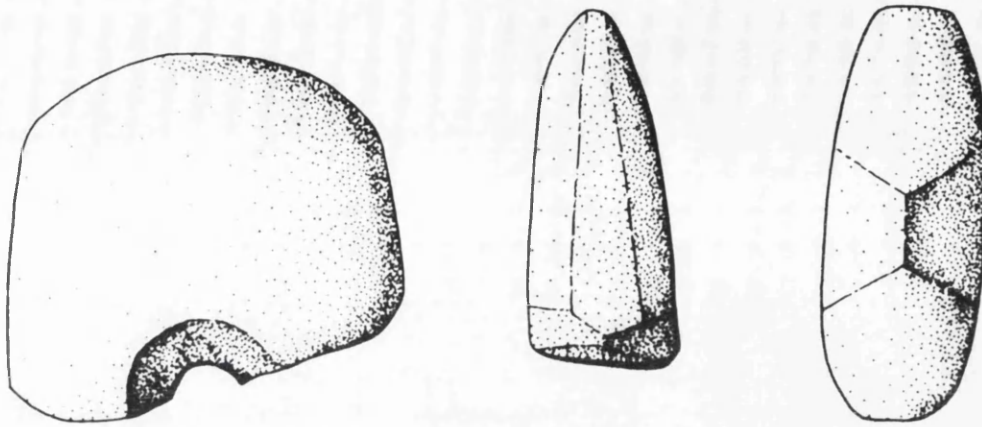
VIEW ON
A

C

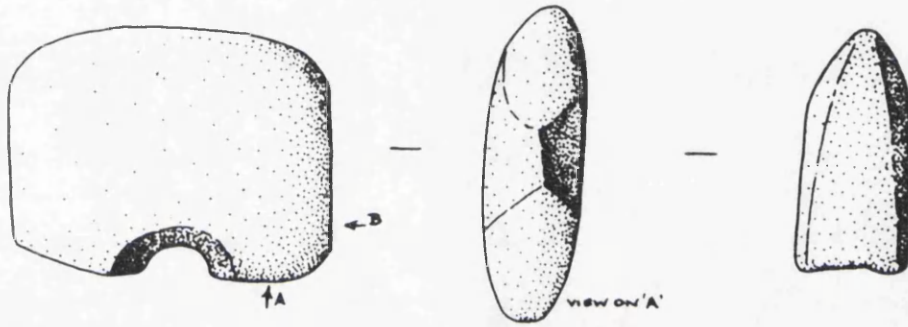


10 CM

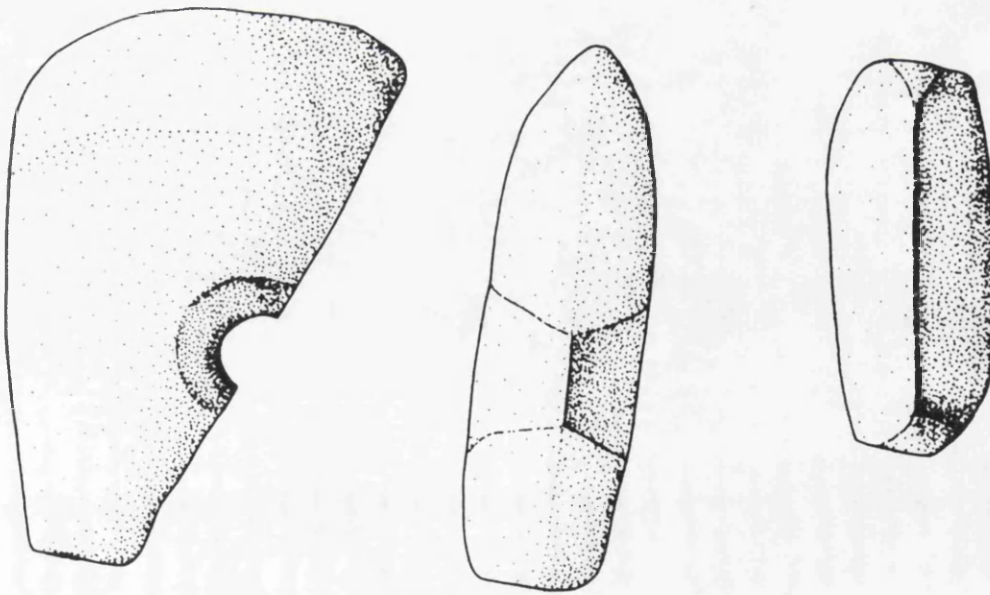
fig 68



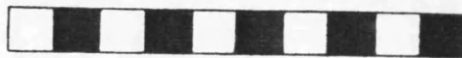
a



b



c



10 CM

fig 67

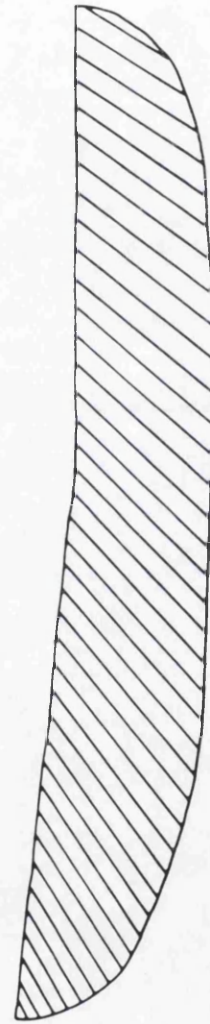
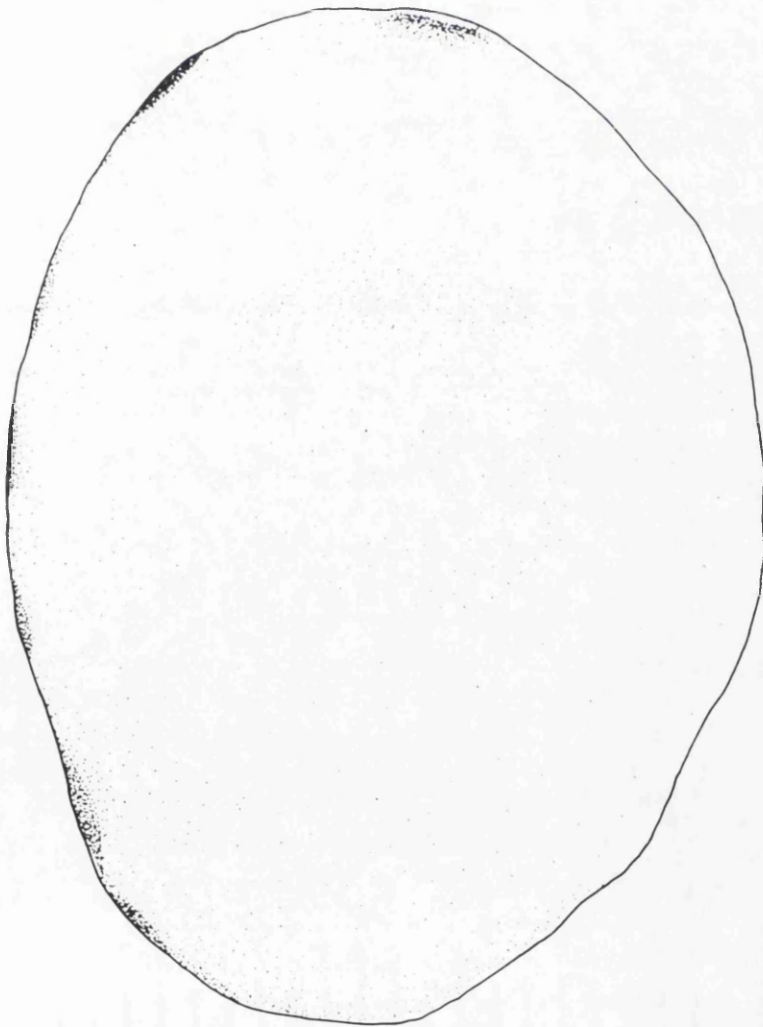
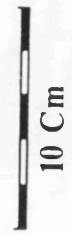
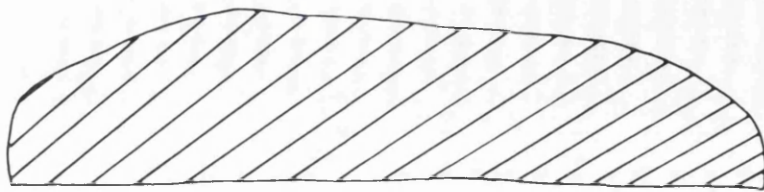
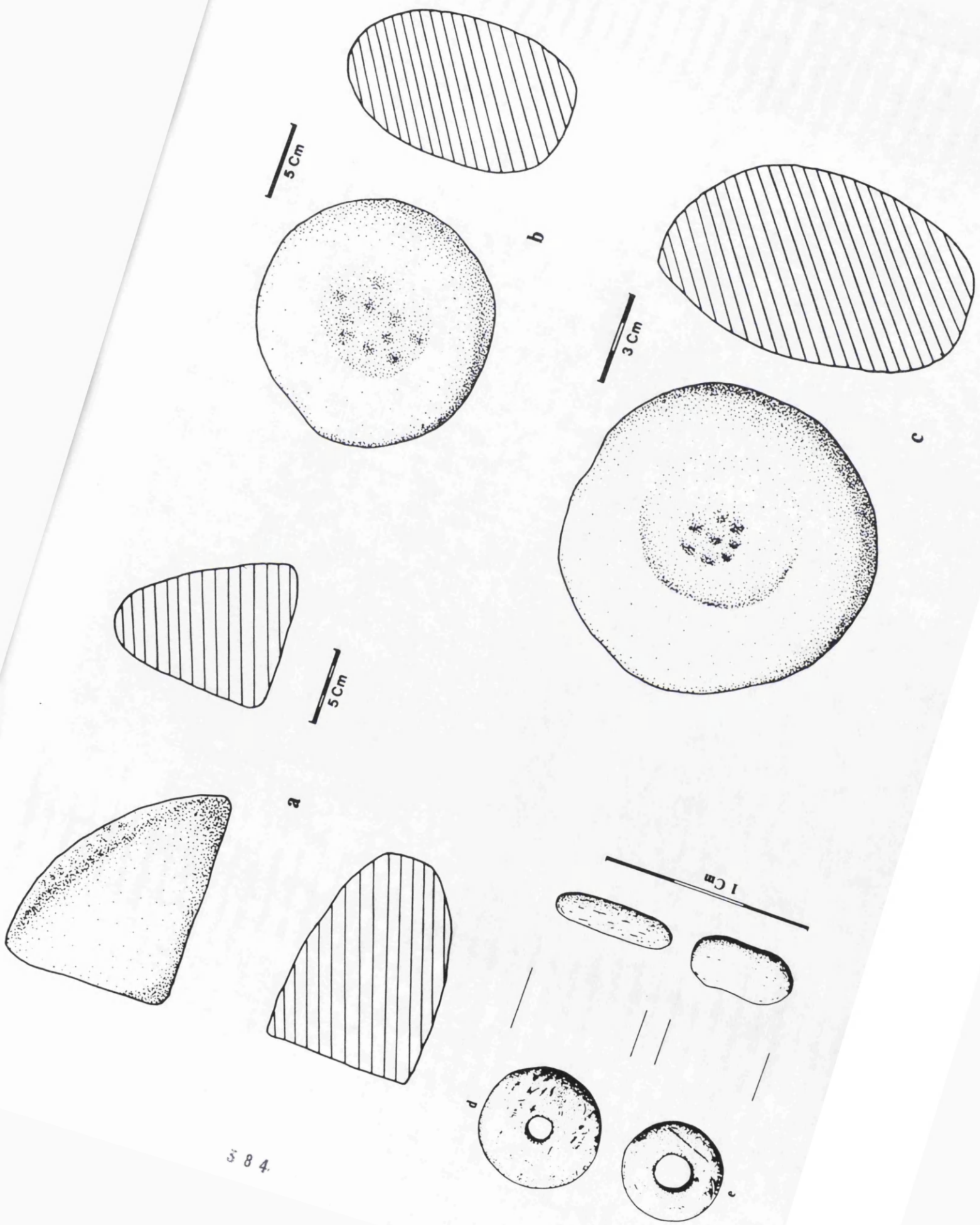


fig 69



584

fig 70

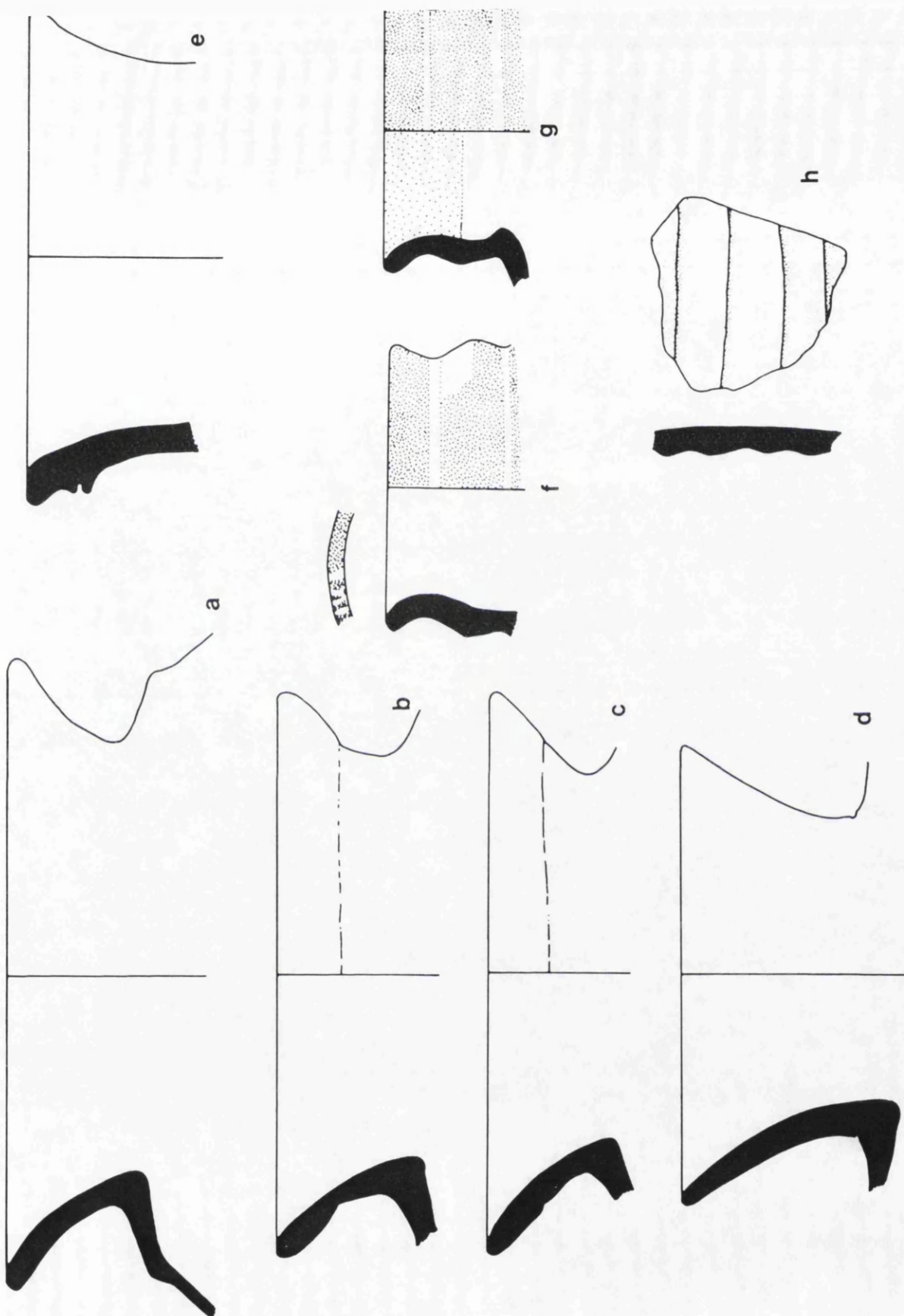
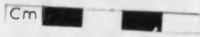


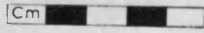
fig 71



1



4



6



2



5



7



3



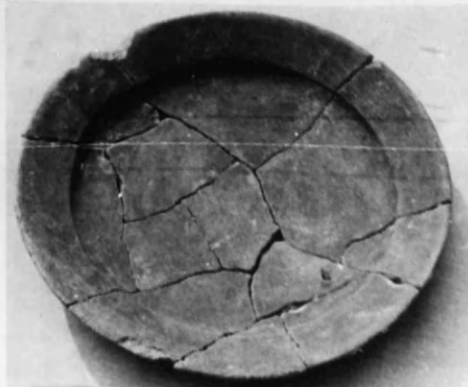
8



9



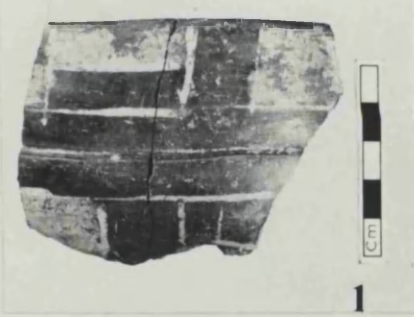
10



11



Pl 1



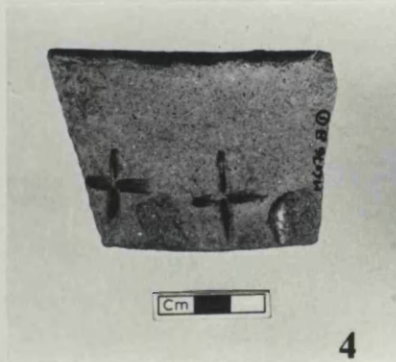
1



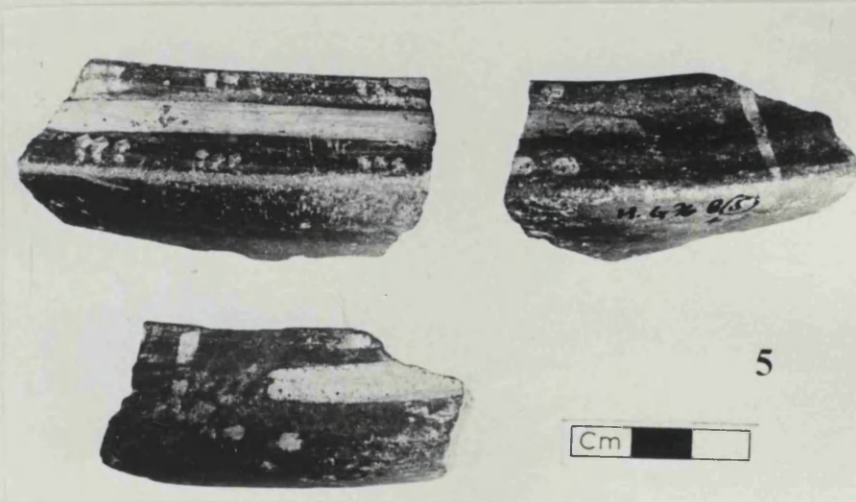
2



3



4



5



6



7

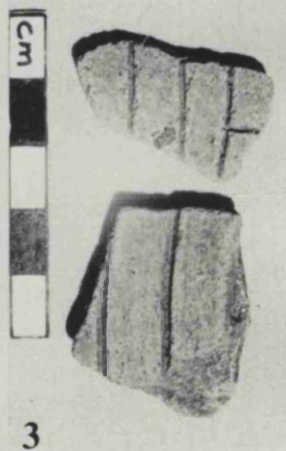
Pl 2



1



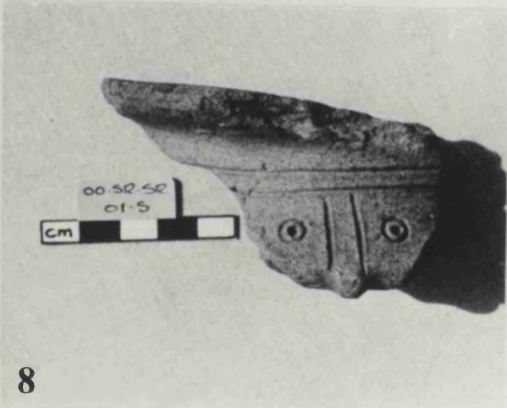
2



3



4



8



5

6

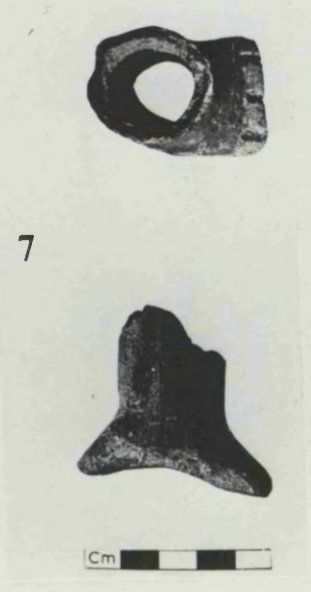


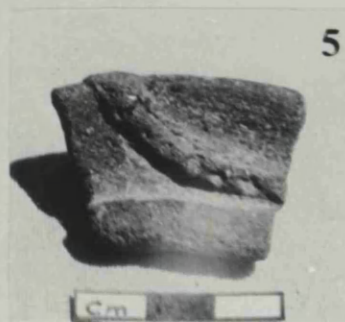
7



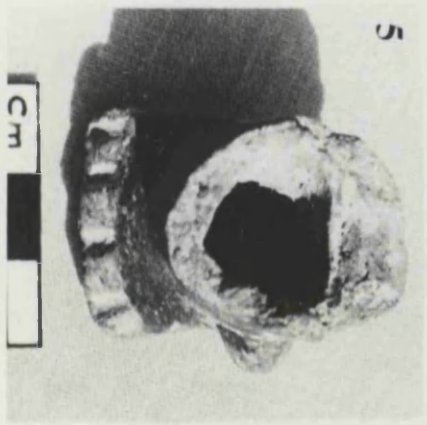
9

Pl 3

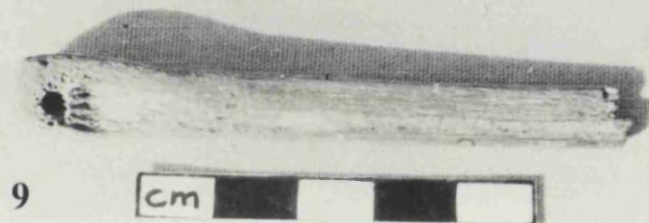
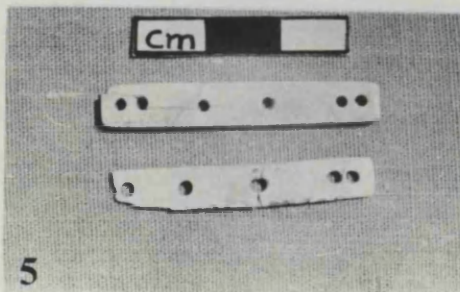














1

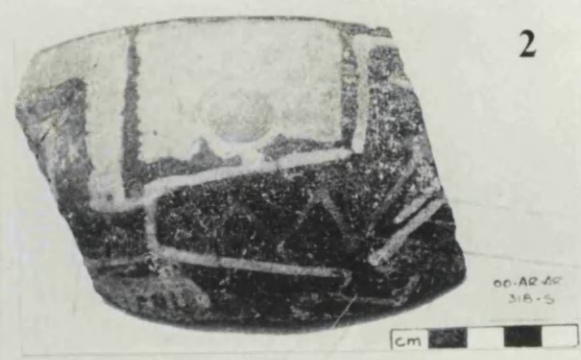


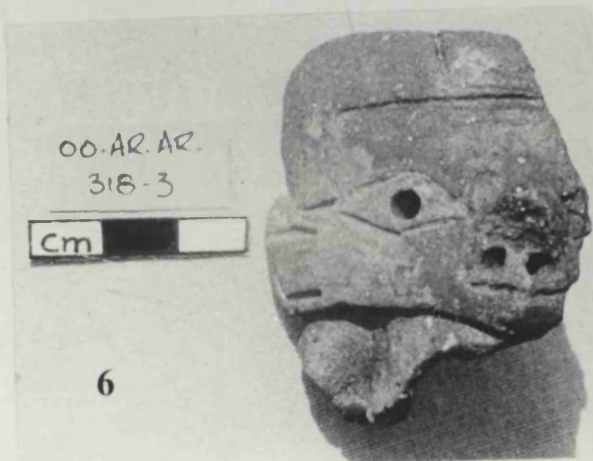
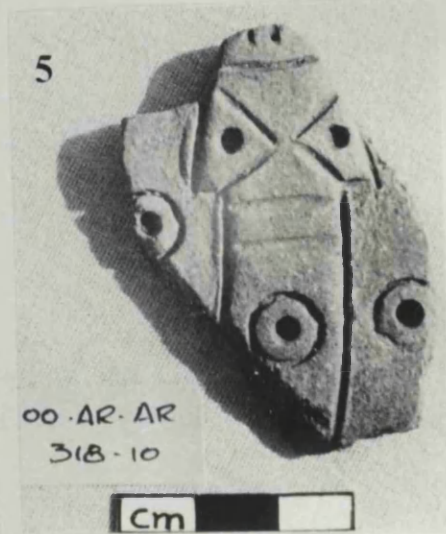
2

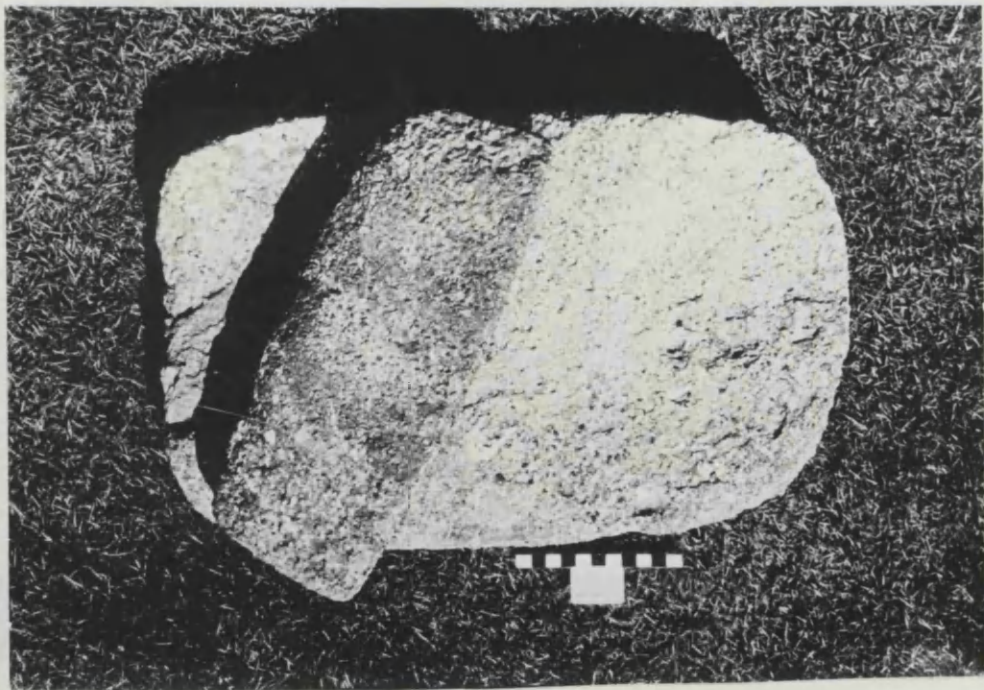


3

30 30







1



2



3

Pl 13



1

201
202
203



2



3



1



2



3

Pl 15



3
Pl 16



3



1



2

PI 17



1



2

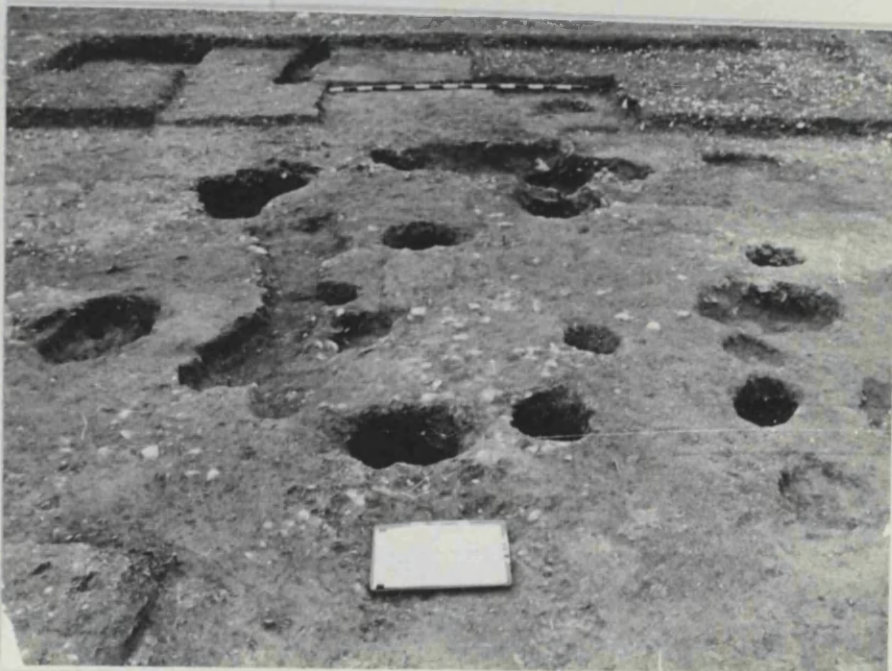


3

Pl 18



1



2

Pl 19

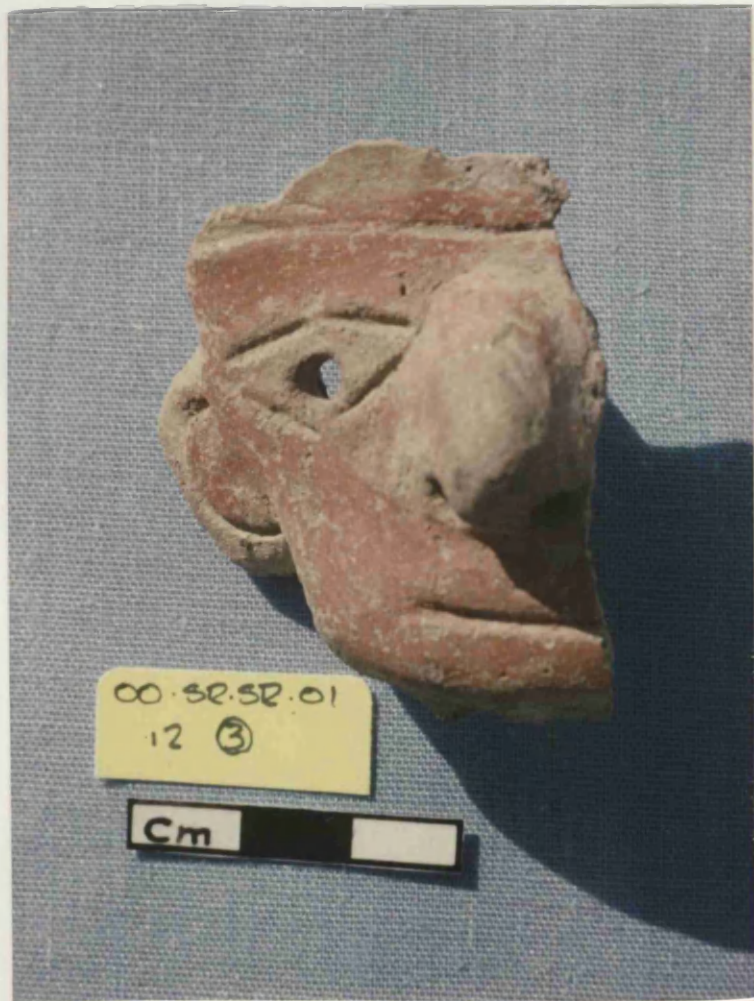


1

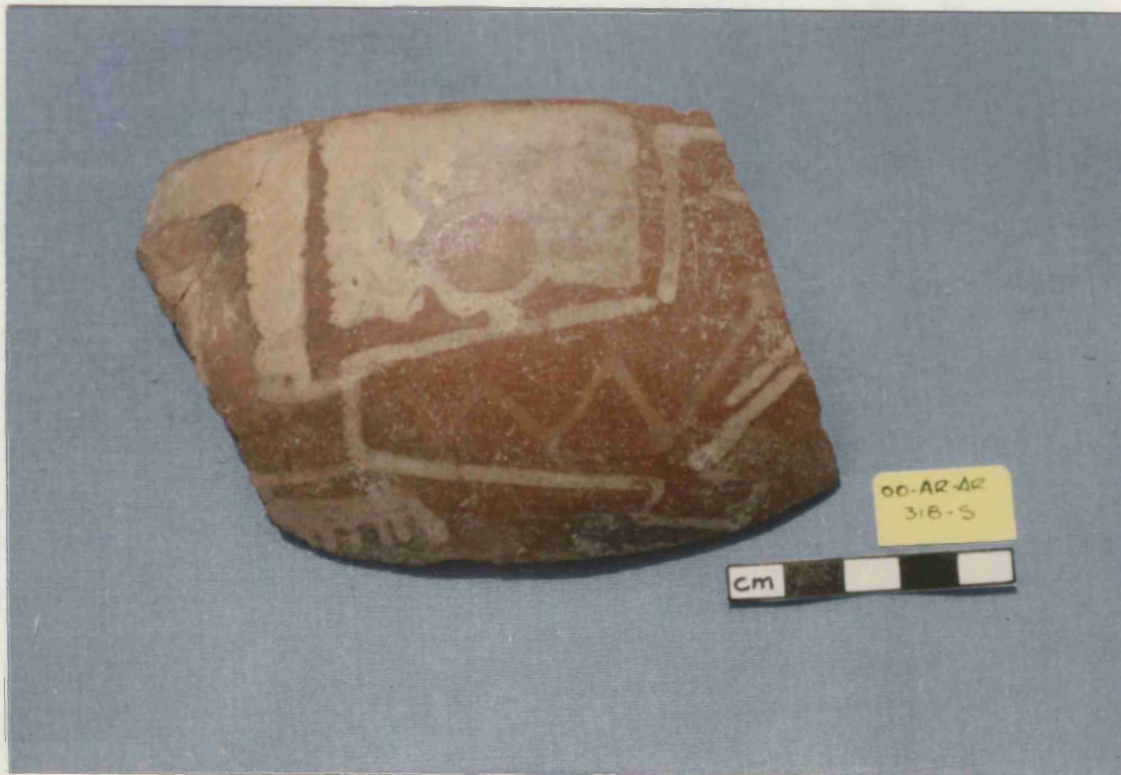


2

Pl 20



1



2