



A TOWN COMMUNITY FOR THE NAVAJO TRIBE

Submitted in partial fulfillment of
the requirements for the degree of
Master in Architecture at The
Massachusetts Institute of Technology.

I May 1959

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ABSTRACT

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Submitted for the degree of Master in Architecture in the Department of Architecture, 1 May 1959.

The Navajo people are a rapidly expanding socially organized and highly intelligent people who have shown a remarkable ability to absorb a good deal of the material elements of life introduced by other cultures while retaining the valuable cultural elements of their own tradition. At present their population is just over 85,000, and they are increasing their number at the rate of 2.25% per year. They live, many of them in a way not drastically changed in a hundred years, on their large reservation in Arizona, New Mexico and Utah which is no longer capable of supporting such number by agricultural and pastoral methods alone. There is every indication that they will continue to increase their number; therefore they will experience a growing need for a more concentrated community activity.

This thesis, then, proposes a developmental pattern for the Shiprock community in the northeastern sector of the Reservation and suggests a number of housing types for that community.

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I May 1959

Dean Pietro Belluschi
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Dear Dean Belluschi:

In partial fulfillment of the requirements for the degree of
Master in Architecture, I submit the following thesis entitled
"A Town Community for the Navajo Tribe."

Sincerely,


Edwin N. Wilmsen



TABLE OF CONTENTS

| | |
|---|----|
| ABSTRACT | 2 |
| LETTER OF TRANSMITTAL | 3 |
| <u>CLOUDS</u> From a Navajo Sandpainting | 4 |
| I. INTRODUCTION | 6 |
| II. THE PEOPLE | 11 |
| III. THE LAND | 26 |
| IV. INTERNAL DEVELOPMENT | 36 |
| V. COMMUNITIES | 43 |
| VI. HOUSES AND HOGANS | 68 |
| NOTES | 92 |
| BIBLIOGRAPHY | 94 |

INTRODUCTION

The Navajos have not always been shepherds and farmers nor do present conditions indicate that they will continue to derive the major portion of their income from agriculture and sheep. While it is true that present plans visualize an appreciable increase in irrigated farmland, the number of people effected is small, especially if viewed over a protracted time scale. Sheep will certainly continue to decline in importance as a source of income. It has become increasingly impossible for the Navajo to support themselves by the old methods; new, more intensive activities must be developed. Many have been forced to move into crowded fringe districts of white towns where they are relegated to the lowest economic and social status and spiritually isolated from their cultural heritage. The Navajo know they must develop methods of supporting a substantial proportion of their future population in a more concentrated manner and they are willing to seek these methods. In recent years their economic base has broadened to include commercial activity and such industries as lumbering, mining and petroleum

extraction. There is every indication that this growth will continue and, coupled with an ever increasing population, will demand more concentrated activity.

Although much has been written about the Navajo, little, if anything, has been oriented toward their building needs. In order to establish a basis for this study, four assumptions considered valid by the Tribal Government were made:

- 1... That a potential exists in certain areas of the Reservation for the development of relatively concentrated communities.
- 2... That the Shiprock area of the Reservation is the most promising of these areas.
- 3... That the development of such communities, if properly directed, is desirable.
- 4... That over a period of years a sufficient economic base will develop along with expansion of the community.

It is the aim of this thesis to suggest a pattern of growth for the Shiprock community and to propose a number of housing types suited to the Navajo way of life.

The Navajo Tribe is the largest American Indian group north of Mexico in existance today; at present these people number 85,000 and live in

widely scattered homes on the 15 million acres which is theirs. They are also the fastest growing Indian group in this country, having increased their number over 200% since 1930. They are a highly unified people culturally, and have shown a remarkable ability to assimilate material elements introduced by other peoples while retaining the valuable cultural elements of their own tradition. This tradition is a major source of this people's strength; any future development must give careful attention to its precepts.

The word, Navajo, is Spanish, derived from Apache de Navajo, which is the name used by the early Spaniards and was apparently their rendition of the Tewa word, Nabahu, a place name meaning "wide planted fields". In their own language the Navajo call themselves diné or dine'é, The People, and I have followed Kluckhohn and Leighton in using this translation. Many people, particularly anthropologists, use the anglicized spelling of Navajo which substitutes 'h' for the 'j'; however, government publications and the Tribe itself use 'j' and I have followed their lead.

I have to express my gratitude and debt to Pat and Ed Sammel who have shared their years of experience on the Reservation with me and whose comments and suggestions got this project off on the right foot. I am equally indebted to Oliver and Consuelo La Farge and Jim and Mable Bosch

whose kindness, help and encouragement went beyond what could be expected. Professor Evon Z. Vogt of Harvard gave me valuable suggestions and allowed me to use some of his unpublished material. Larry Moore, Director of Community Services for the Navajo Tribe, has given indispensable^a aid and encouragement. I must also acknowledge my debt to those members of the faculty here at the Institute, particularly Professors Anderson, Beckwith and Newman, whose criticism helped sharpen my thinking on the design. The firm of Voorhees, Walker, Smith and Smith, who contributed a generous grant, and the selection committee of the School of Architecture and Planning, who felt the project deserved support, made possible a study that would otherwise have been more incomplete than it is.

THE PEOPLE

The first written record we have of the Navajo, hence the beginning of the historical period of these People, is in the report of a Franciscan missionary made in 1626. We can only speculate on their history prior to that date and support our speculations by the too infrequent findings of archaeologists, ethnologists and linguists. It is generally accepted that the Navajo, along with their linguistic cousins the Apache, came into the Southwest from the North. There are many indications that this is so. When they entered the Southwest they had certain articles of clothing, such as leather moccasins, unknown to the area but common in what is now Northwestern Canada; they built conical houses, standard in the north but not used previously in the Southwest. More important is the result of linguistic analysis which places the Navajo, and Apache, languages with the Athabaskan group also spoken by a number of tribes in the interior of northwestern Canada and certain tribes of the northwest Pacific coast of the United States. Navajo traditions tell of a northern

ancestry. When they came into the Southwest is not known with certainty. There is evidence that the first groups arrived around 1000 A.D., perhaps a bit earlier, and that the migration was not completed for several hundred years, for it is beyond question that they came in small groups and perhaps over different routes. Just where these routes lay is also a matter of conjecture. It is known that once established in the Southwest, the ancestors of today's Navajo displayed a number of Intermountain and Plains culture traits; the latter, at least, could have been picked up as part of westward diffusion of Plains culture which affected the Pueblos as well. Through the course of time, through raiding and trading, casual contacts and intermarriage with other tribes, Navajo culture became rich and varied. Indeed, the Navajo himself became a mixture of different peoples with different backgrounds.

The Pueblo groups, indigenous to the area in which the proto-Navajo Athabascans had arrived, exercised a profound influence upon the intruders. With their tight, well-built cities, the Pueblo had much to offer a wandering group whose subsistence was uncertain and difficult to obtain. Sometimes they gave their secrets willingly, more often they were stolen in the form of wives or young boys who passed on their knowledge.

From them the Navajo learned sedentary agriculture and received the precious gift of corn. They were exposed to an elaborate ceremonialism and their gods became like Pueblo gods in form, dress and behavior. Many other cultural traits were absorbed by the Navajo; it is true that they elaborated on the raw material and in some instances surpassed their teachers, but it was from the Pueblo that they received the basic ingredients of a sedentary life, a stable food supply, a rich and varied life for the mind and a spirit of communal cooperation. Navajo mythology speaks of this period as "The Beginning" -- the Navajo need no longer wander; they had found a home.

The transition from wandering to stability, from hunting to planting took time but when the Spaniards first made contact with the Navajo, they were agriculturists dependent primarily upon the produce of their fields, and they were ready for the next great change in their way of life. Sometime between 1540, the year of Coronado's march into what is now Arizona and New Mexico, and the late seventeenth century the Navajo were introduced to sheep, goats, horses and cattle. Just when and how they first procured domestic animals is not known; the Pueblos were probably the first suppliers, giving some in trade,

losing others in raids. These animals at first were kept only to supplement the crops of the field but as they increased in numbers, livestock, particularly sheep, came to be the dominant element of Navajo economic life.

From reports to the Spanish Viceroy of Mexico made during the period from 1706 to 1743 we have the first detailed accounts of the Navajo.

"The People lived at this time in small, compact communities located away from the fields on the tops of adjacent mesas."¹ Domestic animals, though kept, had not yet made a great change in Navajo life.

Horses brought about the first great change by increasing enormously the mobility of individuals as well as of whole groups. Contact between communities was no longer the slow, laborious process of walking and back-packing. The horse made easy the gathering of large groups for warfare, trade and ceremonials. The expansion of agricultural lands and of herding was made possible because outlying farmers and herders could now be kept in close contact and supplied with relative ease. The horse also increased the range and frequency of contact with other people with a consequent enrichment of knowledge and ritual.

While horses were extending the range of the Navajo, sheep were extending his economy. Sheep provided a larger and more dependable food supply as well as a category of goods heretofore unknown to the Navajo: a supply of surplus goods which was large enough to serve as a steady source of extra income thru sale and barter. Besides the raising of sheep is not the tedious, mundane affair that agriculture is; sheep were a perfect compliment to the Navajo psychology. It must be stressed, however, that increased mobility and dependence on sheep did not turn the Navajo back to the nomad he was before. To be sure he now traveled more easily and sometimes farther, but for reasons of trade or war. Sheep required seasonal shifting of pasture but these were always within circumscribed areas and there were fixed, permanent abodes at either end. Indeed, the Navajo became something of a nobleman with several residences, fine furnishings for himself and his horse and a relatively large group of kinsmen and clansmen upon whom he could depend to give him comfort and aid. We do not know to what extent European ideas filtered into Navajo country at this time nor to what extent they were accepted. During this period weaving was adopted and leather worked; perhaps silver was worked by a few individuals. At any rate "livestock formed the basis for a transition to a capitalistic economy, with new goals for individuals and for family groups."² Population increased rapidly, new territory was acquired

and the Navajo developed a fierce tribal pride, never again would he go back to aimless wandering. By 1846 the Navajo had "become the most impressive pastoral culture in aboriginal America and one of the dominant military powers of the Southwest."³

When General Kearny with his army of volunteers marched into the Southwest to add that territory to the expanding United States, he found a condition of strife existing between the various groups who occupied the area. There were cries of raids and attack and enslavement from all sides but everyone agreed the Navajo were the worst offenders. General Kearny extended the protection of the United States to all the residents, called in the heads of all groups concerned and made peace treaties. He then went on to California secure in the belief that he had settled the centuries-old problem. No sooner had the army gone than the raiding was renewed with fresh vigor. This was the pattern for 15 years, broken treaties, raids, ineffective military reprisals and unsuccessful negotiations for peace. The American authorities totally misunderstood the nature of Navajo social organization. The tribe had no chief; there was no one who exercised control over the entire body of Navajo. True, there were headmen of

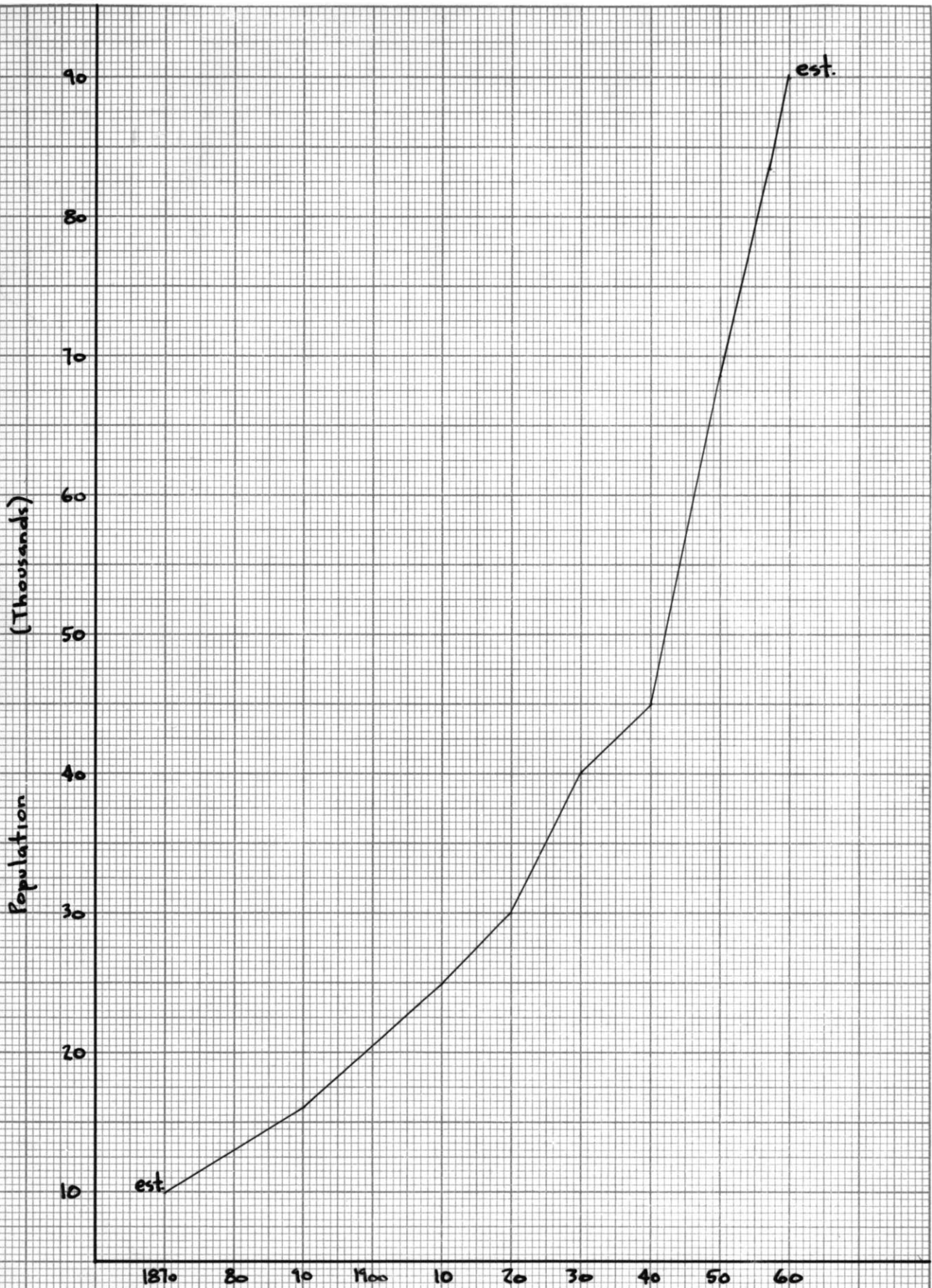
local groups but even here their authority was limited; consequently bands who had not made treaties continued to raid. The entire tribe was judged responsible. In June 1863 Colonel Kit Carson was ordered to round up all Navajo, destroy their crops and livestock and bring those who were not killed resisting to Fort Defiance from whence they would be taken for resettlement to the Bosque Redondo.

Agriculture in this area is at best difficult, even today it is largely range land, and the reservation was pitifully small for 8000 people to eke a living from. This land was flat and colorless; their home was rugged and they highly prized its beauty. The Bosque Redondo experience was a complete failure. It did forever remove the raiding complex from the People but otherwise brought no change except sickness, disease, discontent and a deeprooted distrust of white people. By 1868 the government realized the futility of the effort and a treaty was concluded which gave the Navajo 3,500,000 acres of their former land to which they were allowed to return. The government distributed a few sheep and doled out a little food, clothing and some seeds -- the Navajo was almost as destitute as he had been 500 years before.

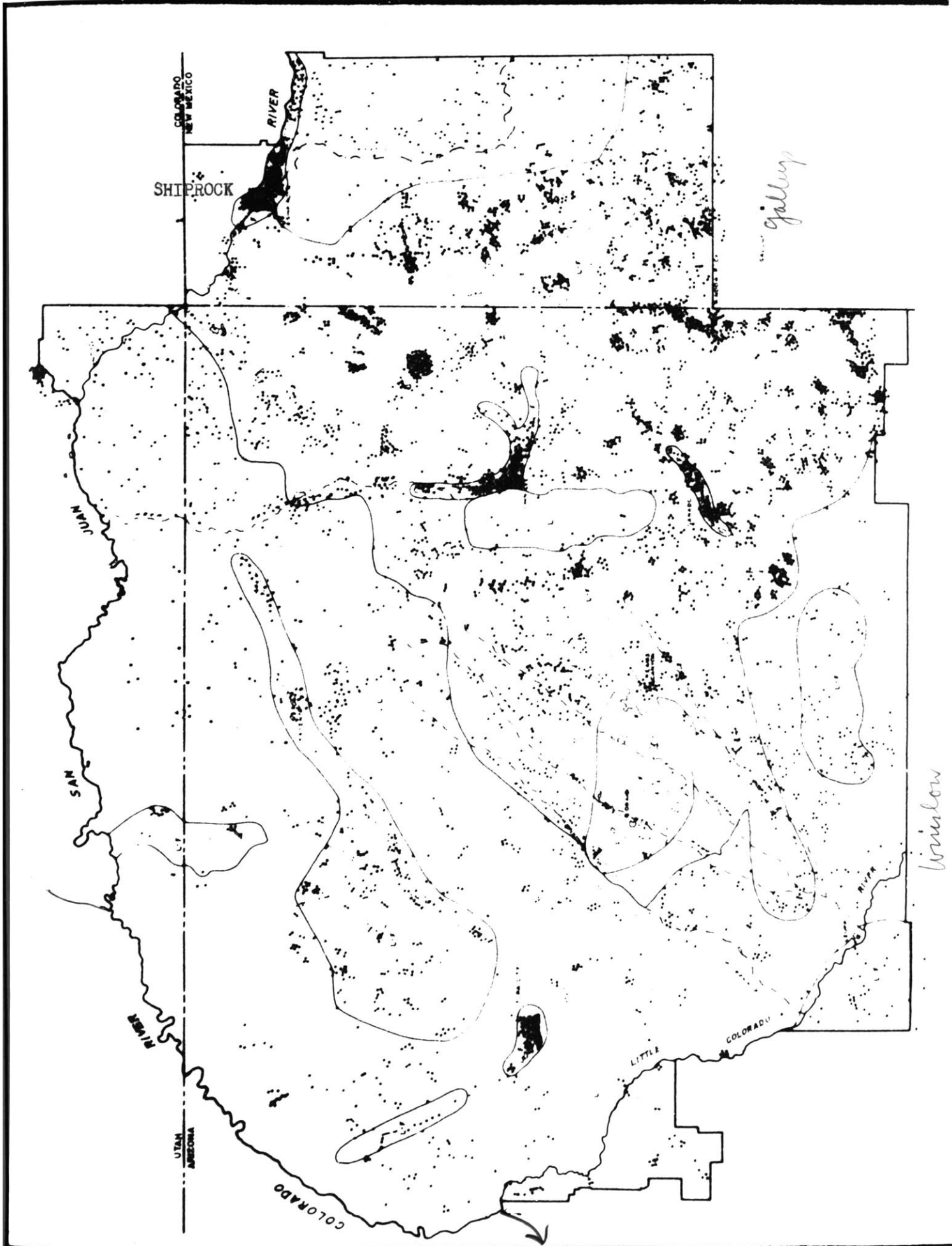
The first years were hard, filled with hunger and want but gradually the sheep began to increase. Thru his perfect adaptation to nature the

Navajo was a beautiful element of his environment; and that environment produced for him. There followed a period of peace and prosperity in which both flocks and herders increased rapidly. The Navajo were again rich but new dangers threatened. The very increase in human and animal numbers was straining Reservation resources to the limit and soon the land could no longer withstand the pressure. The Reservation was extended from time to time but the railroad and Anglo ranchers took the best land which the government replaced with near worthless desert. With the railroad came increased pressure and exploitation by the whites; the Navajo was forced to retreat physically farther into the land and psychically farther into himself. Even schools were no help since they made the Navajo a misfit both in Anglo society and his own.

World War II brought an awakening. For the first time large numbers of Navajo worked for wages. Approximately 3600 were drawn from the Reservation into the armed forces and saw for the first time a way of life vastly different from that they had known; many more worked in war plants away from home. After the war jobs again became scarce and there was hardship but now the Navajo was beginning to perceive a way to better his lot. Since 1932 a governmental policy sympathetic to the Navajo had been preparing him for a new way of life and the Tribal



NAVAJO POPULATION FROM 1870 TO 1958



POPULATION DISTRIBUTION ON THE NAVAJO RESERVATION- 1957

Council, established in 1923, had gained strength until in 1950 it was truly the government of The People.

Today one senses a tremendous urgency on the Reservation. . There is vitality here; a fierce desire to get ahead and achieve the finer things of American life. The means are present; the problem now is to direct this energy so that the finer things of Navajo life are not lost.

Religion has always been a great source of strength to the Navajo and religious duties demand a great deal of time, especially of the men. Not only is it necessary, from time to time, to erect ceremonial hogans and keep them in repair but the rituals themselves require many plants, herbs and water from specific localities which are often many miles from the place at which the ceremonial is held. The Navajo man accepts these duties cheerfully; in addition to the very real enjoyment that he derives from his tasks he receives social rewards and, thru direct participation, increased benefits from the ritual itself. "He emphasizes his privileges rather than his duties, which in the opinion of an outsider may be quite onerous. Doubtless the most important factor is that he does not feel bound. He retains his individualistic attitude because of the system

rather than in spite of it."⁵

There are a great many gods in the Navajo pantheon ranging from those whom Reichard has termed persuadable to those she has called unpersuadable. In the first group are those gods or beings whose motives are good and who, when properly approached, can be depended upon to give aid to man. The unpersuadable deities are always antagonistic toward man. In between, of course, are beings who approach in varying degrees one or the other extreme. It is interesting to note that the gods are ranked not by their relative benevolence or malevolence to man but according to the power they are thought to possess.

Navajo religion conceives of the world as part of a universe in equilibrium but the equilibrium is not so much physical as it is psychological. This world is the fifth in a series of worlds and the best because it contains man. All these worlds are held by four pillars, one at each of the cardinal points, white (or black) in the east, turquoise in the south, yellow in the west and black (or white) in the north. The previous worlds were imperfect for various reasons though each was better than its predecessor; there was no light but each was predominated by a color (red in the first, blue in the second, yellow in the third and all three in the fourth) and the worlds rotated so rapidly that the inhabitants were made dizzy. Each

was peopled by vaguely defined creatures who evolved into the creatures of this world, but this was not evolution in the developmental sense.

"Rather, progress is measured by intellectual criteria. Once the beings gained knowledge, there was no need to worry about their bodies; they were supernaturally transformed."⁶ These beings took a bit of soil from each world they left and placed it in the same relative position in the new world after which a supernatural being stretched it by blowing on it. Thus each world is an enlarged replica of succeeding worlds. There are said to be two more worlds, sky and land-beyond-the sky; presumably they will be attained in time.

The Navajo has long been aware of the psychological nature of life. His religious system is based on keeping a proper harmony between all the elements of the universe including god and man. The rituals are, therefore, elaborate reenactments of the original learning processes of god and man and the initial performances of the various ceremonies. There are a number of different rituals, usually called chants by white people, each lasting from one to nine nights plus the intervening days and each requiring a specified sequence of songs, prayers, prayersticks and dry paintings made of sand, ground rock, cornmeal or pollen. All of these elements change with the specific conditions of the chant so that a practitioner (singer) must put to memory a fantastic amount of

information. Some chants, for instance, require 250 or more different songs and there are over 500 drypaintings from which the ones appropriate to the chant must be selected. In addition to their function of restoring universal harmony and curing and preventing disease, chants serve a very healthy social function. Many people come from great distances to attend and the resulting contact with friends and relatives, the feasting, the rodeos and games are highly prized by the People.

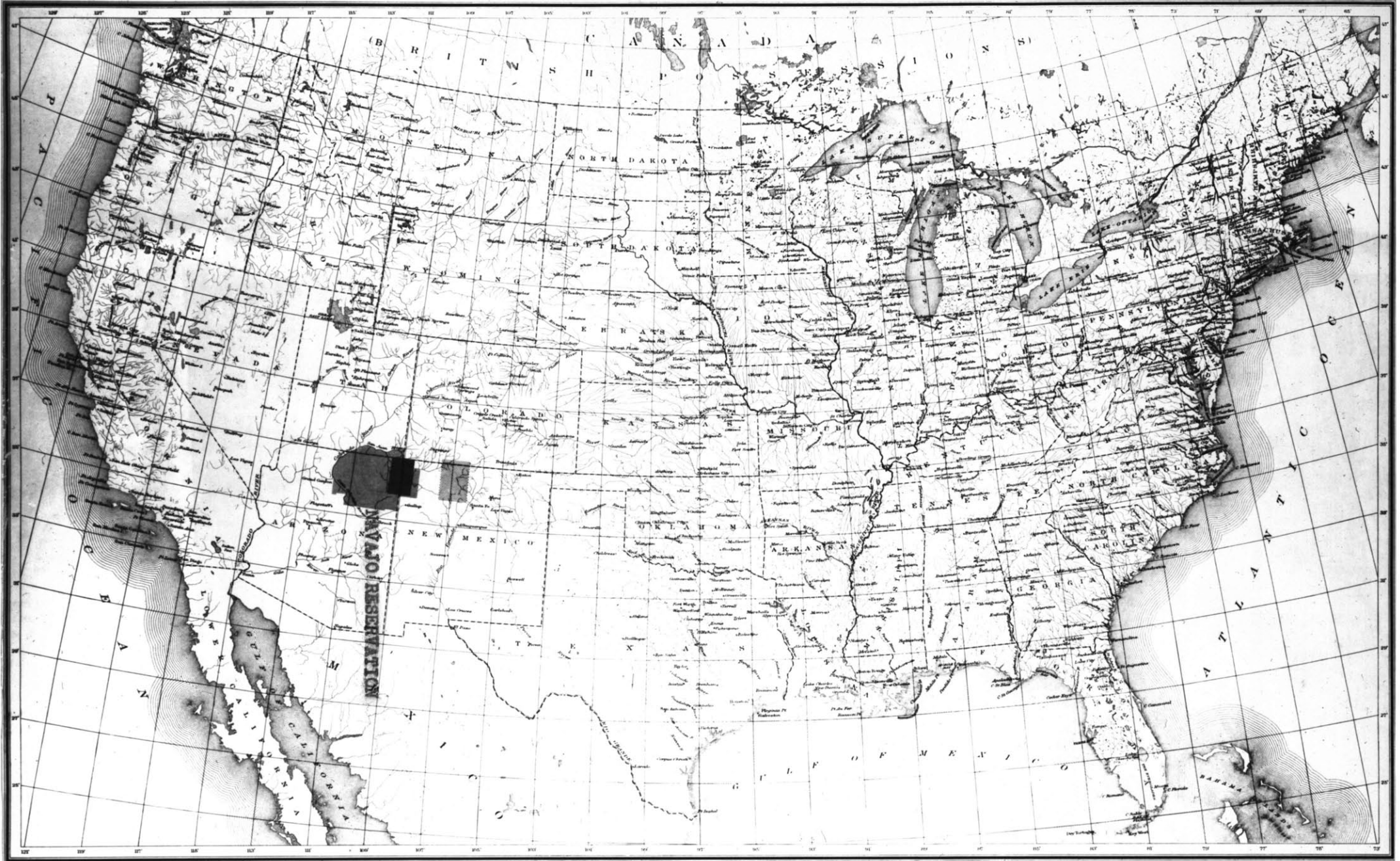
Many Navajo have, of course, accepted the teachings of Christian missionaries of various sects who for over 50 years have been active on the Reservation; many more, caught in the uncertainty of conflicting views, have given up all religion. But by far the largest majority still derive a great deal of comfort from their traditional religion. Although the number of Navajo seeking medical aid in hospitals increases daily and most singers, themselves, realize that modern medicine is a superior cure for most physical ills, they also realize that inner disturbances need to be cured and, indeed, can be the cause of the physical disturbance. Doctors at the Cronell University Field Health Project at Many Farms recognize the valuable part a singer can play in the total recovery of a patient and encourage the performance of rites both inside and away from the clinic. Navajo religion continues to be a vital force in Navajo life.

THE LAND

The land of the Navajo is difficult to describe to those who have never seen it. It is a land of majestic beauty; even those areas we call desert are neither depressing nor dull but are brilliantly alive with color and form. There are softly rolling valleys and meadows. The mountains, clothed in mantles of pines, fir and aspen are deep green, blue and black; a rugged contrast to the red and yellow of the desert. It is a vast land, a land of silence and solitude where one turns inward in an attempt to attain that same perfection and achieve harmony with nature.

It is thought that the Navajo originally occupied the mountainous region where the San Juan and Rio Grande find their beginnings and had already spread westward when the Spaniards first contacted them. Later, in order to find more room for their sheep, they crossed the Chuska mountains and extended their land all the way to the Colorado. On horse - back they ranged from Kansas to Mexico.

The present Reservation is considerably smaller than this, yet it is a sizable area almost 3 times the size of Massachusetts. When the Navajo were allowed to leave the Bosque Redondo in 1868, a treaty was made setting aside 3,500,000 acres astride the Arizona-New Mexico Territory boundary. The Reservation could not support the people and from time to time it was enlarged until the present size, 15,088,227 acres, was reached in 1934. As one would expect, there has been a great deal of competition for land between the Navajo and their neighbors which has frequently resulted in misunderstanding and bitterness; the Navajo seldom won in this contest. Land status was greatly confused in the eighties when the new railroad which skirted the southern edge of the Reservation was granted the usual bounty of odd-numbered sections to a depth of 40 miles on either side of the line. This area had the heaviest concentration of Navajo population, many of whom had been using the land for years. In 1911 a large block of the choicest Reservation grazing land was restored to the public Domain and opened to white ranchers even though it was fully occupied and stocked with Navajo herds. It is not necessary to document here the long list of "incidents"; it is enough to say that thoughtless, sometimes wanton, abuse of Indian rights caused hardship, mistrust, confusion and bitterness which are still with us today. The Navajo, whose traditional land pattern was not of ownership but of use, whose education did not include an understanding



of white man's law, could find no way to defend himself now that physical retaliation had been denied him. The situation was partially clarified in 1934 by passage of the Arizona Navaho Boundary Extension Act, and recent action has helped Utah. Political interests in New Mexico have blocked similar action.

"The surface of the Navajo area includes four principal features:

1. The flat alluvial valleys of from 4,500 to 6,000 feet; 2. The broad, rolling upland plains between 5,500 and 7,000 feet; 3. The mesas located at elevations of 6,000 to 8,000 feet; and 4. The mountains ranging from 7,500 to over 10,000 feet in altitude. Each of these major types is cut by canyons of a few hundred feet to more than 2,000 feet in depth and is broken by prominences rising as high as 1,500 to 2,000 feet. Most of the Navajo-Hopi area lies between 5,000 and 7,000 feet."

⁴

There are three outstanding highland provinces, the combined Chuska-Carrizo Mountain range which lies roughly along the Arizona - New Mexico boundary; Black Mesa in the center of the Reservation and the home of the Hopi; Navajo Mountain, the highest landmark, in the extreme northwest of the Reservation. These areas, along with scattered, smaller

areas are generally cold in winter with heavy snowfall and relatively cool in summer with adequate rain. Here are found the heavy stands of pine and fir along with associated grasslands used for summer grazing. Much of the timber is valuable and merchantable; the mountains also contain large coal deposits as well as smaller amounts of copper, silver and gold.

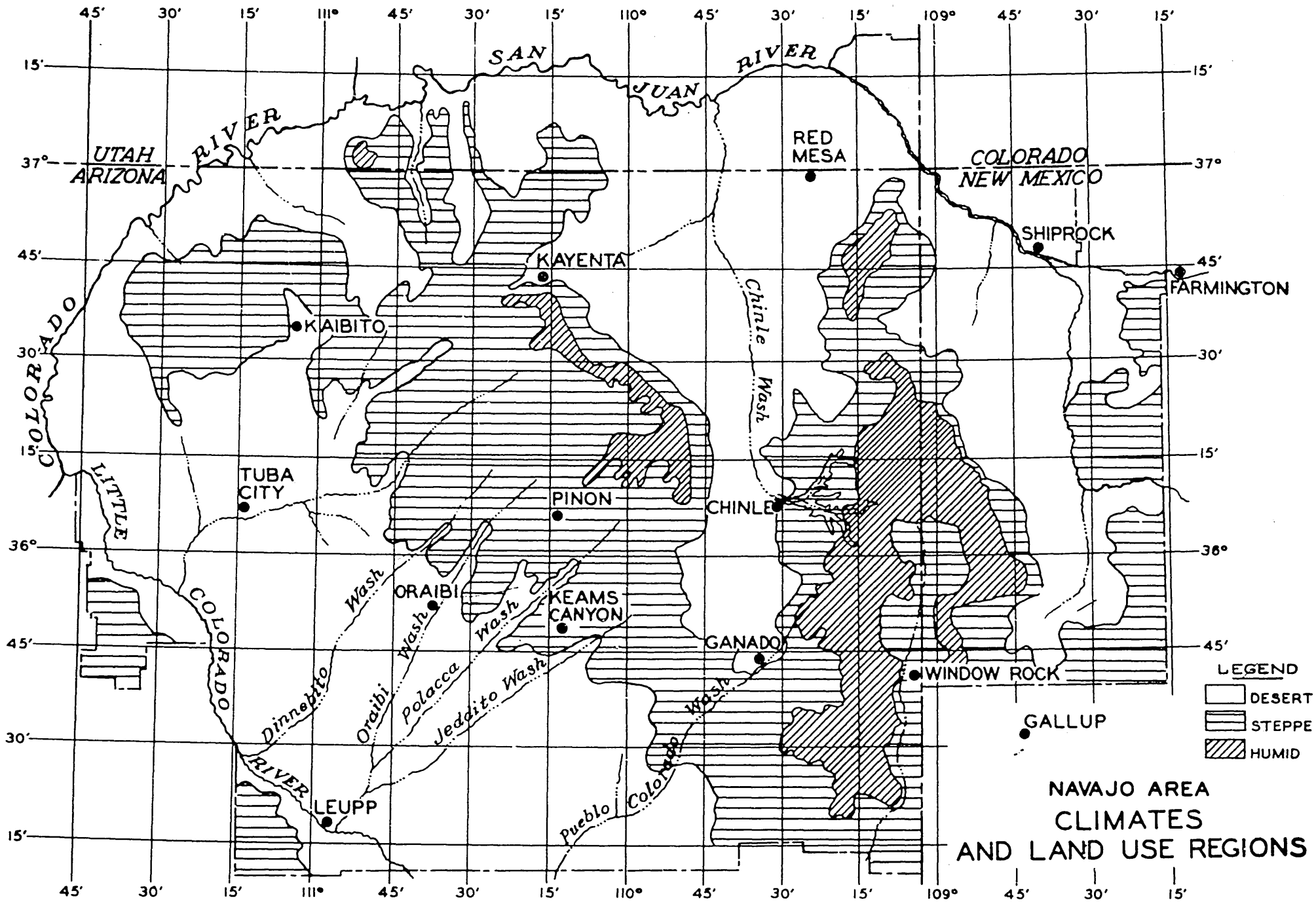
Lying at the foot of the mountains is the steppe region rolling gently down from 7,500 feet to the desert at about 6,000 feet. This region covers roughly 40% of the Reservation and has a climate generally favorable to habitation and cultivation. It is mostly grassland with only a few aspen or cottonwood groves widely dispersed along the few streams. Here the Navajo has always lived in greatest number, herding his sheep and tending small farms; his movements, even the twice-yearly shift of range, were within circumscribed clan use areas the boundaries of which were often the mountain prominences surrounding him. Rainfall is frequently scanty on the steppe but with irrigation the land will produce good crops of corn, beans and squash. Until the weight of numbers caused abuse of the land it provided a comfortable life.

It is a paradox that the desert has proven the Navajo's most valuable asset. Desert lands, blandly handed the Navajo in exchange for more valuable grazing lands, cover roughly one half the Reservation. They have long been sought for their great beauty; tourists, nomads in a much truer sense than any Navajo, flock to them by the thousands; writers, composers, painters have lavished their talents in recording its moods. But nobody wanted the desert for any reason other than to look at, and it was easier to see as a Reservation without the restrictions and expenses a private owner would impose.

To live in a desert environment requires a significant adjustment of a peoples' habits and a certain submission to its demands. The Navajo has long recognized the desert as a place of constant change; the effects of sunlight and shade and of night on form, color and temperature are more perceptible here than anywhere else. The raw forces of wind and water, in the form of sudden downpours whose power can wash away tons of earth or awaken the long dormant seeds of wildflowers to sudden bloom, are constantly at work. His submission was a cooperation with these elements. No Navajo has escaped this moulding force, for elements of the desert intrude even into the mountains. Visits to relatives and the lessons of his religion have all impressed the desert on his mind.

The soils of the desert are rich if sufficient water can be got to them. At present there are some 35,000 acres under irrigation; with expansion of these lands and the completion of the Navajo Irrigation Project below Shiprock about 175,000 acres will be subjugated. But the desert lands have a richer resource; one of the best sources of uranium found in this country is on the Reservation, and recently the biggest oil and gas fields to be found in recent years were discovered on Tribal land. The Tribe is presently reaping the rich harvest of these "barren" lands and is putting both the resources and the profits to good use.

The Reservation has adequate resources on which to build a sound future for the People provided these resources are properly utilized. Its substantial timber resources have been wisely harvested by the Tribe since 1944 and exploration for oil, gas and uranium fields by private firms continues with the Navajo benefiting both by individual wages earned and by the collective accumulation of royalties and leases in the Tribal treasury. But the vast pool of Navajo skill and energy has barely been touched and it is on the development of this skill and the utilization of this energy that the continuance of an integrated life on the Reservation is largely dependent. For the Navajo has grown too numerous and his needs too varied for the Reservation to sustain in the old ways; he must now seek to concentrate his activity and therefore his pattern of daily life. It is not an easy thing



**NAVAJO AREA
CLIMATES
AND LAND USE REGIONS**

to do, after all, Anglo-Europeans with centuries of experience have not adequately solved the problem. Perhaps with wise council and his natural adaptability, the Navajo can find new "things that men live by" and create a new way of life.

INTERNAL DEVELOPMENT

Since the early 18th century the cultural content of Navajo life has repeatedly undergone impressive changes but the structural framework of Navajo society has persisted with remarkable continuity. When the proto-Navajo Athabascans made their way south from the main body of their people they apparently had a very elementary culture based on gathering, hunting and a very simple ritual pattern. Contact with Puebloan groups in the Southwest wrought a major revolution ; the Navajo became agriculturalists, developed an elaborate, beautiful ritual and were slowly adapting a compact village way of life. The advent of Europeans with livestock and farms worked another transition. Agriculture remained important but became secondary to sheep and horses; ritual became more elaborate; village life was forgotten; weaving and metalwork became important. With the coming of Americans in the mid-nineteenth century, contacts with non-Indian groups were increased and the pressure

to adopt white man's material and religious culture was intensified. These pressures served only to strengthen Navajo resistance to give up his own culture. Throughout this long period of cultural assimilation the Navajo had kept those structural elements of his society that gave tribal coherence; an intense family and clan loyalty, matrilinear inheritance, avoidance of a wife's mother and various rites of initiation.

During the last 50 years these customs have been steadily weakened by pressures both on and off the Reservation. While the old struggle with neighboring whites for land has, for all practical purposes, reached an end, new problems have appeared. The establishment of trading posts replaced the traditional barter economy with a distorted type of cash purchase system and introduced the concept of credit and of leaning on future means. Railroads and truck farms brought jobs that required the giving up of former living patterns, at least for the duration of the job, which seldom exceeded six or eight months. Had Navajo population not been increasing at such a rapid rate these forces would have had relatively little effect on Navajo life; there would have been a stronger position from which to deal with traders and no need to seek off-Reservation jobs. But Navajo population was exploding, an increase of 500% in 50 years; the land, already dry, was experiencing an extended period of drought and could not support such numbers. In 1933 range conditions had become so critical that the Bureau of Indian Affairs felt

drastic measures were necessary to bring the land to its maximum level of production and the sheep reduction program was initiated. Surveys were made to determine the carrying capacity of the range and a program of reducing livestock to this level began; to the Navajo this was tantamount to cutting the very thread of life. Opposition was strong; there was much resistance and bitterness. But with the help of soil conservation, improved grazing practices and, above all, the return of normal rainfall, erosion is being checked and the range is in better condition than it has been in decades.

Education, that is education in the standard American sense, was at first a rather negative thing for the Navajo; he found himself unable to cope with its complexity and unwanted by his new neighbors. But it also caused him to doubt some of the premises of his former life and though the semi-literate schoolboy was probably a misfit in Navajo society he caused others to doubt. It is easy to understand why schools were so stubbornly resisted. This resistance remained until after World War II when 17,000 Navajo, in addition to the 3,600 who were in service, left the Reservation temporarily to work in the war effort: in 1945 only 32% of Navajo children of schoolage were in school and few went past the 8th grade; in 1957 91% were in school and an increasing number were completing highschool and going to higher academic work.

The entire attitude had changed. It is important to note the feeling of an elder leader toward returning veterans. "The way I feel about these soldier boys is that most of them can already speak English and write. It looks like they should go on with the White people and learn more and more and then lead their people."⁷

While the assimilation of educational and material cultural components was progressing slowly, Navajo political maturity was given a boost by the creation of the Tribal Council. The discovery of oil in substantial amount on the Reservation made necessary the formation of a body that could, at least on paper, speak for the entire tribe; the Tribal Council, established in 1923 was the result. This was at first far from a truly effective, representative organization, its main function being liaison between Indian Service policies and the People. The Council was re-organized in 1938 and has retained some of the basis structure since then. In addition to the main body of 74 delegates plus a Chairman and Vice-Chairman there is an Advisory Committee drawn from among the members of the Council which functions in an executive role. The Council has developed into a genuine tribal government whose actions are limited to only a minor extent by Federal Agencies: it has established its own legal department with representation in Washington, committees on Health and

Welfare, Education, Budget, Engineering and Resources, and through a Business Management Committee has developed Tribal commercial enterprises and conducted Reservation resources studies with the view of attracting established industry to the Reservation. Among the Council's notable actions has been the establishment of a \$5,000,000 trust fund to provide scholarships for qualified Navajo college students.

Nor is the Tribal Council the only functioning governmental body. Local Chapters were established in Leupp District in 1927 and soon spread to the rest of the Reservation; today these Chapters are the nucleus of local government. The Council recognizes the importance of these Chapters and has authorized the construction of 96 Chapter Houses to serve as meeting places and forums for public use. Both the local Chapters and the Tribal Council are growing in importance; fortunately Navajo leadership has not lacked in quality. A firm foundation for future growth is being laid. Accelerated, mutually understandable communications between Navajo and White Americans has created a whole new field of goals for the Navajo. Material goods unknown to them 100 or even 50 years ago are now every day necessities; academic schooling is an important part of every child's life; a firm and equal place in the broad spectrum of American society is the common desire; the Navajo wants his share of the "Big Rock Candy Mountain". What is more important

is that Navajo attitudes have matured to the point that they realize the mountain won't come to them. They are willing to face the issue head on but wisely cling tightly to some of their inherited ways. One of the more serious problems they must face is the development of concentrated communities in which some of their members must choose to live.

COMMUNITIES

The social and cultural dynamics involved in the development of Navajo towns are of as much concern as are the technological aspects of their construction. It must be remembered that we are dealing with a people who have been on the edge of the Euro-American cultural stream long enough to acquire a number of important "foreign" cultural traits and adopted in recent years many of the goals of American society. Yet these people never developed towns of their own and their experiences in towns near the Reservation have been generally unsuccessful in establishing permanent, respectable positions within the towns and emotionally disastrous to those individuals who overstepped their limits. In these towns the Navajo was looked on as another "inferior" race to be used when convenient and ignored when not.

A good case has been made for the viewpoint that Navajo economy did not

permit a town life, therefore towns did not develop; to some extent this is true. Yet, every other group that has made its home in the region, from the Pueblo in very early times to the White Americans of recent date, has lived in more or less compact town-like communities. The lack of Navajo towns is better explained by an understanding of Navajo psychology. It is beyond the scope of this thesis to explore this field in depth; I will only point out that a change in attitudes has apparently taken place and significant numbers of Navajo people now want those amenities which are most easily available in a town community. "The Navajo girl who has been at boarding school for many years usually has no desire to live in a hogan when she marries. But to have a house with a wooden floor, running water and the convenience to which she has become accustomed, she and her husband must move to a white town or an agency settlement."

8

The question may then be asked: why is it necessary to establish towns on the Reservation when towns already exist to which Navajo can migrate? The answer is not at all superficial; it lies at the heart of Navajo life. The People have a proud tradition and a deep love for their land, neither of which they want to give up completely. Nor should they be forced to. It would be senseless to require a people whose entire lives have for

generations been ordered by a high degree of adjustment to their environment and the precepts of their religion to forsake indiscriminately their complete inheritance and accept a way of life antagonistic to that inheritance in towns which cannot meet the needs even of their builders whose traditions lie in town life.

It is clear, however, that there are a number of advantages to town life. In addition to the mechanical advantages such as running water and the economic advantage of concentrated commercial facilities, there is the personal advantage of frequent contact with a number of diversified people engaged in different occupations, possessing different viewpoints; all of which can contribute to the growth of an individual. Today an increasing number of Navajo recognize these advantages and earnestly desire them; fortunately, the means to achieve that desire are available. But all "attempts to improve a system of social organization without due regard to the traditional behavior of basic principles creating cooperative relationships can only lead to failure".⁹ Some mechanisms of cohesion and direction in Navajo life will continue to function effectively if the organization of the community will permit them to do so.

Conrad Arensberg has described the function of communities so

well that he deserves to be quoted here in full: "Communities seem to be basic units of organization and transmission within a culture. They provide for human beings and their cultural adaptation to nature the basic minimum personnel and the basic minimum of social relations through which survival is assured and the content of culture can be passed on to the next generation. Already pan-animal as ecological units, communities are pan-human as transmission units for human culture. It is their function in keeping alive the basic inventory of traits and institutions and the minimum personnel of each kind for which culture provides a role and upon which high-culture specialization and acceptance can be built that makes human communities into cell-like repeated units of organization within human societies and cultures."¹⁰

It is, then, the task of a planner to discover these cultural traits and institutions of a society and achieve in his plan a synthesis, a physical expression of that society's way of life. In dealing with Navajo town communities this is particularly difficult because Navajo society is in a critical stage of transition. All living societies are, of course, in transition but the path of transition almost invariably begins in the past of that society and leads, more or less logically, into a future for which the society has been prepared. This is not true of Navajo society which is rapidly turning away from its pastoral, socially oriented

tradition to a way of life in which an independent aggressive individual is more respected. The Navajo never had cities but now many of the People will have to seek homes in cities. The People are not opposed to the change but they are very much concerned over the methods by which the change will be brought about. A pastoral childhood lived within the confines of a few close relatives does not prepare one for life in even a very small city where daily contact with many people of different background, and even of different race, is the rule. "A single individual will react to each factor of its environment according to its requirements but with a multiplication of individuals these reactions are modified -- clearly then, neighboring individuals can make an environment more or less attractive."^{II} The word "individual" is not restricted in meaning to a single human being but can be one or every separately identifiable element of the environment: a tree, a street, a house, an automobile. It is the purpose of this thesis to organize these individual elements to make an environment favorable to Navajo life in a town community.

There are several localities on the Reservation which are now capable of supporting town communities. Of these, the Shiprock area seems to be the most promising and this study will be directed toward that area.

Shiprock is located on the San Juan River in the northeast corner of the Reservation. Two U.S. highways and a major Reservation road have their junction at Shiprock; U.S. 666 is the major North-south route from Gallup and U.S. 66 to western Colorado and Salt Lake City. Reservation Route 1 is one of the two major Reservation roads and connects Shiprock with Tuba City, the center of activity in the western part of the Reservation. Within the area is the largest block of irrigated farmland on the Reservation and with the completion of the Navajo (Shiprock-San Juan) Irrigation Project an additional 115,000 acres will be subjugated. With the recent discovery of the large Aneth Oil and gas field Shiprock has become increasingly important as a distribution center. All this activity will considerably increase the number of persons dependent upon its central community facilities.

A small town has existed at Shiprock for a number of years. Most of its Navajo inhabitants are engaged in agriculture while the remainder are employed by the Bureau of Indian Affairs or the boarding school. A small group of white people employed by the Bureau and the school also makes its home in Shiprock. The economic potential for growth has been present in the town for some time but a number of factors have prevented that growth. Perhaps the three most important



Topography by C.R. Fisher, W.S. Hodgson

THE SHIPROCK AREA

are: 1) lack of agreement between residents, Tribal Government and Bureau on the proper direction of development, 2) a resulting lack of coordinated effort toward development and formulation of a pattern for growth, 3) the status of the land which is held in trust by Federal government, thereby being effectively controlled by that body. It should be pointed out that these factors have not been entirely negative in their effects; they have prevented haphazard development and have, it is hoped, laid a foundation for fruitful, coordinated effort. The land status problem is being handled by the Tribe's legal staff and in future should provide no insurmountable problems.

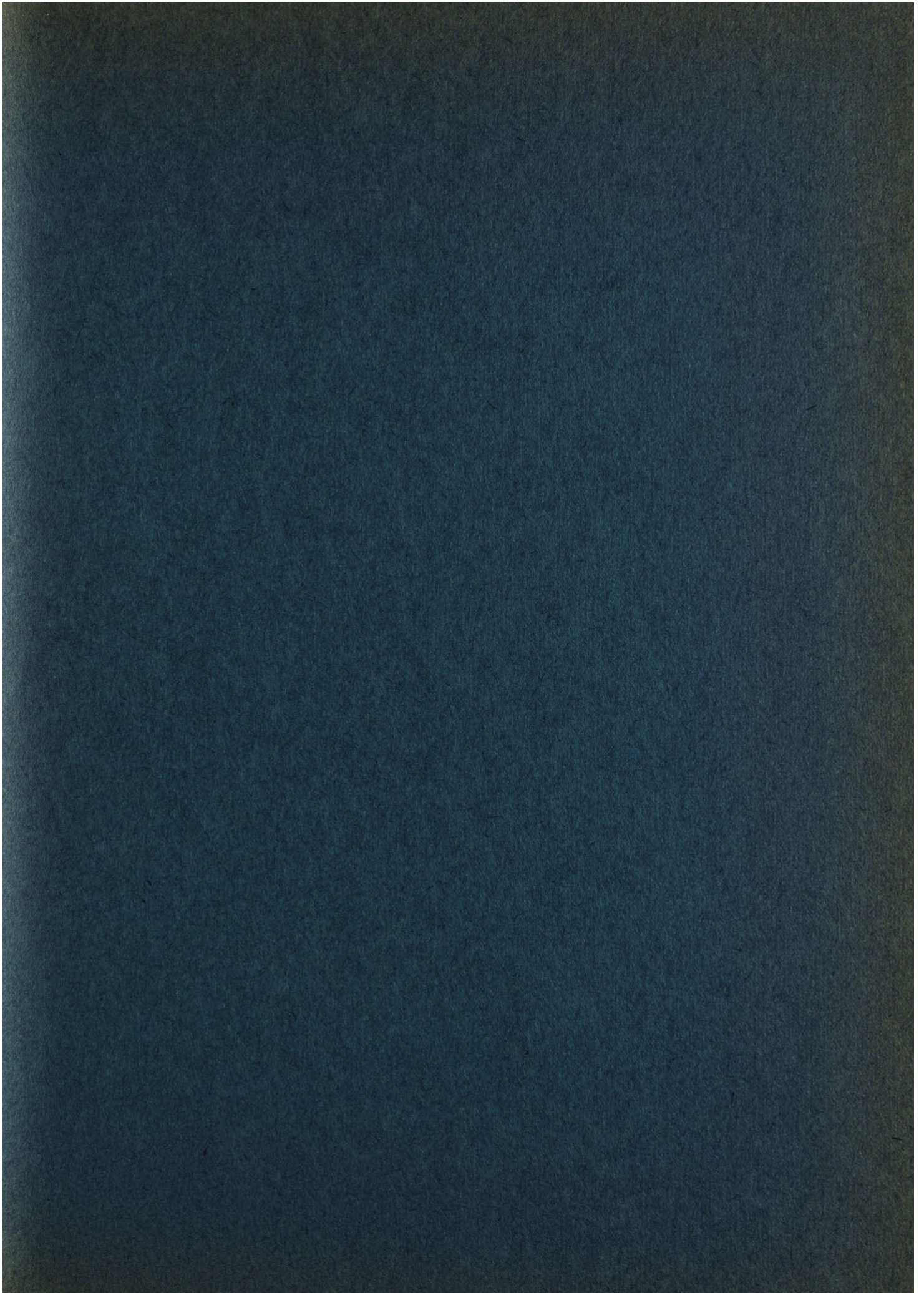
The location of Shiprock is unique among Reservation communities in that it lies beside the only large, continuously live river on the Reservation, the San Juan. The sustained flow of this river is sufficient to irrigate large tracts of land, furnish the domestic needs of a substantial population and provide some water for industrial use. At Shiprock the San Juan is not very broad but flows thru a valley which on its left (south) bank is almost flat for about a mile, then rises uniformly for another mile or so at which point the land breaks up into low, rough buttes and mesas. The right bank rises more abruptly to a broad, level plain which, again,

terminates in a broken system; elevation range from 4960 to 5300 feet. The Hogback Ridge to the east cuts the valley right up to the river and the Lukachukai Mountains, the Beautiful Mountains, contain the valley on the west. The mighty bulk of Shiprock, rising some 2000 feet above the plain, gives the town its name. Navajo mythology tells that it is the remains of Cliff-Monster, a malevolent diety who was killed by the Hero Twins to prevent him from feeding the People to his children. Later, American immigrants thought the rock resembled a high ship under full sail and gave it its present name.

Natural vegetation is rather sparse, predominantly sagebrush and yucca, but Indian rice, desert tea, juniper, piñon and cottonwood are also present. The bottom land produces good crops when irrigated and much of that land is now used to grow vegetables for market. Sheep are pastured on the higher ground.

Navajo population has for a number of years been increasing at the rate of 2.25% per year and is likely to continue at this rate for some time to come. Nearly 35% of the present Navajo population lives within the area that would logically be served by a town center at Shiprock. As the

town develops a number of families from other parts of the Reservation will probably be attracted to the community so that Shiprock will serve perhaps 30,000 people. The great majority of these will be engaged in agriculture but most of those who reside within the town will make their living in commercial, industrial and service activities. Should Navajo population continue to increase at a rapid rate, and there is no reason to assume the opposite, the number of people living on the Reservation 25 years from now will be on the order of two times present population. By far the greater percentage of these people will have to seek their homes in towns or cities and if, as seems likely, the Navajo desire to retain Tribal identity remains as strong as it is today the majority will want to settle in Reservation towns. What follows is familiar. Those towns with well established facilities will attract the brunt of the increasing population. It would seem, then, that a quarter century hence, 80,000 people could be dependent upon the town of Shiprock for commercial and cultural services and perhaps 50,000 of these will live within the city itself. The requirements of a city of that size must be considered in planning the town of today.



The site chosen is on the north side of the river and the east side of U.S. 666. The land immediately adjacent to the river is low, subject to flooding and unsuitable for building, but within a quarter mile to the north has risen sufficiently to allow permanent construction. The existing town is located on this ground. This low plain is abruptly terminated by a sharp butte which rises 100 feet above the plain; this butte will define the southern edge of the major portion of the new town and will provide an opportunity to establish visual contact with the river and mountains beyond. It is felt that a park containing trees and grass could be a valuable part of the development and by damming Salt Creek a series of small lakes might be formed, or at least, water will be retained long enough to furnish sufficient ground moisture to support a rather large park without using valuable water from other sources. This park will define the northern edge of the town; it will be reserved for public use. Trees are very scarce in the vicinity but a number of

species will do well if water is present and a park of this nature will provide a strong visual contrast to the natural landscape. In addition to large areas of informal space, the park will contain playing fields, a zoo, the fair and rodeo grounds and camping grounds for the use of transient visitors.

Because of the quantity of water required for their growth, it would seem unwise to attempt to incorporate extensive areas of large trees within the town itself. Rather those plants native to the area which do well under the natural moisture conditions will be used. Many of them have interesting forms and bear beautiful flowers and fruit at certain times of the year and if properly used are very pleasing in a townscape.

The nature of the Shiprock area suggests an uncongested mode of life and the Navajo of the area, even when collecting their homes into small groups, have shown a preference for a considerable spaceousness between their homes. A people whose entire spatial experience has consisted of tremendous vistas and seemingly limitless space, whose scale of life has been conditioned by long distances, do not easily come to accept relatively dense and restricted enclosures. Bruno Zevi, in discussing recent solutions to similar problems in Italy, has this to say,

"For far too long modern architecture has been transporting the solutions reached for urban housing problems bodily into the country. In so doing, it has too often created something completely out of tune with the countryside and with the psychology of the country people."¹² Indeed, the economics of a highly concentrated urban environment are misplaced here.

At Shiprock we are dealing with a community which is rural now, will remain rural for at least a few years to come and may, given the proper stimulants, become more urban in character within the foreseeable future. For this thesis an initial population of 2000 families with an average of 5 persons per family will be assumed for the town and to indicate the pattern of future growth a stage in the town's development, unspecified in time, when the population will have reached 4000 families will be shown. Initial gross density will be about two families per acre with no individual area exceeding a net density of five families per acre. Net densities of individual areas will be allowed to increase with an increase in population.

Norbert Wiener has pointed out that in describing an organism it is a mistake to try to specify each molecule in it and to catalogue its parts bit by bit; it is more fruitful to answer certain questions about it which reveal its pattern. In applying this line of reasoning to towns and cities, which are, in a sense, organisms of a high order, it can easily be seen that to attempt to catalogue each and every point of contact between the various parts of a city and the consequent reactions on the other parts would be a thankless and pointless task. First of all, the number of these points of contacts, while finite, is extremely large and in tracking them down we would soon find that the game is not worth the candle; secondly, in a society such as ours, it is not the points of contact that we should try to control but rather the paths between them; the methods by which these contacts are made.

At Shiprock any new development will start from scratch. There is a small settlement in existence but its location is such that significant expansion is difficult. The flood plain of the San Juan and an abrupt bluff limit the amount of land available at the present site and other factors preclude further development here. In developing a new

townsite, we are, therefore, free to establish a pattern substantially independent of existing facilities. Before the design can begin, the outline of this pattern must be determined.

Should present trends on the Reservation continue, the overriding condition of the town of Shiprock will be, for a long time to come, a rapid growth: a growth both in size and in diversity of activities.

This growth is one of the determinates of the town pattern. There are two methods of town growth which are commonly used in town planning: one is the establishment of a minimum area in which all (or most) of the town's necessary activities can be performed by a substantially constant number of people. In order to accommodate increased population this type of town adds additional areas at its periphery. The second type of town is essentially the same except that it has a certain built-in internal resilience which can absorb a small increment of growth while the major portion of population increase is concurrently contained in repetitious units which adhere to the original. Both of these methods are unsatisfactory because they limit the possibilities of expansion and in the transition stage tend to break down visually and organically.

There is a third method by which towns and cities expand, the value of which is not often recognized in planning expanding communities. This

is the method by which towns grow by the concretion of similar elements within an established pattern. The structure of such a town permits the addition of new units within itself without disrupting the fabric of the town's life. It also permits an adjustment over time in the nature of activities of any given area and, as the town matures, allows a diversification not possible in more rigid patterns; during this process, the visual and organic integrity of the town is not destroyed -- indeed, it can be enriched. This is the pattern chosen for the Shiprock community.

The town's commercial and cultural activity will be concentrated in a central area which will become the focus of interpersonal associations. The great majority of the town's shopping will be done here as well as a great deal of public entertaining. The center will be located adjacent to the park and the major fairground building, which need not be seasonal but can function in a cultural exhibition capacity, the year around, and the rodeo will be brought into close participation with the rest of the center's life. There is not now enough information available from which to make a detailed list of the components of the town center but a partial list includes:

1. Town and Area Governmental Facilities
2. Tribal Court Facilities
3. Community House and Auditorium
4. Intercity Bus Terminal
5. General Offices
6. Banking Facilities

7. Medical Offices
8. Library and Museum
9. Theaters
10. General Shopping Facilities
11. Speciality Shops
12. Public Eating Facilities
13. Transient Accomodations
14. Churches

Since Shiprock will be a town-center for a large surrounding rural area some of these components will need to be more extensive than would be required by the town alone. In addition, a small motor hotel will be necessary to accommodate tourists and other transient visitors.

The residential areas will converge on the center from three sides (the fourth, north, side is bounded by the park). Rather than a linear arrangement of living units along streets or paths the individual houses will be grouped into small clusters which will have certain external functions in common: automobile access and storage, entrance courts, bulk storage and heating equipment. Many Navajo women still weave and many men work silver when the demands of other chores permit. These people derive a real personal pleasure from their art and the intrinsic worth of the finished works as well as their economic value are strong reasons to encourage the continuation of these arts.

To this end, a number of the living groups will contain common studios in which these artists can gather. To facilitate this activity, perhaps the Navajo Arts and Crafts Guild could establish a central shop to prepare wool for weaving and distribute wool and silver to the artists; the Guild already functions as a distribution agent for finished products.

The residential areas will also contain the lower schools and two or three traditional hogans for sings. As the town grows a need will arise for small, local shopping facilities distributed through the residential areas; in time, perhaps a second shopping center will supplement the town center.

Such competent, although diverse, authorities as Lewis Mumford¹³ and Norbert Wiener¹⁴ have shown that a great deal would be gained by a community if a certain amount of home industry were reintroduced into the town. The Navajo in their weaving and silver work have a firm base for such an industry and perhaps in time it will develop. Certain parts of the electronics industry (which is already established in the region and at which Navajo workers excel) lend themselves to this type of shop. Should the need arise, an extension of the common studio idea can be added to various living groups; obviously, these shops serve a

social as well as an economic end.

Because of topography, the possible extension of railroad service in the future and a desire to permit an unhindered existence for the living areas, an industrial section has been reserved across the park from the town center.

The Navajo, in common with his fellow Americans, has come to depend more and more on the automobile. The circulation pattern of Shiprock will attempt to provide for a full, fruitful use of the automobile without infringing upon the other functions of the city. To the greatest extent possible pedestrian and vehicular traffic will be separated and at necessary points of intersection an attempt will be made to promote an uninterrupted flow of both streams of traffic. A certain amount of horse traffic can be expected, at least while the town is in its early stages; a certain number of people will likely continue to keep horses purely for their pleasure value, as symbols of "what men live by". The volume of this traffic will certainly not be so large as to interfere with pedestrian traffic and these two modes will parallel each other.

The climate of the Shiprock region, while lacking certain elements for agricultural growth, approaches an ideal for human habitation. The altitude, 5000 to 5300 feet is invigorating, the sun shines 80% of the time that sunshine is possible and the sparse rainfall, the element lacking for vegetal growth, eliminates many of the problems of daily life which obtain in wetter climates. The average yearly precipitation over the last 27 years has been 7 inches with most falling in the form of thunder showers during the summer. In July and August temperatures will reach 95° in the afternoon and drop as low as 50° at night; the other summer months will have lower maximums and about the same minimum. Winter temperatures drop well below 0° but few days will have maximum temperatures which are below freezing; snow can be expected every winter. Relative humidities over the year range from 10 - 50%. Winds in summer are generally from the south and from the northwest in winter.







The three following illustrations show diagrammatically the proposed town at three successive stages of growth:

STAGE I ... 2000 Families

STAGE II ... 4000 Families

STAGE III ... 10000 Families

The following symbols are used:

| | |
|--------------------------|--|
| Settled area of town ... |  |
| Industrial area ... |  |
| Singing grounds ... |  |
| Commercial area ... |  |
| High school ... |  |
| Elementary school ... |  |



STAGE I



STAGE II



STAGE III

HOUSES AND HOGANS

With just over 85,000 tribal members, the Navajo form the largest Indian group living in the United States today. Their history, as far as it is known with any certainty, shows them to be a people capable of rapidly absorbing material elements from foreign cultures without seriously disturbing the vital core of their own tradition. This was especially true after they entered the Southwest, ending a journey which may have taken centuries to complete and put half a continent between them and their Athabascan cousins in northwestern Canada.

Under the influence of the Pueblo groups whom they encountered in the Southwest, they gave up their primarily gathering and hunting economy for sedentary farming and greatly enriched their ritualistic life by adapting a number of Pueblo ceremonial forms. Succeeding intrusions by the Spanish explorers and settlers beginning in 1540 and the Americans in 1846 introduced the Navajo to horses and sheep. The horse vastly

increased the Navajo's mobility, and sheep gave him a much more stable economic base. The Americans broke the tribe's taste for war, and set up a Reservation at the Four Corners which ultimately grew to some 15 million acres and is still the homeland of the Navajo.

During the past decade the traditional Navajo house, the hogan, has been more and more replaced by dwellings of a type currently found in most other American communities. However, the hogan is still the home of the great majority of Navajo and enough examples from a wide span of years exist to make a study of its development fruitful. To trace this development of the Navajo house it is necessary to go back at least a thousand years in time and two thousand miles north of the Navajo's present home.

The word hogan has been fairly well anglicised and usually designates one of two types of circular lodges which "The People" call their home. As we would expect, the hogan has changed over the years and the word covers a wide range of dwellings from the early crude shelters to some very substantial buildings of recent date. In general, however, all hogans conform to the northern Athabascan dwelling, a type of structure common in the north woods, made of poles leaned together to make a conical frame and covered with any material at hand. In the woodlands of northwestern

Canada this covering was bark; on the grasslands hides were used, not sewn and fitted as on a tepee, but piled loosely on and held down with rocks; on the coast of British Columbia branches and leaves served as cover.

As the Navajo moved southward they found materials of a different nature and a climate progressively warmer and dryer. Trees were no longer plentiful, but the soil made an easily worked mud which did not crumble when dry so the hogan became a low conical pile of sticks covered with a thick mud plaster; this type of dwelling is easy to heat in winter and the heavy walls keep it relatively cool in summer. The form and size of these hogans were limited greatly by the People's technology. They apparently did not know how to fasten poles together and, although they had very good sinew-backed bows, arrows and stone knives, there is no evidence that they had axes or even stone hammers; certainly, they had no hafted tools. They had to depend on what timber they could find lying about or break down; consequently, the size of their dwellings was effectively predetermined.

It is impossible to have a real understanding of the development of the hogan without some knowledge of Navajo religious precepts. Again, it is not known with certainty how much of this religion is inherited from the proto-Navajo Athabascans and how much is derived from other

cultures. There is no doubt that a great deal was borrowed from various Pueblo groups after the Navajo entered the Southwest, but in view of the fact that the hogan form was carried down from the north, and ruins of hogan-like structures have been found along the path supposedly taken by the Navajo and lying outside the area of Pueblo influence, it would seem that at least the basic religious tenets pertaining to the hogan date from the pre-migration period. Each part of the hogan has its mythical counterpart and there are certain songs that, if sung while building the hogan, will assure long life and happiness to the house and its occupants. To a Navajo, his hogan is more than just a place to eat and sleep; it has a very important position in his sacred world. The Holy People, the god-like proto-types of man, built the first hogans of turquoise, white shell, abalone and jet. Navajo mythology carefully and repetitiously describes the positions and movements of people and objects within the hogan and requires the doorway to be on the east in order to always receive the first blessing of the rising sun. The hogan of First-Man was made of sheets of sunbeam and rainbow and a man considered his hogan beautiful to the extent that it was well constructed and to the degree that it adhered to the original model. This point of view discouraged rapid and radical change in hogan construction and when changes did occur the basic round form and eastward orientation were retained. The Navajo's esteem for his house (and his womenfolk)

is easily seen in the following short song from a House Blessing Way:

It extends from the women,
It extends from the women,
Beauty extends from the rear corner of my hogan,
It extends from the women,
Beauty extends from the center of my hogan,
It extends from the women,
Beauty extends from the fireside of my hogan,
It extends from the women,
Beauty extends from the side corners of my hogan,
It extends from the women,
Beauty extends from the doorway of my hogan,
It extends from the women,
Beauty extends from the surroundings of my hogan,
It extends from the women,
Beauty radiates from it in every direction,
So it does.

When the Navajo entered the Southwest, they encountered the vastly superior Pueblo culture and though they borrowed- and improved- much from their new neighbors they did not adopt Pueblo architectural forms. Even in the 17th and 18th centuries when, for long periods at a time, large groups of Pueblo, fleeing the Spanish invaders, lived among the Navajo and built rectangular, two-storied, flat-roofed villages of adobe and stone the Navajo chose to retain his hogan. There are some hogans with lower walls built of stone dating from this period but they are few and apparently were of the usual construction above a height of two feet or so. The Navajo did, however, learn to make and use a large number of tools, including stone axes and hammers, which were put to use in obtaining bigger poles to make larger and more comfortable hogans and, if the

Pueblo practice of tempering the building mud with straw was adopted, the hogan became tighter and more permanent.

The earliest description of a hogan we have, that by Jonathan Letherman in 1855, is typical of the white man's thinking of the time: "Their houses are temporary huts of the most miserable construction. They are conical in shape, made of sticks, and covered with branches and dirt, from six to sixteen feet in diameter, and in many of them a man can not stand erect. A hole covered with an old sheepskin or blanket serves the purpose of a door. The hovel is doubtless warm enough in winter, but must be sadly deficient in fresh air, at least to sensitive nostrils."¹³ Mindeleff has given an excellent description of the construction of such a hogan which has come to be called the forked-stick type. First, five logs ten to twelve feet long and eight to ten inches in diameter are laid concentrically on the ground with one pointing north, one south, one west and the other east; the north, south and west logs must have crouched ends at the center. The circle thus described is then marked and the ground within leveled after which the north and south poles are raised and their crouches interlocked in such a way that the center height is roughly seven feet. The west pole is then raised to receive the other two and the apex is tightly bound; the two east poles are then leaned against them so that their tops are a foot or so apart and their butts two or three feet apart - the top space becomes the smokehole and

the bottom the doorway. Many slender sticks and branches are then leaned on this frame until it is completely covered and these in turn are covered with mud. A blanket over the door completes the job. Hogans of this type are known to have had base diameters up to twenty feet; the slope of the walls did, however, greatly restrict headroom.

Mindeleff describes another type of hogan which was originally used only for very special ceremonies but was coming into use as a residence in the 1870's. In this type four heavy crouched posts were planted in the ground in an upright position so that they formed a square ten to twenty feet on a side. Logs were then lain across them to form beams and against these poles and branches were placed in such a way that their butts formed a rough circle, a cribbing was made to form the roof and the whole thing was covered with mud and earth. This type of hogan was sometimes thirty feet in diameter and, of course, headroom inside was essentially constant.

Thirty years after Letherman made his report, R. W. Shufeldt, a doctor stationed at Ft. Wingate, New Mexico, observed some Navajo build three successive houses near the fort in three successive years. The first was the forked-stick type. The second had vertical walls on

the east and south sides and the usual sloping walls on the west and north. To Shufeldt, this second house was an "exceedingly interesting" study, standing as it did immediately between the traditional hogan and the house that remains to be described. This last house had four vertical sides and a roof slightly pitched in two directions. Shufeldt tells us these Navajos had been able to obtain discarded axes and hatchets from the forts trash heap and had procured a quantity of dressed lumber - they were taking advantage of available materials and tools. This type of house did not become at all common among the Navajo, yet it is interesting to note what will happen within a limited area subject to strong local influence; in fact, at the very time Shufeldt was writing, the event which would cause the greatest change in hogan construction was occurring: the railroad came to the Reservation, and with it traders bearing steel tools.

Underhill has suggested that the first hexagonal hogans now so common on the Reservation were built of railroad ties discarded as the railroad was pushed along the southern edge of the Reservation toward the West Coast in the eighties. More recent evidence suggests that the hexagonal form is very much older than this, but remained extremely rare, perhaps used solely for certain ceremonial hogans. It is essentially a log cabin with six (sometimes as many as eight) sides; the logs are not notched

to fit at the corners and the same cribbing used to roof the earth-covered hogan is used to provide a base for the domed earth roof of the hexagonal type. With steel tools made generally available by traders, this type of hogan undoubtedly became much easier and more economical to build and quickly replaced the ancient forked-stick type. It is ideally suited to the Navajo way of life, requires very little maintenance and if left for a part of the year, when the sheep are taken to new pasture, will not seriously deteriorate.

When Corbett made a study of the hogans in the Chaco area in 1937 he found that this type was still by far the most prevalent with many having stone walls in place of logs. Many of those with stone walls had returned to the purely circular form but in all cases the same cribbing had been retained for the roof. Indeed, by that time it was difficult to find a forked-stick hogan except in the far western part of the Reservation where a rather strong conservatism is still in evidence. Corbett also noted a few rectangular, usually square, houses and a few hogans and houses with more than one room; these did not represent a change in building technology but rather a desire on the part of certain individuals for a different kind of life.

Mythology stresses that every part of the hogan is sacred and emphasizes that its interior as well as its surroundings must be kept clean and in good order. The hogan is divided into well defined spheres which are

parts of the hogan itself and must, individually, receive the attention of its occupants. The Navajo accordingly takes great care in choosing a site to build upon. The structures must not intrude upon the landscape of which they are a part, but must blend into the other local elements in such a way as to be inconspicuous. On the other hand the site must not interfere with the rights of others, particularly in the use of water and pasture. Water is very valuable on the Reservation and not always easy to come by; one would expect to find dwellings located immediately beside a source, but this is not the case. Rather a family will locate "near water", which usually means within two or three miles of the source, so that their activities will not interfere with others when sheep are brought to drink or a tank filled for home use.

Contrary to popular belief, hogans are not built as far from each other as possible but rather there is a very strong tendency to group a number of dwellings together. In times past this grouping was not always possible; a forked-stick hogan, although a simpler structure, requires a good deal more wood in its construction than does the later type and this wood frequently had to be dragged great distances - no pleasant task. The pasturage required for sheep frequently limited the number of families that could live together. Even today in those parts of the Reservation where flood water farming or small scale

ditch irrigation is the principal source of income, the number of families living together is limited by the productive capacity of available acreage. There are other localities where economic conditions not wholly dependent on agriculture have stimulated the development of small towns. Petroleum and uranium mining and refining, large scale irrigation and the influx of a number of industries are providing these towns with the impetus needed for growth.

In addition to a slow evolution in the form and construction of the hogan, another interesting development in living units has occurred on the Reservation. When the traders came in force during the 80's, one of the items they brought with them was the covered wagon and the Navajo took to it as quickly as they adopted steel tools. The wagon became a home on wheels; it never replaced the permanent, stationary hogan, but many families found that it served very well on the long trips to summer pasture and, indeed, was quite acceptable as a home while at pasture, especially since it allowed the whole family to find the best grass. The wagon also allowed the whole family to attend the great religious ceremonies and numerous local fairs; it was not (nor is it now) unusual for a family to travel 200 miles to one of these gatherings. The wagon held its own for 70 years or so but in time it, too, was replaced. Since the end of World War II and particularly since 1950 the pick-up truck has become the mobile home. Roads on the Reservation have been greatly

improved and the pick-up is much faster than the old wagon pulled by a couple of horses; if it can not reach all the places accessible to the wagon, it can reach most of them. Small cabins have been built onto the bed of the truck (some of them purchased but many others home-made) and a great deal of ingenuity has been shown in their construction: there are doors on the back, windows on the side, bunks, and each is capable of carrying a great deal of a families supplies. When the family is traveling or visiting, the pick-up serves as a temporary home and if there isn't room enough for everyone inside, it is no matter: most Navajo men have retained their love of sleeping in the open on a beautiful night.

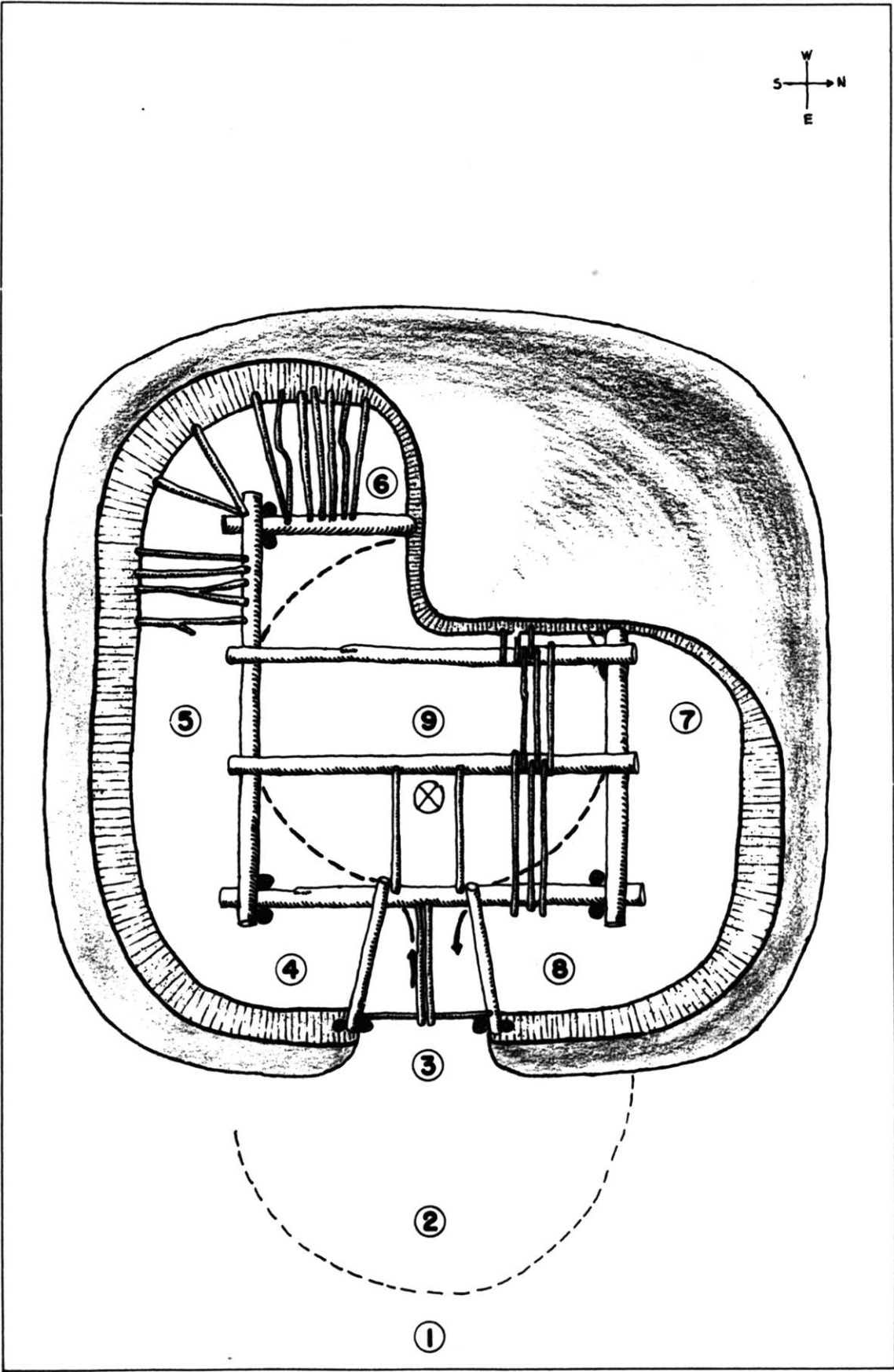
The trend to replace the hogan with conventional houses will continue. The Tribal Government is sponsoring a program to encourage the adoption of these houses for reasons of health, personal privacy and, oddly enough, economy. For with the establishment of the Tribal saw-mill and with improved communication and distribution systems on the Reservation making the products of our national economy readily available, it has become easier and cheaper to build houses rather than hogans. Then too, the hogan does not lend itself to the compactness of a town environment. To function well it must have a good deal of open, partially private, space around it in which many of the day's activities

can take place. In years past it was the introduction of new materials and tools, of new technologies, that brought about changes in the Navajo's home; it is the awakening desire for the products of modern technology that is dictating the changes of today.

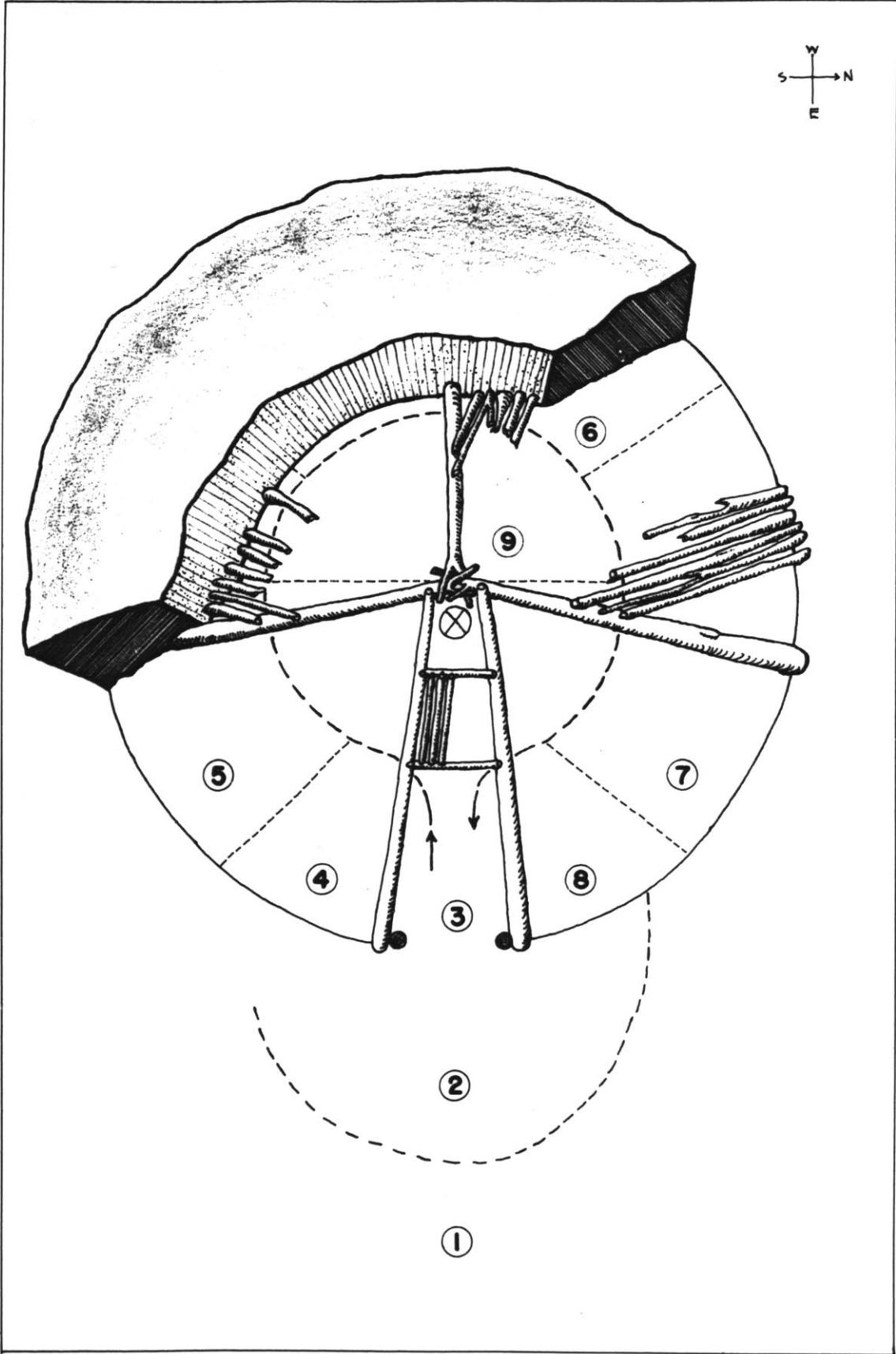


The following illustrations are plan-sections of two of the older types of hogans.

- 1 ... Outside of the house
 - 2 ... Without
 - 3 ... Entrance
 - 4 ... Within the small corner in the east
 - 5 ... Within the south corner
 - 6 ... Within the west corner
 - 7 ... Within the north corner
 - 8 ... Within the small corner in the north
 - 9 ... Under the center
 - ⊗ ... Fireplace
- Required sunwise path of movement



EARTH-COVERED HOGAN



FORKED-STICK HOGAN

The problem of constructing new houses in a town environment on the Navajo Reservation is somewhat analogous to the same problem currently being faced by other peoples who are in a transitional stage between a predominately pastoral, tribal or clan centered way of life to one which is dependent upon industrial activity and centered upon the individual. One could draw examples from Central Africa, Southeastern Asia, or, even from parts of Central and South America. These areas have in common a rather large potentially developable energy but are hampered by the lack of a developed power supply, an undeveloped economic base and the lack of an urban dwelling tradition on which to build future town and urban growth. This lack of an urban tradition should, of course, permit these people to be selective in their town planning and thereby profit by the mistakes of their town-building brothers. On the other hand, if we are to be honest, this could lead to errors of a new, perhaps higher, order if the planning for these towns and town houses

is not based on the traditions of the people who will live in them.

One significant difference between the Navajo Reservation and the other areas mentioned comes immediately to mind. While the peoples of Southeastern Asia, Central Africa and South America are surrounded by other peoples whose conditions of life are similar, the Navajo have for a hundred years been surrounded by a people whose culture is radically different, even antagonistic, toward Navajo traditions. And the form that the transition to the new way of life takes seems to be related to the distance between the giving and receiving cultures and the frequency of contact between them. For instance, in Southeastern Asia, the traditional dwelling forms are being transplanted from the rural to the urban environment; bamboo and thach^t remain acceptable materials for building. I can cite an interesting occurrence in Ghana (then the Gold Coast). After Great Britain obtained dominion over that country, the traditional form of earth house with thach^ted roof continued to be satisfactory to the natives until the British Governor built a wooden house with a corrugated metal roof. Thereafter, wood and corrugated metal became the goal toward which all homebuilders strove, even though the traditional house was infinately more comfortable and suited to the conditions of the country.

In like manner, The People are no longer willing to consider their

traditional dwellings adequate to meet the needs of their new way of life; this is especially true of those who are most likely to be the first inhabitants of Navajo towns. The homes of these people will have to reflect their new way of life and the single room hogan must give way to multi-roomed houses which provide for separation of the various functions of the house. Kluckhohn and Leighton have correctly pointed out that an increasing number of The People feel the need for "a room of ones own", a place where one can retire into the privacy of ones own life and yet retain immediate access to the full life of the family. From such basic attitudes stems the need for a kitchen rather than a fire in the middle of the room and for private bathing and toilet facilities. In other words, what the Navajo have come to expect from a house is very much the same as that which the rest of the American community regards as essential.

The choice of materials is not limited to any great extent by local conditions; all materials generally available on the national market are obtainable within easy transporting distance from the Reservation. However, since the Tribal sawmill produces large quantities of high quality Douglas Fir and pine, it would be advantageous to use these

materials where possible and the proposed designs will make extensive use of these woods. Building traditions of the area must also be given consideration. These are strongly rooted in the mortar of masonry construction and can be defended in terms of the resistance of heavy masonry walls to the penetration of solar heat and also their resistance to termites and rodents which abound in the area. For these reasons it was decided that at least the basic structure of the units should be of masonry construction. The structural system is composed of load bearing, light-weight concrete block walls supporting a series of cylindrical vaults in the cluster houses. ~~and suggested in the plan in the detail shown.~~ The roofs are, in most cases, double roofs with free air spaces to assist in cooling the houses in summer and serve as thermal insulation in winter.

Southern orientation is desirable to make use of the predominating southeasterly wind in summer but large glass areas must be protected from the intense sun. Other orientations are possible; western exposures must, however, be protected even more than those on the south. Eastern and northern exposures can be acceptable because the high incidence of light reflection from the earth will keep these two sides of the house well lighted and warm though not so much

as the other two sides. Northwestern exposures must be protected from the strong, cold winter wind.

NOTES

NOTES

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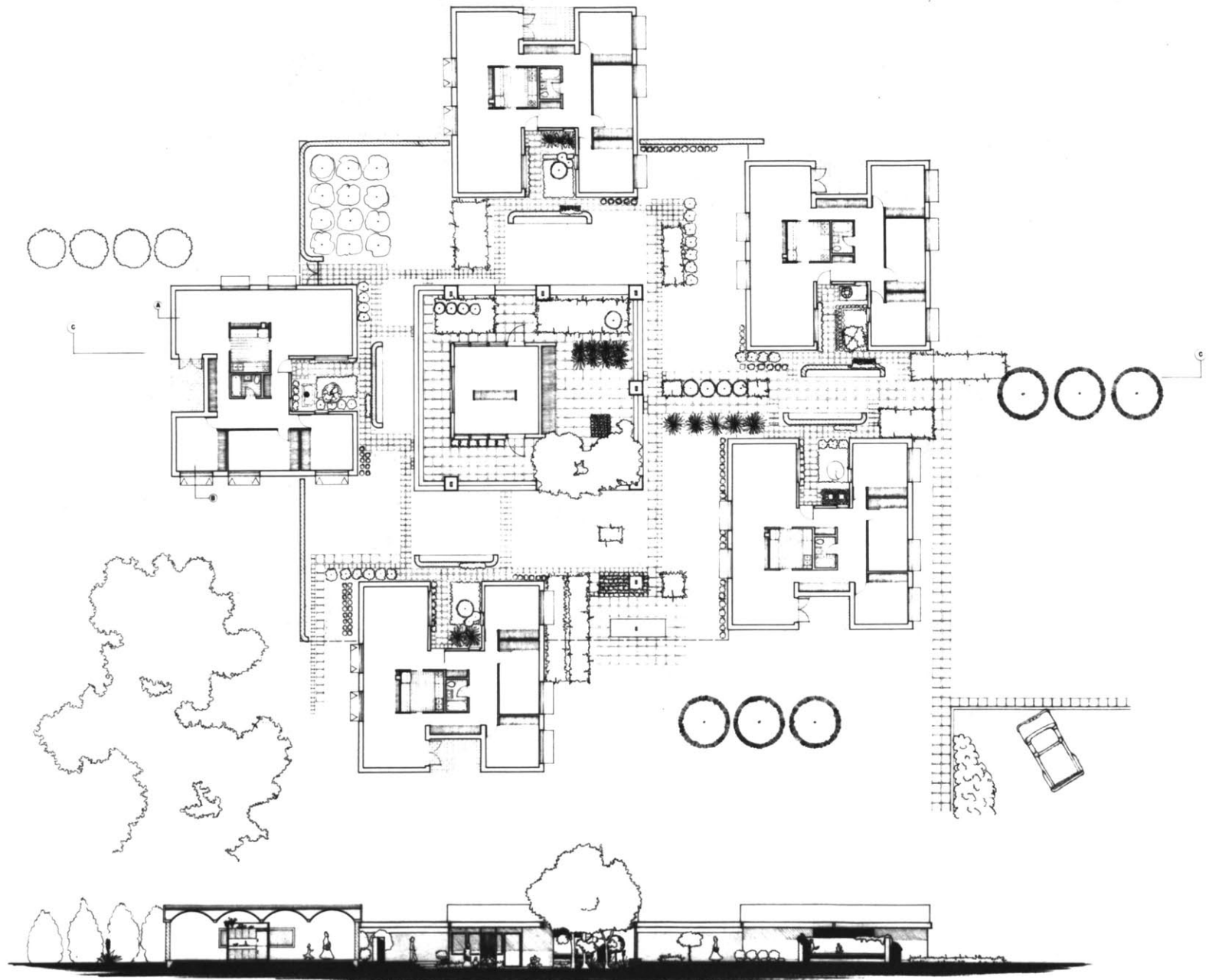
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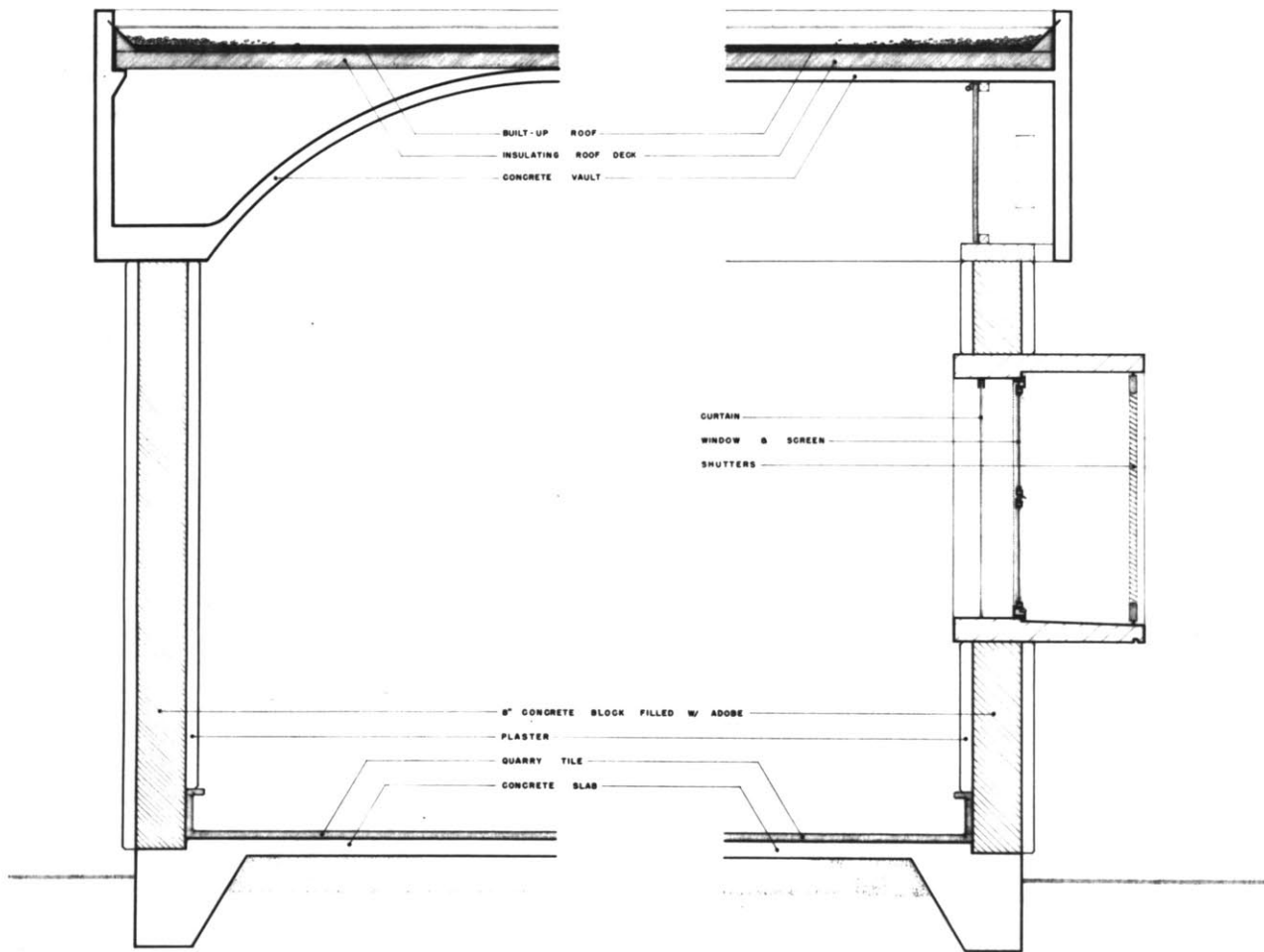
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