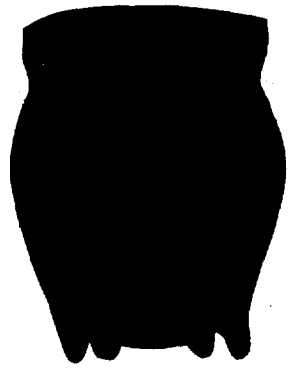
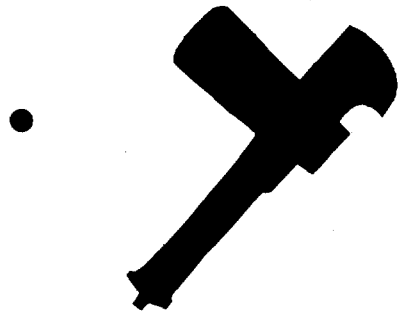
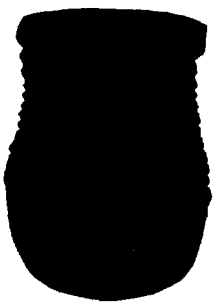
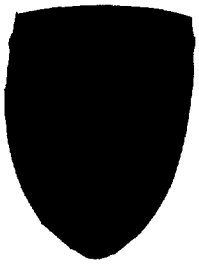
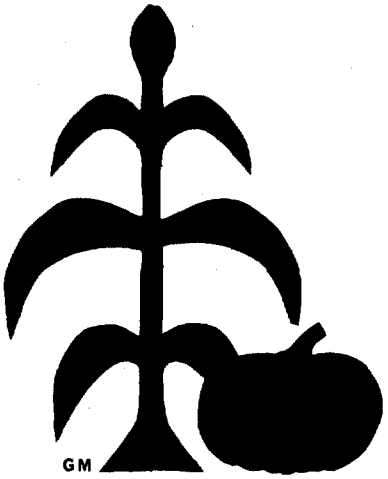






EARLY INDIAN FARMERS and EARLY VILLAGE COMMUNITIES





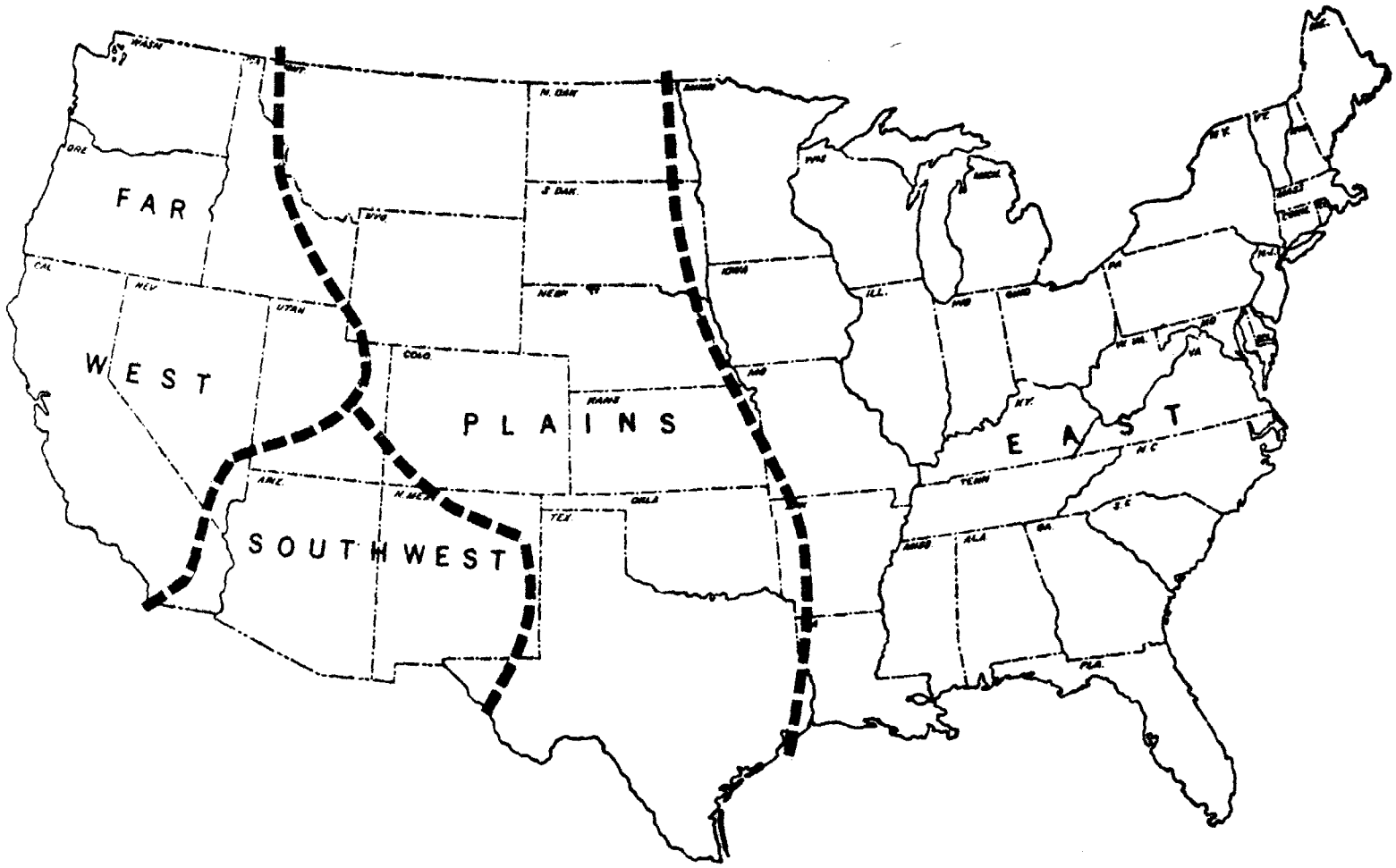
National Survey of
Historic Sites and Buildings

Themes II and III

EARLY INDIAN FARMERS

and

VILLAGES AND COMMUNITIES



Culture Areas of the United States

The National Survey of Historic Sites and Buildings

Themes II and III

EARLY INDIAN FARMERS

and

VILLAGES AND COMMUNITIES

1963

United States Department of the Interior
Stewart L. Udall, Secretary

National Park Service
Conrad L. Wirth, Director

PREFACE

The National Survey of Historic Sites and Buildings is the resumption of the Historic Sites Survey begun in 1937 under the authority of the Historic Sites Act of 1935. Although these studies were necessarily suspended during the war years, it has now been reactivated as a part of the National Park Service Mission 66 Program.

The purpose of the Survey, as outlined in the Historic Sites Act, is to "make a survey of historic and archeologic sites, buildings, and objects for the purpose of determining which possess exceptional value as commemorating or illustrating the history of the United States." In carrying out this basic directive, each site and building considered in the Survey was evaluated in terms of the Criteria for Classification, which are listed in the appendix of this report.

The Survey provides a valuable frame of reference of the major historic and archeologic sites of our country. It is the basis for the classification of sites, and for the selection of sites for Registered National Historic Landmark status. It also provides the material for use of the Advisory Board in recommending areas to receive further study and consideration for additions to the National Park System. The information gathered is also useful to other government agencies, State and local governments, organizations, and individuals in regard to preservation of historic and archeologic properties.

This study will be presented to the Consulting Committee for the National Survey of Historic Sites and Buildings for review and comment to the Director of the National Park Service; then to the Advisory Board of National Parks, Historic Sites, Buildings and Monuments for final recommendations to the Secretary.

The preparation of this study has been under the general direction of Dr. William G. Haag who wrote the Introduction and the chapter on Puerto Rico and the Virgin Islands. The section on the Far West was written by Dr. Richard D. Daugherty, Washington State University. The

report on the Southwest was prepared by Dr. Douglas W.Schwartz, University of Kentucky. The Plains were analyzed by Dr. E. Mott Davis, University of Texas. Dr. Stephen Williams, Harvard University, wrote the study for the East. In the Survey of Sites section, each writer has selected and described the sites for his particular area. The following National Park Service Archeologists assisted with this preparation: Mr. Paul Schumacher, Regional Archeologist, Western Region, prepared the site survey for the Far West; in the Southwest, Mr. Albert Schroeder, Staff Archeologist, aided Dr. Schwartz; Dr. Wilfred Logan, Regional Archeologist, Midwest Region, assisted Dr. Davis; Dr. John Cotter and Mr. John Griffin, Regional Archeologists of the Northeast and the Southeast respectively, assisted Dr. Williams.

The over-all Survey, as well as the theme study which follows, is under the general direction of John O. Littleton, Chief, National Survey of Historic Sites and Buildings, who works under the general supervision of Herbert E. Kahler, Chief, Division of History and Archeology, of the National Park Service.

Conrad L. Wirth
Director

ACKNOWLEDGMENTS

Although the Themes II and III study was prepared by a team of writers, some valuable help was rendered by others. It is impractical to cite all the many prehistorians whose individual studies have been used as the bases for this analysis -- their names appear in part in the Bibliography. Our debt to these colleagues and predecessors is gratefully and humbly acknowledged.

In no small measure did the several conferences with Dr. John O. Littleton and the Regional Archeologists aid in orienting our approach to the final preparation of the study.

The final printed report was prepared by Dr. Haag at the Louisiana State University Printing Office. He was assisted in the cartographic preparations by Miss Judy Josserand, a student in Geography at the University. Mr. Gustavo A. Morales, graduate student in Geology, prepared all the line drawings and art work, including the cover design. The work of these two clearly enhances the appearance and quality of the final product.

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INTRODUCTION

The Themes

The transformation of mankind from collecting and hunting peoples of great variety to sedentary folk depending upon domesticated plants and animals was the first great economic revolution of human history. In the entire course of the evolution of culture the introduction of domesticated foods may appear to be so rapid as to be called a revolution, but in actuality many thousands of years transpired in the change from casual collecting to year-round tending of plants.

In the Old World a concommitant of agriculture was the development of animal husbandry, but this is not a significant economic factor in North American prehistory. It was agriculture alone that accelerated the growth of culture here, and partly as a consequence, the course of this growth was quite different from that of the Old World.

Although the climate of opinion regarding the independent invention of agriculture in the New World has varied between complete rejection and wholehearted acceptance of the idea, it seems agreed at present that neither plants nor techniques relate the two worlds. Yet the New World, like the Old, saw the transformation of the culture stream from collecting to agriculture as a long, slow process.

It is the long, slow process that is the unifying element in this study. Theme II, the gradual evolution of the Early Indian Farmer, and Theme III, the consolidation of agriculture in the Village Farmer, are events in a continuum and, except in local situations, can not be clearly demarcated. The long uncertainty about the locus and time of the invention of agriculture has only recently begun to be dispelled. It is a confident conclusion now that the origin

probably involved several loci, none of which is in the area now the United States. Because of the great change brought about in aboriginal cultures by the perfection of maize, perhaps undue emphasis has been given this single plant. The problem of the origin and diffusion of agriculture in the New World has occupied some of the greatest students of several disciplines -- botany, geography, and archeology.

Theme II is concerned with the initial appearance of domesticated plants of which corn is only one and a minor one early in the period. Not far from 2500 B.C. plants domesticated elsewhere were brought into the Southwest and, perhaps not long after, domestication was manifest in the eastern United States. Yet locally these early farmers continued their attentions to many native wild plants and none became dependent upon agriculture for most of its food supply. Several thousand years of gradually increasing dependence upon domesticated plant foods altered the livelihood of such peoples, but, at about 2000 or so B.C., such cultures occurred throughout most of the area now the United States. None of the Antilles is likely to have had any form of domesticated plant at this time.

Theme II represents the great American horizon that evolved out of the Late Archaic Hunters and Gatherers -- The Desert Culture and the Eastern Archaic. Its characteristic conservatism is exemplified by Basketmaker and Pueblo I sites in the Southwest, by Early Woodland manifestations in the East. Along the Gulf and Atlantic coasts littoral peoples documented the introduction of pottery about 2000 B.C. Everywhere the Archaic tradition, east and west, was slowly being modified by increased concern with plant foods and by the addition of pottery and more sedentary living.

Three thousand years after the introduction of corn in the Southwest, it had become so efficient a crop that the major subsistence of many peoples was based largely on this one staple. In the Southwest a sedentary life was precariously maintained and sometimes blossomed into great villages with rich, dramatic lives enjoyed by their inhabitants. In the East corn appears to have come in, more likely from a southern source than from the Southwest. There is no abrupt or dramatic alteration of the tempo of life of Theme II times to that of Theme III, nor was the transformation

wrought by plant production uniform throughout the United States. Theme III is not to be looked upon as a culminating event but rather as a flowering process involving many variations on the Theme II plan.

The largest pueblos mark the highest attainments of the Theme III period in the Southwest with accompanying refinements in arts and crafts. There were changes in settlement pattern too, but again, the antecedent arrangements are preserved in enlarged form. Greater community activities may be deduced from structures such as the ball court and the great kivas.

In the East the enormous temple mounds attest many thousands of hours of labor and suggest a strongly centralized government. This construction was not wholly a phenomenon of the closing phases of Theme III for the great Hopewellian earthworks and the complicated works at Poverty Point are easily one thousand years older than pyramidal mound sites such as Monk's Mound of Cahokia or Emerald Mound near Natchez. Thus it will be argued later that a complex sociopolitical structure was evolved in the East nearly two millenia before the attainment of near-dependence upon maize. The agricultural foundations upon which rested the Hopewellian and Poverty Point cultures are an accepted fact to most archeologists, but this is still largely conjectural.

The American Habitat

The transition from Late Archaic Hunter-Fisher-Gatherer activities to Incipient Farming in North America can not be neatly fixed by a dateline. In fact, some peoples never rose above the Archaic way of life. Whether the environment was a potent factor in determining the nature of the transition is a still debated problem. In so far as the area of the United States is concerned, if we take a period around 3000 B.C., we can describe the conditions of climate and land relations at that time that set the scene for the transition.

There is very little likelihood that the present outline of the continent or the general distribution of the land has changed much in the last 5000 years. In 3000 B.C. sea level had probably returned from its reduced stage of

the height of the last glacial advance very close to its present condition. If anything, it may have been of the order of only 20 to 40 feet below the present stage. For the purposes of our discussion, we may assume that any slight lowering of sea level at this time would have had very little effect on the distribution of cultural remains. In the deltas of rivers such as the Mississippi there were great changes in the deltaic land masses, but this is of not great significance for the simple face that none of these areas was extensively occupied by early farmers. In Late Archaic times virtually all of these estuaries were utilized because of the availability of shell fish. With the coming of agriculture, there was a gradual abandonment of this type of activity except in a few highly favored spots. Hence, we may assume that, in so far as the physical land mass is concerned, there has been no significant change in the last 5000 years.

The area of the contiguous-48 United States has great diversity in its physical makeup (Fig. 1). (It is recognized that there are other states than these 48 but herein references to the United States imply the continental states exclusive of Alaska.) Nearly two-thirds of the interior of the area is drained by a single great river system, the Mississippi. In the East there are old mountains, largely rounded stumps of once-grander mountain peaks than exist today. In the West the interior plains gradually rise to elevations about one mile above sea level where they break into a series of ranges that constitute the Rocky Mountains. Farther west are the interior basins and plateaus and along the Pacific margin there, again, are coastal ranges. This great diversity of land form is, in itself, an almost certain assurance that the occupation by man will be considerably diversified. It must be remembered that aboriginal man in North America was not well equipped from the cultural standpoint to cope with this great diversity. Nonetheless, that he did successfully cope with this diversity is attested by the fact that the coastal areas, the river banks, the higher plains and plateaus, and even relatively secluded mountain vastnesses were occupied by pre-Conquest men in the United States.

Because this physiographic variety is difficult to describe succinctly, a better concept of this geographical

setting may be had from a consideration of graphic representations of the various ecological factors that were important to prehistoric man. Figure 1 enables one to visualize the great topographic variety, and subsequent illustrations in this chapter reduce large masses of data to a more tangible scope.

From the climatological view the change in the last 5000 years is not too easy to establish or evaluate. There is a hard core of European and American archeologists, geologists, and botanists who are convinced that there was a period of greater amelioration of world wide climate than exists today. Opposed to this view is an equally immovable group of the same disciplines who are convinced that the evidence for this is not sufficient to justify taking such a position. Unfortunately, this is a very critical point from the standpoint of cultures that existed in situations where a slight change in climatic condition would alter the whole balance of the culture with its environment. Needless to say, the evidence presently suggests one must make a somewhat subjective choice about this point and the general orientation of this study will be that there was no climatic optimum 5000 years ago or since. However, this does not rule out the fact that there were minor climatic fluctuations that affected the whole continental land mass within the last 5000 years. As a matter of fact, it is quite probable that changes of this kind did take place and that they were culturally significant.

Climate is average weather or the aggregate of factors that determine weather for any given area. These factors are generally considered to be temperature, winds, barometric pressure, and precipitation, but temperature and precipitation are the most significant of these. There are parts of the United States that are characterized by highly variable climatic conditions, by changing weather, in other words, whereas some portions have reasonably stable conditions. The interior United States exhibits continentality, that is, there is considerable difference in temperature averages from winter to summer and interior climates are usually characterized by hot summers and cold winters. Along the Gulf margin of the United States, the climatic conditions are generally much more subtropical and thus annually vary considerably less than in the interior of the

Figure 1. Major physiographic areas of the United States. The Atlantic and Gulf Coastal Plain is a great sea-margin belt of relatively low elevation with a few rolling hills and many sluggish streams; the Appalachian Region has recognizable subdivisions a) the Piedmont varying in elevation from 400 to 1500 feet is a rolling to quite hilly surface, b) the Blue Ridge, often a single prominent ridge, is highest and most rugged mountains of the Appalachians with little level land, c) the Appalachian Valley is a 50-mile wide belt of parallel alternating ridges and valleys extending from the Hudson to Alabama, d) the slope of the St. Lawrence Valley, e) the Appalachian Plateau is greatly dissected with deep valleys and steep slopes and it falls gently toward the northwest from the Appalachian highlands, f) the New England area is generally rugged directly down to seashore and flat land is scarce, g) the Adirondack mountains is a single rock mass rising to more than 5000 feet elevation; the Interior Plains are subdivided into a) the Interior Low Plateaus, essentially an extention of the Appalachian Plateau and enclose great fertile basins in central Kentucky and Tennessee, b) the Central Lowlands is roughly bounded on the west by the 100th meridian and its major feature is flatness, c) the Great Plains is a flat but not level surface that is a few hundred feet in elevation on its eastern margin and over a mile above sea level where it butts into the Rocky Mountains with a scattering of buttes and mesas to interrupt the slope; the Interior Highlands or the Ozark-Ouachita Highlands are rugged hills and rounded low mountains; the Rocky Mountains stretch from central New Mexico to beyond the Canadian border in three segments a) the Southern, high mountains and parklands, b) the Wyoming Basin, high, deeply dissected in part, plateau country, c) Northern Rockies, tremendously rough mountains and valleys with many permanently snow-capped peaks; the Intermontane system of mountains and basins is a) the Colorado Plateau, rolling uplands, isolated mountains, and entrenched streams, b) the Basin and Range area has interior dry basins confined in drainage by massive block fault scarps, c) the Columbia Plateau, whose level lands are great lava fields cut deeply by streams; the Pacific Coast is a) a great continuous range of mountains, the Sierra Nevadas and the Cascades, and b) the Pacific border mountains, the Coast Ranges that are separated from (a) by a long narrow interior valley.

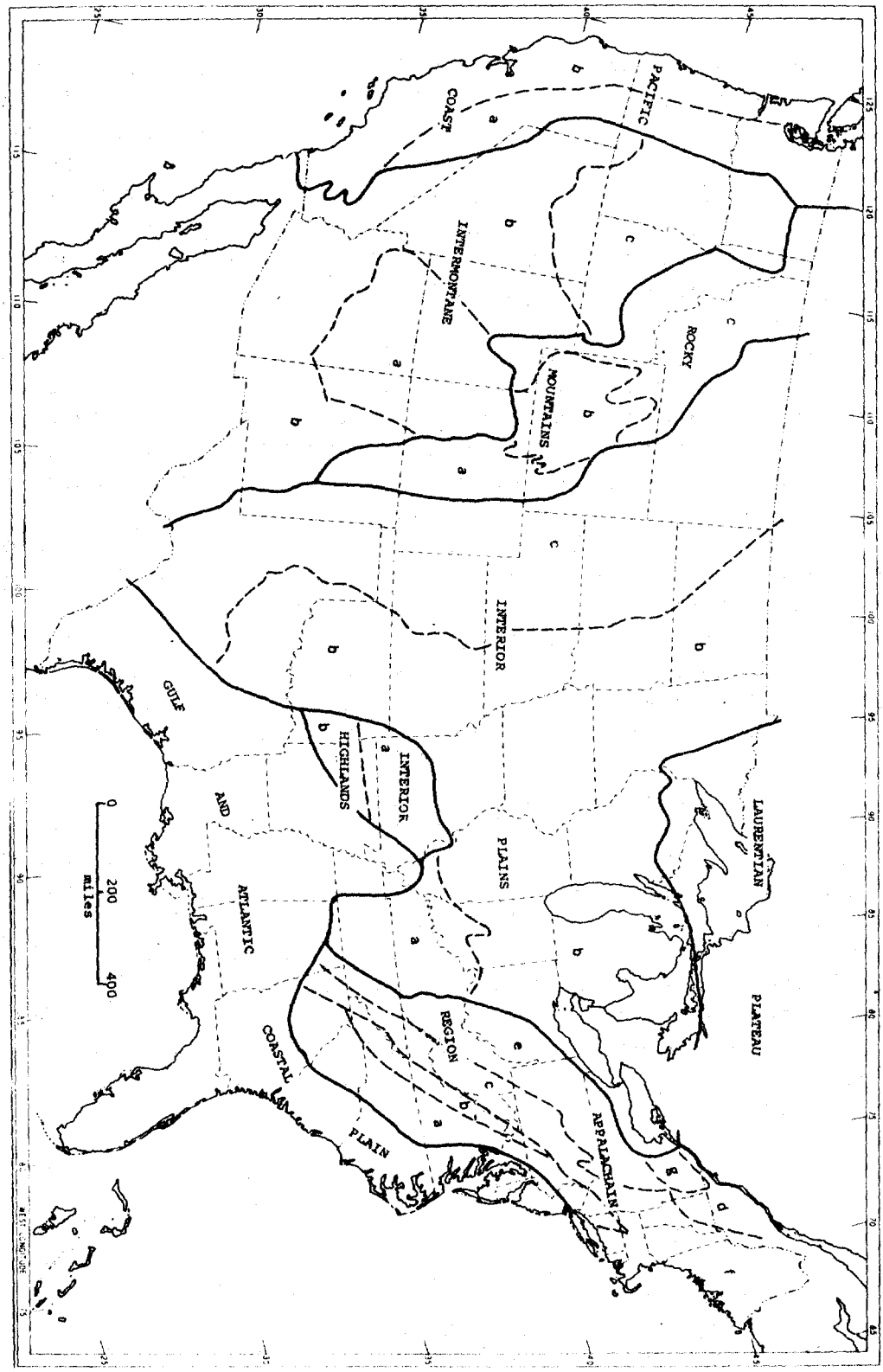

Figure 1. Major physiographic regions of the United States.

continent.

As indicated above, the climate is average weather and climate is the most important factor in the determination of vegetative cover for any area. Nonetheless, important aspects of any climate are the extremes of temperature and rainfall since these affect the vegetation most. Thus for given parts of the United States, it is the extremes of climatic conditions that determine whether certain plants survive in that area throughout the year.

The accompanying simplified map of the distribution of climatic conditions in the United States (Fig. 2) may be compared with the other maps to note still other factors in the total environmental picture confronting aboriginal man. It is important to bear in mind that in areas of similar climatic conditions men made nearly similar adjustments to their requirements. This relationship of man to environment is more important at early stages of mankind's growth or in poorly equipped peoples today, than it is when man had devised cultural traits that enabled him largely to eliminate or reduce this factor. The importance of these climatic factors will be referred to again in the consideration of the origin and spread of agriculture in the United States.

It may be assumed that the quality of the soil cover of any given area of the earth is of not much importance until man became involved in agriculture, but this is by no means true. The nature of the soil is one factor that determines other features of the earth's surface, such as the animal and vegetable life which early man was dependent upon. In any case, in our consideration of the bearing of soil distribution in the United States upon aboriginal man, it may be briefly summarized more or less as follows, briefly, because we consider soils one of the less important ecological factors for man.

In our area there are several major groups of soils, two preponderating however, namely, soils called pedocals, high in soluble minerals of the kind needed for plant growth, and soils called pedalfers that do not accumulate lime and other minerals. A third major group of soils may be thought of as the immature ones, such as are found in alluviated areas, the saline soils, the alkaline flats and

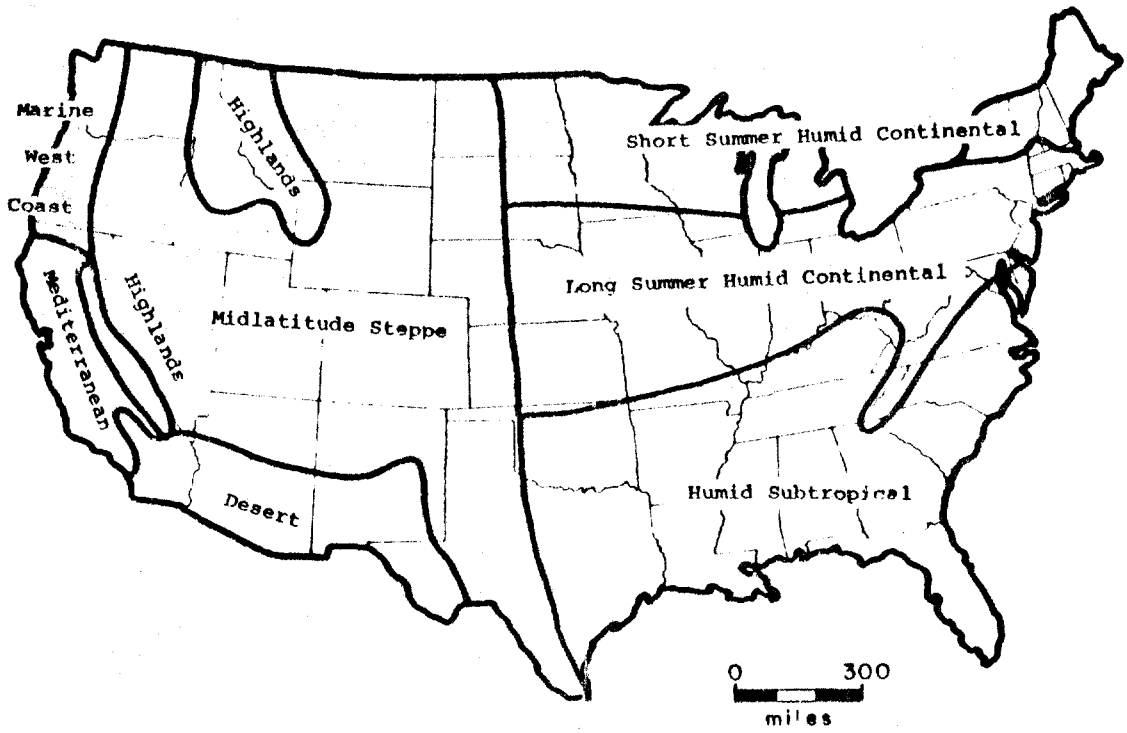

Figure 2. Generalized climatic distribution in the United States. In a much simplified sense the climates may be characterized thus: Mediterranean has hot, dry summer with winter rainfall; Midlatitude Steppes are grasslands, dry and cold in the North, dry and hot in the South; Desert climates receive less than 20 inches of rain per year and are hot; Humid Subtropical has a long, hot summer and mild winter with abundant rainfall throughout the year; Marine West Coast has cool summer and very mild winter with much precipitation; Long-Summer Microthermal has warm summer with mild to cold winter and adequate rainfall each month; Short-Summer Microthermal has colder and longer winters with only about 100 days growing season; the Highlands are snowy mountains.

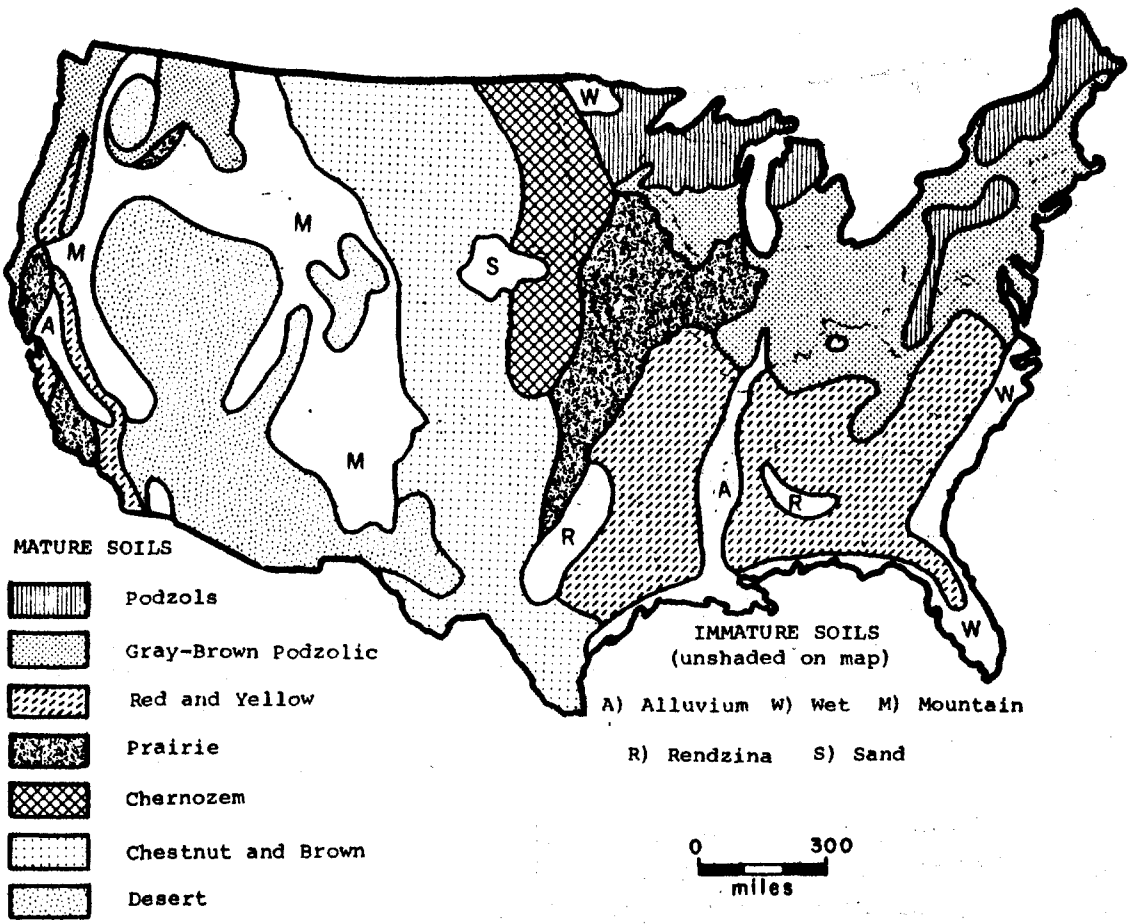

Figure 3. Soils of the United States. From various sources including the Encyclopedia Americana.

. . . . . .

swamps and marshes (Fig. 3).

Podsols, a type of pedalfer, covering a considerable portion of the northeastern United States, are usually quite acid soils and support heavy stands of conifers (Figs. 3 and 4). The gray-brown podsolic soils, whose distribution may be seen on the accompanying map, are better pedalfers than the true podsols. A third type of pedalfer is the red and yellow podsolic soils of the South and eastern United States. In localized areas the red and yellow podsolic soils are far better than the average for the United States in general. Two outstanding regions of red and yellow soils are the Nashville Basin and the Bluegrass region, where very good soils have resulted from a limestone base.

Chernozems are pedocals that are characterized by dark brown to black color, and it is probable that these soils developed originally under grass. The pedocal subgroup, called the chestnut and brown soils, developed in regions receiving less than 15 inches of rainfall. Thus the whole High Plains area, as well as other relatively treeless areas are characteristically chestnut and brown soils. Chestnut and brown soils are not as high in humus as chernozems but still with sufficient rainfall become adequate farmlands. The third type pedocal is the soil characteristic of desert regions, that is, areas with less than 10 inches of rainfall. They are invariably low in humus content and thus quite light in color. They are high in mineral content, leaching is at a minimum, and evaporation tends to concentrate minerals near the surface. Hence some desert soils may grade into alkaline soils. Desert soils are rendered useful only where irrigation is possible.

Prairie soils originated under grasslands and thus are only slightly acid. In fact, the prairie soils in the United States constitute the best farmlands to be found. The plants that grew originally on these regions, grasses, are still the most successful and it is here that corn, wheat, etc. are most productive.

There are a few places in the United States where the soils cover does not fall within the above categories. These soils are mostly immature forms, such as in the sand hills of Nebraska, coastal dune areas, coastal marshes and bogs, plus many steep slopes on which soils may not develop. Of course, the most widespread immature soils are those that may be classified as alluvial or recently deposited. Despite the fact that alluvial areas are generally characterized by poor drainage, they still constitute some of the most productive land areas in the United States.

One of the most difficult tasks facing the modern ecologist is the problem of determining what the original vegetative cover might have been in any given area. We know that ice covered much of the northeast and central parts of the area now called the United States and thus the aboriginal plant cover was a gradual succession that developed from that time to the sixteenth century. We know also that in many instances man has completely altered the appearance of

the land. In fact, there are relatively few areas, and small ones at that, where the original natural vegetation is preserved in the United States.

Because of the significance of the natural vegetative cover to the development of agriculture in prehistoric United States, the following paragraphs attempt to depict this situation. Historical records and other information would suggest that at least one-half of the continental area of the United States was covered by woodlands in aboriginal times. It is quite probable that aboriginal man had some effect on this natural cover, but not to any significant degree except in fully-evolved agricultural situations. In any event, in the area of the United States we may group the flora in three major habitats: woodland, grassland, and desert.

The woodland habitat may be subdivided geographically into a number of regions. They are not only geographically disparate, but they represent different assemblages of plants, particularly the trees. The accompanying map (Fig. 4) indicates some of the subdivisions within the forested areas that were important in aboriginal times. As an example, in the northern forests there was a considerable mixture of conifers and broadleaf trees. In wet areas there were black spruce, tamarack, white cedar, red maple, and balsam. In the drier areas white, red, and jack pines were commonplace trees. Hemlock, sugar maple, beech, elm, aspen, basswood, and birch also were strongly evident.

The central woodlands were much more characteristically oak forest with hickory, chestnut, yellow birch, tulip trees, dogwood, redbud, shortleaf pine, pitch pine, scrub pine, juniper, laurel, and rhododendron, varying in popularity from place to place, often depending upon elevation and soil conditions. The southern forests were mixtures of evergreens, including the longleaf, loblolly and slash pines, plus broadleaf trees such as the magnolia, gum, pecan, persimmon, oak, and hickory. Along the lower Atlantic margin and in the Gulf South area, trees such as the wax myrtle, the live oak, and sweet bay were particularly evident. In swampy areas the cypress, tupelo, and sweet gum were the dominant forms. In the southern forests there were other plants that gave the area considerable character,

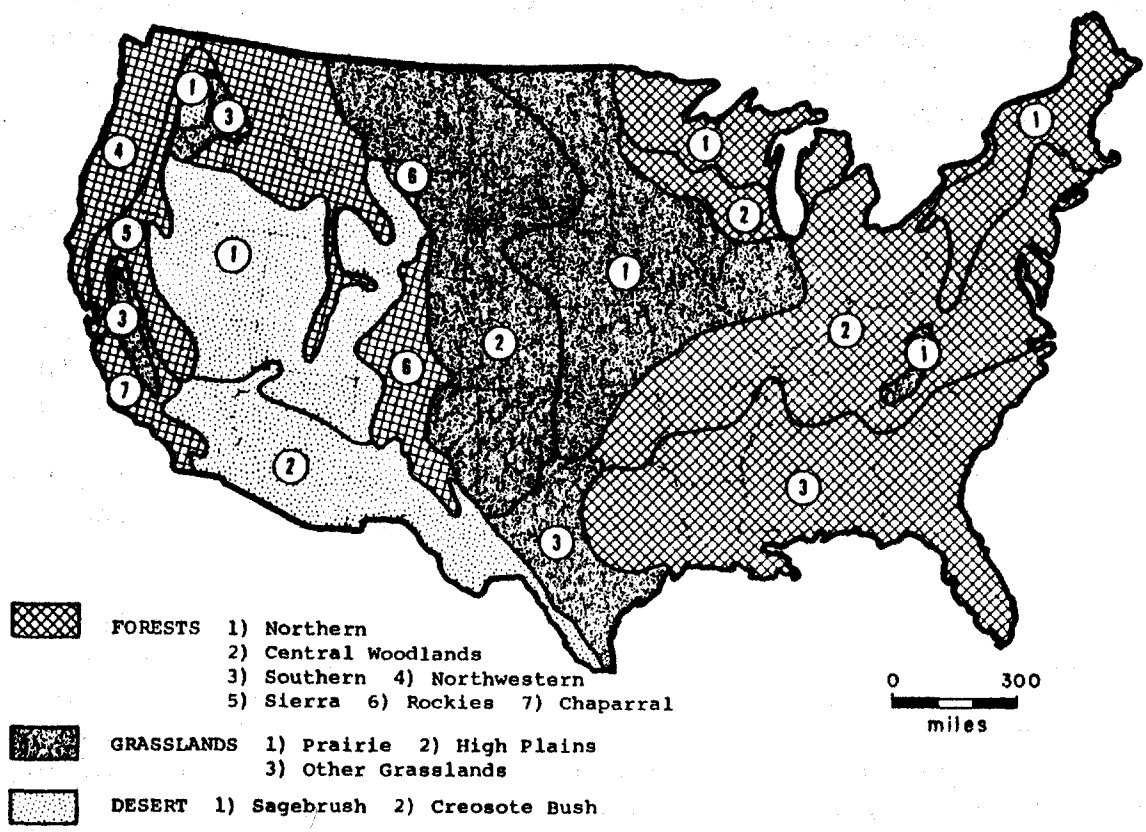

Figure 4. Natural Vegetation of the United States. A restoration of the original plant cover in prehistoric times. From various sources including the Encyclopedia Americana.

such as Spanish moss in the Deep South, wire grass along the marsh margins, and the palmetto in some of the interior alluviated regions.

In the West there are some quite distinctive forest areas. Those in the Sierras were almost exclusively conifers, yellow pine, sugar pine, incense cedar, white fir, Douglas fir, and sequoia. Also found there was western dogwood, laurel, madrona, and manzanita. But the most important trees to aboriginal man were oaks, a minority type in the area. The forests of the northwestern area also were almost entirely conifers, consisting principally of the Douglas fir, western hemlock, western red cedar, Sitka spruce, and the redwood. The Willamette Valley forest cover

was primarily big leaf forms, such as the maple, the Oregon ash, black cottonwood, and oaks. The Rocky Mountain forests were like those of the Sierra except that the lodge pole pine, Engelman spruce, aspen, and mountain mahogany were additional forms.

There were a few other spots in which there were marked local differences. This was particularly evident in the chaparral woodlands where stunted hardwoods and shrubs dominated. The live oak, scrub oak, holly-leaf cherry, sumac, wild lilac, manzanita, and adenostoma were intermixed. In the southern Rockies and the Great Basin there were clumps of several different kinds of juniper, such as the red cedar, Utah juniper, one-seeded juniper, and alligator juniper. Interspersed with them were pines, stunted Douglas fir, and scrub oak.

The map shows how much of the interior of the United States was dominated in early times by grasslands, the second great natural vegetative cover. Grasslands fall into two major categories plus some miscellaneous situations. The prairies were characterized by tall grasses with gallery forests of oak, hickory, elm, sycamore, cottonwood, and butternut. This constituted an important vegetative assemblage from the standpoint of early man. The short grass areas are called the High Plains in the United States and here grasses such as grama and buffalo grass were dominant in the eastern part of this area, gradually thinning out to bunch grass along the Rocky Mountain foothills. Here the gallery forests, not nearly so rich as those in the farther eastern prairies, consisted primarily of willows and cottonwoods.

In West Texas, extending down to the Gulf, there was an important area of other grasslands where the grass was intermixed with scrub tree growths such as mesquite, creosote, yucca, black bush, and cat's claw. An occasional clump of oaks might also have been found in this region. On the Pacific slope the entire interior of California is a former grassland where brome grasses, filaree, wild oats and bur clover were commonplace forms. Farther to the north in Washington and Oregon, the grasslands were predominantly bunch grass. Of course, there were other less important grasslands that were essentially Alpine meadows in the high

mountain ranges.

The third natural vegetation habitat is that called deserts. Deserts rather readily fall into two categories. One, the sagebrush desert of aboriginal times, was characterized by deciduous perennial, woody plants, such as yucca, desert primrose, and stick leaf. The second type of desert was dominated by creosote bush, or at least creosote bush was of such an outstanding nature that this is often the designation given to it even today. These desert areas were hot and dry with great diversity of plant cover. Creosote bush, desert salt bush, various mesquites, and numerous cacti were to be found. Local character was given to the landscape by different cacti such as the saguaro in parts of Arizona and the cactus-like Joshua tree farther to the west.

During the Pleistocene Epoch, the Northern Hemisphere was subject to such extreme climatic changes that the fauna was seriously affected by it. One must only recall that at least four times the ice of the Northern Hemisphere increased to such a state that it covered considerable portions of both North America and Europe. We have less knowledge of the actual coverage of Siberia, but we may be sure that the climatic conditions throughout the Northern Hemisphere were more severe than is presently the case. As the ice covered the land, animals were either killed or driven south. As the ice retreated, these animals would have returned poleward with the ice margin. This may have been conducive to the spread of certain Old World peoples into the New World as they followed these animals along the sloping margin of ice in Siberia. It has been demonstrated, however, that more families of mammals became extinct during Pleistocene times than are present on the face of the earth today. Thus the animal population of North America underwent one of its last serious changes right after the close of the Pleistocene.

From a geologic standpoint, the close of the Pleistocene began when the last maximum ice cover began to dwindle. It is well known, of course, that during the Pleistocene, there was rather free interchange of animals between Asia and North America. Whereas the horse had undergone nearly its entire evolution in North America, it migrated into Asia during the closing stages of the Pleistocene. The few left

in North America were probably killed off by the first humans who arrived on this continent. However, bison and caribou came into the area and flourished so that there were herds of several millions of both of these animals in pre-European America. These two constituted animals of such size that they were a very good subsistence source for aborigines for many centuries. In so far as the United States proper is concerned, the caribou was never significant; a few may have ranged as far south as Michigan but it was never very numerous.

We may summarize the significant fauna thusly -- the Virginia deer in the eastern United States was the "number one" game animal. West of the Mississippi River, the bison was most important. In the Rocky Mountain regions proper, the bison ranged into the foothills of the mountains and also probably wintered in some of the deep valleys. In the Southwest, the prong-horned antelope was an important game animal. Near the turn of the twentieth century, the prong-horned antelope had come near to extinction, but now its numbers are greatly increased. In prehistoric times, it probably was more numerous than at any time in the last century. Another animal that was of great significance in prehistoric times was the mule deer. By the same token, the related black-tailed deer was hunted and there is no doubt but that these animals probably numbered in the hundreds of thousands in some areas. It may be surprising to some, but the deer killed annually at this time (today) in the United States totals about one quarter of a million animals.

Animals that were less numerous but certainly of considerable economic value to even the farmer in aboriginal times were forms such as the wapiti and the moose. One of the most difficult animals in the world to hunt is the big-horned sheep, yet a few of these would have been of great value to an aboriginal group because of the use of its skin and horns. These animals were confined in prehistoric times to the Rocky Mountains and West coastal ranges. Throughout the area of the United States, bears of several varieties, including the black bear and the grizzly bear were hunted though never did they become a significant food. Bears were prized for their fur as well as for their claws and teeth for the manufacture of ornaments.

In local situations there is no doubt that other aspects of the fauna were of tremendous importance such as those areas in which even so meager an animal as the fresh water mussel became the staple food. It need not be mentioned that small game animals, such as rabbits, o'possums, raccoons, and perhaps mountain lions and bobcats surely loomed large in the everyday hunting of the various aborigines. It can not presently be imagined that any peoples in the continental limits of the United States ever completely dispensed with hunting or even largely dispensed with hunting, despite the introduction of maize.

One of the better ways of relating all these data that are considered to be important in human ecology is by grouping them in biotic zones or provinces. Figure 5 is one attempt to organize this information in a manner that will enable one to comprehend its usefulness in recapitulation of human prehistory.

Cultural Milieu of the Late Archaic

The narrative for each separate part of the United States contained in the body of this report has a description of the Archaic out of which Theme II developed. At this point it might be sufficient to say, however, that the Archaic tradition is the archeological manifestation of widely-diversified and widely-dispersed peoples of the New World, yet at one time the entire area of the United States was more or less dominated by the Archaic and the very simplicity of this culture was conducive to its survival for several thousand years.

If we describe the Archaic tradition in artifactual terms and make comparisons of geographical areas on this basis, it can be seen that there are regional differences in these objects but the objects all are reflecting a fairly uniform type of subsistence, namely, hunting and gathering. In the West, where the Desert Culture is the equivalent of the Eastern Archaic, the artifacts imply a type of life of seminomadic folk who lived the simplest sort of existence that they might eke out by utilizing virtually everything that might be construed as edible within their immediate environment. Thus, they collected grass seeds, nuts, many kinds of berries, mesquite beans, prickly pear,

Figure 5. Biotic provinces of the United States. Each province is characterized by a generally distinctive association of vegetation, animal life, climate, soil, and phyiography. Oregonian has heavy forests, humidity, and mild temperatures; Californian has varied topography, Mediterranean climate, chaparral and larger conifers, and mule deer; Montanian is mountainous, severe winter with heavy snow, conifers up to timberline, bears and goats; Palusian has larch, fir, yellow pine, and grasses; Artemisian is a typical sage-brush plain but formerly was more like the Palusian; Navahonian is a piñon-juniper woodland; Mohavian, Apachian, Chihuahuan, and Sonoran are largely desert and grassland with a fauna adapted to the generally arid conditions; Coloradan is mountains and high plains, forests of yellow pine and white fir; Saskatchewan, Kansan, Comanchian, and Tamaulipan are semiarid, grassy, rolling plains in which the grass grows shorter farthest to the south and which was once heavily populated with bison; Illinoian and Texan are prairies with seasonal rains falling in the growing season; Canadian is a hardwood forest with conifer outliers that southward blend gradually into a Carolinian along the Appalachian chain; Carolinian is deciduous forest of great diversity with climatic and physiographic variety to match; Austroriparian is a low-relief forestland of pine and hardwoods in vast swamps, marshes, grasslands, and parklands.

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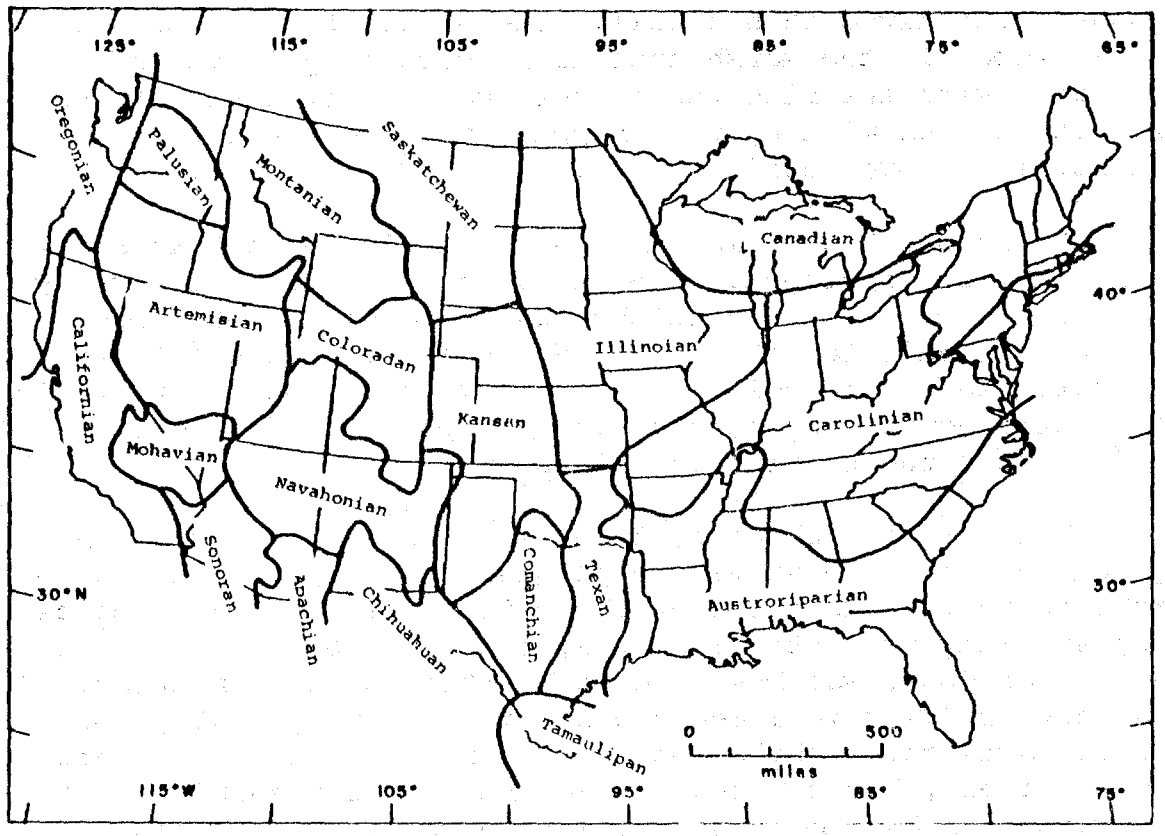
gooseberries and acorns among other things. The few artifacts found on sites which are assigned to this particular culture are predominantly milling equipment for reducing to paste seeds and other vegetable materials. The bow and arrow was unknown. A short and heavy dart was used, in all probability, thrown with a spear thrower. We can surmise that a great many objects made from perishable materials such as snares and slings, ropes and nets might have been utilized to gather other kinds of game. Representatives of this culture survived right into historic times to be recognized as the Digger Indians by the first incoming whites in the West and Southwest.

The Archaic of the East was a similar collecting and gathering culture. Local circumstances in the East gave opportunity for a somewhat richer diet and a richer cultural



complement. For example, the more-constantly flowing rivers and denser forest cover probably had a greater abundance of fresh water fauna and game animals in the forest. There was a greater number of available wild plants that supplied certain food sources to these people. We may discern marked local differences among these people, such as the shell heaps of the inland rivers as well as the coastal regions. If one may be reminded of the climatic and vegetation maps presented for the United States, the eastern diversity of these two factors is largely masked by the fact that there was a relatively greater density of vegetation and a higher degree of humidity. From ecological standpoints, the diversity it great and the adjustments necessary within relatively short distances for hunting and gathering folk were quite pronounced. A good example of this may be seen on the southern Louisiana and Gulf shores of Mississippi and Alabama: Wherever we have found Archaic remains near the marshlands there is a strong suggestion that these

inhabitants lived rather well. The diversity of game and other foods in the marshlands is proverbially large as compared with the pine woods where we find evidence of the rudest kind of milling and chopping equipment only, plus rather large projectile points.

It is on this collecting and gathering base that our Early Farmer developed. Though having some local diversity, the same ecological conditions had to be met in the growth of the new culture form called agriculture. Just as agriculture did not immediately transform this base, neither did the introduction of pottery have any pronounced immediate effect upon the total cultural assemblage.

This Archaic pattern, then, was a typical hunting and gathering one with varying emphasis on either of these activities in various parts of the United States. The peoples occasionally used stone vessels, but such cooking as might have been done, was mostly done by stone boiling methods. A variety of flint implements was utilized and probably both short darts thrown by a spear-thrower and hand-cast spears were present, but the bow was absent. We may surmise that throwing sticks and perhaps slings were used, although we have no positive archeological evidence for these latter two. The sociopolitical organization of these people did not go beyond the band. Family groups probably wandered about in a more or less seminomadic existence throughout most of the year. As yet, we have very little to suggest that there was any kind of tribal organization of any thing which would bring the bands together for annual ceremonials. It is most likely that they remained fairly independent bands, perhaps aware of one another, but not co-operating to any extent. No well-defined houses or man-made shelters have been identified with these peoples either in the West or in the East, but often they used rock shelters and caves. In those rare situations, where they might be near some more or less constant food supply, such as a fresh water mussel bed on a river, they might live in a cave for most of the year but ordinarily these were occupied for only certain periods of the year. The addition of agriculture to this kind of background and the introduction of pottery may have changed them, but it was a very gradual process.

The Agricultural Revolution in America

It is one thing -- environmentalism -- to assume that the nature of the vegetational cover in aboriginal United States limited or controlled plant use by the inhabitants. This must be true up to a given point but not valid enough for an all-encompassing generalization that the aborigines used only local woods, plants, etc. In other words, it is not a wholly warranted conclusion that local materials constituted the complete array of supply available to any given peoples at any given time. This would completely negate trade and diffusion. The other side of this problem is that the very absence of some floral materials suitable for the manufacture of certain artifacts would stimulate the Indians to satisfy the need in other ways. An example of this might be the use of horn and sinew for bow construction by the Plains Indians, particularly in those areas where bois d'arc was not available. Logically extending this idea, one might argue that the absence of suitable wild plants would lead to the invention of agriculture.

Despite the cautionary thoughts put forth in the preceding paragraph, there is some evidence that agriculture was independently invented in the New World. In fact, there is a considerable body of evidence which would suggest that this invention took place in several relatively remote areas within the New World. Further, it is suggested that the invention did not necessarily utilize the same type materials in each of these diverse areas, but, on the contrary, developed upon local plants.

For our purposes in the discussion of this origin of agriculture we must necessarily deal in generalities and avoid the numerous controversial side issues. As an example of the unsettled state of our knowledge about the origin of agriculture in the New World, it need only be pointed out that the very evidence that suggests to some that agriculture was independently invented in the New World and perhaps in several areas simultaneously is looked upon by others as clear evidence of stimulus diffusion. In other words, the idea for agriculture was rather rapidly diffused through a number of areas each of which then developed upon whatever the floral backgrounds suggested.

During Late Archaic times much of the United States was occupied by gatherers and collectors. In many areas, of course, this was supplemented by hunting. In a few areas hunting completely dominated the subsistence activity, but it was upon this base of collecting that agriculture emerged. The incipient stage of agriculture must have been characterized by partial tending of wild plants. It has been observed among a few living collecting groups that the aborigines selected only the larger plants when they were gathering roots or left some berries on the bushes when this was the source of their food. Among certain Australian aborigines women loosen the ground with their dibble sticks around young plants which they ordinarily collect. It must have been from just such meager beginnings as these that a more concentrated attention on certain plants would have developed.

In two of the later sections of this narrative, namely the Far West and the Southwest, it will be seen that the so-called Desert Culture early dominated virtually the entire area encompassed in these two great regions. In the section above describing the cultural milieu of the Late Archaic it was seen that there are representations or at least parallels of this collector-gatherer-hunting stage throughout the United States. In the Southwest area the Late Archaic preoccupation with the collecting of various kinds of seeds and fruits, including nuts and acorns, would undoubtedly have been a situation conducive to the reception of agriculture. The very nature of the earliest kind of agriculture in the Southwest strongly suggests that it was derived in part from the Central Valley of Mexico by way of the Sierra Madre Occidental or by way of the eastern slopes through Tamaulipas. The most recent evidence, that Southwestern (Bat Cave) maize varieties are different from Tamaulipas, would suggest that it probably arrived through the western route rather than from Tamaulipas.

One of the important considerations that should be borne in mind when considering the origin and diffusion of agriculture in the United States is that the date for the earliest maize for Middle America is about 5500 to 5000 B.C., whereas the earliest date for corn in the Southwest is about 2500 B.C. or 1500 B.C., depending upon which radiocarbon date one accepts. This 3000-or-more year gap is after all a formidable one, when considered against what

transpired in Mexico from about 2000 B.C. on. In both Middle America and in the Southwest there was no immediate revolution of the cultural manifestations, but several millenia elapsed before any of these peoples became dependent upon field agriculture. Not until the attainment of this advanced stage of agriculture were there any pronounced cultural changes. Thus in the Southwest, even though we may date the earliest domesticated plants from around 2500 B.C., it did not in any sense produce an appreciable effect upon the cultural climate until perhaps 2500 to 3000 years later.

The ecological balance that obtained in 2000 or so B.C. in the Southwest has probably not changed greatly during the last four millenia. Today, the amount of rainfall that is characteristic of the greater southwestern area is nowhere sufficient for the production of adequate corn crops. Only where there is some supplementing of precipitation by irrigation is a good corn crop produced. Thus the southwestern part of the United States was not so conducive to the introduction of field crops such as maize as was the eastern United States. In addition to maize, amaranths, beans, and panicum probably constituted some of the simple early crops, but eventually maize outstripped the others in crop efficiency.

If we look to the eastern part of the United States, it might be generally supposed that the Mississippi Valley would be the area most attractive to the early agriculturists, but nothing could be farther from the truth. The Mississippi Valley ecosystem is quite comparable to Mesopotamia and certainly the Mesopotamian lowlands were not the seat of the development of agriculture in that part of the world any more than the Mississippi Valley was in the United States. The appearance of this area in times before about A.D. 1800 must have been completely forbidding to any agriculturists, since it was covered with rank growths of cane and other large grasses in the drier parts and cypress forests in the wetter parts. It was not until the beginning of the nineteenth century that any parts of the Lower Valley of the Mississippi River were converted to ideal agricultural areas. The great and fertile so-called Mississippi Delta lands between Vicksburg and Memphis were actually not cleared for great plantations until well in the nineteenth century.

The remainder of the eastern part of the United States, which would include, in part, the prairie lands west of the Mississippi River, was much more favorable oriented toward incipient agriculture. In this vast area there were a number of native plants that may have been the basis for agricultural development, namely, marsh elder, giant ragweed, and sunflower. Specimens of sunflower particularly, that appear to have been of larger size than wild forms, have been collected from eastern Kentucky rock shelters and Ozark shelters that suggest a very early time, that is, long before 2000 B.C. In fact, the high protein content of sunflower seed must have been of such nature that it appears to have survived even the introduction of maize in later times. In any case, there seems to have developed a considerable dependence upon locally collected plant foods throughout the entire eastern area. None of these was an important root crop; all were berries or other such forms that must have had a rather spotty distribution. Another factor that may have been influential in delaying field agriculture here is that it is quite likely that the eastern United States was rather plentifully supplied with game, particularly the Virginia deer which constituted the major portion of the venison of aboriginal man in the eastern United States. As long as game was plentiful it is not likely that there would have been any desperation to develop the collecting habit to a greater degree of efficiency.

The earliest date that we have for the introduction of maize in the East is presently that for a Hopewell site in the Ohio Valley where a date of about 150 B.C. has been obtained on some kernels of corn. Here again we must face up to the fact that the presence of maize is not necessarily indicative of field agriculture. The cultural manifestation in which maize seems to have first appeared, namely, the Hopewellian, boasts some villages and earthworks of such large size that it is difficult to understand how there could have been a large enough population for their construction without some dependence upon an agricultural economy.

In the same vein is the great Poverty Point earthworks in northern Louisiana which, dating from about 1500 B.C., seem to be far earlier than any eastern maize agriculture. Nonetheless, the size of this structure would seem to suggest that a fairly large population must have been available

for its construction. There is, as yet, no evidence at all of the presence of maize in the Lower Mississippi Valley at so early a time. Although lacking in direct evidence, there are several indirect implications that maize agriculture might have diffused to the eastern United States during the Late Archaic stage. This would put the introduction of this plant at about 1500 B.C. in the eastern part of the United States, but it is probable that 2000 years or even 3000 may have elapsed before maize became the dominant starch staple for much of this area.

Once maize was introduced to the eastern part of the United States, it spread all the way to the St. Lawrence River valley where it was observed in cultivation by the first French explorers who ventured up that river. Of course, maize was grown in precontact times well out into the prairies west of the Mississippi River. It is not generally known how far it might have extended down the Mississippi River, but the probability is that wherever it was possible to clear patches of ground, such as on natural levee lands in the southern portion of the Mississippi Valley, maize would have been raised there. If maize had been introduced into the eastern United States from South America via the West Indies rather than from Mexico proper, it is quite probable that the dates for first occurrences would not be earlier than A.D. 1000. The somewhat controversial find of corn in the Davis site in Texas has recently been equated with some of the later corn varieties of the eastern United States rather than with something from Mexico or the Southwest. The latest date for the Davis site corn is about A.D. 1300. Its genetic affinities seem definitely to the East rather than the Southwest (Griffin and Yarnell 1963). We are now inclined to the belief, unsupported by other than indirect archeological evidence, that maize was already important by the beginning of the Christian Era.

Not much need be said about incipient agriculture in the Caribbean area and Puerto Rico specifically, although again it is certain that some of the root crops from South America diffused as far north as Puerto Rico. That maize got into Puerto Rico before A.D. 1000 is doubtful. Surely the strongest influences upon the Greater Antilles were from the west for the ball court appears prominently in Puerto Rico. That such traits as this extended on beyond is still

unproved.

If there is any one outstanding characteristic about American agriculture that sets it apart from the Old World, it is in the area of techniques. The very nature of the kinds of plants grown by the time agriculture had reached a full blown stage here would demand that they receive individual attention. There were no crops raised in prehistoric America which could have been dispersed in a broadcast manner. All were in hillocks or tended individually. In certain areas, particularly in the Southwest, rather specialized techniques of planting and tending maize developed because of the more or less unusual climatic conditions that prevailed then. Thus it was necessary to plant corn in certain areas only after they had been innundated by the annual floods.

It has been suggested above that the Americanists' preoccupation with maize has largely overshadowed the aboriginal utilization of other plants. Certainly in the area of the United States there was a great deal of diversity of the vegetative cover and thus the plants that might have served as possible sources of wild foods in the eastern part of the United States were vastly different from those in the western part of the United States. As indicated above, the humid East had some native plants, such as sunflower, that were of sufficient importance that even the introduction of maize did not completely displace them. Also in the East a form of wild sweet potato that reached quite large size was regularly utilized. On the other hand, in the West, amaranth probably was far more important than any place in the East. Certainly, too, beans were more important in the Southwest than in eastern United States -- both tepary and scarlet runner were fairly important before maize became the dominant plant in the Southwest. We do not have any clear cut evidence for tepary from archeological sites. It is interesting to note in this connection that despite the preoccupation of Late Archaic collectors in the western United States with root crops none was ever successfully domesticated.

In the Antilles we see a mixture of root and seed crops with considerable emphasis on the former. There probably was a number of native plants, such as malauga, utilized

before the advent of maize. In addition, several beans were produced -- one, the yam bean, for its edible root more than its beans which were rather highly charged with cyanide. Also, arrowroot and canna were grown in various places in the Caribbean. Although, again, archeological evidence is extremely meager there is the strong suggestion on logical grounds that the root crops were diffused into the Caribbean from the Orinoco South American area whereas seed crops may have come into the Greater Antilles from Yucatan.

One of the outstanding and somewhat surprising features of the development of agriculture in the New World is the failure ever to develop any extensive hoe agriculture. It is true that a number of objects have been found that suggest the use of hoes and a number of examples probably might be cited but almost without exception these belong in the more advanced stages of agriculture. What this suggests is that all during the incipient stage of agriculture in the New World the dibble was the sole implement utilized by these agriculturists.

It should be borne in mind that during the several thousands of years in which agriculture was undergoing its slow development in the NewWorld, peoples were still dependent to a large degree upon the wild plant and animal foods. Thus, even in a few instances, after advanced agriculture was attained, hunting was still a vitally important complement to the subsistence pattern. Indicative of how precarious the developmental stage of agriculture might have been is the fact that in a few instances when the game animal availability improved the peoples reverted to hunting and abandoned agriculture. Actually, we can not cite any good examples, according to Moore (1962), of peoples who gave up hunting for agriculture to the total abandonment of hunting. At the time of historic contact in the eastern United States, the records of early traders suggest the number of deer skins obtainable from given peoples within that area was remarkably high. The animal bone content of middens from the earliest Archaic manifestations into historic times would indicate that the Virginia deer was the most numerous and most frequently utilized game animal in the East. Conversely, there is not one authenticated record of the occurrence of bison remains in eastern archeological sites before the sixteenth century A.D.

A factor which must be reckoned with in arriving at an explanation for the development of agriculture in the New World is the reduction in the amount of game animals available in marginal areas. That is, the size of game animal populations probably has varied rather rapidly from time to time in the past just as it does today; and this fact must have wrought a considerable influence on the aboriginal populations concerned with plant collecting. Thus, if the stress of low animal populations meant that the peoples had to intensify their wild plant collecting, this would perhaps have been conducive to greater and greater attention to these plants that ended in some kind of agriculture.

Several remarks in the preceding material have suggested that the actual transformation of a collecting people into a people fully dependent upon agriculture required some several thousand years. In other words, it is not possible to pick out any one time and pronounce this as the time of the arrival of fully developed agriculture. Certainly in the southwestern part of the United States it was after 500 A.D. before any peoples were thoroughly dependent upon agriculture for their major source of subsistence. Another consideration for all the United States is that maize constituted the outstanding single staple starch source. In no part of this area was there any other plant that faintly rivaled corn in importance as a calorie producer. Yet everywhere maize cultivation was supplemented with several other things. In the Southwest, beans continued from the earlier stages into the latter as very important additions to the diet. It is quite likely that various cucurbits figured largely in the food supply of both Westerners and Easterners in precontact times. Some botanists think that the common cultivated squash, Cucurbita pepo, was first domesticated in the Southwest but it occurs at very early times in Tamaulipas sites in eastern Mexico. Moore (1962) believes the squashes did not become really significant plants until the lessons learned through raising maize had been diffused to the Southwest.

Present knowledge would suggest that the aboriginal farmer in the United States did not produce many cultigens other than maize. There was, of course, concern with several plants of nonstaple type, such as tobacco and cotton. It is quite likely that some plants, such as the gourd,

preceded any plants of food value. Incidentally, the gourd is the only plant of single origin which was in common use in both the Old and New World before A.D. 1500 -- it is probably African in origin. In any case, most modern students of agricultural origins in the New World conclude that none of these plants gave much impetus to the development of agriculture. On the other hand, maize which occurs in a great many varieties in the New World was adapted to conditions that ranged from near sea level to more than 12,000 feet in vertical distribution and extended from, of course, the St. Lawrence River valley southward in the United States. It was successfully raised under conditions of less than 10 inches of rainfall to more than 200 inches of rainfall, despite the fact that it is a plant fairly susceptible to changes in climate and weather. It is another significant point that the average acreage yields attained by the American Indian were not exceeded by the later American farmer until after the introduction of the steel plow in the nineteenth century and the development of hybrid varieties of corn in the first quarter of the twentieth century.

The Introduction of Pottery

The time of the introduction of pottery into the picture of prehistoric man in the eastern part of the United States has been fairly clearly determined. It has been, perhaps, even more accurately determined for the southwestern part. In the extreme western area and in the Plains region there were some local regions which never acquired the trait of manufacturing pottery even at the time of the contact. There is considerable jockeying for the pole position in the race for earliest pottery in North America, but there is very little evidence for pottery anywhere in the Western Hemisphere at a date earlier than about 3000 B.C.

The introduction of pottery follows a somewhat similar pattern to that of agriculture, namely, the earliest aspects of it would suggest stimulus diffusion rather than independent invention. In the Southwest, there is ample evidence that the first pottery was probably something crudely smeared on the inside of a basket. Out of these meager beginnings there may have rapidly developed a well-made pottery. In fact, the rapidity of change from this extremely

crude material to sound pottery is such that one might conclude that the idea had arrived first and was followed soon after by good pottery. Such quality pottery perhaps arrived in the area from trade sources and thus pottery began to be manufactured in a much more advanced style. The same thing is true in the eastern part of the United States and perhaps we have an even better example of what might be stimulus diffusion here. The first pottery encountered in quite a number of places, particularly along the Atlantic slope from Virginia to Florida, may be classified as fiber tempered. This pottery seems to have been poorly fired and has as an aplastic some fibrous material such as Spanish moss or strands of roots or even whole leaves and feathers. In a number of examples, this pottery dates from earlier than 2000 B.C.

Comparable dates have been obtained from sites along the middle reaches of the Tennessee River. Whether this is an extension inland of the Atlantic Coastal manifestations is not known. There is representation of this kind of material, that is, fiber-tempered pottery, all the way into western Kentucky, although in the latter area the date of introduction is near 1000 B.C.

In the East as in the Southwest there is a rather rapid change in the general configuration of the pottery. A few centuries after the appearance of fiber-tempered pottery in the East, there appears in the Northeast a type of pottery whose outstanding characteristic is crushed grit tempering and generally globular shape. This pottery has long been judged to be an introduction from Asia although whether it was transmitted as an object or as an idea we cannot but surmise. Today there is reason for doubting this Asiatic origin. This type of pottery is generally referred to as Woodland and, almost without exception, it is characterized by a more or less roughening of the surface. Often, this includes stamping or impressing with various kinds of fabrics. That this was done for decorative purposes hardly ever seems obvious. In any event, the earliest pottery, including both the fiber tempered and the so-called Woodland, was introduced into an economy that continued to be an essentially hunting and collecting one. The introduction of pottery did not immediately alter this basic economy.

This essentially Woodland pottery probably seeped westward around the Great Lakes and southward across Illinois and into the Missouri prairie fringe and perhaps farther south, penetrating into western Tennessee and northern Mississippi and eventually, Louisiana. This is obviously a gross simplification of what actually happened, but a few centuries after the beginning of the Christian Era, we probably had Woodland-like pottery in some parts of this middle Mississippi Valley. Some influences of the Woodland pottery continued to move slowly down the Mississippi Valley, the lower parts of which never were actually reached by this kind of pottery. Meanwhile, in the southwestern area, two different varieties of pottery began to emerge, both of which were probably stimulated from Middle American sources. As will be noted in the following section on the detailed prehistory of the Southwest, the earliest pottery found in that area dates from approximately 150 B.C. Following that time, there is a definite evolutionary story of the development of pottery into its various southwestern traditions.

When this date for first pottery in the Southwest is compared with that for the East, it is remarkable that we have been able to establish the occurrence of fiber-tempered pottery at such an early time. There is a rather marked uniformity of the culture that is manifest at this Late Archaic time for the East. The fact that fiber-tempered pottery is one of the aspects of this uniformity might suggest that these peoples were moving about rather freely and taking at least the idea of pottery with them rather than the pottery being diffused. In any case, the crude fiber-tempered pottery rapidly was displaced by Woodland types in the East, grit-tempered in the Northeast and sand-tempered in the Southeast. It is also notable in this connection that grit-tempered pottery occurred with burials in an Adena setting as early as 1000 B.C. Since fiber-tempered pottery dates from near 2000 B.C., the eastern United States saw nearly two thousand years of development in pottery prior to its introduction in the Southwest.

Just as southwestern pottery eventually came under the influence of Nuclear American techniques and designs, so did Mississippian times in eastern United States witness the introduction of ideas from the same area. Negative painted

pottery, one of the characteristic forms of Mississippian times, actually is found in an earlier context, but this type along with several other forms such as pedestaled pots and engraved wares would seem to find its closest tie with Nuclear America. The introduction of pottery into the Caribbean area (if we consider our interest here mainly the Greater Antilles and specifically Puerto Rico) almost certainly came from the south. That is, the earliest occurrences of pottery are on the northern South American shores or some of its off-shore islands. Pottery was introduced into Trinidad from the Orinoco area, but from Trinidad northward through the Lesser Antilles there is certainly not a very clear, unbroken sequence. Rouse has grappled with this problem on numerous occasions and has concluded that it is unlikely that man did not spread uniformly through the Antilles from Trinidad northward. Also there is ample evidence that mainland Middle American influences made themselves felt in the Greater Antilles, influences which never arrived in the Lesser Antilles.

Mounds and Earthworks

It is in the eastern United States that we find maximum development of earthworks and earth mounds. This does not completely exclude the West for there are some curious structures in parts of the Southwest that probably are of a ceremonial nature. By and large, however, any extensive earth construction in the western and southwestern area is to be associated with some kind of irrigation project, whereas those in the eastern United States are often of no immediate rational application and are considered to be ceremonial in nature.

One of the earliest extensive earthworks known for the eastern part of the United States is that at Poverty Point, Louisiana. A giant mound, seventy feet in height, of a bird effigy form was centered on one side of a large octagon consisting of six parallel ridges. This concentric octagonal earthworks is three-quarters of a mile in maximum diameter. Its use is still wholely conjectural although one of the investigators of this site has concluded that it might be the remains of a planned village. That is, the ridges (composed of midden) were the natural accumulation of houses deliberately arranged in parallel rows in the octagon shape.

This is probably not a bad guess, but we may expect some rather more rational ones to be presented in the future.

One of the significant things about the Poverty Point earthworks is that it has yielded a series of radiocarbon dates that range from more than 1300 to something around 200 B.C. In so far as size is concerned the nearest things to these are some of the rather intricate and extensive earthworks near Newark, Ohio, which are illustrated in Figure 49. The variety of effigy mounds that occur in great number in the upper Mississippi Valley area, as well as some of the rather extensive collections of circular structures in Indiana, Ohio, and Kentucky, indicate how diverse these earthworks can be. Yet all are to be equated with Early and Middle Woodland manifestations of theEast. Other than the earthworks and effigy mounds, in the East conical burial mounds, ranging from five to near 100 feet in height, are probably an introduction from some Old World source. They have not, however, been directly connected with any cultural manifestation there.

It would seem that the conical mound probably was introduced into the northeastern part of North America and from there spread down the interior Atlantic slope and into the Lower Mississippi Valley. Burial mounds occur as far as Woodland culture extended out into the Plains. There is considerable variety in the actual reason for the beginning of construction of these mounds but all more or less subscribe to the same basic usage, namely, to venerate the dead. A remarkable fact that may be drawn from these mounds is that they were certainly used for only a select few of the population and thus they bespeak of some social stratification. In no instance that we can establish that mounds are used for disposal of the dead does this seem to represent the entire population. Even though mounds may on occasion be erected over what seems to be a ceremonial house structure, there is usually an associated burial. This indicates again some individual of rather exalted position has received this attention.

The source of the use of earth mounds for the disposal of the dead and the effigy mound for ceremonial purposes is still debated, but the most evidence would point in the direction of an Asiatic source. Mounds used for burial

purposes occur across the Eurasian continent yet are absent in the arctic and taiga. Despite this fact, other characteristics such as pottery forms and manufacturing techniques that seem to be related to the earth mounds also indicate an Asiatic connection of some still unestablished nature. The various arguments that support an Asiatic basis for mounds and pottery whereas agriculture and other traits suggest a southern American source will be argued in a later section of this report. In the western United States, earth mounds are rare occurrences indeed, and are thus not a problem to be reckoned with here.

In the eastern United States, there appeared in Theme III times two new structures that were certainly of southern origin, that is, derived from some Middle American source. The first of these is the pyramidal mound. Throughout much of the Mississippi Valley and extending eastward through the southern Appalachians to the Atlantic slope and northward to the Great Lakes there are rather large, flattopped pyramidal mounds that seem to have been associated with certain centers of religious activity. These mounds were not used for the disposal of the dead but rather served as the foundation or substruction upon which was erected a rectangular, thatch-roofed, "temple," or sacred chamber.

The second new structure that might well have made its appearance in late Theme II or early Theme III times in the East is the palisade. The enclosure of villages or portions of villages by a fence constructed of logs or saplings of varying size seems to have made its appearance in the eastern part of the United States at a time when there were other evidences of serious conflict among many peoples in that area. Thus, the sociological implications of the appearance of the palisade is far more important than the structure itself. Most palisades are without any very definite form, but often conform to the topographic needs or the settlement pattern needs as the case may be. In some instances where a village might be located at the confluence of two streams, the palisade merely protects the landward side of the resulting triangle. Although it is appropriate to identify the log palisade with certain eastern United States manifestations, this does not necessarily mean that there was not a comparable development in the West. In the Southwest, the use of masonry and stone walls for defensive

purposes was highly developed.

Houses and Other Buildings

Although there is little evidence that the simple pit house was the characteristic shelter throughout most of the Archaic, this is a tacit assumption of American archeologists. Probably the best example of a pit house surviving into Early Farmer and Village Farmer times is the semi-subterranean structure which is characteristic of the Northwest area. Driver and Massey (1957) look upon this as the most typical form of the pit house. It would seem readily apparent that certain forms of the earth lodge, characteristic of the central Plains and parts of the Southeast, are also derived from this original Temperate Zone pit house.

One of the most distinctive houses made by any prehistoric group is the Adena house with its well-known, outward sloping walls. This house may appear to be very similar to the Northwest semisubterranean house with its entrance hole in the roof of the structure, but this resemblance may be only superficial. It will be argued that the Adena house is of southern origin rather than Asiatic origin.

In the Southwest we have some of the clearest evidence of the evolution of the North Temperate Zone pit house into both the multiroomed houses and the sacred chamber. The Mogollon house seems to be a utilitarian version of the house form that eventually evolved into the kiva. Throughout most of the eastern United States, the pit house probably evolved into a variety of forms of circular houses identified with archeological cultures in the Lower Mississippi River and in the southern plains area. In the Protohistoric and Contact period there still persisted some structures that were identified with the circular pit house, for example, the Mandan domed houses.

In late times certain circular structures still persisted that were covered with either thatch or bundles of grasses. Some such structures as this persisted in the northern Louisiana area into historic times. Elsewhere in the East, a dominant house form was the conical structure of

bark covering. These houses were, in general, crudely made affairs and not in any sense of the word an elaborate permanent structure despite the fact that many of them were not portable. In the Plains area, eventually the portable, conical, skin-covered tipi became the dominant form. These are manifest archeologically by what are called tipi rings which are circles of stones which were used to hold down the edge of the skin covering. Also in the northeast, there appeared domed, skin-covered wigwams.

Also in the United States a manifestation of the later times is the rectangular structure. In the Southwest, the circular pit house, when placed in contiguous linear forms, resulted in shared walls being straight. Out of this there evolved the technique of placing several rectangular rooms in conjunction. This culminated in the apartment-house-like structures of great size in pre-contact times. In the East, the rectangular house is suggested to have been of South American origin. The rectangular houses on piles demonstrated this beyond a reasonable doubt, although the evidence is more or less indirect. In the Middle Mississippi area, the rectangular house built of poles covered by a wattle and daub technique probably put in an appearance some time near 500 B.C. and persisted into contact period times.

In the extreme West -- the Pacific slope -- the rectangular plank house (which might have originated in the Northwest Pacific Coast area) extended as far south as San Francisco Bay, and it persisted through many centuries. South of that area, thatch-roofed, conical structures were the more commonplace form. In the desert area proper, a variety of structures of the crudest sort existed, directly growing out of the Desert Culture base.

Some archeological structures are of such large size or of such unusual architectural features as to suggest that they were used for purposes other than dwellings. Particularly evident among these, of course, is the kiva that developed in the Southwest. It strongly preserves the architectural features of the ancient semisubterranean pit house. In Adena and Hopewell manifestations there are suggestions that the simple circular house was preserved architecturally in the ceremonial chamber, but, of course, the evidence here is not nearly so complete as that for the

kiva. The same may be said for the more elaborate Southeast rotunda, such as at Ocmulgee. Elsewhere in the East there are a few large structures appearing among late cultures, such as the Fort Ancient Aspect, that are suggestive of communal houses of some kind.

In the Southwest there did appear a structure that surely was diffused from the Middle American area, namely the ball court. Ball courts, which are described in the section on the Southwest, probably were structures of a ceremonial nature rather than recreational. In other words, they seem to be associated with certain religious functions rather than just entertainment. The ball court also diffused from Nuclear America into the Greater Antilles.

Another structure that has been found archeologically in several localities in the East is the sweat house. This is also a commonplace device on the Pacific slope. It generally consists of a few postholes in a circular pattern indicating a four to five feet in diameter, conical, earth covered structure. Usually it was connected to an exterior fire basin by a tunnel filled with rocks and thus the heat was transmitted to the interior of the sweat house.

Settlement Pattern

The arrangement of dwellings and other structures in the village complex is of importance because of its sociopolitical implications. In the eastern United States it may be seen that there is a virtually unbroken pattern of evolution in settlement form from the Woodland times directly into contact periods. It is not surprising, of course, that this evolution was not uniform nor the same everywhere. Some areas simply did not progress beyond a simple village plan and yet others culminated in great ceremonial centers with elaborate mound arrangements about plazas or great conical burial mounds. In other words the suggestion here is that there is a progressive complexity in sociopolitical structure that parallels the economic development. This does not imply that only with the advent of agriculture could come this elaboration of settlement pattern. There is the strong implication, however, that a complex settlement pattern would not be necessary except for sedentary populations. This is one of the reasons why the Poverty Point

site in northern Louisiana is so difficult to place in its proper subsistence pattern. It is a complex structure indicating great advancement in the area of sociopolitical structures, yet, there is no positive evidence that there was a sound agricultural base upon which this could have been erected.

In the Plains area it would appear that life always was geared to the environmental demands to a greater extent than anywhere in the eastern part of the United States. As a consequence, no elaborate settlement patterns evolved; arrangement of the village tipis in great circles was about as advanced as was ever observed there. An important fact is evident, namely, that despite the introduction of agriculture it did not radically alter the settlement plan because it did not materially alter the size of the population. There was some change -- an increase in population, yes -- but nothing to the extent that might have been observed in more favorable areas.

The evolution of settlement pattern in the Southwest is probably better understood than anywhere in the continent. Everywhere the Desert Culture with its individual meager structures served as the base upon which complex village forms evolved. It must be remembered that agriculture was introduced into some parts of the Southwest as early as 2500 B.C., but there was no great change in settlement pattern. There was no great economic change wrought by this introduced agriculture until perhaps A.D. 500 or later. In a few instances, the fact of different traditions in house constructions occurring side by side in given villages suggests that there was some kind of relationship established in the Southwest that was dedicated to the over-all progress of the community. This political relationship may have permitted the continuance of certain kinship group differences among these peoples. The very occurrence of such fairly elaborate activities such as canal construction for irrigation and the construction of ball courts would imply that there were sociopolitical developments. They parallel some eastern community structures, such as the great mound groups, which indicate strong centralized control.

In the Far West, the persistence of Desert Culture

manifestations, as well as the dependence of some of the coastal peoples on marine life, had not been a pattern conducive to the development of large settlements. As a consequence, this entire area is characterized by small camp sites or small villages at most. In a few highly favored sites along the Pacific coast, there were rather large villages arranged in orderly rows of houses but this is unusual for the West.

In the Caribbean area, we find on a smaller scale the characteristics of the United States, namely, that there are cultural manifestations of various levels existing in various areas at the same time. This leads to findings that there were large numbers of people who might be described as still within a collecting economy who lived along the seashore and harvested the sea, so to speak. There were others who probably subsisted largely upon agriculture who occupied the favorable river valleys and mountain slopes. Still other peoples were almost wholly dependent upon agriculture, yet they occupied only the interiors of these larger islands. The presence of ball courts and some structures suggestive of elaborate ceremonial centers indicates that a few of these people did attain that stage of settlement pattern, but, by and large, the most characteristic settlement is the midden along rivers or seashores.

Climax of Aboriginal Farming

The peak of Mayan culture was realized in post-Classic times, according to Wauchope, and recently Armillas has concluded that there was no field agriculture in Mexico until about 500 B.C. Although agriculture may have begun as early as 2500 B.C. in the Southwest, true field agriculture was not realized there until between A.D. 500 and 1000. In the eastern United States it is highly probable that field agriculture did not develop until well after A.D. 1000. The realization that maize was the most efficient crop available came slowly to peoples in the East as it did elsewhere. In so far as the United States as a whole is concerned, it was only in the most localized areas that there was this attainment of more or less dependence on field agriculture. In the Southwest, the Hohokam introduced irrigation and came nearer to this kind of dependence than even some of the eastern peoples of protohistoric time. The historic

Indians of the Atlantic seaboard were raising corn but none was completely dependent upon it. In the interior, there were groups that probably had brought this dependence upon agriculture to a higher degree and this is attested by several rather dramatic events during the contact period. As an example, in 1793, following the raid of some Shawnee Indians under British officers on the settlements in central Kentucky, the Kentuckians went north in the following fall and, near Chillicothe, Ohio, raided the storage houses of the Shawnee Indians who fled before them. The Kentuckians avered that in destroying the corn they produced a famine among the Shawnee that killed more people than they would have in open battle. Such indirect evidence as this suggests great dependence upon maize as a staple crop by the time of the close of the eighteenth century. There are some rather strong suggestions that in the latter fourteenth century this was true in a few localities such as among the Chickasaw and Creeks in the Southeast. In fact, the place name "Old Fields" is given in recognition of great agricultural fields that had been planted by Indians in former times.

Areas of Varying Cultural History

The long journey through Themes II and III was not everywhere the same. In the Far West virtually the entire area remained in an Archaic-Desert Culture economy until contact times. None of the Far West might be construed as having ever emerged into a full-blown Theme III, and only in limited areas is there even incipient agriculture. Nonetheless, the cultural manifestation there is filled with great diversity as there were innumerable environmental adjustments to be made by the aborigines. The Far West offers a great lesson in cultural conservatism when the cultural attainments of peoples are so precariously geared to a semirigorous climate. However, rather than leave the thought that a favorable climate would have produced a greatly advanced culture in given areas, we need only note that the favorable climates (particularly of Mediterranean type) were to be found in southern California, yet no highly developed Theme III cultures ever appeared there.

The Southwest has long been looked upon as a region of rather intensified and localized cultural evolution and yet,

here too, the necessity of adjusting to several different kinds of environmental situations resulted in several different kinds of cultural situations. The over-all cultural adjustments are similar but despite their similarity there are local differences that enable us to trace the independent evolution of some of these peoples over several thousands of years. In the Southwest we can see that these aboriginal peoples pushed to almost the absolute limit the possibilities of agriculture in their setting, even utilizing the techniques of irrigation in an effort to spread their limited supply of water to its utmost availability.

The Plains region was one of the most unique in the whole culture history of the United States for here aboriginal man was exploiting, in a large measure, a single food source also to its almost-ultimate limit. The bison supplied the majority of the peoples who lived in the Plains with the basic requirements of food and shelter and thus existence would have to have been of an entirely different sort had the bison been absent from the Plains. Even when agriculture was introduced to these Indians it did not make a strong foothold except in limited areas of river valleys. Even here, the addition of agriculture to their economy was of such insignificance that, when the horse was introduced to the Plains and the hunting of the bison was made easier, agriculture was largely discarded. Here is a classic example of the interplay between culture and environment with culture dominating the resulting economy to a far greater extent than the environmental factor.

Of all the areas of modern United States, the humid East represented in prehistoric times a variety of environmental situations that were overcome largely in similar ways by the aborigines. In the extreme northeastern area there persisted to almost historic times an essentially Archaic economy. The addition of pottery and, even to a limited extent, of agriculture, just barely got this area into Theme II categories. The same may be true in a different way for areas about the Great Lakes and some of the interior plateaus. On the other hand, the tremendous development that characterizes the eastern part of the United States -- much of it of local origin, some of it from external stimuli -- is only paralleled in the Southwest. The rise of highly developed sociopolitical structures with concommitant

architectural features is a remarkable phenomenon of the times. It is quite appropriate, perhaps, to look upon this eastern United States development as essentially a rural reflection of the higher culture attainments of Nuclear America. Certainly the localized development here of a few of the cultures that culminated in rather large populations and widespread influences is perhaps the most outstanding in the United States.

Puerto Rico must be considered in the general context of the Greater Antilles. It would seem apparent at this point that the culture history that has transpired there somewhat capsulizes what took place in North America, not in the sense that the same cultures are there, but in the sense that even the earliest manifestations in Puerto Rico were still surviving in historic contact times, despite the introduction of later culturally stronger manifestations. Thus our cultural history of Puerto Rico involves considerations of the earliest peoples introduced and their transformation or displacement by the introduction of agriculture. The presence of ball courts and other relatively large constructions suggest, at least, the beginnings of larger villages. Here too it seems somewhat appropriate to look upon Puerto Rico as a distant reflection of things that were transpiring in a more glorious form in Middle America.

These areas readily lend themselves to individual treatment and, in order to evaluate what has transpired in the United States as a whole, the individual areas will be treated in some detail. Because of the fact that we look upon the Far West as having departed the least from the basic American substrate of Late Archaic times, we described that first and thus the description of the Southwest will develop our over-all picture of the United States in a more orderly sequence. The Plains is an area affected both by southwestern ideas as well as eastern ideas and it logically is best described following the Southwest. Finally, the eastern United States and Puerto Rico draw the whole into one rather unified picture. At least it will be attempted here to unify the picture on the basis of the thread of agricultural development.

FAR WEST

INTRODUCTION

The cultural history of the American Indians living in the various geographic sections of the Far West followed a pattern distinctly different from that of the aboriginal residents of the rest of the United States, particularly in the later periods of their cultural development. Except for a very brief incursion of agriculture from the Southwest culture area into a small portion of the Great Basin, the populations remained nonagricultural until historic contact times.

The Far West, which for purposes of this discussion includes the states of California, Nevada, Idaho, Oregon, Washington, and all but the southern part of Utah, also includes all or parts of four major culture areas: the Great Basin, California, the Plateau, and the Northwest Coast (Fig. 6). This is an area offering considerable geographic variation and therefore a considerable variation in the economic resources available. Hunting, fishing, and the gathering of wild plant food provided the basis for subsistence and also dictated the nature of the general way of life. Local geographic factors determined which food resources were most abundant in the various regions within the area, and hence to a large extent provided the basis for the cultural variations which existed in the Far West.

Although variations existed which will be dealt with at a later time, the general characteristics of the Indian cultures of the Far West include:

1. An economy based upon hunting, fishing, and the gathering of wild plant and insect foods. The degree to which these various activities were practiced was dependent upon local geographic factors.

2. The sociopolitical unit was an autonomous band seldom having a population of over 200 persons and

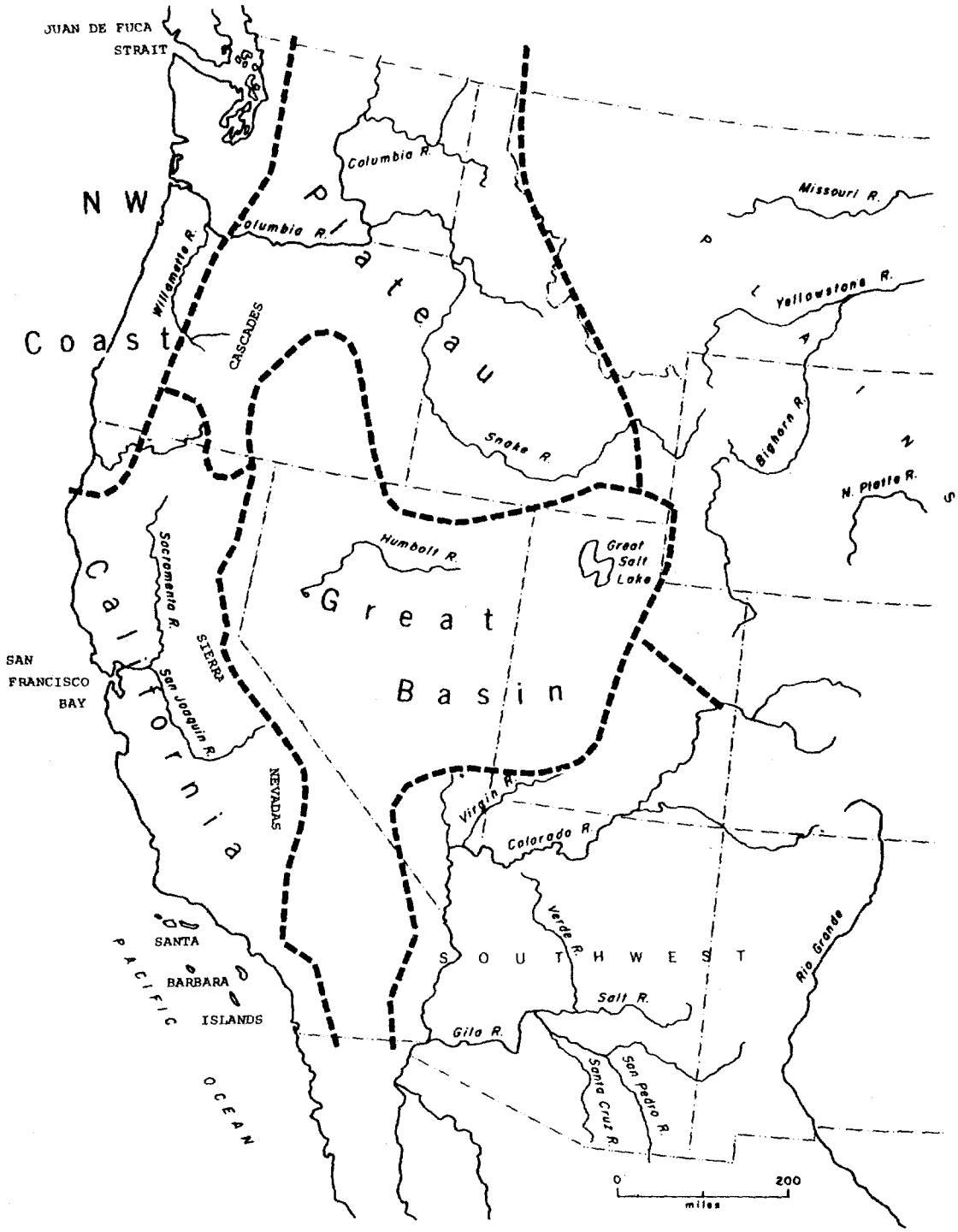


Figure 6. Index map of the Far West.

often considerably fewer. This band recognized as its own a territory of from fifty to several hundred square miles over which it roamed during all but the coldest winter months.

3. Except for winter villages, camp sites were briefly occupied during the seasonal economic round, and housing was simple.

4. The political organization was simple and the social organization was kinship based.

5. Material possessions were few but tended to be well made. All of the principal techniques for working stone were known and used. Implements and ornaments of bone, antler, and shell were common and well made. The manufacture of baskets, woven bags, and mats, was generally excellent.

6. Art styles were generally not complex and designs tended to be principally geometric.

7. Burial patterns varied widely through time and across space.

The bountiful environment of the Northwest Coast cultures made possible elaborations of some of the cultural characteristics listed above. Semipermanent villages of well-made wooden houses were possible. An economic surplus provided free time to develop a complex social organization, ceremonial life, and sophisticated art style. The same is true to a lesser degree in the California culture area.

In the absence of agriculture in the Far West, we can see cultures whose development was closely determined by the available natural resources of the various local regions. The cultural history of this region may be viewed in terms of a number of related factors including: (1) in part, a common cultural base or background, (2) similar adaptations to similar environments, (3) the spread of cultural ideas between these culture areas and also the introduction of ideas from cultural centers outside the Far West, and (4) local cultural developments and innovations peculiar to the areas in which these changes took place.

The results of many years of archeological research in the western United States indicate that, notwithstanding the differences that could be recognized between the various culture areas of the Far West in the early historic period, as one goes backward through time toward the early postglacial period fewer and fewer differences may be noted. Looked at in another way, it appears that the distinctive areal and regional differences in artifact types and general way of life have developed principally in the postglacial period. Daugherty (1962) has advanced the idea of an Intermontane Western tradition to provide a conceptual framework for understanding the development of western prehistory. As originally proposed, the California and Northwest Coast culture areas were not included. A brief summary of the principal points of the Intermontane Western tradition concept will provide a basis for understanding the relationships between the culture areas of the Far West as well as the emerging differences between the various areas.

Extending from northern Mexico to southern British Columbia in the intermontane basins and plateaus between the Rocky Mountains and the Sierra Nevadas, the Intermontane Western tradition lasted throughout the postglacial period. The hallmarks of this tradition are: (1) a diversified economy with local specialization depending on the availibility of economic resources, (2) strong similarity throughout the Intermontane West in artifact traditions, including the specific artifact types within these traditions, plus other cultural practices, and (3) strong cultural stability with slow gradual change which involved principally the addition of new elements to the cultural inventory with little loss or replacement of the old.

Five cultural periods may be recognized in the Intermontane Western tradition. Beginning with the Early Period (ca. 9000-6000 B.C.) the cultures of the Intermontane West were not as strongly oriented toward big game hunting as were the contemporary cultures to the east of the Rocky Mountains. There is no evidence to indicate that at any time in the postglacial period herds of large game animals, including species now extinct, were as numerous as they were in the Plains and Prairie to the east of the Rockies. Possible exceptions to this general situation may have prevailed in the early postglacial period in central Washington

and southeastern Idaho. The gathering of wild plant foods supplemented by the products of hunting and fishing activities appears to have provided the basis for subsistence throughout most of the Intermontane West. Small, nomadic bands composed of several families ranged widely over the landscape foraging for food. Little food could be stored for future use because of the nomadic way of life, and housing must have been simple and temporary. Fortunately, some of these early hunters sought shelter in caves and rock shelters, and the artifacts and cultural refuse left, which would not have been preserved in open sites, have provided the basis for our present understanding of this early time period. Projectile points of the Early Period were lanceolate in shape or based upon a lanceolate form. It is not uncommon to find a variety of styles of basically lanceolate projectile points in contemporary use in the same culture stratum of an archeological site. Other artifacts of stone in common and widespread use during the Early Period included crescentic blades, a variety of scrapers, knives, hammerstones, and choppers. Basketry, matting, and woven sandals have been found in the dry deposits of caves in the Great Basin. Crude milling stones appear in the more arid regions of the Intermontane West during this period.

A gradual shift to milder climatic conditions began to take place ushering in a new period, the Transitional Period (ca. 6000-2500 B.C.). This warming and drying trend reached its climax about 4000 B.C. producing conditions considerably warmer and drier than prevail at present. The reduction in water resources, the changing nature of the vegetation, and the accompanying decline in the numbers of game animals brought about a shift in economic emphasis, a decline in population, and a concentration of populations in river valleys or other well-watered areas. In the Great Basin, progressive desiccation probably resulted in a greater and greater dependence on food-gathering activities, with hunting and fishing declining significantly in importance. To the north in the Plateau, the concentration of populations along such major streams as the Columbia and Snake rivers and their tributaries resulted in an increased utilization of the food resources of these streams. Fishing and the gathering of mussels now formed the basis of the food quest. The gathering of wild plant foods continued to be important but hunting declined significantly. Although there is

evidence that fishing was practiced along the Columbia as early as 9000 years ago, some refinement in the methods and equipment probably took place.

The basic social structure probably remained little changed. The progressive desiccation of this period no doubt resulted in population movements and accounts in part at least for the present distribution of languages in the West. It is also possible to recognize a shift in the basic form of projectile points from lanceolate shapes to those that are essentially triangular in outline. Perhaps the most distinctive new type is a large side-notched point which is often rather crudely flaked. Some of the earlier lanceolate forms survive but they are not nearly as common as in the earlier period. This tradition of manufacturing side-notched projectile points now becomes common to the Intermontane West and will be seen to persist into the Historic Period as one of the most common shapes. These points are often referred to in the literature as Desert Side-Notched Points.

With the general increase in food gathering activities the milling stone and mano or pestle become common. Storage pits for food dug into the floors of caves and rock shelters or into talus slopes at the foot of cliffs now begin to be constructed and tend to increase in importance and frequency throughout the Developmental and into the Late and Historic Periods.

It appears that the beginnings of areal specialization may be traced to the Transitional Period. In the American Southwest, agriculture is introduced very late in the Transitional. In the Plateau, fishing and the resources of the rivers become of major importance and remain so into the Historic Period. But in the Great Basin food gathering remained the dominant economic activity throughout the prehistoric period.

The Developmental Period (ca. A.D. 2500) is characterized by ameliorating climatic conditions, an improved food supply, increasing populations, and a reutilization of arid regions too lacking in food and water during much of the previous period to be suitable for human habitation. During the Developmental Period the basic cultural patterns were

firmly established which were to characterize the various culture areas to the beginning of the Historic Period.

Except for social groupings becoming somewhat larger, no basic change in the nature of the social organization appears to have taken place. It is quite likely, however, that in the American Southwest and, in the Plateau, social and political organization was becoming somewhat more formalized. Most of the implements and techniques of the earlier period survive largely unchanged. Projectile points remained basically triangular in form and although the side-notched styles were still more common over much of the area, corner-notched points increased strongly in frequency, particularly in the Plateau.

The semisubterranean earth lodge or pit house makes its appearance in the southern part of the Intermontane West and in California during this period, but in the North this type of dwelling does not appear to have been in use until early in the next period (Fig. 12).

The Late Period (ca. A.D. 0-Historic Period) is characterized by the appearance of fully developed cultural traditions, orientations, and geographic adaptations which may be designated the Desert Area Tradition, the Southwest Agricultural Area Tradition, and the Northwest Riverine Area Tradition. Of the three, the Desert Area Tradition exhibits the least change or the greatest conservatism, and exhibits the greatest survival of the basic elements of the Intermontane Western Tradition. A tendency toward local regional specialization within the major area traditions may be readily recognized during this period. Little change in social and political structure is likely in the Great Basin during this period. The greatest changes took place in the Southwest with the development of urban living, but in the Plateau little change occurred until late in the period when influence from the Plains introduced ideas of tribal organization, chieftanship, and warfare. These changes affected only the eastern and southern Plateau groups and even there the occurrence was so late in time that the ideas were only superimposed on the basic Plateau political system rather than being thoroughly integrated into it.

Projectile points continued the basically triangular

form but tended to decrease in size. Semisubterranean houses now have become the basic winter dwelling type in the Plateau, with mat lodges and later skin covered tipis also becoming common. Most of the different classes of implements remained basically unchanged although there was a tendency toward the development of local styles.

The Late Period also witnessed the development of local art styles.

The introduction of metal and ornaments of white manufacture marked the beginning of the Historic Period. The conservative nature of the cultures of the Intermontane West resulted in the adaptation of metal as a material in the manufacture of the same basic implements. The introduction of trade items also resulted in the elaboration of dress, ornamentation, and burial practices. The contact with the whites also had its less fortunate aspects. Epidemics of introduced diseases resulted in a rapid decline of the population, social disorganization, the abandonment of many earlier cultural practices, and were followed by the eventual removal of most Indian groups to the newly established reservations.

The climatic changes of the postglacial period which so strongly affected the cultures of the Intermontane West apparently were of a much smaller magnitude in the areas to the west of the Sierra Nevada Range of California and the Cascade Range of Oregon and Washington. Although direct evidence is lacking for the Early Period in both the Central California and Northwest Coast areas, the general level of cultural development and the subsistence activities probably were very similar to the situation prevailing at that time in the Intermontane West. It would be extremely interesting to know to what degree the food resources of the coastal areas were utilized by coastal dwellers in the early postglacial period. But if campsites of these early coastal dwellers did exist, it is likely that most were destroyed by a sea level rise. We can only expect to find such early coastal sites if a locally rising coast line happened to preserve them from the encroaching seas. In the Central California Area it is not until what would correspond in time to the late Transitional or early Developmental periods that there is much archeological evidence to shed light on

the cultural history of the area. By this time a rather elaborate culture, by intermontane standards, was in existence. The economy was basically oriented toward food gathering supplemented by hunting, fishing, and in the coastal areas, shellfish gathering. Food resources were considerably more abundant than in the Great Basin across the Sierras. The occurrence of the semisubterranean type of house indicates that a semipermanent type of residence was possible in at least part of the area. Elaborate burial practices with a rich inventory of grave goods testify to the development of complex ceremonial practices and quantities of material possessions. Most of the basic aspects of Central California culture were no doubt well established by 2000 B.C., and from that time until the beginning of the Historic Period the changes that took place involved largely the elaboration of basic elements and institutions and the development of local regional characteristics.

The very fragmentary archeological evidence from western Oregon and Washington suggests an early period of big game hunting by small nomadic bands using lanceolate projectile points. This may have been true along the northern Northwest Coast as well. During the warm dry period that culminated around 4000 B.C., shrinking mountain glaciers and polar ice caps resulted in a slightly higher sea level which in turn probably drowned out much of the lowland areas around Puget Sound, the Willamette Valley, the mouth of the Columbia River, and low coastal areas of Washington and Oregon. If this is the case, then it is unlikely that the maritime cultures of the Northwest Coast could have developed until sea level returned to its present elevation. Other evidence strongly suggests that the antecedents of Northwest Coast culture in Washington and Oregon may be found in the foothill valleys of the Cascade Mountains. Large, crude lanceolate points from sites on old river terraces in the foothill valleys are at present the only evidence of this foothills complex.

Although concrete archeological data reflecting the early prehistory of Northwest Coast cultures are lacking, it is likely that, following the return of sea level to its present elevation, the now-lowland areas were reoccupied and the food resources of the bays and sounds were more intensively utilized. Shellfish gathering and the fishing for

bottom fish in addition to the long utilized salmon greatly augmented the food economy. The gathering of wild plant foods continued to be important, but hunting declined in its relative importance except for the inhabitants of upriver settlements.

Along the coast of the Olympic Peninsula in Washington the hunting of sea mammals, including seals, sea lions, and particularly whales, began to be important by at least 1000 B.C. In addition to the economic value of this activity, sea mammal hunting provided the basis for the social and ceremonial patterns as it did to the north on Vancouver Island.

The basic patterns of southern Northwest Coast culture were fully established by A.D. 1000. From northwestern California to southeastern Alaska the pattern is that of autonomous local villages strongly oriented toward the seasonal runs of salmon. On the northern coast of Washington and southwestern Vancouver Island the pattern was essentially the same except that the people were more truly sea oriented and the pursuit of sea mammals provided additional economic resources as well as the basis for a somewhat different social orientation.

The aboriginal Indian culture of the Far West can be seen, then, as a series of adaptations to local environments on a nonagricultural basis. In each of the four culture areas it can be seen that there existed full utilization of the area's natural resourses. Gradually, through time, with the development and improvement of adaptive techniques, the differences between the major culture areas began to emerge, and finally, within the culture areas local regional distinctions began to develop. In the following sections each of the four culture areas and its prehistoric cultural development will be considered in some detail.

CALIFORNIA

What has often been described as the California culture area in reality consists of the central valley region, the foothills of the Sierra Nevada range to the east, and the coastal ranges and coastal lowlands to the west. At the ethnographic time level, at least, southeastern California and the Yuman tribes along the lower Colorado belong more properly in the Southwest culture area. The coastal groups in northwestern California are culturally the southernmost extension of the Northwest Coast culture area, and the Klamath in the north central area belong to the Plateau. The territory lying east of the crest of the Sierra Nevada mountains was occupied by the westernmost groups of the Great Basin culture area.

The Geographic Setting

Geographically, the area has been defined as "....a bunch-grass valley containing a core of marshland and surrounded by an inner belt of chaparral-covered hills and an outer one of pine forest...the pine encroaches on the chaparral in the north, vice versa in the south..." (Kroeber 1947: 53). Oak is very common throughout the area, and it was around the acorn that the subsistence of the Indians of central California was built.

The climate can be classified as semidesert with virtually all of the rain coming in the wintertime, the typical Mediterranean type described in the Introduction (Fig. 2).

The environment provided the native population with a great variety of foods, some of which occurred in great abundance. Foremost among these was the acorn. Seeds, greens, roots, and nuts also formed an important part of the vegetable diet. Deer, elk, rabbits, bear, salmon, lampreys, quail, pigeons, ducks, and geese were also important items in the food inventory. Even insects, insect larvae, and worms were eaten. Along the coast, shellfish provided an important food supplement. Note in the Introduction how

different is the ecology of the California area from its immediately surrounding regions.

Prehistory

Of all the areas of the Far West, California is archeologically the best known. For many years excellent archeological excavations have been conducted throughout the area, and on the basis of these excavations it has been possible to define the prehistory in some detail. A summary of the prehistoric cultural development and relationships, specially prepared for this section by F. A. Riddell and W. H. Olsen, follows.

Central California. The Central California area includes both the lower Sacramento Valley, extreme upper San Joaquin Valley, and the San Francisco Bay Region. The basic three-fold sequence, Early, Middle, and Late Horizons, were first defined in 1939, and are based on the extensive field work performed by the Sacramento Junior College and the University of California.

The Early Horizon Windmiller Facies occupation is best known from sites located between Stockton and Elk Grove, California (Fig. 7). At present six sites have been excavated in this area, while several coastal sites have produced evidence of a related but a slightly later phase of the period (Berkeley Facies) (Lillard, Heizer, and Fenenga, 1939). Characteristics of this basal segment of the sequence include fully extended prone burials, most frequently oriented to the west, and occasional flexed burials or cremations (Heizer 1949). Grave goods most frequently recovered include Olivella shell beads, Haliotis shell beads and ornaments, large chipped stone projectile points which average over five grams in weight, a variety of ground stone objects including plummet-shaped charmstones, ground slate "pencils" and, rarely, food preparation implements. Radiocarbon dates for the single dated site of this period (SJo-68) range from 4052 $\pm$ 160 to 4350 $\pm$ 250 years B.P. (Heizer 1958: Table 1). As these probably represent terminal dates, it appears that the Early Horizon may be dated prior to 2000 B.C. (Heizer 1958: 7) (Fig. 8).

The succeeding Middle Horizon occupation is well

represented both in the Central Valley and in the San Francisco Bay region. It apparently represents both a development from Early Horizon antecedents and a replacement of an older indigenous population. The oldest Middle Horizon sites appear to be transitional between the Early and Middle Horizon periods. Prone burial position occurs in the older Middle Horizon sites but is rather abruptly replaced by preference for flexed burial position along with extremely variable orientation of the deceased. Grave goods become less frequent, but again the shell beads and ornaments are diagnostic. Chipped stone implements are less frequent and nonstemmed forms increase in contrast to the Early Horizon.

An increased use of bone and antler is notable for the Middle Horizon (Beardsley 1954:70-76). Small, notched acorn-shaped objects identified as spear-thrower or atlatl spurs often occur on sites of this period, while but a single (stone) example is known from the Early Horizon (Olsen 1962).

The depth of deposit and increased numbers of sites suggest a definite population growth during the Middle Horizon, possibly due to utilization of the acorn as the basic food source. This is borne out, to a degree, by the greater number of food processing implements recovered from Middle Horizon sites. Coastal sites of this period indicate groups well adapted to a tidewater environment, as evidenced by the immense shell mounds located around San Francisco Bay (Beardsley 1954:82-83). Differences in environment produce some variation between the Valley and Coast during the Middle Horizon, but the diagnostic artifact forms remain fairly consistent in both areas.

The Late Horizon, beginning at about A.D. 300 (Heizer 1958:6) is apparently an outgrowth of the preceding Middle Horizon (Beardsley 1954:77). Transitional Middle and Late Horizon sites, or site segments, are rare. In the earlier period (i.e., Late Horizon Phase I) primary burials, both in flexed and fully extended position, occur with cremations. The latter are infrequent in the Early and Middle Horizons but greatly increase during the Late Horizon. The shell ornament forms during Phase I times show an increase in complexity of form and quantity over the Middle Horizon.

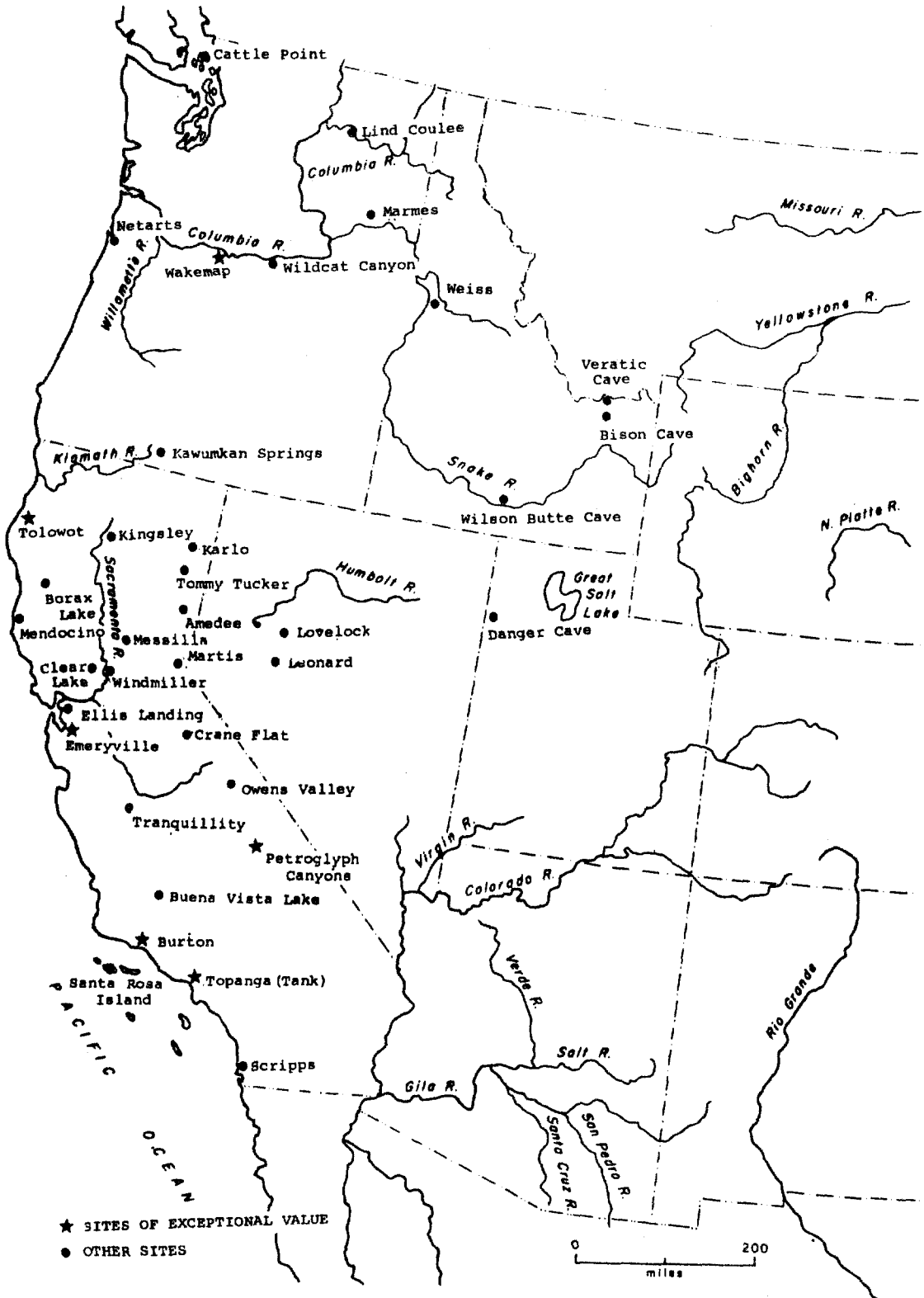


Figure 7. Index map for sites in the Far West.

PERIODS	CALIFORNIA	GREAT BASIN	PLATEAU	NE COAST
HISTORIC	MIWOK YOKUTS CHUMASH WINTUN etc.	SHOSHONI S.PAIUTE N.PAIUTE UTE etc.	SALISH SAHAPTAN KUTENAI ATHA- PASKAN	CHINOOK COAST SALISH WAKASHAN CHEMAKUAN
0 to CONTACT	WOODEN VALLEY CLEAR LAKE MARIPOSA SHASTA MILL CREEK KINGS BEACH MENDOCINO CRANE FLAT	DUNE SPRINGS DEVELOPED PUEBLO MODIFIED BASKET- MAKER LATE LOVELOCK	WAKEMAP HARDER THREE SPRINGS WILSON BUTTE V, VI MARMES VII, VIII LATE FIVE MILE R'D	TOLEAK PT WHITE ROCK CATTLE PT LOCARNO BEACH MUSQUEAM WHIDBY ID SEAVIEW MARPOLE WHALEN TI 1
2500 BC to 0	BORAX LAKE	DALLES EARLY LOVELOCK MESQUITE FLAT	WILSON BUTTE V MARMES VI	LOCARNO BEACH MARPOLE DJRI - 3
6000 BC to 2500 BC	BUENA VISTA BERKELEY WINDMILLER PINTO- GYPSUM	LATE DANGER CAVE LIND COULEE	MARMES III-V WILSON BUTTE II-IV	DJRI - 3
BEFORE 6000 BC	TRANQUILLITY TOPANGA LAKE MOHAVE	EARLY DANGER CAVE TULE SPRINGS FORT ROCK CAVE	LIND COULEE MARMES II EARLY FIVE MILE R'D	DJRI - 3

Figure 8. Representative cultures in various periods in the cultural subareas of the Far West. The chart can not be construed as showing contemporaneity of the names appearing in the same horizontal line; only relative age and general cultural relationships are indicated.

Olivella shell beads become more numerous and the patterns suggest use as applique on garments, a recurrent feature from Early Horizon times which increases during the Late Horizon. Use of bone and antler tools diminish somewhat, but pointed bone tools, used for basket manufacture, increase in frequency to a marked degree. A second major shift is in the use of small projectile points, indicative of a shift from the atlatl to the bow and arrow (Beardsley 1954:78). The introduction of the harpoon, as opposed to the older, fixed point fish spear, is also notable for the Phase I period (Bennyhoff 1950:309).

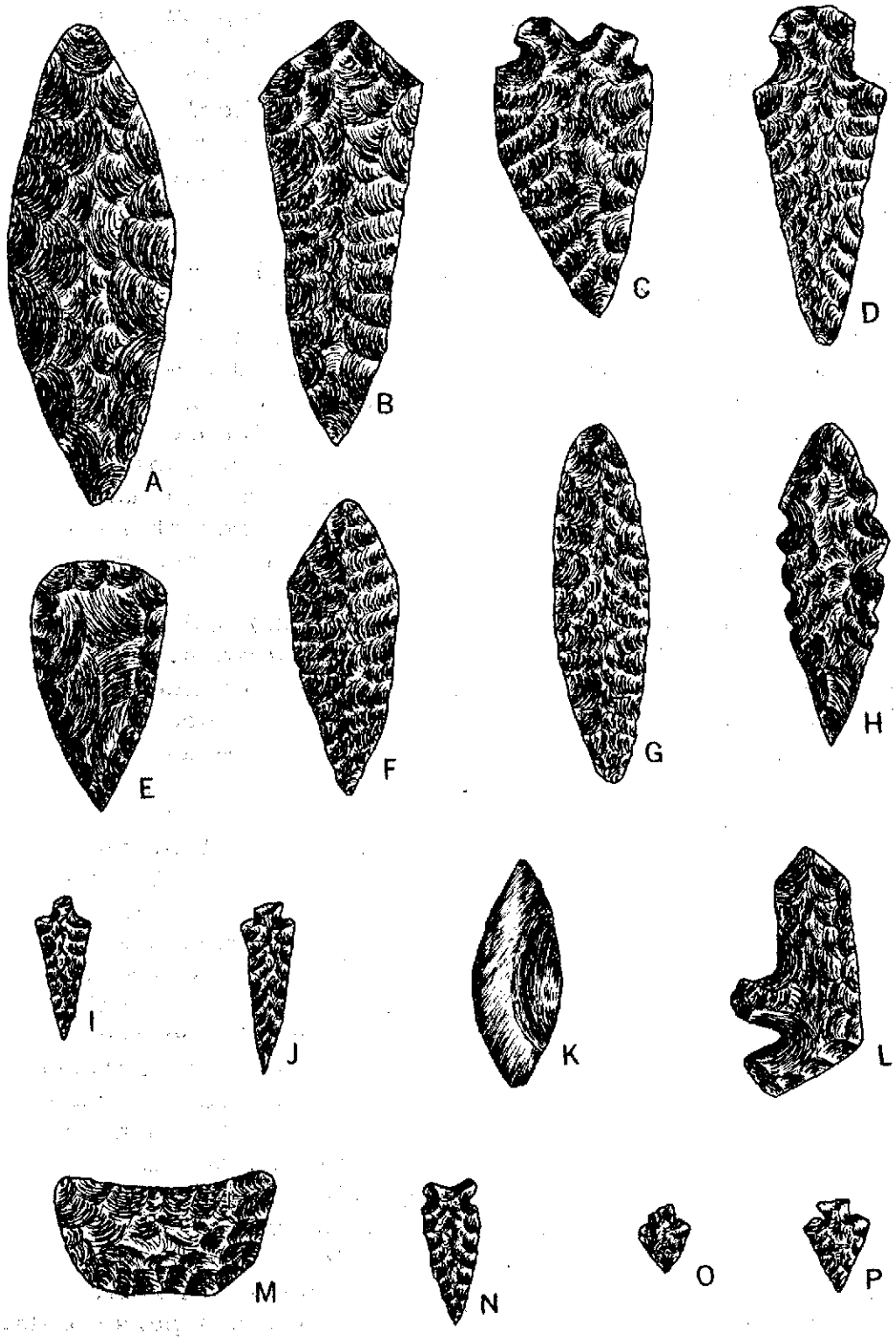
The succeeding Late Horizon Phase II period is marked by the introduction of beads made of clam shell (Saxidomus) and several varieties of stone beads (Beardsley 1954). Shell ornaments become more elaborate with many having decorated edges in the form of drilled pits, or by having more complex outlines. Incised bone tubes also become more frequent, although they carry over from Phase I times. A notable use of baked clay objects, though not true pottery, is indicated for the Delta area during Phase II times. Stone bowl mortars and well-made cylindrical pestles are common though normally occur as grave offerings.

As in Phase I times, the dominant weapon was the bow and arrow, but the introduction of a small side-notched concave based point (termed the "Desert Side-notched") is diagnostic (Baumhoff and Byrne 1959). Large points occur in both Phase I and Phase II sites, but are rare in contrast to small arrow-sized examples. They apparently represent spear points, knives, and ceremonial pieces (Bennyhoff 1957:19-25) (Fig. 9).

The Historic Period is marked by the introduction of Caucasian trade goods into the established native cultural pattern. Glass beads, buttons, and metal objects are

. . . . . .

Figure 9. Chipped stone artifacts from various sites in California. B, E, G, H, L, and M are from San Joaquin Valley sites. All others are from northern California sites. Drawn from specimens in the R. H. Lowie Museum of Anthropology, University of California, Berkeley.


A
B
C
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frequent in contact period sites. For a limited period, at least, the introduction of metal goods provided impetus to older, native patterns, but disruption of almost all groups by the 1860's obliterated the native way of life. It is possible, in some instances, to correlate the archeological patterns with ethnographic data and a continuum is certainly present from the protohistoric period through postcontact times (Beardsley 1954:79-80).

The Northern Sacramento Valley ("Shasta Complex"). The Northern Sacramento Valley archeological sequence is, as yet, not fully worked out. Present data indicate relationships with both the Central California and North Coast Range sequences, however. Meighan (1955:32-33) summarized the available data and termed the late period the Shasta Complex. Later work by Treganza (1954; 1958; 1959) and by Treganza and Heicksen (1960) in the Red Bluff to Trinity region has more clearly defined the Shasta Complex and the present summary is based primarily on Treganza's more recent research.

The Shasta Complex is dated at post A.D. 900 and includes the protohistoric and early historic periods. Preceding archeological manifestations have not yet been defined, but several sites are known which produce manos and grinding slabs, neither of which are typical of the Shasta Complex.

The protohistoric period, known from site Sha-169, is represented by a series of burials excavated and reported by Treganza and Heicksen (1960); the contact period is known from a number of sites (Smith and Weymouth 1952; Treganza 1954). Burial patterns are consistent during both periods. Primary, loosely-flexed, burials are typical, and frequently are covered with bark slabs or cobbles. Projectile points are small, and are commonly stemmed and barbed or side-notched. The stemmed form is especially diagnostic and has been termed "Gunther Barbed" by Treganza (1958). Large bipointed blades indicate relationships with Northwest Coastal groups, as does the recovery of Glycymeris shell and limpet shell beads. Haliotis shell ornaments occur and where preservation is favorable pinenut beads are found. Bone objects are rare, but noteworthy are incised bone pieces reminiscent in form and decoration of Northwest Coast California elkhorn purse lids.

The typical food processing implements are hoppered mortars and well-made cylindrical stone pestles. Incidence of breaking prior to grave placement is high for pestles, but other objects were sometimes also broken. Polished or ground stone specimens are not frequent, but arrowshaft straighteners, stone pendants and stone beads are known. The typical Central California plummet-shaped charmstone is extremely rare, and in its place occur a variety of objects, such as concretions, fossils, and other naturally-shaped stones.

As pointed out by Treganza (1959: 26-28) the Shasta Complex has affinities with both Northwest and Central California. The culture disclosed archeologically also compares with the available data on the historic Wintu in the Northern Sacramento Valley. Further work is still needed to define fully the limits of the Shasta Complex, especially to the east and south, but the basic framework for the late occupation is now reasonably well defined.

Northeastern California. Northeastern California's prehistory is best known through the excavation of two cave sites, and one open site. Amedee Cave provides data on the late historic period, Tommy Tucker Cave is a bit earlier in time, and thus carries the cultural picture farther back. At the Karlo site burials and accompanying grave lots demonstrate both cultural and temporal relationships with the end of the Early Horizon and beginning of the Middle Horizon of central California (cf., Riddell 1960).

Not only does the Karlo site exhibit a link to the Sacramento Valley but it also demonstrates a much closer affinity to the Lovelock Culture of westcentral Nevada. Relatively detailed data on the antiquity of man in northeastern California, therefore, extends back in time some three or four thousand years.

There can be little doubt that man occupied the region before the Karlo period but definitive remains are yet to be described. Providing speculation, however, have been the fortuitous finding of what seems to be a Scottsbluff point and basal fragments of points similar to Plainview points.

The Central Sierra Nevada. Two archeological complexes, the

Martis Complex followed in time by the Kings Beach Complex, have been defined in the central Sierra Nevada region of California (Heizer and Elsasser 1953; Elsasser 1960). Neither complex is yet well defined, either temporally or in areal distribution.

The Martis Complex is characterized by surface sites or shallow midden accumulations located normally on benches above stream courses. Diagnostic artifacts consist almost entirely of chipped or ground stone, and rarely of bone and shell.

The chipped stone assemblage includes medium and large stemmed as well as side-notched projectile points, all usually made of local basalts. Rarely are obsidian, schist or silicates used. Their size and weight, plus the occurrence of atlatl weights indicate the use of the dart thrower. Certain of the numerous point types resemble those found in Central Valley Middle Horizon sites, while others resemble Pinto forms, or specimens attributed to the Lovelock sequence of westcentral Nevada (Elsasser 1960: 71).

Other periods which presumably relate to the Martis Complex include the Crane Flat Complex of the Yosemite region defined by Bennyhoff (1956), and the Kingsley Complex for the area east of Red Bluff defined by Baumhoff (1955). Both are typified by the use of heavy projectile points and the manometate for food processing. The Messilla Complex (Olsen and Riddell 1963), known from the Oroville area, is probably also contemporaneous with the Martis Complex, and with the Kingsley Complex. It seemingly represents a foothill variant of the Martis Complex although the latter is typical about 3000 feet elevation.

The late occupation throughout the Sierra Nevada includes various complexes, all of which are somewhat comparable. In all instances they date from A.D. 1000, or later.

The three reported late complexes include Kings Beach (Heizer and Elsasser 1953), Mill Creek (Baumhoff 1957), and the Mariposa Complex (Bennyhoff 1956). Similarities noted for all these include the use of small, stemmed and side-notched projectile points, predominantly made of obsidian or silicates, and the use of the hoppered and the bedrock mortar.

Trade with Central California Late Horizon peoples is indicated by the occurrence of clam shell and Olivella shell beads in the Mill Creek Complex. Typological similarities of projectile points indicate essential contemporaneity with the protohistoric period on the valley floor.

It must be emphasized that other traits are known for each of the late complexes which set them off as distinct entities. The occurrence of pottery is known for the Mariposa Complex area (Hindes 1962: 31), and steatite vessels are not infrequent in late sites in the Central Sierra region (Elsasser 1960: 42-43). Both are reliable time markers in the area as they are confined to the late protohistoric or contact periods.

The Southern San Joaquin Valley. The Southern San Joaquin Valley is poorly known archeologically with the best published work done by Wedel at Buena Vista Lake, Kern County (Wedel 1941). Earlier work by Gifford and Schenck (1926) was more extensive but much less intensive. A report by Walker (1947) has provided data on a Yokuts cemetery at Elk Hills, and a report by Riddell (1951) gives salvage information on an historic site destroyed by land levelling. One of the most recent reports on site excavation in this region is by Warren and McKusick (1959) and deals with a small number of burials from site Tul-90 on an old shoreline of Tulare Lake.

Considered by some to be of considerable antiquity is the Tranquillity Site west of Fresno (Hewes 1946). Remains of extinct fauna were found in seeming association with human burials and artifacts. Whether the association is valid, or not, the human remains are reasonably old.

Probably the best summary of the relationships of this region with the rest of California is given by Wedel. His data are combined by Warren and McKusick with their data to formulate a tentative three-fold sequence -- Early, Middle and Late. In Central California these periods date as follows:

1500 B.P. to ethnographic present - Late Horizon
3500 to 1500 B.P. - Middle Horizon
? to 4000 B.P. - Early Horizon

They state that the sequence "would appear to be related to, but considerably different from the Central Valley sequence" (Warren and McKusick 1959: 21) (Fig. 10).

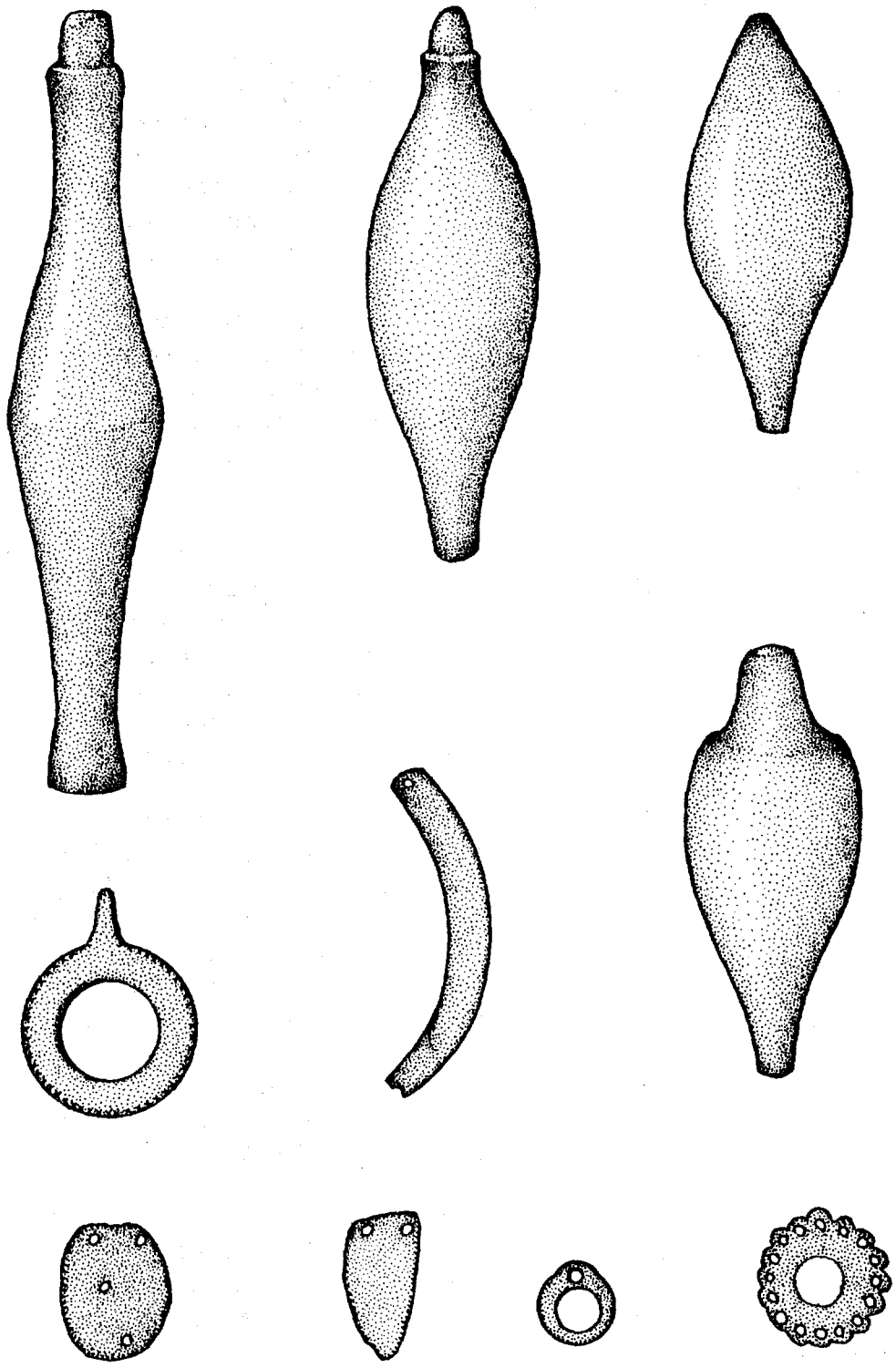
The North Coast Range. The following summary of the North Coast Range archeological sequences has been compiled from Meighan's (1955) summary of the available data on the region. Several complexes have been deleted from this summary (Shasta Complex and McClure Complex) since they have been described in other sections.

The basement complex for the North Coast Range is the Borax Lake Complex, first described by Harrington (1948). Though first described as an early man site, it is now dated at post 2000 B.C., presumably equivalent to the Central California Middle Horizon (Meighan 1955: 26-27). It is best known for producing a series of rather large, heavy points, including fluted, and wide stemmed forms which are diagnostic of the Complex. Other objects known from the Complex include milling stones and, rarely, mortars and pestles. Crude plummet-shaped charmstones resemble those from Central Valley sites, and may constitute a linking trait with the Sacramento-San Joaquin Valley sequence. The occurrence of chipped stone crescents also is considered diagnostic of the Borax Lake Complex, though they are widely distributed in the Western United States (Meighan 1955: 26; Riddell 1960: 30-31). No burials are known from the Borax Lake period and bone artifacts are almost unknown. The apparent leaching of the midden deposits may account for this seeming lack.

The Mendocino Complex, defined by Meighan (1955), is seemingly an outgrowth of the preceding Borax Lake Complex. It is suggested that it dates from A.D. 500 to 1000, but this could be a conservative estimate (Meighan 1955: Fig. 3).

. . . . . .

Figure 10. Plummets and shell ornaments from California. Stone plummets are very common artifacts in the San Joaquin Valley sites. The incised and perforated shell ornaments are from Santa Rosa Island. Drawn from specimens in the R. H. Lowie Museum of Anthropology, University of California, Berkeley.



We would suggest a date of 500 B.C. to be more accurate on the basis of the Central California cultural sequence.

The sites attributed to the Mendocino Complex are, like those of the Borax Lake Complex, somewhat leached and bone preservation is poor. Primary flexed burials are known for this period however. Diagnostic implement forms include the mano and metate, mortar and pestle, drills, end scrapers, and charmstones all of which carry over from the Borax Lake Complex. Projectile points include stemmed and nonstemmed forms. Of the latter a concave based blade without flutes is diagnostic. Significantly the chipped stone pieces from the Mendocino Complex tend to be smaller than those of the Borax Lake Complex (Meighan 1955: 14). A second major difference in the complexes is the relative scarcity of mortars and pestles in the Mendocino Complex as contrasted to the Borax Lake Complex.

The relationship of both the Borax Lake and Mendocino Complexes with the Central California sequence has been commented on by Heizer (1949) and Meighan (1955). The linking traits are, for the most part, general and do not permit specific comparisons. The lack of radiocarbon dates or trade items, (e.g., shell beads or ornaments) in the older North Coast Range sites limits conjecture in this respect.

The known late complexes in the North Coast Ranges are as yet poorly defined, but all appear to date from A.D. 1500 or later. In the south end of the region the Wooden Valley Complex represents the protohistoric period. It is typified by loose ashy midden deposits on or near stream courses. The dead were frequently cremated and placed under inverted bowl mortars. Frequently recovered objects include shell and stone beads, stone pipes, various bone objects and Haliotis shell ornaments. These traits indicate that the Complex may be directly equated with the Late Horizon Phase II occupation in the Sacramento-San Joaquin Valleys.

Closely akin to the Wooden Valley Complex is the Clear Lake Complex. The cultural inventory is much the same, but the primary flexed burial is more frequent. This Complex represents the protohistoric and full historic Pomo occupation of the area.

In the north the Shasta Complex, previously described, marks the termination of aboriginal occupation. It clearly is related to the Clear Lake Complex in time and represents the protohistoric and historic Wintu groups.

Ethnographic Survivors.

The central valley and central coast of California were occupied primarily by speakers of Penutian languages, the Wintun, Maidu, Miwok, Yokuts, and Costanoan (see Fig. 59). Nearly surrounding this core of Penutian speakers are the scattered Hokan speaking Washo on the east, Yana, Shasta, Achomawi, and Atsugewi on the north, the Pomo on the west coast, and also on the west coast but to the south, the Salinan and Chumash. To the east, the Penutian and Hokan speakers are bordered by Numic speaking groups of Great Basin Cultural affiliation (Kroeber 1925; Lamb 1958). Of considerable interest in understanding the cultural history of Central California is the fact that both Hokan and Penutian are very old language stocks. Which of these stocks is older in California has been the subject of some debate, but Kroeber (1955) has noted a disruption of the Hokan speaking community, and Taylor (1961:75) has suggested that this was due in part to the movement of the Penutian speaking groups into the area. The distribution of languages in California suggests an early period in which considerable population movement took place, and a later period which is characterized by relative stability.

No truly satisfactory estimate of the size of the aboriginal population in Central California is available. Introduced diseases which quickly become disasterous epidemics decimated the Indian populations at an early time before anyone thought to record the approximate numbers of the various tribal groups. Serious attempts have been made to arrive at a reasonable population estimate, and Kroeber's figures may be taken as fair and reasonable (Kroeber 1925:883). Population size of various tribes, as of 1770, ranged from two to eighteen thousand.

Generally speaking, each local autonomous villeage, with its rather scattered settlement pattern, was considered to control a territory whose size varied with the geography but averaged about ten miles in diameter. Ownership of the

economic resources rested with the village. Wintertime housing was often a semisubterranean, dome-shaped, earth-covered structure, or perhaps an above-ground, circular bark or thatch-covered house constructed over a framework of poles. In the summer a temporary brush or thatch-covered structure was often used. Each village usually had a sweat house and a large assembly house built on the same pattern as the smaller dwellings. Where large sweat houses were built, they often served as a dormitory for unmarried men. In general, the mobility of an individual was often limited to within a dozen or so miles of where he was born.

All of the economic needs could be satisfied within the territory controlled by the village, with the possible exception of salt and a few ornamental trade items. Hunting and fishing were generally considered to be activities which men engaged in, whereas the gathering of roots, seeds, nuts, and other vegetable foods was considered women's work. The entire family would participate, however, in the seasonal acorn harvest. The sinew-backed bow with stone-tipped arrows was the principal hunting weapon; a short heavy spear was also used. Fish were taken at specially constructed weirs and with nets and harpoons. A considerable amount of the food was stored for wintertime use. Meat was cut in strips and dried; fish and lampreys were split lengthwise and dried. Graneries were constructed near the house for the storage, particularly of acorns. The reducing of acorns to an edible meal was a laborious and time-consuming task. After the acorns had been gathered and cracked open to remove the edible portion, the nuts were then ground into coarse flour in a mortar or on a metate. The flour was then placed in a basket and water was poured through it repeatedly until the bitter tannic acid was removed. Preparation for eating this coarse flour consisted of boiling it in a basket in which hot stones were placed until a mush-like consistency was obtained. Very often the dried meat or fish also would be reduced to a flour in a mortar and then boiled with vegetables and herbs to make a nourishing soup. Of course many of the foods, particularly wild vegetables, were eaten fresh. Grasshoppers, crickets, and the larvae of other insects would be parched and eaten with relish.

The people of Central California wore relatively few clothes summer or winter. A woman would wear a pair of

short aprons of bark or a short bark skirt. For footwear either crude skin moccasins or reed sandals would be worn. In cooler weather a deerskin cape might round out this ensemble. In some, but not all, of the groups the women wore a basketry hat centered on the top of of their heads. For men, a breech cloth or an animal skin wrapped around the hips, deerskin leggings and moccasins, and a cape of deerskin or a rabbitskin robe comprised the entire wardrobe. A number of fashions prevailed for dressing the hair, but no matter which way the hair was worn it was usually carefully groomed. Some attempt usually was made to ornament the body by piercing the lobes of the ears or the septum of the nose, and inserting shell, bone, or feather ornaments. Tattooing was practiced by some but particularly for women and pubescent girls.

Among most Central California groups there was complete freedom of choice in the selection of a marriage partner. The marriage was usually preceded by an exchange of gifts or the presentation of gifts by the prospective groom to the parents of the bride-to-be. The marriage ceremony itself was a very simple affair. Among the Maidu it involved merely the preparation of a bed for the couple in the home of the bride's parents; the couple were then considered married. Polygyny was universally permitted for men of wealth and high status; most marriages were, however, monogamous. The mother-in-law taboo was general, but the strictness with which it was enforced varied considerably from group to group.

The birth of a child usually took place in a specially constructed hut and both parents observed a number of restrictions. Certain foods were not eaten for a time after the birth of a child, and the activities of the parents were closely curtailed for several weeks.

It was general practice to observe the onset of puberty for both females and males, but the attention given the females was far more involved than that accorded males. Isolation, special training, food restrictions, and restrictions on the actions of the pubescent youngster were widespread practices.

The Indians of Central California are widely known for

the complexity of their burial and mourning practices. Inhumation seems to have been the rule, although cremation is known to have occurred among certain groups. Burial in a tightly flexed position was the general practice in recent times. The deceased was dressed in his finest garments and roped in the flexed position. Burial took place in a cemetery located near the village. Mourning for near relatives involved cutting the hair, and for women, often the practice of covering the body with pitch for a designated period. Periodic burning of material possessions in honor of the deceased was practiced by some groups. Baskets, beads, and other items made especially for this purpose would be burned at a designated burning ground that was controlled by a shaman.

The basic political unit was a group that occupied a well-defined territory, who thought of themselves as cultural and political unit, but who might occupy several villages within the territory. The boundaries of the territory were well known and closely guarded. Trespass of these boundaries was not permitted without permission, and any violation might lead to fighting. Leadership of this political unit varied in importance and formality among the different groups, but in general the position tended to be hereditary, although wealth, ability, and generosity were considered important attributes of a good leader. This leader had no clear authority and might even be deposed by popular consent.

Warfare was not highly formalized nor were war honors actively sought. No war chief existed, but intergroup fighting did occur. Trespass of territorial boundaries was often the basis for fighting, but over the years traditional enmities developed between certain groups and no excuse was necessary to begin a fight. Usually the forces selected champions to do the fighting but raids were not unknown. Prisoners and war trophies were taken, and male prisoners were tortured and killed. Scalps were taken and displayed in the villages. If a conflict was imminent over the slaying of an individual from a neighboring group, negotiators may arrange a satisfactory payment and thus avoid a fight.

The pattern of the religion is basically similar to

that of the other Far West culture areas in that the individual is oriented toward one or several of a host of guardian spirits. The principal religious practitioner is the shaman who possessed certain guardian spirits which he could control. One of the principal duties of a shaman is to cure. Most illness is diagnosed as an intrusive pain or object. The most common method used to effect a cure is for the shaman to pretend to suck the object from the patient's body.

A widespread and important religious cult, the Kuksu cult, existed in Central California, particularly in the central valley. The ceremonies and dances were held in the large semisubterranean sweat houses. The Kuksu cult involved the initiation of males into a secret society and the use of masks. The cult appears to have had as its primary orientation the general welfare of mankind, rather than being the type of organization that exists primarily for acquiring status and initiating new members.

In summary, the native Indian cultures of Central California may be seen as having made a close and comfortable adjustment to an environment that, while not allowing the development of agriculture, was endowed with a relatively rich variety of natural resources. On this base, the Indians developed a surplus producing economy which permitted the elaboration of certain aspects of culture, particularly the social and ceremonial.

THE GREAT BASIN

Few areas of the New World are as inhospitable to human survival as is the Great Basin. Much of the lower barren and rocky desert areas and the extensive areas of salt flats were unsuitable for human habitation at any time of the year. The scant food resources and the limited sources of water dictated a way of life that made sedentary living impossible and greatly restricted the size and complexity of the social groupings. But it was in this area that man carried on a simple, wandering mode of existence, with little cultural change, for at least the last ten thousand years.

The Geographic Setting

The area known culturally as the Great Basin is part of a much larger physiographic region, the Intermontane province. The Great Basin is an area of internal drainage in which the moisture that flows into the area is lost by evaporation. The area lies between the Rockies on the east and the Sierra Nevada mountains on the west, and extends from southern Idaho and southeastern Oregon on the north to southwestern Utah, southern Nevada, and southeastern California on the south. The elevation of the basins and valleys ranges between four and six thousand feet, with the exception of southeastern California. Between and bounding the valleys and basins lie mountain ranges which vary from six to twelve thousand feet in height. In the basins shallow alkaline lakes with their marshy borders are common, and occasionally a fresh water lake may be found. In the extreme North, the area is drained by the Snake and ultimately the Columbia rivers.

Although most of the area may be described as a desert, within this vast area may be found biotic provinces ranging from Arctic-Alpine to Sonoran, depending on differences in elevation (see Fig. 5). The basic nomadic pattern of life was geared to the progressive ripening of different plants at different elevations throughout the season. The movement of peoples was as much up and down the slopes as it was across the area. Most of the moisture comes in the winter,

usually in the form of snow; over much of the area the average is less than 10 inches a year. In the summer the temperatures are high and the humidity low. In the winter the temperatures are generally mild, particularly at the lower elevations, but in the higher areas periods of bitter cold are not uncommon. Snow is abundant in the high mountains.

In the lower elevations where little moisture is found and high summer temperatures occur the vegetation is typically xerophytic with sagebrush, rabbitbrush, saltgrass, and greasewood being common. Above this is found the pinyon-juniper belt and still further up the slopes the area where mountain mahogany is common. At the highest elevations aspen, fir, pine, and spruce occur.

Although the environment seldom provided food in abundance, a great variety of plant and animal foods was available. Grass seeds, roots, nuts, berries, and greens formed the basis of the diet, supplemented by deer, mountain sheep, antelope, bison, rabbits, reptiles, small rodents, fish and insects. The aboriginal population of the Great Basin managed to survive by exploiting the meager resources of the area to the maximum extent.

Because of the more or less precarious balance between man and nature that is seen now in the Great Basin, this is an ideal area to test the effects of slow climatic change upon the attempts of man to master agriculture. By the same token, sudden climatic effects, such as heavy rains, may be observed more efficiently here. This relationship of man and climate has been explored in detail for the Great Basin by Aschmann (1958) and the conclusions he reaches are important beyond the confines of the area.

Prehistory

The prehistory of the Great Basin is known primarily from the excavation of a number of well-stratified cave and rock shelter sites, most of which contained a wealth of material including, in addition to the usual stone artifacts, many items manufactured from plant fibers, bone, antler, and wood. The dryness of the deposits has permitted the survival of this usually perishable material for over 9000 years in

some cases. A much smaller number of open sites have been thoroughly excavated, and many of these have provided only single components in contrast to the deeply stratified caves.

The evidence for the earliest human occupation of the area has not as yet been discovered. All of our evidence to date comes from the postglacial period.

The most recent and most complete statement on the prehistory of the Desert West has been made recently by Jennings (1963). In this statement Jennings emphasizes that throughout the prehistory of the Great Basin the cultures fit into the Archaic Stage of development of Willey and Phillips (1958). He also indicates that one of the primary characteristics of the prehistoric and historic cultures of the area is the wide and complete exploitation of the environment. In the introduction to the section on the Far West it was pointed out that the Great Basin Desert Area Tradition remained the least changed through time of all the area traditions in the Intermontane West (Daugherty 1962). In fact, ethnographic studies of Great Basin cultures can serve well as models for the prehistoric period.

Jennings subscribes to the thesis advanced by other prehistorians that antecedent to the Desert Archaic tradition there existed a chopper-scraper stage that did not make use of stone projectile weapons. He believes that the occurrence of an abundance of chopping and scraping implements in the Desert Archaic probably is due to the survival of these implements from the earlier stage.

In order to understand the development of prehistoric cultures in the Great Basin it must be realized that cultural change took place, but this cultural change involved principally the addition of new elements with the continued survival of much that is old. The general simplicity of the technology and material culture, plus the long survival through time of many practices and items, makes for considerable difficulty in recognizing the minor cultural periods or local cultural differences on the basis of archeological materials. Certain broad cultural periods may be identified, however, as well as certain late regional patterns.

Jennings presents a series of traits common to the Desert Archaic. All of the following traits are found over an area greater than just the Great Basin, and many occur in California and in the Plateau. These traits are: "...cave and overhang locations for settlements, bark or grass beds, seasonal gatherers, intensive exploitation of resources, small seed harvesting and special cooking techniques, basketry (twining predominant), netting and matting, fur cloth, tumpline, sandals (moccasins rare), atlatl, pointed hard wood dart shafts, varied -- relatively small -- projectile points, preferential use of glassy textured stone, flat milling stone and mano, a high percentage of crude scraper and chopper tools, digging stick, firedrill and hearth, bunt points, wooden clubs, horn shaft wrenches, tubular pipes, use of Olivella and other shell, vegetable quids" (Jennings 1963). These traits appear early and last late, and form the core of archeological traits from Great Basin sites.

During the Early Period most of the above traits were widespread in the Great Basin. Two regions, however, appear to show variations on this basic theme, southern California and southeastern Idaho. Both areas indicate a somewhat stronger orientation toward big game hunting, and each appears to lack the milling stone at early time levels. Southeastern Idaho at this early period shows some similarity to the big game hunting cultures of the Plains (Swanson, personal communication).

To the south and north of the Great Basin significant changes were taking place during the Transitional Period. Between 3000 and 4000 B.C. agriculture may have been introduced into the Southwest (certainly by 2500 or 1500 B.C. according to others), and perhaps slightly earlier the peoples of the Plateau were turning strongly to the food resources of the rivers, particularly salmon and river mussels. But in the Great Basin, known for its great cultural stability, things remained little changed. In fact, during the Developmental Period, change in the Great Basin is seen largely as the general enrichment of the older base rather than the loss of early traits. To the milling stone are added the mortar and pestle and the hopper base grinding stone; the bow and arrow become common and more elaborate basketry techniques develop. The Late Period is

characterized by the development of locally distinctive patterns, and sometime between A.D. 800 and 1200, the brief appearance of agriculture in Utah and southern Idaho. This economic development was restricted in area and short-lived, and with the general retrenchment of Anasazi culture in the Southwest around A.D. 1300, agriculture disappeared permanently from the aboriginal cultures of the Great Basin.

The very fact of the great cultural stability over so many thousands of years in the Great Basin makes this area one of great interest to the prehistorian and the student of cultural change. The peoples living in the area at contact times present an instructive example of "archeology caught alive."

Ethnographic Survivors

The languages spoken in the Great Basin fall into two major stocks, Hokan (Hokaltecan) and Utaztecan. Most of the languages belong to the Utaztecan stock; the Northern and Southern Paiute, Shoshoni, and Ute, all speak Utaztecan languages (see Fig. 59 for their location). In the western part of the area we find the Hokan speaking Washo, and in the lower Colorado River region are the Yuman tribes, also Hokan speakers. The Yuman tribes of the recent past are agricultural in their economic orientation and more properly affiliated with the Southwest. There is reason to believe, however, that such was not always the case, and that at an earlier time level they may have been culturally more similar to the Great Basin groups.

Recently there has been considerable discussion as to the antiquity of Hokan versus Utaztecan languages in the Great Basin. Taylor believes that "...by a date which is possibly nearer 10,000 than 9,000 years ago, Hokaltecan speakers were adapted to an arid environment and occupying desert territory from the northern Basin to northeastern Mexico..." (Taylor 1961:75). He continues, "If the concept of Macro-Penutian is valid, the split between Penutian and Utaztecan was thus probably in the neighborhood of 10,000 years ago and somewhere in the mountainous region north of the Great Basin. In fact, the Macro-Penutian speakers, as they moved southward along the western flanks of the northern Rockies, may have split by running into the block

of Hokaltecans already occupying the desert habitat of the northern Great Basin. In any event, some of the Penutians were diverted toward the west into Oregon and eventually California, while other Penutians and their linguistic relatives the Utaztecans continued down the cordillera." And finally, "...I infer that, as the Utaztecans moved southward, they left remnant peoples in the mountains and from time to time sent offshoots into lower elevations and more arid lands" (Taylor 1961:76). Taylor's view, then, places the Utaztecans coming in at a later time from the north. Lamb (1958) holds a different view, at least in part. Lamb uses the term Numic to identify the Utaztecan speakers of the Great Basin. He states that "Around five thousand years ago, or somewhat later, Proto-Utaztecan was slowly beginning to spread out into a number of dialects. It may have been located somewhere in the boundary between Arizona and Sonora" (Taylor 1961:99). He states further that, "Since these languages (the languages within the Numic family) spread out from a southwestern corner, the most likely conclusion, from linguistic evidence, is that much of the northern and eastern part of the Great Basin was not occupied by speakers of the present Numic languages at the time Columbus discovered America. And, as of around 1,000 years ago and earlier, the major part of the Great Basin is unaccounted for linguistically. This area may have been occupied by speakers of languages which moved elsewhere" (Taylor 1961:99-100).

Both Lamb and Taylor are agreed that the Utaztecans were not the earliest residents of the Great Basin, but disagree as to the area from whence they came and to the period of time when this movement is supposed to have taken place.

From an archeological point of view, these supposed migrations present somewhat of a problem. The Great Basin from the archeological evidence is characterized by great cultural stability throughout the last ten thousand years. Either the suggested movements never took place, or the material culture of the different populations was so similar as to be unrecognizable archeologically. Another possibility is that we have a spread of languages but not cultures. Whatever the ultimate explanation is found to be, it is clear that the archeologists should examine their data

for evidence which might suggest a solution to this problem.

Throughout the Great Basin the population density was very low, and in some areas, much lower than in others. In the more favored areas the density would rise to one person for every two square miles, but in the least favored regions a low of one person for every thirty or forty square miles would occur (Steward 1938:48). On a nonagricultural basis it takes a sizeable territory to support relatively few people, particularly in an arid desert environment. Given certain environmental resources and certain cultural resources with which to exploit them, two variables remain: the size of the group, and how rapidly the group can move. Obviously if the group is limited in its mobility by the fact that on-foot travel is the only means of moving about, it would do no good to increase the size of the territory beyond that which could be exploited. The basic adjustment to the Great Basin environment was that of small nomadic bands which during much of the year, were broken up into a number of family units. These family units, roaming widely over the band territory, made up the population of the Great Basin during the prehistoric and early historic periods.

The general pattern followed by the various Indian bands of the Great Basin was that of exclusive ownership of a particular territory. The size of the territory varied with its ability to support the human population. In the more arid regions, the territory was usually considerably larger than in the regions which were better watered and, hence, more productive. Each band had a principal winter village, or in the more populous areas, perhaps several villages. The winter village was located where water and fuel were available, at the lower elevations, and where some measure of protection from cold winter winds could be found. A central location relative to food producing areas was also desired.

The village consisted of an irregular grouping of houses which were very simple in their construction. The most substantial form of house is known as a wikiup. These structures were conical in shape with a framework of juniper or willow poles and a covering of brush, bark strips, or a matting of tule or grass. The firepit was in the center and the smoke hole at top-center of the structure. The sweat

house was a universal feature of Great Basin villages.

Summertime dwellings were of a simple, temporary nature, consisting primarily of brush windbreaks or pole and mat sunshades.

Throughout the Great Basin the family was the basic economic unit. With the exception of a few cooperative communal activities, such as rabbit drives, all food, clothing, implements, and housing were provided by the family unit. A definite sexual division of labor prevailed, with the men hunting the large game animals, making most of the implements, constructing the houses, and assisting in the pine nut harvest. The women did most of the seed gathering and grinding, cooking, skin dressing, and made the clothing.

The progressive ripening and maturing of vegetable foods at different altitudes which began in the spring and lasted into the fall set the pattern for the seasonal wandering existence. Starting with the edible greens in the valleys, the families moved progressively up the slopes toward the mountains: herbaceous plants, then edible roots, then grass seeds, and later, berries, and finally, in early fall, the gathering of large quantities of pine nuts. Some foods, particularly grass seeds and pine nuts, were cached for wintertime use. The failure of these crops could easily lead to winter starvation. Hunting, and where possible, fishing, activities were carried on continuously. After the introduction of the bow and arrow, this became the basic weapon used for hunting deer, antelope, mountain sheep, and wherever they occurred, bison. Fishing, while not of major importance, was practiced through the use of nets, lines, and weirs. Whenever food resources were sufficient for large gatherings the major ceremonials were held, and often a communal rabbit drive was also carried out. Hundreds of rabbits would be driven toward nets and clubbed with sticks. The meat provided food, the skins were used for clothing and robes, and this activity also provided fun and sport for the participants.

By the standards set by most other North American Indians, the technology of the Great Basin peoples could be considered as relatively simple. The inventory of material

possessions was small and limited by their wandering existence. The rigors of the environment dictated that the various manufactured items be functional, generally well made, and not elaborate. Obsidian was widely available, particularly to the northern groups, and this excellent material, combined with their knowledge and skill in working stone produced a well-made inventory of flaked stone implements. Baskets and matting, while not highly ornamented, showed considerable skill in their manufacture. Twined baskets and bags appear to have been made for some time before the techniques of coiled basketry were introduced. The techniques of skin dressing were well understood, and most items of clothing were made of animal hides. Pottery was not used by most Great Basin bands, nor was wood working an accomplished skill. The Great Basin environment provided all the raw materials necessary for survival, but this same environment limited the elaboration of the basic techniques to a functional level.

The clothing was, in general, rather simple, and was dictated more by practical considerations than by any ideas of modesty. A man's garb would likely consist of a breech cloth, leggings, fiber sandals, and when necessary for warmth, a rabbit-skin robe. For the women, a costume of a fringed apron of milkweed fiber, leggings, sandals, and the rabbit-skin robe for warmth was common. In the late prehistoric and early historic periods it appears that the use of skin clothing was becoming more popular, perhaps because of influence from the Plains Indians. Skin shirts for men, skin dresses for the women, and moccasins for both sexes were often worn.

Throughout the Great Basin the biological family was the basic social and economic unit. A typical household would be made up of a man, his wife and children, perhaps temporarily a newly married daughter and her husband, and not infrequently some aged grandparents. The kinship pattern followed bilateral lines, and there was considerable equality between the sexes. Because of strong kinship and economic ties, it was common for related families to reside in close proximity to one another. These related families often travelled together and co-operated in economic activities.

Because of the ever present problem of securing sufficient food for survival, marriage was as much an economic as it was a social institution. While the choice of a marriage partner was generally left up to the individual, the family took a strong interest in the choice. The creating of family alliances through marriage was greatly favored. Marriage was an easy and informal affair, and divorce was equally so. Both polygyny and polyandry were permitted, but polygyny was far the more common. Polyandry was usually fraternal in nature. Marriage by abduction was not uncommon, and a man might be aided by his male relatives in carrying off a wife. Both the levirate and sororate were practiced.

One institution that promoted group solidarity was the communal sweat house. This served as a meeting house, a men's club, and a dormitory for unmarried males (Steward 1938:239-246).

Because of the nature of their economic life which made it necessary for a family to move around by itself for much of the year, apart from other families of the band, the family was a very closely knit unit. The need for communal economic activities at certain times, common participation in ceremonials, and common residence in a winter village, served to bring a measure of solidarity to the band.

The nature of the basic political unit tended to vary with the ability of the region to furnish food resources. In the more productive areas where a larger and more concentrated population was possible, a true band organization developed. Several villages would be united under a single leader who had only nominal powers. The Owens Valley Paiute had this type of organization. For most of the Great Basin, however, the individual village was the largest political unit. The authority of the village leader varied considerably among the various Great Basin groups, but almost everywhere the real authority rested with the family. Each family was a free and independent unit, and whatever disputes arose would be settled by the families involved. The principal duty of the village leader was to direct the seasonal movements of the group. For most of the year the family was the largest social unit and the only functioning political unit. Only with the coming of the horse, Plains

influence, and ultimately the coming of the whites, did the opportunity present itself for any one man to wield considerable power. Organized warfare and raiding activities demanded centralized control and authority, but this was not the basic pattern of the Great Basin.

The guardian spirit religion of the Great Basin was the least developed or intensified of any of the culture areas of the Far West. Economic restrictions prevent large gatherings for ceremonials except once or twice a year, and these gatherings were more of a festival than ceremonial nature. The principal religious practitioner was the shaman who received his power through dreams or visions. Since most illness was diagnosed as being related to matters of the spirit or the soul, the primary activity of the shaman was that of curing. Interestingly, it was among the Northern Paiute that the Ghost Dance, which was to spread so widely among American Indian tribes in the 1870's and 1880's, originated.

THE PLATEAU

In the Plateau of northwestern America resided groups of Indians whose early prehistory was closely linked with that of the Great Basin people to the south, but who, unlike their southern neighbors, had food resources which lifted them above the mere subsistence level. The major rivers and their tributaries provided rich runs of salmon and other varieties of fish, plus a dependable supply of river mussels. Game occurred in larger numbers, and food gathering activities were at least as productive. The Plateau culture area participated in the Desert Archaic way of life to a considerable degree during its early culture history and many of the Desert Archaic traits persisted into the Historic Period. But the exploitation of riverine resources brought about cultural variations and elaborations that permits it to be distinguished from other Intermontane cultures.

The Geographic Setting

The Plateau culture area lies between the Rocky Mountains on the east and the Cascade Mountains on the west. The northern boundary is the great bend of the Fraser River in British Columbia. The southern boundary is not a geographic one, but rather the boundary between the Sahaptin and Shoshonean speaking peoples. The Klamath Indians of southern Oregon and northern California are properly considered as belonging to the Plateau culture area (Ray 1939:1).

Geologically, the central and southern parts of the area are dominated by the features of the Miocene basalt flows that in places reach a depth of more than a mile. The Snake and Columbia rivers have incised their way through the basalts forming deep canyons. Flow upon flow of basalt are exposed in the steep, rugged breaks bordering the river. In much of the eastern part of the Plateau, the basalt is covered with a mantle of loess. The northern area shows the effects of the various periods of Pleistocene glaciation which have scoured and, in some sections, exposed the

underlying granitic bedrock. The central section of the Plateau, known as the Channeled Scablands, developed its characteristic topography of eroded channels, pothole lakes, and swampy streams when great streams of glacial melt-water poured across the surface.

The climate of the Plateau area varies with the latitude. To the north a greater amount of moisture falls, particularly in the form of winter snows. The basic vegetation pattern is that of a forest of yellow pine and tamarack, to which are added fir, spruce, and white pine in the higher elevations and more northerly latitudes. Just south of the Canadian border the pattern changes abruptly to a semidesert environment with an average annual rainfall of less than ten inches per year and a typically xerophytic vegetation. Bunchgrass, saltbrush, sagebrush, and rabbit-brush are common. Cottonwood and willow trees are to be found along the streams (see Figs. 4 and 5).

Except in the extreme North, summertime temperatures are often high with a number of days each year recording temperatures over 100 degrees. In the winter it is not uncommon to have prolonged periods of below-freezing temperatures, with brief periods during which the temperature will drop well below zero.

Basically, the settlement pattern was oriented toward the major streams and their tributaries. Here the major camps and villages were located; the foothill and semidesert areas would be utilized temporarily as the seasonal economic round was followed.

Paleoclimatological and archeological evidence indicates that the geographic situation prevailing at the beginning of the Historic Period was not constant for the entire postglacial period. In the early postglacial period the climate was cooler and more moist in the areas that are now semidesert. Pine trees, open grasslands, small lakes and streams, and herds of large game animals characterized the Columbia Basin region. Gradually the environment changed to become more arid and less suitable for human habitation between 8000 and 4500 years ago. This trend toward aridity gradually reversed itself, and by 2500 years ago the situation was essentially the same as that of the

Historic Period. It appears that in this northern area of the Intermontane West there was more climatic fluctuation in the postglacial period than in the Great Basin to the south. The postglacial prehistory of this area must be seen as a series of gradual adjustments to a changing environment.

Prehistory

No archeological evidence has as yet been discovered in the Plateau of cultures earlier in time than the last advance of glacial ice. All certain archeological sites discovered to date fall within the last 10,000-year period. This does not necessarily mean that man was not in the Plateau at an earlier time. The northern part of the area was heavily glaciated, and most of the central area, including the major river valleys, was scoured by glacial meltwaters and covered by outwash deposits. Huge terraces of gravel were built up in the river valleys. It appears that the only possibilities for discovering archeological evidence of older cultures exist in small isolated areas that escaped glacial action or flooding, or in the southernmost part of the area which apparently escaped this destructive treatment.

Unlike the Great Basin to the south, the earliest residents in the Plateau of which we have evidence appear to have been somewhat more strongly oriented toward the hunting of big game animals and even fishing at highly favorable localities.

A few projectile points similar in form to Clovis and Folsom points of the Lithic Big Game Hunting tradition of the Plains have been reported from the Plateau, but none has yet been discovered in an archeological context, and it is entirely possible that these points were carried into the area by recent Indians who discovered them in the Plains where they went yearly to hunt bison.

Evidence of early big game hunting activities was discovered at the Lind Coulee site in central Washington (Daugherty 1956). Stemmed lanceolate points, large, heavy hide scrapers, crescentic blades, a grinding palette for ochre, and a barbed bone harpoon point were found in association with the bones of a large form of bison and

bones of smaller mammals and birds. A radiocarbon date of 8700 ± 400 B.P. was obtained from a composite sample of burned bone. Recent advances in the knowledge of postglacial geochronology strongly suggest that this date is too recent by several thousand years. No other site bearing this material has as yet been discovered.

Near the city of The Dalles, on the Oregon side of the Columbia River, an extremely important site known as the Five Mile Rapids Site, has been excavated (Cressman 1960). This site has contributed an uninterrupted archeological sequence for the past 9500 years. Of great interest is the fact that at the lower levels of the deposits literally thousands of fish bones were discovered in the midden. This indicates that as early as 9000 years ago at least, man was taking great quantities of salmon from the river. Whether or not this situation occurred more widely in the Plateau is not known at present. This was by far the richest fishing station in the Plateau within the Historic Period, and may simply represent a specialized occupation at this very productive locality. On the other hand fishing may have been an important seasonal activity throughout the Plateau at this early time level. Whatever the situation ultimately may be proved to have been, it is clear that the early inhabitants of the area had mastered the techniques of fishing at a very early period of time.

Since at least 8000 years ago the prehistoric culture of the Plateau can be characterized as falling within the Archaic Stage of development of the Willey and Phillips (1958) classification. This is true throughout the Intermontane West. Agriculture was never practiced in the Plateau until it was introduced in the Historic Period.

The earliest period of the Archaic Stage is the Transitional which lasted from around 8000 to approximately 4500 years ago. Much of the period is coterminous with the warm, dry climatic period of postglacial time which undoubtedly brought about pronounced economic reorientation. Gone were the herds of large game animals, and the major river valleys quite likely became the most suitable areas for human habitation, for it was here that greatest amounts of vegetation and vegetable foods could be found as well as water, fuel, fish, and river mussels. Although fishing was

carried on in the earlier period, it is likely that this period ushered in the development of a true riverine economy which was to persist into the Historic Period.

The basic social and political patterns probably remained much the same as for the Early Period, but it is clear that a technological recession was in effect. Whereas during the preceding period most of the artifacts of stone were skillfully fashioned from cryptocrystalline materials, during the Transitional Period crude percussion flaked implements of basalt are most numerous. Lanceolate shaped projectile points and knives continue from the earlier period but decline in frequency; the most common projectile point style is now a large, crude side-notched point of basalt. Large, crude basalt choppers and scrapers are common, and although it is very probable that the use of food grinding implements became widespread during this period, archeological excavations have not as yet produced these items in sites of this age. The midden deposits of this period contain numerous river mussel shells and also some mammal bones indicating that hunting was still an important activity.

During the next period, the Developmental, there was a return to cooler and more moist climatic conditions. This period lasted from approximately 4500 years to 2500 years ago, and the changing environmental situation undoubtedly had important ecologic implications. The greater number of sites and increased size of the midden deposits suggest an increasing population with greater stability. Projectile point styles most common during this period are those with corner notches. Cobble choppers, flake scrapers, splinter awls, and leaf-shaped knives continue as common implements. The basic food-grinding implements, probably surviving from the earlier period, are the large river cobbles with small circular depressions in the center which were probably used with an open-end basket hopper, and a crude conical pestle that was used to pound as well as grind.

Burial and housing practices for these early periods are still largely unknown. Marmes Rockshelter in the lower Snake River region has yielded three burials of the early Transitional Period. These burials lay under an undisturbed layer of Mt. Mazama pumice and therefore must date from

close to 7000 years ago. A radiocarbon date of 6200 ± 475 B.P. was obtained from materials associated with one of the burials. Five burials of late Transitional or early Developmental Period also were found. All of the burials lay in a fully flexed position and Olivella shell beads were the most common associated grave items. One of the early Transitional Period burials was accompanied by five large lanceolate blades. No other burials of this early time level have been discovered in the Plateau (Fryxell 1962).

The housing is completely unknown except that caves and rock shelters were occasionally occupied. Temporary shelters of brush or matting, probably very much like those in use during recent times in the Great Basin, were likely constructed.

The Late Period, the next in the sequence of cultural development in the Plateau, represents a climax development. This period lasted from approximately 2500 years ago until the Historic Period. This period continues almost all of the elements from the preceding Developmental Period and adds a number of new and important items. The semisubterranean house makes its appearance early in the period, later giving way in popularity to the elongated, surface, mat lodge. This in turn is later displaced in popularity, particularly in the southern Plateau, by the skin-covered tipi. Two radiocarbon dates from semisubterranean houses indicate that this form of dwelling, in a fully developed form, was in use along the Snake and the Columbia rivers by 500 A.D.

The burial patterns of the Late Period are extremely complex. Interment and cremation burials occur. Interment burials usually are located along the edge of river terraces, on islands in the rivers, and in the talus slopes at the foot of the basalt cliffs. Both flexed and extended positions were used. Cremation burials occur late in the period, and even during the height of this practice, it was not the most common form of disposal of the dead. In the middle Columbia region an elaborate form of cremation was practiced in which a special hearth was prepared for the cremation of the bones after a period of exposure of the body had caused most of the flesh to disappear.

Artifacts added to the inventory of material possessions surviving from the preceding period include mortars, elaborate pestle styles, composite harpoon points, and small snub-nosed scrapers. Cave sites have contributed numerous specimens of matting and basketry dating from this period, but these traits are undoubtedly much older in the area. The lack of dry cave deposits in the Plateau, such as occur in such frequency in the Great Basin, handicaps our knowledge of the forms and antiquity of these perishable materials.

The final period, the Historic, begins in the Plateau around A.D. 1800. It is characterized by the decline and disappearance of certain elements, the substitution of items of European manufacture for those of native origin, and the addition of many trade items, principally ornamental. The semisubterranean house, the mat lodge, and the skin-covered tipi all were in use at the beginning of the period. Burial patterns changed during the Historic Period. Cremation burials disappeared. Both flexed and extended burials occur, but probably through imitation of the practices of the early non-Indian settlers, the extended burial in a slab-lined grave and later a nailed burial box became universal. Grave furnishings became far more elaborate during this period, principally through the addition of trade items to the grave furniture.

In summary, the culture history of the Plateau can be characterized by slow, gradual change, involving principally the accretion of new elements with little loss or replacement of the old. Broadly speaking, this pattern of cultural change is characteristic of the Intermontane West.

Ethnographic Survivors

The distribution of Indian languages within the Plateau has important implications for understanding the dynamics of population movement and cultural development. In the extreme North, the Athapaskan speaking groups probably represent relatively recent adjustments to the Plateau way of life. To the northeast the Kutenai speaking Kutenai represent Plateau peoples who have spilled out on the northern Plains. The majority of the cultural groups in the northern and northcentral Plateau area are speakers of

languages of the interior division of the Salishan stock. It is extremely interesting to note that the speakers of Salishan languages, with one exception, are to be found in the northern forested environment, whereas the desert area of the Plateau is inhabited by Sahaptin speaking groups. It appears very likely that the Sahaptin speaking and the related Utaztecan speaking groups to the south represent the old basic population of the Intermontane West. More archeological work is needed in those areas now occupied by Salishan speaking groups to determine whether or not this area is archeologically distinguishable from that occupied by the speakers of Sahaptin, and if so, to determine the temporal levels involved (Fig. 59).

No good population figures are available for the prehistoric period in the Plateau. Certainly the population density was somewhat greater than that of the Great Basin, but somewhat less than that of the Northwest Coast or California. Introduced diseases, particularly smallpox and measles, decimated the population before any attempts at taking a census could be made. An average figure of one person for every four to five square miles probably would not be far out of line. Population was not, however, evenly distributed within the Plateau area. Throughout most of the year the population was concentrated along the rivers where the winter villages were located, and where the principal fishing sites could be found. The areas back from the river valleys were utilized on a temporary basis for hunting and food gathering activities.

Certain areas along the rivers, such as the large trading center and fishing site at The Dalles, supported considerably larger populations than less favorable areas. Although the Plateau was economically richer than the Great Basin, the distribution of peoples in the Plateau still was determined by the ability of the area to support the population on a nonagricultural basis.

The territory held by a particular ethnic group was not too closely defined except for the boundaries at the rivers, for along the rivers were located the important fishing stations which provided the basis for their subsistence. The Plateau groups appear not to have taken an extreme position relative to ownership of the band territory. Even

fishing stations might be used by neighboring groups with the permission of the owners. The size of the territory appears to have varied somewhat with the ability of the area to support the human population. In the central semidesert area very sizeable territories were held by various ethnic groups. Around the periphery of the Plateau, each group controlled fishing stations on the rivers as well as valleys extending back into the mountains. It was not uncommon for the Plateau peoples to travel considerable distances in their seasonal round. In the late prehistoric period, for example, many of the groups along the eastern and southern borders travelled across the mountains to the Plains to hunt bison. With the coming of the horse this migration became annual. After the acquisition of the horse around 1730, the Plateau populations became much more mobile, less restricted in their movements, and developed much wider trade and social contacts.

The principal winter villages were usually located along the major streams at points where some measure of protection from the wind could be found, and also where fuel and water were abundant. Often these villages would be close to the main fishing sites. With the coming of spring the people would move out of their winter dwellings and erect temporary structures at the fishing sites for the spring fishing season. Following spring fishing, the village would break up into smaller units of several families, each of which would follow their individual seasonal round. Small camps would be erected for brief periods at various localities where different economic resources could be found.

The earliest form of housing in the Plateau was probably a conical structure of poles covered with matting or brush, very similar in form to that of the wikiup of the Great Basin. By the beginning of the Christian Era the semisubterranean earth lodge was in use. These structures varied in size from about 12 to 45 feet in diameter. Dug into the ground to a depth of from three to five feet, these houses had a conical framework of poles which was covered in turn by mats, grass, and earth. The entrance was at top center or on one side. If a side entrance was used it usually faced the river. Even though the earth lodge came to be used as a winter dwelling, the conical mat covered

structures of the earlier period continued in use as the temporary type of dwelling for the rest of the year. In the late prehistoric period another type of structure came into use, largely, but not completely, replacing the earth lodge. This was the large rectangular mat lodge. Ray (1939:140) suggests that this structure may simply be an expanded mat-covered conical tipi. These structures were usually constructed over a shallow pit not over one foot deep, and may be up to 90 feet in length. The mat lodge was A-shaped in cross section, had parallel sides, and usually one or both ends were rounded. The covering consisted of mats tied on in shingle fashion. With the coming of the horse, the long-surviving conical mat-covered tipi was altered to one that was covered with hides, probably in imitation of the Plains type tipi. This form of dwelling gradually replaced the other types in popularity, although all of the types survived into the Historic Period.

The seasonal round was geared to the seasonal run of salmon, the most important food resource. Although some salmon may be found in the rivers at all times, the big runs occurred in spring and late summer. During these periods the fishing stations along the rivers would be fully manned. Other resources of the rivers include lampreys, sturgeon, trout, suckers, whitefish, and mussels. The river mussel was not highly prized except as an emergency food in the winter when other food supplies were running low. The river level was usually low in midwinter and the mussels could be easily gathered in great quantities.

When the spring fishing was over the groups would move away from the rivers to areas where roots, particularly camas, could be gathered. Great quantities were dug for winter use. Swampy areas would be visited to gather duck eggs and to collect grasses for basketry. The seasonal round would carry them back to the river for the summer fishing period, and after a sufficient number of fish had been caught and dried, some of the people would journey into the mountains to hunt and dry meat. Late fall found all of the people back in the winter village, preparing the houses for winter occupancy and readying things for the winter social and ceremonial season.

Most of the fish were taken at specially constructed

fish weirs, with dip nets, and with harpoons. The sinew-back bow and stone-tipped arrows were used for hunting game. The women employed a slightly curved digging stick with an antler handle in digging roots. A variety of gathering and storage baskets were manufactured. The grinding and pulverizing of various foods were accomplished in stone or wooden mortars, or in basket hoppers mounted on a stone base. Fish, meat, roots, berries, and seeds were stored for winter use. Pulverized meat mixed with animal fat and berries to form a type of pemmican was moulded in cakes and stored. Except for the use of insects and small rodents for food, the peoples of the Plateau fully exploited the resources of their environment.

The Plateau environment (Figs. 2-5) provided a wide variety of materials for exploitation by the aboriginal population. The abundance of cryptocrystalline stone, excellent for the flaking of artifacts, permitted the high development of the art of chipping stone. The stone projectile points of the Columbia Valley are some of the finest to be found in the New World. The relative abundance of large game animals furnished bone and antler for a large variety of implements. The hides of the animals were skillfully worked into skin garments. The women had a large number of plants from which to choose in selecting materials for baskets and mats which were not highly ornamented. It was only in the techniques of wood working that their skill did not reach above the purely utilitarian level. Canoes, for example, were simple shovel-nosed types, heavy and unwieldy. In the North where bark canoes were common, these were scarcely better made. Pottery was not used in the Plateau.

The peoples of the Plateau were, in general, highly competent in working with the materials they had available, and although some of the implements were ornamented, function was stressed above all else.

The use of buckskin for clothing appears to be a rather later adaptation in the Plateau, preceded by garments woven of bast fiber. Evidence for the earlier bast fiber garments survives only in ethnographic traditions (Ray 1933:45). For men the usual garb in the earlier period was a breechcloth, leggings, and perhaps a fur robe in cold weather. There is

no evidence for sandals or moccasins at this early time level. Later these garments were made of dressed buckskin, and, finally, a buckskin shirt and moccasins were added, probably traits borrowed from the Plains Indians in the late prehistoric period.

Women customarily wore a short apron front and back, and in addition a poncho-like garment of woven fibers. Later these garments were also made of buckskin and in the late prehistoric period a Plains type dress of two deerskins sewn together at the sides and with loose sleeves, plus buckskin leggings and moccasins were worn. Women also wore fur robes in cold weather. Some Plateau women wore twined basketry hats. During the warm summer months both sexes wore very little except the breechcloths, aprons, and moccasins until late prehistoric times.

Basic to Plateau Indian social structure was a belief in equality between individuals and between the sexes. At least this appears to have been the situation prior to influences from the Northwest Coast which brought to western Plateau groups ideas of status and rank based on wealth and descent, and influences from the Plains which brought to eastern and southern Plateau bands ideas of increased status based upon achievements in warfare. Both influences occurred primarily in the late prehistoric period, and affected the central part of the Plateau relatively little (Ray 1939).

Although the environment provided the necessities for survival plus a small surplus, the seminomadic way of life made it impractical to accumulate large quantities of food or material possessions. As a consequence, higher status based upon wealth was not compatible with the Plateau way of life. But as Ray has pointed out, this was not a passive disregard of status differences, but rather an active support of beliefs in equality.

Marriage patterns varied considerably in the Plateau. Freedom of choice of a marriage partner was common, but often the families involved would take an active part in the formal arrangements. The marriage ceremony was usually accompanied by a reciprocal exchange of gifts. Polygyny was universally permitted, but it was common for the wives of a polygynous marriage to reside in separate households.

Residence throughout the Plateau was patrilocal. The levirate and sororate were widely practiced but tended not to be obligatory.

Childbirth occurred in a separate structure or in a walled-off section of the house. Here the woman was attended by a midwife and female relatives, and only during a difficult labor would a shaman be in attendance. Children were raised with indulgence and pride by their parents, and corporal punishment was rarely used. Names were considered highly important and related to a person's success in later life. At about the age of puberty, both boys and girls would actively seek a guardian spirit through individual quests.

Much of the social control rested with the nuclear family, the basic social group. Often during the seasonal economic round the family would be separated from the rest of the band and would be, in effect, a tiny political as well as social unit. However, throughout the Plateau the basic political unit was the autonomous band which may have consisted of one or several villages. The composition of a village was highly fluid, and an individual or family was free to leave at will and to join other bands or villages. No true tribal organization existed until it was introduced to the eastern Plateau groups late in the prehistoric period. Larger groups existed but these were of a nonpolitical nature. Ray (1939:9) states:

> Yet, though nameless, many significant units of larger compass than the village do exist. Dialectical groups have been noted, and cultural groups mentioned in passing. The essential point is that the larger unit is invariably ethnic or social, or linguistic in nature, never political. These social groups are far from unimportant. Bonds of common habitat, common interest, like customs, like values, one religion, and one language are not to be passed over lightly. Furthermore, within areas of common movement blood ties intertwine the population.

Leadership of the band or village was vested in a man who was recognized for his achievements or ability, with most groups paying relatively little attention to principles of heredity. The leader was chosen by the people and held the

office throughout his life, except should he choose to abdicate. The power of the leader varied considerably from group to group, but for the most part his power was far from absolute and came mainly from his function as a judge in various disputes that arose. His function was to lead, to counsel, to direct the movements of his people, and to look after their general welfare.

Except for small scale raiding activities, pacifism characterized the Plateau way of life. There was no competition for land or other resources, not sufficient resources to support an active fighting force, and a strong belief in peaceful relations with your neighbord. As might be expected, however, disputes occasionally arose which might have led to minor skirmishes, but one of the duties of the leader was to preserve peaceful relations. With the intrusion of Plains influence from the East, the Plains type of formalized warfare became characteristic of certain eastern groups. Counting coup, war dances, and war paraphernalia were direct imitations of these aspects of Plains warfare. This type of warring activity, however, appears never to have become thoroughly integrated into the basic underlying stratum of Plateau culture.

As is characteristic of all Far West Indian cultural groups, the Plateau Indians also practiced a form of guardian spirit religion. According to Ray (1939), some considerable variation existed within the framework of the Plateau guardian spirit religion, but in general each individual came to possess one or several spirits which served to aid and assist the person throughout his or her life. The vision quest was the usual way of acquiring a guardian spirit; inheritance of spiritual power such as occurred on the Northwest Coast was not found in the Plateau. The spirits were nonhuman in character and theoretically could be any animate or inanimate object although animal spirits were by far the most common. Among most Plateau groups the method of acquiring a spirit was similar for both the shaman and the layman, but the shaman received a shamanistic spirit. Through his spiritual powers the shaman could specialize in the curing of certain human ills. Most disease causation was considered to be of supernatural origin and therefore could be cured only by the ministrations of the shaman.

Spirits were considered to be forces external to the body which influenced the daily life of man. The animating force within the body, the soul, was essential to life itself, and a person lived only so long as the soul resided within the body; soul loss resulted ultimately in death. At death the soul left the body and became a ghost.

The major religious ceremony was the Winter Spirit Dance which formed an elaborate complex of activities. The ceremonies, which lasted for a number of days, occurred in midwinter, and consisted of dancing by those who possessed a guardian spirit, sponsorship of dancers by a shaman, spirit singing, power contests, and shamanistic performances (Ray 1939). In addition to their religious functions, the Winter Spirit Dances also provided the opportunity for feasting, visiting, courting, and a wide variety of social activities.

NORTHWEST COAST

The Indian peoples who occupied the coastal area of northwestern America from Cape Mendocino in the south to Yakutat Bay in the north, developed the most complex series of cultures of all the nonagricultural groups of the Western Hemisphere. The rich and varied food resources permitted the leisure time to develop a complex technology and social structure, and a rich and elaborate art style.

Northwest Coast culture is strongly water oriented. This is reflected in their economic activities, village locations, and settlement patterns, and their high development of the use of watercraft. It is possible to understand that this rich and varied culture could develop in the midst of such a bountiful environment, but the cultural antecedents to the Northwest Coast culture of the ethnographic period remain at present a matter of speculation.

Geography

As the warm Japanese Current approaches North America it divides into two currents, the Alaskan Current swinging northward along the coast of British Columbia and southeastern Alaska, and the California Current bending south to flow along the coast of the United States. These currents bring mild temperatures and considerable rainfall to these areas, but the moderating effect of the Alaskan Current is considerably greater as it flows into the higher latitudes. The relatively mild temperatures and heavy rainfall have produced a luxuriant vegetation consisting primarily of fir, spruce, cedar, and hemlock trees, with a dense undergrowth of smaller plants. A scattered growth of deciduous trees, primarily alder, maple, willow, and cottonwood may be found in the river valleys.

Speaking generally, the territory north of the Strait of Juan de Fuca is characterized by a heavily indented coastline with many bays, inlets, and islands, and steep, wooded mountainsides rising abruptly from the water's edge.

By contrast, south of the Strait of Juan de Fuca the area has broad flat beaches backed up by gently rolling, forested hills. In this southern area, shallow tidal areas which expose extensive mud flats and reefs are common.

Throughout the area the seasonal runs of salmon provide the basis of subsistence except in a few specialized regions. In the southern Northwest Coast deer, elk, and bear are the most abundant large game animals. To the north the elk are replaced by moose, caribou, and mountain goat. Fur bearing animals include beaver, mink, marten, fisher, and land otter. Off the coast are found four varieties of whale, plus hair seal, fur seal, sea lion, and sea otter. Shellfish, including clams, mussels, and in some places oysters, may be found. A great variety of waterfowl occurs, including ducks, geese, and a number of types of shore birds.

Over much of the area the rainfall exceeds 80 inches per year, and it may reach as high as 150 inches in some places. Very little snow falls along the coast, but back in the mountains the snowfall is extremely heavy. Cloudy days far outnumber clear ones, but the summer days are often characterized by clear and sunny skies.

The geographic features of the Northwest Coast all provided an abundance of resources for the Indian population, and permitted the development of a rich and vital culture.

Prehistory

Perhaps the most accurate statement concerning Northwest Coast prehistory is that made recently by Heizer in which he concludes that "We quite lack any appreciable time depth in the few archeological sites thus far tested, and can only observe that nearly everything yet remains to be learned of the prehistory of the Northwest Coast north of Vancouver Island" (Heizer 1963:26). There is justification for extending the coverage of these remarks to include the entire Northwest Coast area. It is indeed curious that so much ethnographic work has been done here and yet the same area has received so little attention archeologically. With the exception of a few intensive excavation programs, our

knowledge is based upon widely scattered test excavations.

Northwest Coast archeological sites are almost exclusively stratified shell middens, and of those excavated to date, all are of relatively recent age. With the exception of a few sites near the mouth of the Fraser River in British Columbia where radiocarbon dates indicate an antiquity of approximately 2500 years, those middens excavated elsewhere indicate an age of only about 600 years at most. It is of considerable interest to investigate this situation in which sites in the Plateau and Great Basin have an age in excess of 10,000 years whereas those along the c coast are of relatively recent age. Does this mean that the coastal areas were unoccupied until recently, or at least that coastal food resources were not utilized until the recent past? Or is it perhaps that we are simply looking in the wrong places for the earlier evidence of coastal prehistory? We must consider the fact that changes in sea level and land elevations might have occurred that would either destroy the earlier sites or place them in areas now remote from the present coast line. To date, nearly all of the archeological research has been restricted to the present beach areas.

There appears to be good evidence now to support the view that during the Pleistocene glacial advances, when great quantities of water were stored up in continental ice sheets and expanded mountain glaciers, sea level would have been substantially lower than at present, perhaps more than 400 feet during a major advance. In the early postglacial period sea level would not have yet reached its present elevation, and if man had inhabited the coastal areas his campsites would now be under water. In the northern areas where the weight of glacial ice on the coastal lands would have been released as the ice retreated, there was a rebounding of the land that had been depressed by the weight of the ice. In fact, there is evidence that this rebounding process is still going on in some areas. The archeological effect of this phenomenon would be for some of the earlier postglacial sites now to be situation at elevations considerably above present shore lines. It is important that we not make too hasty judgments as to the antiquity of man's occupation of this coastal environment until a considerable amount of investigation has gone on in areas

back from present beach lines. One of the principal difficulties encountered in conducting archeological surveys back inland from the shore areas is, of course, the dense growth of vegetation which is, in many areas, scarcely penetrable and everywhere masks the surface.

Viewing Northwest Coast prehistory chronologically, it should be noted that at two localities adjacent to the Northwest Coast, archeological sites of considerable antiquity have been discovered. The previously mentioned Five Mile Rapids Site at The Dalles located just about tidewater on the Columbia River has provided evidence that the early inhabitants had developed the techniques of fishing for salmon at least 9000 years ago (Cressman 1960). In the canyon of the Fraser River another site has been excavated which indicates the occupation of this area has an antiquity of over 8000 years. It seems fair to conclude that if man were living so close to the coastal areas in these remote periods of time, it is likely that he was living along the coast as well. To date, however, no sites of this antiquity have been discovered within the Northwest Coast culture area.

Recently, some very interesting and possibly early archeological material has been reported from the foothills of the Cascades just to the east of Puget Sound. This material consists of large, crudely flaked lanceolate points, knives, and some chopper-like implements (Thompson 1961). No excavations have been made at any of the numerous sites so far discovered, but the extreme weathering of the specimens, the crudeness of the workmanship, and the location of sites on high benches above the river valleys, suggest an antiquity of at least 6000 to 8000 years. It is possible that these implements may represent an early culture oriented toward a foothills hunting and fishing type economy, and may be antecedent to the later shore- and river-oriented, Salishan-speaking, cultures of Puget Sound.

All other evidence regarding Northwest Coast prehistory dates from within the last 2500 years. The earliest levels at Lacarno Beach near the mouth of the Fraser River, which have been dated by radiocarbon methods at about 2500 years ago, suggest strongly an affiliation with Eskimo culture. On the basis of his excavations at this important site,

Borden, in a very provocative paper (Borden 1951), has explored the possibilities suggested by these apparent relationships. He calls attention to the very detailed parallels between the whaling techniques of the western Eskimo and those groups around the entrance to the Strait of Juan de Fuca, the Nootka, Makah and, at an earlier time, the Kwakiutl (to this list we can add the Quileute, Hoh, and Ozette of the northern Washington coast). These parallels include the use of identical implements and similar practices in whaling, as well as the very specific traits of the whaling societies. These parallels do not necessarily mean that Eskimos once resided along the Northwest Coast or that Northwest Coast Indians once lived in western Alaska. It does strongly suggest, however, that at one time there existed a cultural continuum extending from western Alaska to just south of the Strait of Juan de Fuca, strongly oriented toward the taking of whales and probably other sea mammals as well. The resemblances are too detailed to be accounted for by cultural borrowing.

Whaling continued to be an important economic activity, accompanied by quasi-religious ceremonialism in the Juan de Fuca area, until the historic period, but it declined and disappeared in the area between Vancouver Island and the western Eskimo. The Wakashan speaking Nootka, Makah, and Ozette, and the Chemakuan speaking Quileute and Hoh have survived as remnants of this earlier cultural period. Excavations in the San Juan Islands of northern Puget Sound (King 1950) indicate the graduate adjustment of a land oriented hunting culture to a maritime environment and the gradual development of a full maritime economic orientation. Unfortunately, no radiocarbon dates are available for the San Juan Island excavations, but the earliest phase quite likely is as early as the earliest period at Lacarno Beach and represents a Puget Sound-Interior orientation rather than the full maritime coastal orientation. All other excavations along the Northwest Coast, from northern California to southeast Alaska, date from within the last 600 years and resemble closely the cultures of the area at about the beginning of the Historic Period. The Northwest Coast of North America exists as the last great frontier of American archeology. No other area in North America remains so little known or presents more challenging problems to the archeologist.

Ethnographic Survivors

The distribution of languages along the Northwest Coast presents a picture of almost bewildering complexity. In the North the Tlingit and Haida languages appear to have distant relationships with Athapaskan, and the suggestion has been made that Tsimshian is related to Penutian. From the Bella Coola in the North to the Tillamook in the South (including the Gulf of Georgia area, Puget Sound, and southwestern Washington) the coastal groups are Salishan speakers. The Kwakiutl, Nootka, Makah, and Ozette, the sea mammal hunting groups near the entrance to the Strait of Juan de Fuca, are speakers of the Wakashan language. The Quileute, Hoh, and an extinct group, the Chemakum, speak the Chemakuan language. It is likely that Salishan, Wakashan, and Chemakuan, are distantly related to one another and belong to the Algonkian linguistic stock. At the mouth of the Columbia are the Chinookan speaking Chinook. Chinookan appears to be one of the Penutian languages. Little is definitely known of the linguistic affiliations of some of the smaller groups along the Oregon coast, but in northwestern California live the Algonkian Yurok, the Athapaskan Hupa, and the Karok of unknown affiliation (see Fig. 59). Whatever may be learned ultimately about the distribution and relationships of Northwest Coast languages, it is clear that this area has experienced a great deal of population movement which apparently was still in progress at the beginning of the Historic Period.

No reliable population figures exist for the Northwest Coast groups, but we may safely conclude that the abundant economic resources afforded the possibility of large concentrations of populations in permanent villages. A population density figure is highly misleading for this area because so much of the territory was unused except rarely, and then only by an occasional hunting party. The population was concentrated in villages which varied in size from several hundred people living in a large number of permanent houses, to those settlements of only one or a very few houses occupied by less than fifty people. It was not uncommon for residents of these smaller communities to maintain a second residence at one of the nearby major villages where they would live during the winter ceremonial period. Generally speaking, the villages north of the

Strait of Juan de Fuca were more populous than those to the south. The population of the Northwest Coast tended to be highly concentrated in those areas that offered a wealth of economic resources.

A number of factors entered into the selection of a site for a village. Proximity to unusually favorable food resources, such as a good fishing locality, rich clam and mussel beds, or halibut fishing banks, was perhaps the most important consideration, but of nearly equal importance was a good, protected spot for beaching canoes. Since the people were so strongly water-oriented and canoes were used both for travel and economic pursuits, this was a matter of no little importance. A sheltered location for the village away from the direct effects of storms and waves was also a consideration. From northern California to the north coast of Washington, around Puget Sound and in the Gulf of Georgia-Georgia Strait areas, the mouths of the various rivers were the sites of the major villages. At such localities the residents would have the first opportunity to catch the salmon ascending the streams to spawn. The villages also would have adjacent clam beds and the opportunity to fish for various types of bottom fish. If the streams emptied directly into the ocean, sea mammals would also be available. Smaller villages were located upstream at localities that offered a favorable location for constructing a fish weir. Upstream villages often specialized in hunting land mammals. North of the Georgia Strait area, villages tended to be located at protected localities along the inlets or on the island shores. Steep beaches made the problem of landing canoes more difficult, and often necessitated the laborious construction of a landing ramp.

Houses tended to be erected in one or several lines paralleling the beach, and if the beach was near and the hillside steep, flat areas would be cleared and prepared on the slope of the hillside. The houses were very substantial structures made of heavy cedar logs for the framework, and hand split and adzed planks for the walls and roofs. The size of the houses varied, but a house forty feet wide and sixty feet long would not be unusual. The floors were of earth and several fires would be built along the midline of the house. Planks were often laid across the rafters, and it was up here, where the smoke from the fires was

concentrated, that the dried fish, meat, and clams would be stored. The smoke tended to preserve the meat as well as keep the flies away. In the northern Northwest Coast the houses had a gabled roof, but along the southern coast and Puget Sound a shed roof was constructed. The furnishings within the houses were rather simple; raised sleeping platforms were built along the walls, and often mats or planks were used to divide the quarters of the various families living in the house. Personal possessions could be stored under the platforms or tied to the walls. The cedar used in the construction of the houses was easily worked with the primitive tools used, and lasted well in the damp environment.

The Northwest Coast Indians developed considerable technical skill in working with the various raw materials available to them. This is particularly true of woodworking. Wood, especially cedar, was used in the manufacture of houses, dugout canoes, boxes, and various implements. It is indeed surprising that so much could be done with the inventory of tools that they developed for working with wood. Adzes and axes with stone blades, bone, antler, and wooden wedges, and ground stone mauls were used in their construction projects. Fire often was employed in felling trees and hollowing out canoes. The wedges and mauls were used in splitting large planks from the cedar logs. Northwest Coast Indians also developed a great deal of skill in carving in the round which led to a highly conventionalized style.

Stone was used primarily for implements and ornaments; no stone construction was practiced in this area. In the earlier prehistoric period, many of the stone implements were made by flaking techniques, but in the later periods only ground-stone implements were manufactured. Adzes of nephrite or serpentine, axes, mauls, and knives of slate were common. There was some slight use of stone for ornaments and stone was also employed in the Gulf of Georgia area particularly in massive stone carving. Shell was used for knives and for the blades of harpoons. Some shell beads and ornaments were manufactured also. A very extensive use was made of bone, particularly in the manufacture of fishing devices and harpoons. The points of fishhooks and harpoons, the barbs of harpoons, and the teeth of herring rakes, to

name but a few uses, were all made of bone. Antler also was used, but primarily for wedges.

Very little skin work was done along the coast except in the extreme North because the wet environment made skin clothing rather impractical. Some weaving was done, particularly of mats and blankets. The techniques of basketry were well developed, and baskets were used for boiling, gathering and storage. Very durable openwork gathering baskets were made from split spruce roots. The Northwest Coast Indians were skilled and careful workmen, amply provided with raw materials and possessing a variety of technical skills with which to exploit their environment.

Northwest Coast clothing was relatively simple as well as scanty, particularly so considering the nature of the environment. In the North among the Tlingit and Tsimshian, there was some use of skin clothing, particularly shirts, skirts, and leggings, but over most of the Northwest Coast shredded cedar bark was fashioned into various types of garments. When the weather permitted the men usually wore little if any clothing when they were working, and the women wore only a short skirt. Both sexes habitually went barefoot. Woven capes and hats were worn as rain garments, and higher ranking individuals might have worn a robe of sewn sea otter or other animal fur on ceremonial occasions. There is no evidence that in this area clothing of particular types were traditionally worn to indicate status differences except for the above mentioned use of fur robes.

The Northwest Coast divides into a northern and southern area on the basis of the social structure. In the north among the Tlingit, Haida, and Tsimshian, the basic social unit (beyond the immediate biological family) is the matrilineal clan. Clans are grouped into moieties or phratries which are exogamous. Descent is traced strictly through the mother's side of the family. Most of the important economic resources are owned by the clan, and it is to the clan that a member owes his greatest social, economic, and political allegiance.

South of this area a basically bilateral kinship structure exists. A man may inherit from both sides of his family, but it is clear that the paternal side is stressed

in most matters.

One of the hallmarks of Northwest Coast culture is the great emphasis placed upon individual status. Heredity and wealth determine a person's status, and relatively little social mobility is possible. The social ranking falls into three principal groupings, nobility, commoners, and slaves. Slaves are without status of any sort, but there is no sharp line dividing the commoners from the nobility.

Slavery is an interesting institution among the coastal Indians because it is entirely uneconomical. Slaves are not harshly treated nor are they expected to do a great amount of work. The institution of slavery exists primarily as a means of acquiring status through the ownership of slaves who are acquired through raiding activities or by purchase. Little opportunity exists for a slave to regain his former status, and the offspring of slaves were always regarded as slaves even though one of the parents belonged to one of the higher status groups.

The possession of wealth was extremely important in the social scheme of things, and many things other than material possessions were considered as wealth. This would include names, the right to display certain crests, the right to a certain seat at a ceremony or potlatch. The accumulation of wealth was important but not in or for itself. Wealth was important for what it would bring one in terms of higher status. Wealth was used to bring higher status, not to provide more material things or creature-comforts.

Marriage between a couple was usually an affair carefully arranged by the respective families -- the higher the social standing of the persons involved, the more detailed the arrangements. Basically it was a contractual agreement uniting two families. It was considered proper that the family of the groom provide a substantial gift to the bride's family. In the event of a divorce, the gift would be returned. In the northern area residence after marriage was usually with the bride's parents, but in the southern area residence was patrilocal. Children were greatly desired, and practically from birth the family would begin to improve the infant's social status by assigning him or her a series of new and important names -- names that

carried with them certain important social prerogatives.

At the important crises periods in a person's life certain steps were taken to make certain that all would go well. At birth infants were given special care and the mother was usually secluded for several days. Usually a special diet was prescribed and her activities restricted. At puberty a girl would undergo a period of isolation and special training; very little attention was paid to the pubescent boy.

Death was a period of great stress to friends and relatives of the deceased because of the loss and because of the feat of the disembodied soul which had now become a ghost. Often times, if death was imminent, the dying person would be removed from the house, usually by removing a board from the side of the house, passing the person through the opening, and then replacing the boards. In this way the ghost could not re-enter the house. Disposal of the dead varied throughout the area; cremation was practiced by the Tlingit, but most other groups buried the deceased, usually with many of his personal possessions. The construction of special grave houses, mortuary poles, or disposal of the dead in canoes placed in trees or elevated on logs, were common practices.

The disposal of a person's property at death among the Tlingit apparently gave rise to the well-known institution of the potlatch. The potlatch soon came to be disassociated with funeral practices and became the basic methof of validating newly assumed prerogatives and status changes. A man could not assume a new and higher status without validating this before the society by announcing the change and distributing gifts. The acceptance of the gift was a tacit recognition of the new and altered status. Potlatching came to be an important part of many social and ceremonial activities, and in the early Historic Period became an end in itself. Intense competition with wealth to attain status resulted in the destruction of great amounts of property and the abuse of the system.

The intricacies of Northwest Coast social structure cannot be easily understood nor readily explained. But the rich resources of the area can be seen as providing the base

upon which concepts of class stratification and wealth, with all of their variables, can develop and flourish.

In contrast to the rich and elaborate social structure of the Northwest Coast Indians is the very poorly formulated and unstructured political system. The village is the largest political unit, but even the village is without any strong ruling body or centralized authority. The reason for this situation is most likely due to the fact that the kinship groupings, beginning with the household and leading up to the extended kinship group, clan, or moiety, have assumed all of the duties and functions of a political nature. The kin group assumes responsibility for the behavior of its members and also punishes those who harm a member. There is little need for concerted village action of any sort, not even in terms of organized warfare. Certain individuals stand out as leaders, but this is through their status and personality rather than through formally designated powers.

Warfare consists of informal raiding activities conducted for the purpose of acquiring slaves and status through fighting. Usually the younger men are involved in this informal fighting. No official position of war chief exists; the leadership of these raids varies from one time to another depending on the individuals involved. In this, as in other social activities, it can be seen that the prime motivation is the pursuit of higher status.

Northwest Coast religious beliefs center about the acquisition of a guardian spirit, but unlike the Plateau area where individual quests are the means by which a spirit may be received, inheritance figures at least as prominently as the individual quest. The shaman is the principal religious practitioner and uses his special powers for curing. Certain animals, particularly those of considerable economic value, are thought to have a measure of immortality. This is particularly true of the salmon. A First Salmon ceremony was held annually to assure a continued and bountiful run of this fish. The position of a guardian spirit figured prominently in many of the economic activities. If a man was a successful whale hunter it was because he had a strong whale hunting spirit. As with many other aspects of Northwest Indian culture, the religion has

become quite formalized and tightly structured. The winter ceremonial season reaches its climax at the Winter Spirit Dances when each individual is supposed to be possessed by his personal spirit, do his personal dance, and sing his personal spirit song.

Northwest Coast culture is unique in North America if not in the world. It has developed many of the characteristics of an agricultural society on a hunting, fishing, and gathering economic base. The unique richness of the natural environment has permitted the development of a culture whose energies were devoted to the development of a complex social system, a complex art style, and a complex series of adjustments to their environment.

Summary

Although the Far West naturally falls into four geographically disparate culture areas, there is an impressive similarity to much of its cultural content. Superficially there are differences; locally there are differences; and chronologically there are differences, but everywhere people were exploiting their habitat to the limit of their cultural capabilities. Generally population density was low except in a few Northwest Coast areas. Population was at a minimum in the largely desert Basin area.

The Far West points up in a most dramatic fashion the necessity of understanding the mode of life pursued by inhabitants of the entire area now the United States before the introduction of agriculture anywhere. In all of this vast western expanse, agriculture entered only in its extreme southern portion, yet these peoples persisted in their variety of ways directly into historic times. Thus, this area does not concern itself with the development of Themes II and III except in the most limited way, yet Theme II and Theme III could not have developed anywhere in the United States without this kind of a background. The mode of life pursued by most of the peoples in this area was not that of big game hunter. A collecting economy was the basis in which the psychological drama of realization of the domestication of plants could take place.

In the Introduction to this section on the Far West,

the varied characteristics and hallmarks of the collecting tradition were delineated. At this point it might be appropriate to reiterate that, despite tremendous cultural uniformity over more than ten thousand years in the Far West, it is still possible to recognize five rather distinct periods of cultural evolution. It is in the second of these periods, the Transitional, ending about 2500 B.C. that agriculture is introduced into the Southwest and eventually into the extreme southern part of the Far West. Hence, again from our Theme II standpoint, that is, the incipient farmer, we cannot designate any site as being representative of this particular manifestation in most of the Far West. However, our site map (Fig. 7) does have some sites designated that are of Late Archaic context yet are of utmost importance in illustrating the substrate from which Theme II developed.

THE SOUTHWEST

INTRODUCTION

It will become evident that the development of culture in the Southwest was strongly affected by a whole series of interconnected factors such as climate change, pressure from outside groups, the introduction of important new ideas and major shifts in cultural interest. These and other influences are woven onto a background of great environmental contrasts and four thousand years of time. It should not be surprising, then, that an intricate and fascinating pattern emerges. Prior to the introduction of agriculture, which will be our starting point, there was already a long history of occupation in the Southwest. Hunters and gatherers with a relatively simple way of life had been roaming the region from as early as 14,000 B.C. The life of these earliest Indians laid a strong foundation for the new cultural configuration which developed when the idea of domesticating plants was introduced from the south. About 2500 B.C. maize and the other crops that were to become the basis of agricultural life in the Southwest began filtering north from Mexico. The rude gatherers were gradually transformed into simple farmers, who, although they were somewhat better off, still had to struggle to make a living. After some 2000 years of experimentation and slow change, the ancestors of these rudimentary tillers finally achieved a precarious mastery over their environment. Now they were prepared to break the tight hold previously held by environment and for the first time were able to invest time in activities other than obtaining food. As a result, some of the most colorful ways of life in aboriginal North America developed, with a degree of diversification in cultural orientation that produced in the Southwest a mosaic of cultural forms unique in the Western Hemisphere.

This was the Southwest the Spanish found when they invaded it near the beginning of the sixteenth century and their influence initiated the shattering of many of these traditional ways of life. A few hundred years prior to the

arrival of the Spanish, however, there had been a much greater cultural catastrophe in the Southwest with major cultural changes, widespread population displacement, migration, and the abandonment of large sections of the area. Although the Europeans on horseback were influential, there were forces operating before the Spanish arrived that were infinitely more powerful.

For several reasons the Southwest is a superb place to study the long term growth of cultures: the climate provides excellent preservation of the prehistoric remains of culture, the Indians who still inhabit the Southwest today serve as a mirror to the interpretation of the archeological remains of their ancestors. In addition, a great deal of archeological exploration has been carried out in the area and, fortunately, all this work has been placed into a neat chronological framework provided by the Southwest's tree-ring dating method.

Geographic Background

In order to understand fully this development it will be necessary to discuss two items, the geography and the culture of the area prior to the introduction of agriculture. Far from being a homogeneous region, the Southwest is more a mosaic of mountains, canyons, mesas, and range-lined deserts. Perhaps the fact that it is bordered by quite distinct and well defined regions is more reason for setting it off than for any internal consistency it might possess (Fig. 11). On the east the Great Plains stretch from eastern New Mexico toward the Mississippi River in gently rolling grass-covered hills. To the north lies the dry, range-chopped Great Basin country. On the west are the California deserts which are barred from the ocean's moisture by the mountains further west. Only on the south does the Southwest lack a definite boundary. Here it gradually fades into the arid mountainous country of northern Mexico. Within this three-sided wall of geography, then, lies what the archeologists have traditionally defined as the Southwest, including "all the state of Arizona, all but the eastern third of New Mexico, the southwestern and far western margin of Colorado, the southern two-thirds of Utah, eastern and southern Nevada, and the states of Sonora and Chihuahua in northern Mexico" (Haury 1962:106).

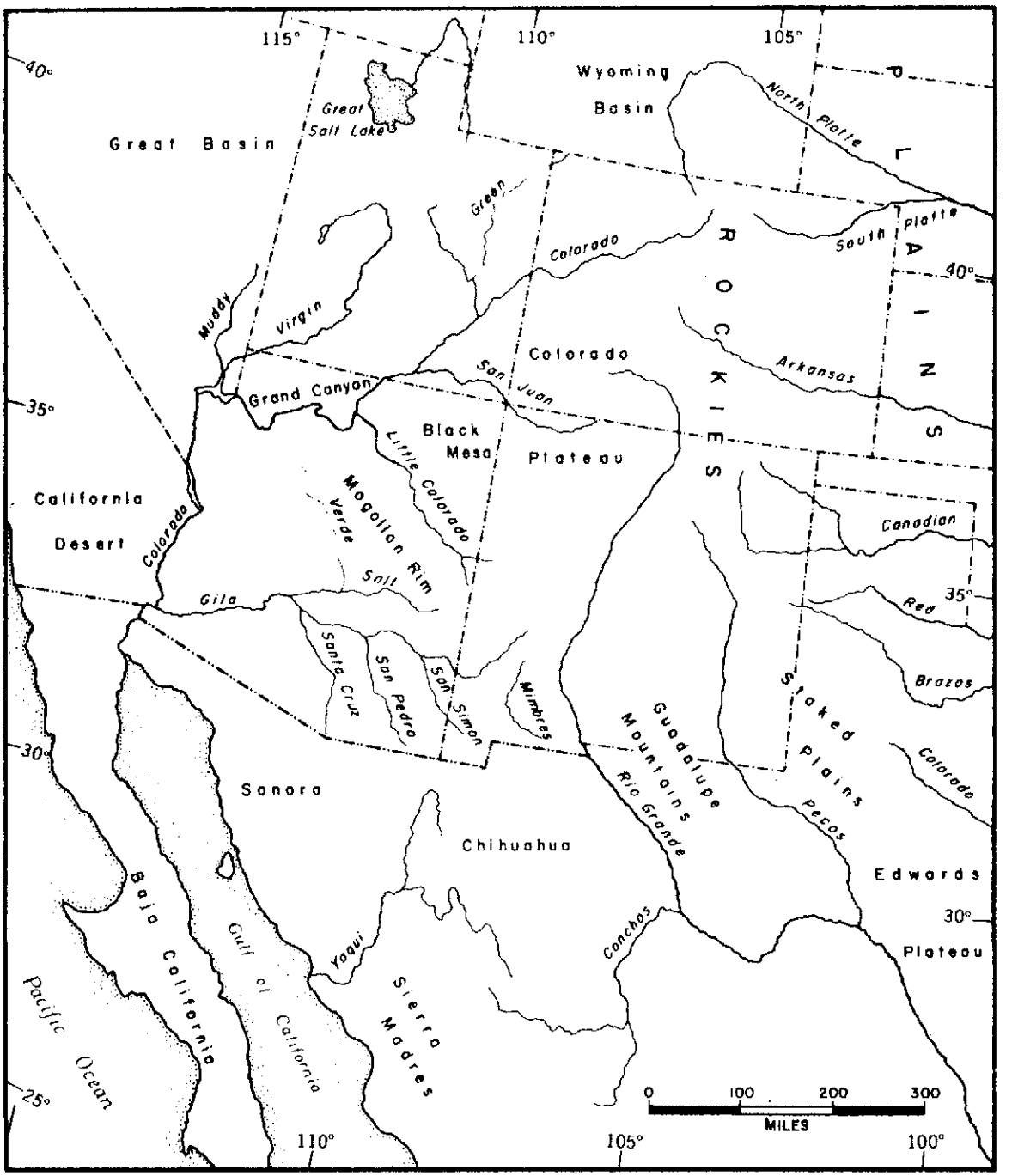


Figure 11. Index map for the Southwest culture area.

Climatically the Southwest is tied together by several features which are found over all its varied terrain. These features include a generally arid climate with sharp temperature changes during the day; a wide annual temperature range; two seasons of rainfall, one in winter and local intense thunderstorms in the summer; and rains separated by months of intense heat and drought. More important than these similarities over the whole area, however, are the environmental extremes with no smooth transition from one to the other. Throughout the area's prehistory, geography has played a major role in influencing the directions of culture growth and change, hence, it is important to look in some detail at the characteristics of these varied Southwestern environments.

The desert region lies in southeastern California, southern Arizona and southwestern New Mexico. Here, beginning at sea level, at the mouth of the Colorado River, and rising gradually to the northeast, are great stretches of dry land spotted with vegetation. This flat desert country is broken mainly by block fault mountains which rise sharply on the coast, with rock backs sloping gradually to the west. Between these intermittent northwest-southeast oriented ranges are broad sand and gravel filled valleys.

The lower Colorado and its tributary, the Gila River, are the major drainages of the region, carrying significant amounts of water, while many other smaller tributaries are dry for much of the year. Along the water courses cottonwoods are occasionally seen but the main plants of the region are saltbush, mesquite, and cactus. During the spring and fall nature presents a somewhat compassionate face with rain, greenery, and less intense heat. Nevertheless, life for the Indian in this environment must have been a constant battle with the dry wind and glaring sun during the long, hot summers.

Between the deserts to the south and the plateau to the north lie the mountains, forming a gnarled wall across the middle of Arizona and western New Mexico. Mountains also border much of the Rio Grande where the southern extension of the Rockies finger south, reaching toward the Sierra Madres in northern Mexico. This region o high local relief, narrow valleys, running streams, and well timbered slopes is

in direct contrast to the southern desert. The cool mountain days and cooler nights, the heavy snow cover in winter and sufficient rain in summer, plus the rich volcanic soil nourish some of the largest stands of yellow pine in the world (Fig. 4). At lower altitudes are found many other varieties of pine, fir, spruce and, still lower, pinyon and juniper. It was here that the important first scenes were played when the Southwestern Indian was developing the use of farming. In this land of varied resources man found a wide range of ecological niches to exploit and therefore did not have to immediately depend on the meager plants he first grew. Perhaps important for the later dispersal of these early ideas is the fact that these highlands give rise to the Little Colorado, Gila and Salt, along with many other rivers and streams which flow out in several directions over the Southwest (Fig. 11).

In sharp contrast to the undulating mountains, the plateau region, as its name implies, is a flat table of land with varying amounts of vegetation -- sage, pinyon, juniper and, depending on the elevation, pine and fir. It begins north of the mountains in Arizona and covers most of northern Arizona and southern Utah, spilling over to northwestern New Mexico and southwestern Colorado. The mighty Colorado River is the major tributary of the plateau, but since its level is so much lower than the land surrounding it, water usually poses a major problem in much of the region, even in its main local tributaries, the Little Colorado and San Juan rivers. Most of the stream beds, as in the desert to the south, are dry much of the year and only during the torrential rains of early spring do they fill rapidly. At this time, since the terrain is not protected by a sufficient cover of vegetation, a great deal of the valuable top soil is carried to the sea.

Climate Change

To travel over the Southwest today is to go from one topographic area to the other, highlands to lowlands, areas of large trees to spotty beds of cactus, flatland to rugged relief. Yet the one overriding trait is its arid nature. What if the Southwest had more rain, or the pattern of rain was enough to make it more usable to the plants and man? What kind of environment would result? There are good

indications that during the period when agriculture was developing there were important changes of this type in the climate.

Possibly for a thousand years before the beginnings of the Christian Era and an equal time following it, much of the region was less arid than it is today. The greater amount of moisture probably made the region more favorable for an agricultural population and it was during this very time that farming was introduced, accepted, and became a major factor in changing the life of the people. In the twelfth century A.D., following these years of favorable climate, a new period began, however. Drier, cooler conditions prevailed, with a decrease in vegetative cover, a deepening of the erosion channels and a lessening of farming possibilities. But this period seems to have lasted only for some 250 years, for around A.D. 1350 there was an increase once again in available water. This new change may have been the result of an increase in rainfall or a change in the seasonal distribution of rain, but at least better farming possibilities seem to have appeared. There was not a return to the climatic conditions of the earliest period, however, for an over-all long term increase in aridity overrode any new short term gain in moisture.

While this sequence is still hypothetical and while this may not have been the exact picture, there does seem to have been a definite alteration in the climatic pattern along the lines outlined (Schwartz 1957). In an area such as the Southwest where the inhabitants are closely tied to the land, such a changing pattern of aridity would surely have had an important effect on the growth and development of the prehistoric cultures of the region. The importance of this interrelationship will emerge later.

Archeological Background

The way of life of the nomadic Indians who roamed the rugged, varied environments of the Southwest before agriculture has been called the Desert Culture, fully described in the preceding section for the Far West (Jennings and Norbeck 1955). To understand something of its initial adaptation to these environments and the base it laid for the effects of agriculture to grow on is to provide

a background to the main events in Southwestern prehistory, hence, a few salient facts will be re-emphasized. The Southwest was used sparsely by the big game hunting Paleo-Indians, but the Desert Culture which stressed gathering and the hunting of small game was the dominant early occupation of the region. It first appeared probably earlier than 9000 B.C., although its roots and beginnings are still not clearly understood. The vegetable part of their diet -- grass seeds, pinyon nuts, walnuts, yucca fruits, mesquite beans, cactus, gooseberries, agave, and acorns -- was probably similar to that of the Utes and Paiutes who historically lived in the Great Basin.

Their bands of related families probably moved within a limited area, exploiting one gathering area after another and using each to its fullest. They could not depend on any one source of food but had to use as many as possible, undoubtedly including in their diet such things as insects, birds, and reptiles. Seeds were probably collected in baskets and ground with stone tools into flour to be cooked as mush or parched. Many foods were undoubtedly eaten raw or boiled in baskets with the aid of hot rocks, while small game was probably roasted over an open fire.

In addition to the stones for grinding seeds they used stone pestles for pounding, flint knives and chopping tools, and stone dart points for their throwing stick or atlatl.

For the cold nights, blankets were made by twining strips of rabbit fur. Sandals were woven for the feet and strong aprons and sashes were made from vegetable fibers or animal hides. During the warmer parts of the year the body was probably left uncovered. Occasionally they may have worn a bracelet of shell obtained from the Gulf of California. Within the caves and rock shelters that were used mainly for shelter they made nests of leaves and used matting of yucca for flooring.

The presence in several sites of possible prayer sticks, incised sticks, raw mineral paint, palettes on which the pigments were ground, crystals and animal figurines suggest religious rituals of various kinds although with strictly archeological techniques the nature of these cannot be known.

This way of life, adjusted as it was to a wide range of plant types, was able to withstand the changes in climate which occurred just after and following the Pleistocene, perhaps by shifting their emphasis from desirable to less-desirable and perhaps hardier plants. Haury has explained the relative stability of the Desert Culture in this way:

"Under the conditions of marginal subsistence, with some fluctuations in the degree of impoverishment, florescence was unlikely, if not impossible. As a consequence, we see a truly phenomenal situation of a near-static way of life from a remote 10,000 years ago to the ethnological present, a classic example of man's tenacity in a little-changing and harsh environment" (Haury 1962:112).

Not until the introduction of agriculture did this subsistence economy, which required maximum energy from a maximum number of people, have the means whereby radical change could begin. But with the coming of domesticated crops and the techniques for their encouragement and use, a new chapter in Southwestern prehistory began, a chapter whose pages would be filled with cultural change, diversity and climax undreamed of by the ancestoral people of the Desert Culture.

BACKGROUND TO VILLAGE LIFE

While the gatherers of the Desert Culture were still roaming the Southwest, hunting small game and searching for wild vegetation, people to the south in Mesoamerica were learning to control some of the plants around them. Present botanical evidence suggests that no economically significant plants were brought under domestication in the Southwest, but that the center of agricultural development was closer to the heart of the hemisphere. Some of our earliest archeological evidences of domesticated plants to date comes not from those areas which later gave rise to the high civilization of the New World, but from north Mexican Gulf Coast sites in Tamaulipas on the southeastern fringes of the Southwest. It is significant that early in this area, perhaps as early as 7000 B.C., there are evidences of experimentation in plant control. But it took nearly 4000 years for enough progress to be made so that some of these newly domesticated plants could move north into the Southwest (Dick 1954). It should be noted that this movement from the vicinity of Tamaulipas to the Southwest is a possible one but not a probable one as suggested in the Introduction.

After domesticated plants first appeared in the Southwest there was a long, painfully slow transition from a gathering to a farming way of life. About 500 B.C. several new plant varieties were introduced and added to the types which had slowly been selectively bred by the increasingly sophisticated farming Southwesterners. By now these farmers were primed and ready to accept more efficient cultigens and incorporate them into their already developing agricultural technology. With the addition of pottery for better storage and houses to protect the farmer, his family and an increasing number of possessions, a new southwestern Indian life was well underway. From this combination of new elements grew the great and distinctive later cultures of the southwestern mountains, desert and plateau.

Origins of Agriculture

Corn, squash and beans are the main actors in the beginnings of domestication in the Southwest. It was not until 2500 B.C. that there was evidence of the first domesticated corn. From Bat Cave on the southwestern edge of the San Augustine Plain in eastern New Mexico, Mangelsdorf and Smith (1949) described the earliest examples of domesticated corn. Here and at Tularosa and Cordova caves -- also in New Mexico (Martin et. al. 1952) -- in the garbage heap midden, the early cave inhabitants left corn cobs an inch long, a meager beginning for the giant-sized cobs which are now one of the major food producing staples of the world.

The earliest maize probably was a type adjusted to higher elevations and spread throughout the Southwest, first in the mountains (Mangelsdorf and Lister 1956). Because it was not generally useful until several changes had occurred, the wild form did not begin to have a notable effect on the people living in the desert to the west or on the plateau in the North until about A.D. 1. Perhaps around A.D. 400 additional strains diffused from the East adding impetus to corn productivity and thus to the life of the farmer that was beginning to depend on it. Only at this point, after some two and a half millennia of production and selection, did the Southwestern farmer begin to have a crop which could produce a spurt in cultural development.

A second important crop which laid a base for the development of advanced farming cultures in the Southwest was Cucurbita (pumpkins and squash). These plants, along with beans, may originally have been domesticated earlier than corn (Cutler and Whitaker 1961:469), but they certainly were never as important. Originally, as wild plants in central and northern Mexico, they spread north radiating into many varieties and fitting the rugged environments they met. The main species used by the Indians were pepo, mochata and mixta.

Linton (1941) hypothesized that the introduction of the bean (Phaseolus vulgaris) provided the protein necessary to explain an early major population increase in the prehistory of the northern Southwest. This was an attractive theory,

if for no other reason than for its simplicity. From the data available today, the bean seems to have been just one more of the important food plants which perhaps had to appear before the Southwestern Indians could fully develop their farming potential. It also came from the south, reaching the Southwest with squash around 1000 B.C.

The bottle gourd (Lageraria siceraria), a cultivated plant of secondary importance, was probably indigenous to tropical Africa and was carried to the coasts of the New World by ocean currents. It appears first in the Southwest in the Cordova and Tularosa Cave sites at about 300 B.C. and further north on the plateau by A.D. 300. At least by A.D. 900 it was probably in general use for both containers and food. This highly useful species probably spread over the Southwest as it did over most of the rest of the North American continent with the general advent of agriculture (Cutler and Whitaker 1961).

Other domesticated plants such as cotton, introduced somewhat later than the food plants, were to be of less importance to the southwestern economy. Because of the variety of environments to which the plants had to be adjusted it took 2000 years or more for a productive farming life to develop. But before a truly sedentary existence, taking advantage of all the possibilities of farming, could result, two other complexes had to be assimilated into the cultural inventory of the Desert Culture base -- pottery and houses.

The Beginnings of Pottery

The great advantage that pottery has for cooking and storage for many years supported the view that pottery and agriculture usually appeared simultaneously. Yet in the Southwest the picture is clear. There had been 2000 years of incipient agriculture before pottery was introduced and accepted. The earliest evidence of pottery is from Tularosa Cave, dating as late as 150 B.C. (Martin et. al. 1952:483). From Bat Cave the dating is A.D. 43 (Morris and Burgh 1954: 81). Although this first pottery appeared a great deal later than domesticated plants, it is important to note that they both appeared in the same area.

At a time when little was known of the intricacies of southwestern pottery Earl Morris (1927) proposed that it developed locally, but evidence would suggest now that the earliest pottery in the Southwest was not a primitive first attempt type. Instead, it is a well developed complex of traits, pointing to an outside origin. It is known from archeological excavation in Mexico that there was pottery in that region hundreds of years before it is first found in the Southwest. And even though specific likenesses are lacking between the pottery of the two areas, it is with this area that more similarities are found than with the eastern United States, another possible source of early pottery (Jennings 1956:78-86). A working hypothesis might propose that the first pottery came into the Southwest from Mexico. Since the earliest Southwest pottery is found in the same region as the early Mexican derived corn was found, two thousand years before, it is reasonable to assume that well established trade routes were in existence and that the first ideas about pottery came over these same trails.

As early as 1945 Haury suggested a common Mesoamerican parentage for the two earliest southwestern pottery traditions. Since the early pottery in these traditions exhibits many similarities this hypothesis would, on the surface, seem most reasonable. On the other hand, Wendorf (1953) has pointed to some important differences which would indicate a complexity of cultural origin and growth. Instead of one source, two centers of pottery origin in Mesoamerica may have influenced the Southwest, or a second center of influence elsewhere may be postulated. The eastern United States has been mentioned as such a center. Although later ceramic elements do seem to have appeared in the Southwest from this direction, it is held unlikely that it could account for the beginnings of a pottery tradition (Jennings 1956:81).

The Early Houses

Less is known about the early houses of the first settled southwestern farmers than about their pottery. They were probably similar to those found by Sayles and Antevs in southern Arizona in a Desert Culture context (1941:27). These are pit houses, with the walls of the pit forming part of the lower walls of the house, and a superstructure of

beams covered by brush and dirt (Fig. 12). An entrance through the sides was also probably normal and a subfloor storage pit the only noticeable feature. By about 500 B.C. this house type was probably in use both in the mountain area (Martin and Rinaldo 1950:450, Fig. 157) and in the desert to the west (Sayles 1945:1-4). As sedentary life spread so did the pit houses and by the beginnings of the Christian Era it was found generally over the Southwest. The great temporal depth of pit houses in Asia as well as the evidence of the diffusion of other traits from that area to the New World, including man himself, might prompt a look in that direction for the origin of the southwestern pit house. Unfortunately, many of the intermediate steps are missing and the final answer to this problem of origin is not yet at hand.

The first clustering of houses is another sign that the southwestern farmer was settling down in a serious way. Most striking is the fact that the oldest villages, Pine Lawn (Martin 1940, 1943; Martin et. al. 1947, 1949), the Bluff Site (Haury and Sayles 1947) in the mountains, Falls Creek on the plateau in southwestern Colorado (Morris and Burgh, 1954), and Snaketown (Gladwin et. al. 1937), were all probably built around the beginning of the Christian Era. This would strongly suggest that the process of settling down to a more intensive farming life took place at about the same time over the whole Southwest.

The Slow Transition to Agriculture

Agriculture began in both the Near Eastern section of the Old World and in the New World in highland areas. It is not surprising then that domestication appears to have entered the Southwest from Mexico, probably traveling up the Sierra Madre corridor into the mountainous areas of southern and central Arizona and New Mexico (Haury 1962:107). First, the gatherers of the region had to become fully acquainted with the many alterations in the culture which agriculture imposed. Only after it was established in these upland areas did it move to the adjacent less favorable regions.

The transition from gathering to farming was a painfully slow one (Fig. 13). The fact that two thousand years passed

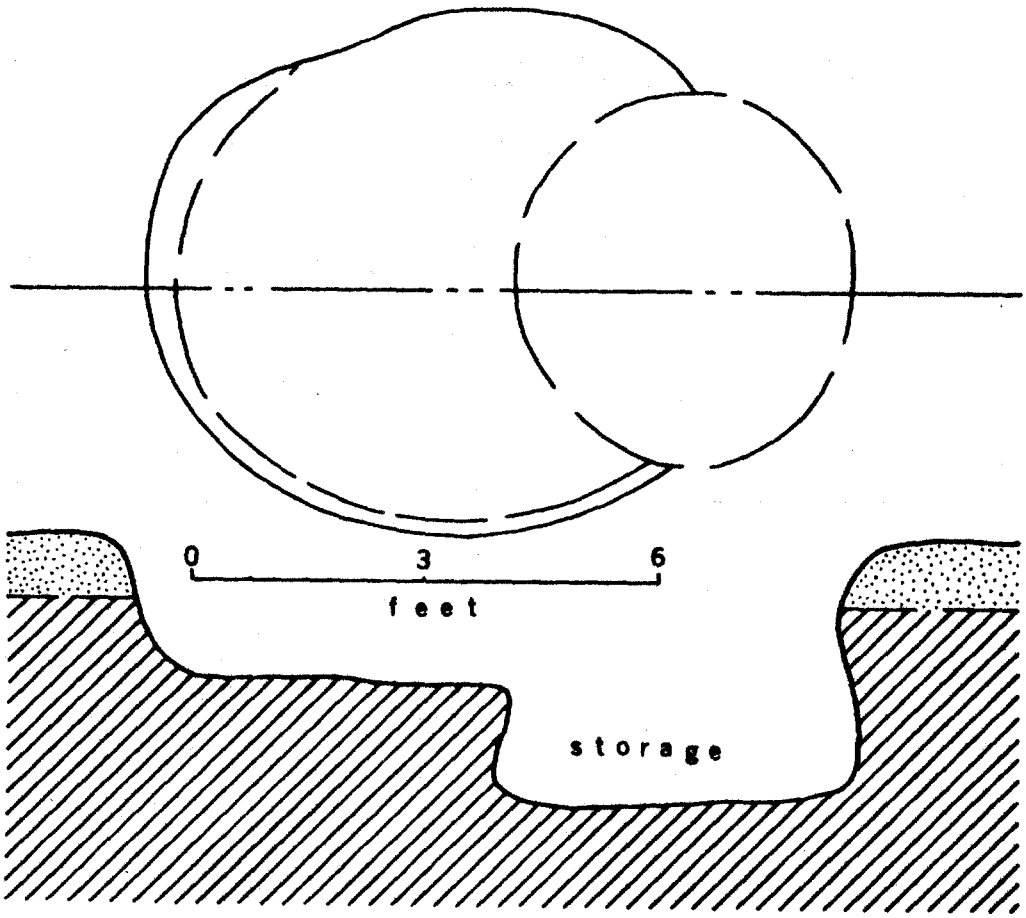


Figure 12. The Desert Culture pit house. Idealized cross section and plan of a typical semisubterranean pit house.

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between the first evidence of domesticated maize and the early villages would suggest that the transition had been completed and points dramatically to the complexity of adjustments which had to be made. The exact steps by which the changes from one way of life to another took place are not known. Hence, in order to postulate a hypothetical sequence of the transition, the available archeological and botanical data must be combined with information on the life of living simple farmers and gatherers. Adding this ethnographic meat to the archeological bones gives the necessary

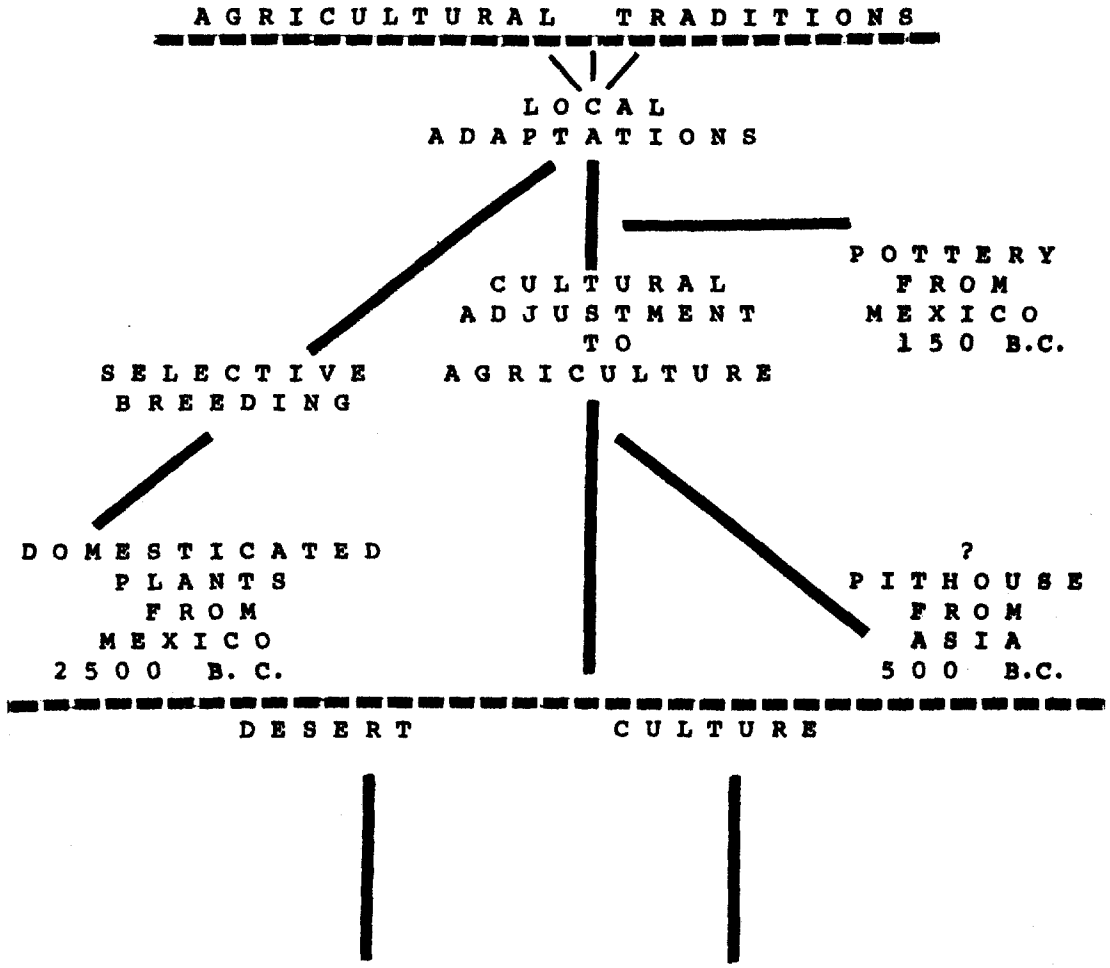

Figure 13. The modification of the Desert Culture.

inferences somewhat stronger foundation.

Two hypotheses have been proposed to account for the lag between the introduction of domestication and its full exploitation. Haury (1962:117-18) attributes it to the poor quality of the diet of the gatherers. He draws on two lines of evidence to support this hypothesis. First is the known evolutionary character of corn. Left alone corn appears to change slowly, but with the introduction of new races it develops "striking evolutionary spirits." This would imply that the early Southwesterners could have had corn for a long time and that it might not have been of much use to

them, but once new varieties were imported, the local corn might have changed rapidly, finally offering sufficient surplus to move ahead to village life. He suggests that not until new strains of corn were introduced which increased the yield of the individual maize cob were sufficient surpluses produced to provide for a full-scale, settled life. For the second support he cites the sudden appearance of these small villages in widespread regions over the Southwest shortly before the Christian Era. Almost at one time people in the three major regions -- the plateau, the mountains, and the desert -- developed villages. This is "a strong indication that the factor operating to stimulate the formation of village life cut freely across cultural boundaries." Maize and its related domesticates stand as the logical candidates for bringing this about.

A second hypothesis to account for the slowness of the transition to the farming life centers about the difficulties and complexities of changing a set pattern of life (Jennings 1956:76-78). Typically, gathering tribes are victims of extended periods of extreme hunger. During times such as these meager stores of the seed corn necessary for next year's planting would have provided a severe temptation. Probably in most cases it would have been consumed. To invest enough effort and seed corn to produce a surplus that would carry through a whole year must at first have seemed futile. If the seed corn did survive rats and the elements, it would certainly fall early victim to the hunger of relatives and friends or the thefts and raids of enemies. It seems unlikely that agriculture could be intensively practiced by any one farmer until a whole group or region moved uniformly toward a dependence on it. Jennings and his colleagues feel that the necessarily-slow build-up of agriculture to this level is the primary explanation for the long delay in fully utilizing an agricultural economy.

A combination of these two positions might suggest that the slow, almost futile surplus, which was seen as necessary by Jennings and his colleagues, might never have happened if the new races of maize had not been introduced to provide a storable yield. The rapid strides of botanical research should soon shed light on the presence or absence of new strains near the turn of the Christian Era, which might have

been the necessary element finally to provide surpluses and the change to full time farming. Whatever the future botanical findings are, one fact seems clear. It took over two millenia for the Indians of the Southwest to make the change from gathering to simple farming. Yet, after this transition was accomplished, the descendants of these same people in only half that time produced four quite unique cultures which radically changed the face of the Southwest landscape, with at least one of these reaching a major climax of cultural development in North American prehistory.

Developing Cultural Traditions

Out of the Desert Culture base, then, after the introduction of agriculture, four separate ways of life developed in the varied environments of the Southwest. These distinct regionally specialized agricultural ways of life developed because of the interworkings of at least four factors:

1. environmental differences
2. local variations in the Desert Culture
3. the differential spread, acceptance, and application of agriculture
4. the diffusion of other important cultural traits from the unique set of neighbors of each group.

It would be impossible to assign a relative importance to these factors--indeed, the influence of each changed depending on the stage of cultural development. But each in some way led to these most unique regional developments.

It is easy enough to see how environment affects a growing culture. During the earlier period, the density of population is related to the amount of game and variety of wild plants available to the hunter or gatherer. The raw materials present in the region have an influence on the types of tools and some of the techniques employed in their manufacture. The kind and variety of clothing varies according to the rigors of the climate and types of fibers and skins procured. The intricacies of the seasonal hunting and gathering pattern developed in relation to the growth of local food sources. Perhaps it was these environmental factors as much as any other which contributed to the

differences in the Desert Culture. Many of these same items also continued to be operative and condition the direction of change in the forming stage of the culture.

The probability that agriculture first came up the Sierra Madre flanks into the southcentral mountain region of Arizona has already been discussed, as has the fact that only after it became established in the highlands did it move on to the desert and plateau regions. What has yet to be examined is the fact that moving out of the favorable highland environment meant not only that new and more efficient varieties of plants had to be available, but also that the peoples living in the initially less-favorable desert and plateau regions had to work harder to get the same results. Perhaps it was this challenge or the habits of ingenuity which it fostered which prompted these desert and plateau cultures later to move ahead at a much more rapid pace.

It is an established principle of ethnology that every culture is composed of a series of individual traits, the greatest majority of which are borrowed from groups around it. The uniqueness of any culture, then, stems not so much from the traits of which it is composed but rather from the way these borrowed ideas are organized and utilized. There was no important deviation from this principle of cultural growth in the development of the regionally specialized southwestern cultures. Those in the South borrowed more from the groups in Mexico, those with borders to the Plains copied ideas from that area. On the west there were traits tied to California and those that were somewhat isolated changed the least. This pattern will be made especially clear with the discussion of the later periods when great changes were resulting from the mixture of one of the Southwest cultures with another.

Out of this regional specialization four distinct, strong patterns emerged (Fig. 14). In the mountains, the original dispersal center for agriculture, the Mogollon culture developed. For a thousand years, it developed along unique lines, only to be culturally overrun and finally to lose much of its distinctiveness. On the plateau country to the north the ancestors of the present Pueblo Indians, called

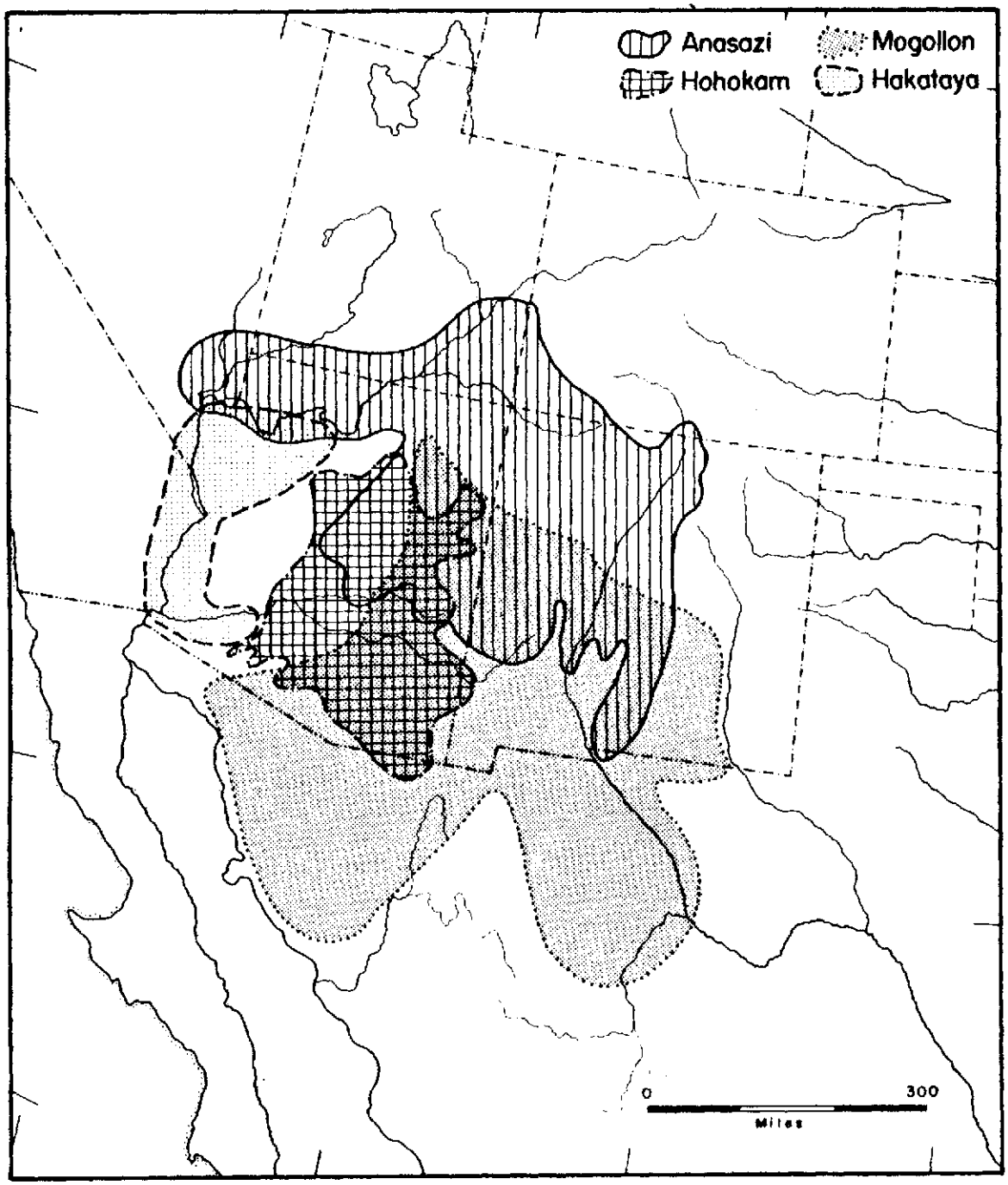

Figure 14. Culture areas of the Southwest.

by archeologists the Anasazi, developed an architectural style -- the pueblo -- and a ceremonial system that easily distinguished them from the others. Perhaps the most distinctive was the Hohokam culture which flourished in the southern desert. Remnants of the great canal system they built to water the arid waste that was their home are still present as a reminder of their earlier dominance. Along the lower section of the Colorado River the less well known Hakayata culture was learning to use the annual flood of the great river to best advantage. Their way of life seems to have been a curious mixture of agriculture and gathering, as if the rigors of their environment would never let them complete the transition.

Because of the distinctive remains left by the Anasazi, especially the apartment-like pueblo houses, this way of life is perhaps the most widely recognized of all prehistoric southwestern cultures. Their homeland was basically the "four-corners" country of northeastern Arizona, northwestern New Mexico, southeastern Utah, and southwestern Colorado (Fig. 14). Remnants of this once widespread culture are still found in the Hopi of northeastern Arizona, the Zuni of westcentral New Mexico, and the Rio Grande Pueblo Indians. The Anasazi farmers grew their corn, beans, and squash on dry plateau fields, depending largely on the seasonal rains for agricultural success. Although they did practice some terracing and a minor amount of irrigation, this was not the main pattern. Two kinds of pottery were made by the Anasazi, a black-on-white ware and a typically corrugated culinary ware. Painted designs were usually geometric until outside influence greatly changed some of their art styles. One of the most spectacular of the Anasazi arts was their painted murals on the walls of the ceremonial kivas. Many of the Hopi still live today on the mesa tops, perhaps not realizing that this settlement pattern relates back to a time period in the history of their culture which was oriented toward survival. During this defensive period the Anasazi were forced to give up most of their northern territory. The exact nature of the forces which acted upon them is still one of the big unsolved problems of southwestern archeology and will be considered in some detail in later sections.

The Mogollon mountains provided the name for another of

the major cultural traditions in the ancient Southwest. For much of their history houses were built in pits covered with flat or low pitched roofs and with distinctive long sloping entrances. Their polished brown and red slipped pottery also set them off from the Anasazi, as did certain differences in their ceremonial structures, artificial cranial deformation of the vertical-occipital style, and the use of the three-quarter grooved axe. The separation of the Mogollon culture from the Anasazi proved to be one of the most controversial subjects in southwestern archeology for a number of years. Subsequent excavations have demonstrated that this culture developed directly out of the preceramic Cochise variety of the Desert Culture and its validity as a separate tradition has now been accepted by most.

In the deserts bordering the lower Gila River lived the Hohokam, the prehistoric southwestern people with perhaps the most continuous contact with Mexico (Fig. 14). In regions around what are now Phoenix and Tucson they developed a culture with an amazing adaptation to their quite specialized environment. The Hohokam lived in pit houses with roofs made of brush and mud. These dwellings were scattered over the country side, with little indication of major town concentrations. The most important elements in their life were the great irrigation ditches which brought life giving water to the fields and supported their growing crops. Their ceramic trademark was a micaceous red pottery with designs painted in buff. Ball courts in which a kind of ceremonial basketball was played were also an important part of Hohokam culture. There is no doubt that the Hohokam culture is a unique configuration. Even the treatment of the dead was quite distinct, the body being cremated and the ashes buried with pottery and other funerary offerings. The great change in Hohokam life, which began about A.D. 1300 and took from them much of their earlier glory, is a part of southwestern culture history which deserves special consideration.

The least studied of southwestern prehistoric populations is the Hakataya, the group that was situated along both sides of the lower Colorado River (Fig. 14). Historically the Yuman tribes resided in this area. These prehistoric people depended primarily on hunting and gathering but in certain favorable locales made use of streams for

floodwater farming or of moist areas near springs for crops. Brown pottery, finished by the paddle and anvil technique, scattered individual perishable surface houses, roasting pits, trail shrines, gravel alignments, and cremation of the dead were common to almost all groups within this entire region. Here, then, is a pattern much different from the others.

Summary of the Regional Specialization

Between 5000 B.C. and 500 B.C. the Desert Culture spread widely over the contrasting environments of the Southwest. Although there were slight differences in this culture as it developed, the basic similarities were most pervasive. But by 500 B.C. several factors began operating to differentiate southwestern culture. The variations which already existed were partly a response to the distinct environments of the region, which in turn affected the differential spread of agriculture. The degree of conservatism in the resident cultures was also an important factor in the rate of spread of domesticated plants. As the material differences between the regional cultures began to grow, so too nonmaterial values, orientations, and behaviors developed separately: one group stressing the religious, one the social, and another, perhaps, the political; one emphasizing this life, another life after death. So, between 500 B.C. and A.D. 100 separate lines of development led to the main cultural stocks of the Southwest -- Anasazi, Mogollon, Hohokam, and Hakataya -- each in its own environment, following a separate path, and living in a cultural world of its own (Fig. 15).

This distinctiveness was to be only temporary, however. Through migration, diffusion and, perhaps, conflict, mixture took place, slowly at first, then rapidly. First the Hohokam moved north to country bordering that of the Anasazi, but this was a short-lived inroad for they soon beat a rather rapid retreat. This retreat correlates with the abandonment by the Anasazi of much of their northern territory and a subsequent move on their part south into the homelands of both the Hohokam and the Mogollon. The Mogollon were the most stationary throughout most of the period of unrest but near the end they too, with their infusion of northern traits brought to them by Anasazi, moved north onto the plateau.

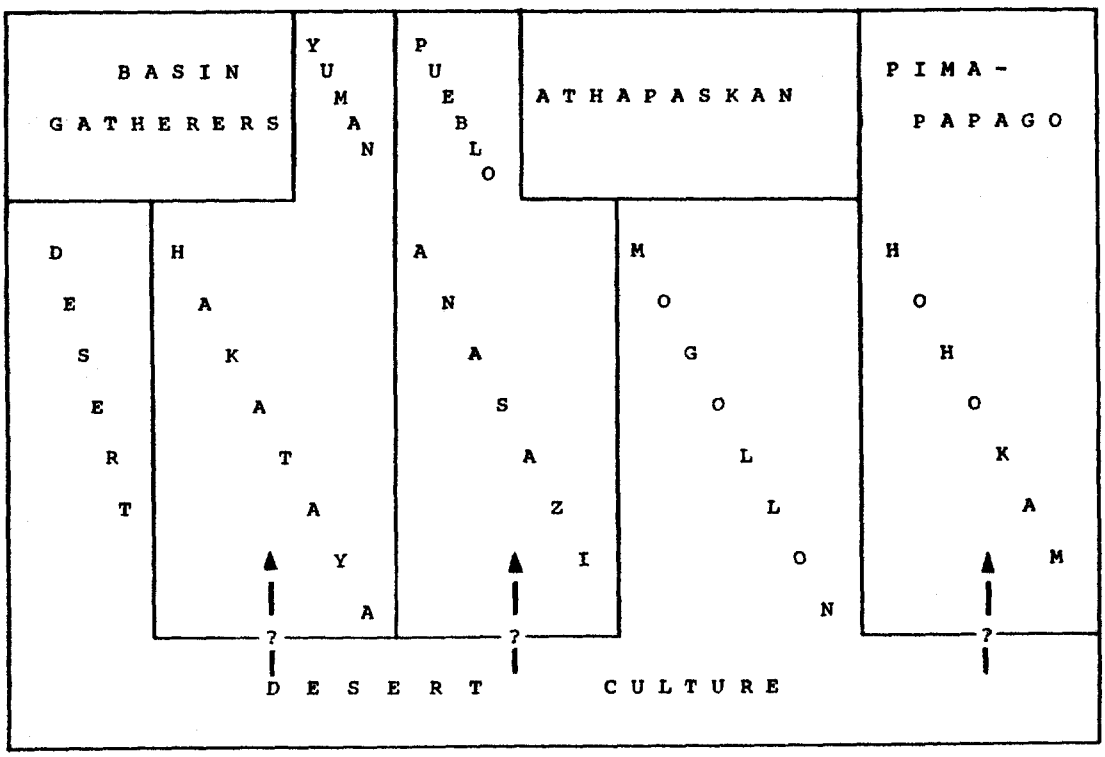

Figure 15. A dynamic representation of Southwest cultural relationships.

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By A. D. 1400 the Anasazi had left much of their original northern territory, and the Mogollon were completely gone from the mountains. Furthermore, the Anasazi intruders had left the desert and the Hobokam themselves had either deserted their homeland or changed to such an extent that it is difficult for the archeologist to recognize them. Perhaps only along the lower Colorado River was the population left relatively unchanged.

Basketmaker Beginnings

Prior to the development of the Anasazi, settled, farming way of life in the plateau country, it would seem reasonable to expect an earlier culture, one oriented around a nomadic existence, the collection of wild plants and the hunting of wild game. In short, some form of the Desert Culture which has been described earlier as occurring in the mountains and deserts to the south and in the Great Basin to the north. There is little evidence for the earlier culture, but near the beginning of the Christian Era several new ideas reached this arid but varied plateau country. These included the use of domesticated plants, the construction of houses, and later, of pottery. They either arrived in the minds of new migrants to the area or diffused in from the outside to change radically the life of the small groups who may have been scattered over the countryside.

The new culture, which grew out of this movement of ideas from the mountains to the south, began a long chain of events which were to affect not only the plateau, but the whole Southwest. The early part of the Anasazi cultural sequence has been called Basketmaker, for many of the early sites were dry rock shelters where fragments of baskets as well as other perishable material such as textiles, dehydrated human bodies, and the remains of food had been preserved from the decaying forces of the outside world. Putting together the clues from these and other sites, the archeologists have been able to reconstruct fairly completely the first known cultural period in the life of these people called Anasazi.

The drainage of the San Juan River was probably the center of early Anasazi life. During this first period (Fig. 16), which began in the early centuries of the Christian Era and lasted until about A.D. 400, it probably did not spread much beyond the four-corners country. These early Anasazi were at best rudimentary farmers, growing at least corn and squash. Their main farming tool was the digging stick,

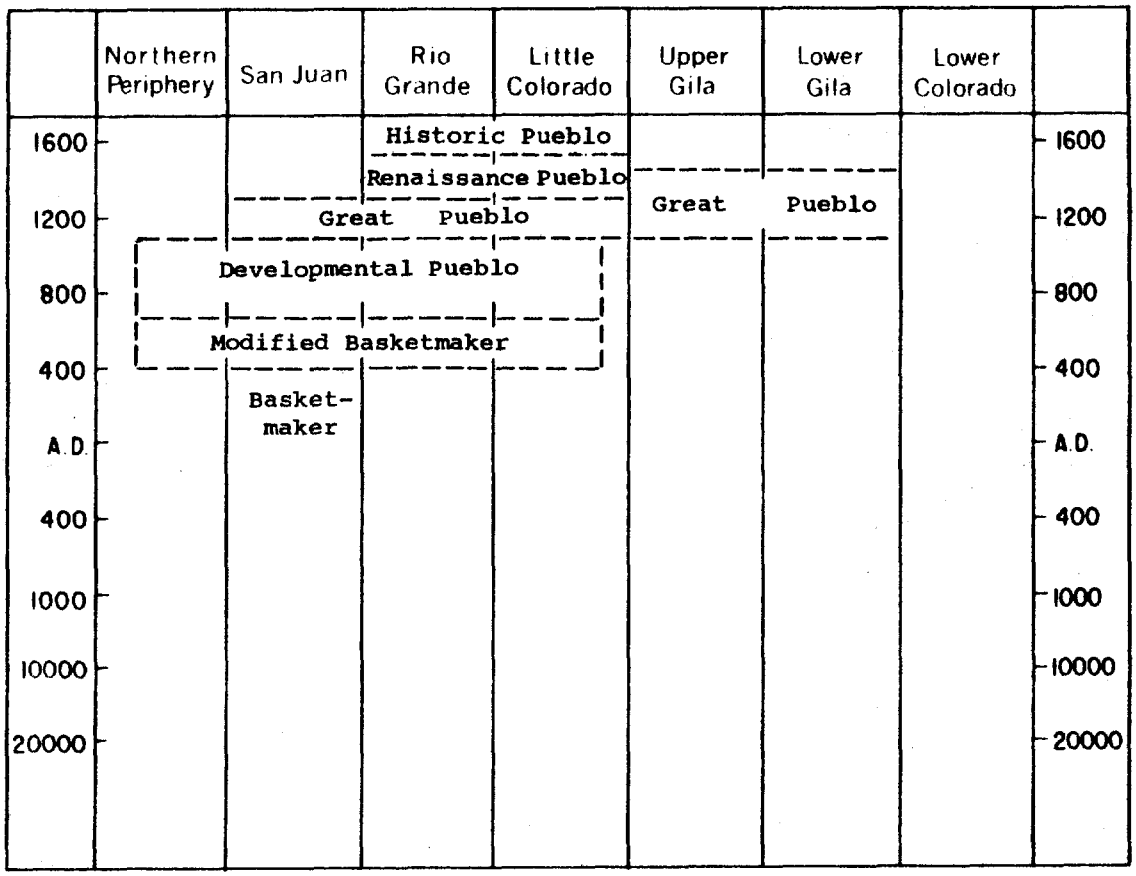

Figure 16. Anasazi time and space relationships.

rounded at one end and pointed at the other. It served not only to make holes into which the seeds could be dropped and perhaps a tool to discourage some of the encroaching weeds, but it was also used generally in the search for wild food to supplement the meager fare of the early farmer. At this time they must have collected a wide variety of plants. In addition, with the help of their throwing sticks, curved wooden clubs, spears, spear throwers, nets and snares, they hunted mice, badger, rabbits, birds, deer, mountain sheep, and mountain lion.

Much of this food may have been eaten raw. However, they did have flat grinding stones on which to prepare corn and wild seeds which they formed into cakes to be baked on hot rocks. Other goods were roasted and some boiled in baskets, using heated stones. Surplus food was stored in

rock or grass lined cists, which were covered with sandstone slabs or with elaborate roofs of wood and adobe plaster (Fig. 17). Skin bags and dried, hollowed squash were also used to store seeds and other small items.

Baskets, however, were the excellent containers which gave this early period its name. Using a coiling technique they made a variety of types including shallow trays, bowl forms, large carrying and burden types, and water baskets covered with pitch. A twining technique was also used to produce bags and items where flexibility was desirable. Perhaps there was a need for both a variety of forms and a high quality of workmanship, since no pottery was made during this early period.

Most of the early Anasazi probably lived in natural shelters such as rock overhangs, although evidence has been found that they made, as the base for houses, saucer-shaped depressions scooped out of loose rock or earth (Fig. 17). Horizontal logs were used to form the upper wall, while a cribbed roof provided the covering. In addition, slab-lined storage pits, usually covered with a mud dome, were sunk into the floor (Morris and Burgh 1954).

Clothing might be expected as protection from the cold plateau winters but there is little evidence for it. Woven G strings and aprons have been found along with fur-strip blankets and tanned deerskin robes. Excellent sandals of yucca and a milkweed-like plant -- Apocynum -- protected their feet from the rocky ground. For decoration they made bone points combined to form combs, topped with feathers, as well as necklaces from a variety of beads, and pendants of numerous kinds.

Much of what is known about Basketmaker culture comes from material which accompanies the tightly flexed bodies of their dead. Frequently these were found in crevices in the rock shelters where they made their homes. These bodies, which are often dehydrated and appear to be mummified, were usually wrapped in a fur blanket with the face covered by a large basket. With the body are a whole range of other objects including beads, sandals, digging sticks and other items suggesting an interest in an afterlife.

Here, then, was a culture just emerging into the farming stage. As yet it lacked many of the characteristics which might be expected for settled agriculturelists. However, beginning between A.D. 400 and 500, these characteristics were to be increasingly apparent. During what has been called the Modified Basketmaker period (Fig. 16) the beginnings of a definite settled life and the establishment of regular communities are clearly visible. The San Juan drainage in the four-corners country was still the center of early Anasazi life, but this new way of life was spreading both southward and westward.

New varieties of corn had reached the Anasazi area by this time, providing more return from a planted kernel, and beans were also in evidence for the first time. Linton (1940) has hypothesized that beans added sorely needed protein to the Anasazi diet. Perhaps more important is Wormington's observation (1956:55) that, while corn requires relatively little care, beans must have almost constant attention. This would imply less moving around and the

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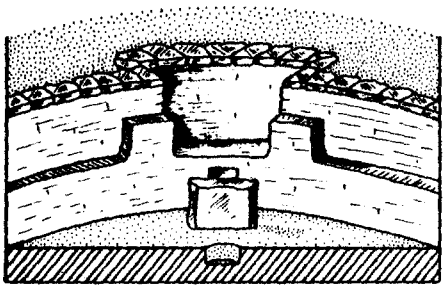
Figure 17. Idealized sequence of Anasazi architectural development. A, Basketmaker stone-lined, storage cist; B, Basketmaker shelter (windbreak); C, Modified Basketmaker house reconstructions, with entranceway at left, then a passage, an upright slab deflector, a central fire pit, and a sipapu -- the pit house was slab lined, and earth and plaster covered, the main room was about 15 feet square; D, early Developmental Pueblo contiguous room structure, with central fire pits, and in one corner, an entranceway to an underground kiva; E, restoration of room construction in D, showing plastered interior and earth-covered exterior; F, kiva features in Developmental Pueblo in cut-away view with Katchina niche in rear, ventilator shaft below with deflector and the fireplace in foreground; G, Pueblo Bonito ground plan. A, B, and G, after McGregor, Southwestern Archaeology; C, from Roberts, Shabik'eschee Village; D and E, after Roberts, Early Pueblo Ruins; F, after Wormington, Prehistoric Indians of the Southwest.



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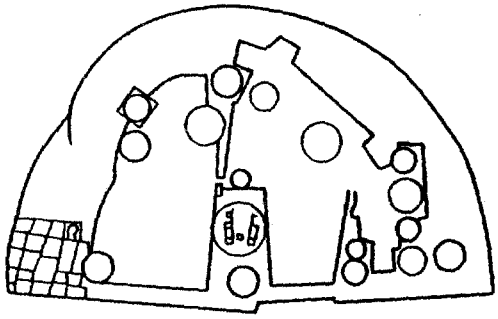

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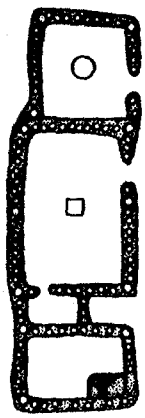

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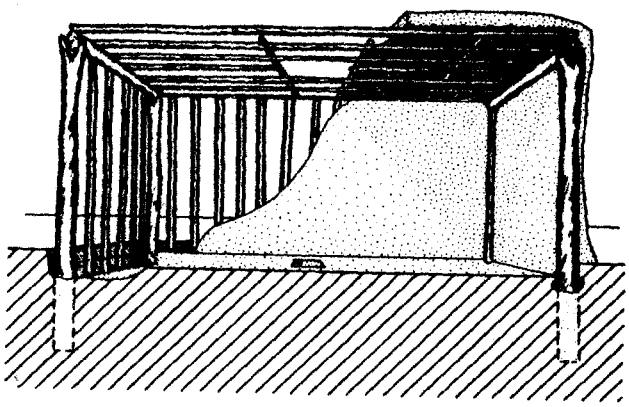

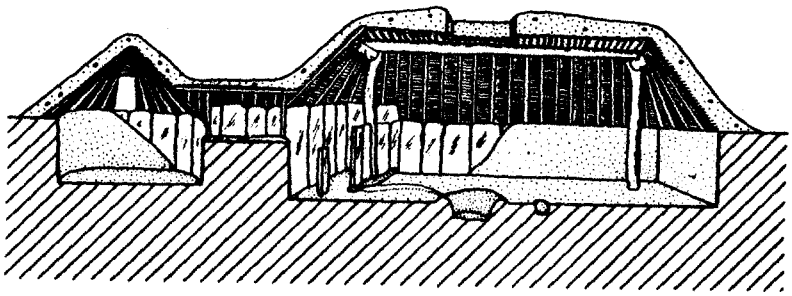

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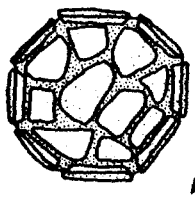

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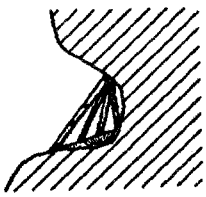

B

settled type of existence necessary to care for such plants.

The houses and villages of this period give the best view of the changes which were taking place. For the first time there is abundant evidence of clusterings of dwellings with these villages ranging from a few to as many as a hundred houses. Since these are the first well-made houses in the area, they require special attention. The main feature was a pit, excavated to a depth of from three to five feet and from nine to twenty-feet in diameter (Fig. 17). Although the early pit houses were circular, they gradually changed through oval to rectangular. The floor and walls of the pit were lined with hardened clay or paved with stone slabs. Around the edge of the pit was a bench and in the floor were several storage pits. Over the pit was constructed a conical or truncated superstructure made of a platform of horizontal timbers supported by four poles. Small timbers were set into the ground and leaned against the platform to form the upper wall. The entire superstructure was then covered with mats or brush, topped by a layer of adobe and earth. The pit house was at first entered through a passage-way from ground level, but later an entry in the ceiling was provided and the lateral entry was made smaller and changed in function to provide a vent for the circulation of fresh air. Generally a low ridge or wall divided the floor, usually separating the southern or eastern portion of the pit house from the rest of the structure. Frequently grinding tools such as manos and metates have been found in this section suggesting that it may have served as the work area, while the remainder of the house served more sacred functions. The presence of the sipapu in this latter section is one reason for that assumption. This small hole in the floor, near the fire place, is still present in Pueblo structures. To the Indian it represents the entryway through which the ancestors of the Pueblos entered the earth from the world below.

A second important development during this period was the manufacture of pottery. It was made by the traditional coil method, but finished by scraping the coils smooth. After smoothing, it was fired in a reducing atmosphere, which entails the exclusion of excess oxygen from the pot at the time of baking, thus producing a white or gray colored

product. Crude black designs were sometimes painted on these pots, but for the most part they were left plain. In the Alkali Ridge area a complementary ceramic tradition also appeared in the form of a red pottery made by using an oxidizing firing atmosphere. Since this technique was found in the Mogollon country to the south, it has been assumed that its presence indicates a southern source for the idea. Black paint was applied to the red base and this black-on-red pottery became an important element in the ceramics of the Anasazi.

Also made of clay were a variety of human figurines and nipple shaped objects (Fig. 18). Usually these were unfired and decorated with punctations. These have been interpreted as ceremonial objects, but this is always a possibility when evidence is lacking.

Much of the material culture remained similar to the earlier period, except that there seemed to be a marked improvement in quality, which might be expected with a greater surplus. Some baskets were now decorated with painted designs and several improvements were made on the sandals. Feather cord, which appeared earlier, now became more common. Later in the period the bow and arrow began to replace the atlatl as the principal weapon.

Depending on which area is used as a marker, the Basketmaker period of Anasazi culture ended in the eighth or ninth century. Considering the fact that culture change is not uniform, and since the periods themselves are artificial constructs of the archeologists, it is not possible to put an exact end date on it. But by A.D. 700 an intensification of Anasazi culture had begun, with major changes in several new directions. These were building on a semi-nomadic way of life that began near the beginning of the Christian Era and rapidly grew to a settled farming existence with well-made houses grouped in planned villages. The Basketmakers provided the beginnings for Anasazi culture and the life style they set was to be carried far in the centuries to follow.

Pueblos Progress

Following a period of cultural childhood that gave the Anasazi time to practice the art of settled living, they undertook in earnest the job of intensifying their culture. Beginning in some areas as early as A.D. 700 and lasting generally to about A.D. 1100 is a period in their cultural history that has been called the Developmental Pueblo. At this time settled life of a Pueblo type spread over a large area from western Arizona to east of the Rio Grande, south to the upper Gila basin, and north into eastcentral Utah. But it was also an era of experimentation and heterogeneity in crafts, technology, and architecture.

Farming, the mainstay of the economy, continued to improve in technique and plant quality. Cotton (Gossypium hirsutum) was the only new plant which came into use during this time. It was first domesticated in Peru prior to 1000 B.C. From here it apparently diffused up the west coast of Mexico to reach the Southwest. Cotton, however, did not add to the food supply of the Anasazi, but rather to the growing list of luxuries. This new introduction well illustrates the direction the culture was taking. By this time essentials could be provided without undue difficulty and it was possible to spend greater amounts of time and effort on cultural frills. For example the dog, a domestic animal which went back to Desert Culture times, was joined by the turkey, probably used for its feathers, as a burial offering and perhaps for food.

Improvements in technology are in evidence with the now almost exclusive use of the bow and arrow for hunting. Deer, rabbit, bear, elk, mountain sheep, and wolf supplemented the

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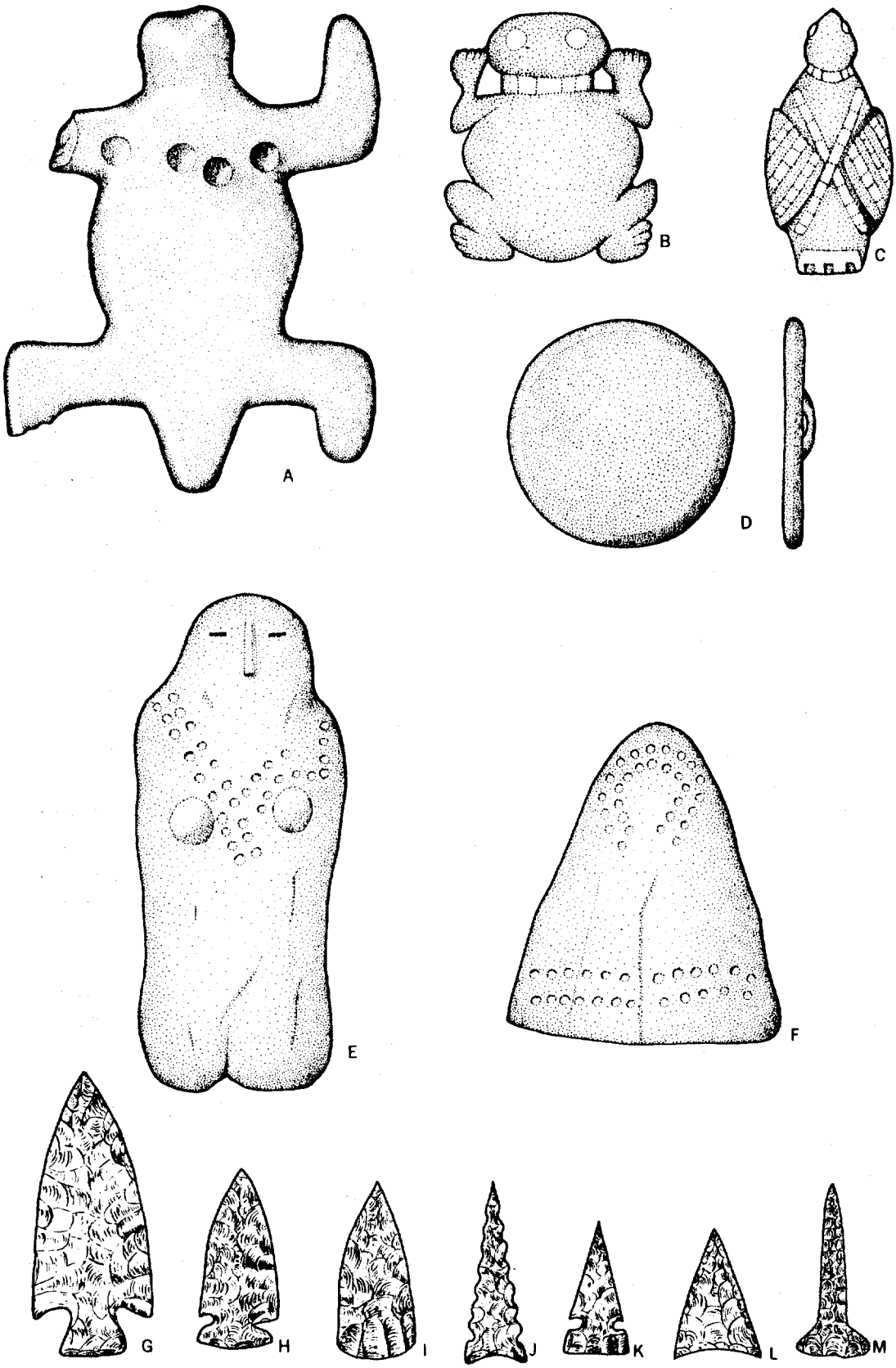
Figure 18. Characteristic Anasazi artifacts. A-C, stone ornaments with turquoise inlay, Pueblo Bonito; D, lignite button, Tsegi; E and F, dried clay figurines, Modified Basketmaker sites; G-I, Basketmaker projectile points or knives; J and K, Pueblo II and III, Flagstaff area; L, Peublo III, drill point. After McGregor 1941.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plant foods.

Perhaps the most dramatic development during the period was in architecture, for at this time a diverse and interesting degree of experimentation is evident (Fig. 17). Standard patterns of architecture were simply not the norm during the Developmental Pueblo period. Ideas from one group were borrowed and adopted by neighbors and then transmitted to others farther removed. It is not often that two sites exhibit identical patterns. Although ideas seem to have spread like wavelets on a pond, they were constantly being altered. It was during this period that the well-known pueblo began its above-ground evolution. The pit houses which characterized the earlier Basketmaker periods began to give way to surface structures. The sequence of events and changes which brought this about is far from simple, however. Brew (1946:203-226) has aptly described the lack of clear cut pattern in this sequence. The stages from pit houses and granaries to above-ground houses and below-ground ceremonial chambers, as described by Roberts (1939), can at least still serve as an ideal model.

At the beginning of Developmental Pueblo times, pit houses were still the usual type of dwelling. Added to these were above-ground granaries with a superstructure of pole and plaster. These jacal walls, as they were called, were at first made to slope inward, but later became perpendicular. Eventually stone was used in the construction of the walls, initially just as the base, but later walls were made exclusively of stone. At this point the Anasazi were constructing single room stone houses.

While the above-ground rooms were gradually being built of stone, a concomitant trend was affecting their placement in the village pattern. First, the outside walls were aligned, and, eventually, they were attached in a long continuous row of two, four, or six rooms. In this way a single wall served as a partition between rooms, thus cutting the time, material and labor in construction. As the structures became larger -- and it is now proper to apply the term "pueblo" to them -- the function changed from storage to living. However, in some areas there was still a rear storage area, separated from the living section in

front by a partition. These new domicile units manifest a significant step from pit house occupation and suggest a significant alteration in living pattern. These rows of connected rooms have been called unit houses and were made either in crescent, L, or U shapes.

In front of these unit houses was a pit structure, the kiva, which had most of the features of the old pit house, but with a changed function. Before the development of the formalized ceremonial kiva, the Anasazi undoubtedly held most ceremonies in their pit house. The small villages probably were made up of a few related families, and it would have been a simple matter for the elders to congregate periodically in one pit house to carry out their ceremonial needs. Eventually, however, the people in the San Juan area set aside a specific structure, the kiva, for their rituals. As the above-ground living unit became more popular, this one pit structure with the function most distinguishable from everyday living continued in use. So, from the semi-subterranean pit structure and its above-ground granaries may have developed the unit-type dwelling of several connected rooms and their associated subterranean ceremonial structure.

The first step which led rather directly in the direction of the great pueblo was the unit structure. An understanding of the shift from unconnected single room houses to long rows of connected rooms is the key to the beginnings of the whole unique pattern of Pueblo settlement. Haury (1956:5-60), working from the analysis of Western Pueblo social organization made by Eggan (1950), notes that the contemporary primary local organization is the extended family and that the members occupy a series of adjoining rooms which are used in common. "Since the household, determined by kinship and marriage, is an economic unit and group welfare is dependent upon cooperative effort, living in close geographic proximity had its practical advantages. In basic plan contiguous rooms could be added to accomodate new families as needed. So the requirements of the social structure to maintain cohesion along lineages or segments of them and for expansion are met architecturally by the agglutinated dwellings" (Haury 1956:6). This analysis is then extended back into Pueblo history, reasoning that, if

this is the function of the Pueblo architecture now that it could also have been the guiding principle which directed the earlier change. The pattern, then, was from disconnected to contiguous units which in turn with expansion, later gave rise to the large pueblo.

Physically, the pueblo is an interesting adjustment to a special environment. Whatever the social reasons behind the grouping of rooms into a contiguous arrangement, the construction of the unit itself bowed to the physical, not the social, surroundings. In this area of great daily temperature change -- hot during the day and cold at night -- a shelter is required that stays cool during the day and retains the day's heat at night. Both clay and stone are high heat-capacity materials, being able to absorb solar radiation during the day and slowly give it off at night. It would seem reasonable, then, that at least two factors, one cultural, the other environmental, directed to some extent the type of architecture characteristic of the later Pueblo Indians.

During the early part of the period, judging from the number of houses in a settlement, the population of each village was relatively great. However, these large population concentrations did not survive to the later part of the period. Instead, the large communities broke down and the people scattered into small pueblos of a few rooms lined up behind a kiva, duplicating the pattern of each individual unit in the large, earlier sites. This apparent reversal in village growth in the San Juan drainage may have been brought about by the general acceptance of the idea of erecting a few ceremonial centers with big kivas for the major inter-village ceremonial activities, and relying upon the small kiva for extended family rituals. However, the hint of a change in the precipitation pattern of this time, possibly due to a slight average increase in temperature, probably was a more potent factor leading to the fragmentation of the Anasazi villages. A slight decrease in precipitation or an increase in arroyo cutting due to a decrease in vegetation cover, in a region of marginal agricultural possibilities would tend to cause people, particularly in a large village, to separate and seek more favorable locales for their farmlands, which might more easily guarantee sufficient support

for a small group.

Although architecture during the Developmental Pueblo period is the most spectacular part of their culture and has received the greatest share of attention here, the well-made pottery should not be neglected. Several factors point to improvement of the ceramics from the previous period: finer paste, the use of slip, a wider variety of decoration and form, and a greater difference between cooking and finer wares.

The most characteristic feature of the culinary ware was the presence of corrugations (Fig. 19). These were simply the coils from the first stage in pot construction, which had not been completely smoothed on the outside, leaving the appearance of a series of ridges. This expanded an earlier pattern in which only the neck coils were left unsmoothed. Specialization in pottery painting also began at this time, foreshadowing the high degree of regionalization in many parts of culture that was to develop in the next period. To the west, in what is called the Kayenta area (Fig. 21), carbon paint was applied to the pots while, in the east, beginning around Chaco Canyon in New Mexico, there was the use of mineral paint. These were small differences but they were added to many others that gave rise to definite subculture areas in the following period (Fig. 20).

These regional subcultures were to develop within the nuclear area later, but during the Developmental Pueblo period cultural differences were apparent outside the center of Anasazi development. In the so-called northern periphery, north and northwest of the Colorado River, for example, the pit house continued long after it had been replaced by surface masonry structures in the San Juan area. Slab cists of the Basketmaker type also continued and in some cases the side passage was retained and not reduced in size to the sole function of ventilator (Fig. 17). In this northern area sandals and cotton cloth were not produced and the turkey was not domesticated.

Similar conservatism, mixed with traits from outlying areas is found on the northeastern periphery of the Anasazi territory. In the Governador drainage in northcentral New

Mexico, between A.D. 700 and 900 large pit houses were made along with above-ground granaries. This cultural configuration, called the Rosa Phase (Hall 1944), is further characterized by stockades made of posts interlaced with brush. This material has frequently been referred to as evidence of the early entrance of Navajo in the Southwest (Rouse 1962a:43), but in light of some recent linguistic analysis, it would appear that the date for the Rosa material is too early to be definitely Navajo (Vogt 1961:285-6).

The Rio Grande drainage (Fig. 21) is another area that, during the early part of Anasazi development, was peripheral to the main stream of cultural growth. However, during this period there was a major expansion of Anasazi culture into the Rio Grande. Only a small number of Basketmaker and early Pueblo sites have been recorded on the Rio Grande, in spite of a considerable amount of archeological work there. The sites found would suggest the presence of only small family groups during this time. By the later part of the Developmental period, however, there were small pueblos with one kiva, as in the core area to the west. The pueblo rooms were constructed of layers of adobe clay on stone foundations. Kivas with earthen walls had few features and lacked benches, pilasters, and recesses which are more frequently seen in the west (Wendorf and Reed 1955:141). Over-all corrugated and a locally made black-on-white pottery with mineral paint decoration appear for the first time.

Three major trends were apparent in the Developmental Pueblo period: 1) greater luxury, experimentation, and cultural diversity, 2) a settlement pattern based on more compact settlements, and 3) regional ceremonial centers. By the beginning of the period the Anasazi had solved many of their economic problems. On this they placed the frills

. . . . . .

Figure 19. Generalized evolution of Anasazi pottery. A, Mesa Verde, B-on-W, 13th C.; B, Rio Grande, Biscuit ware, 16th C.; C, Mesa Verde, B-on-W, 12th C.; D, Chaco Canyon, B-on-W, 12th C.; E & F, Wingate Ruin, 10th C.; G, Red Mesa, 9th C.; H & I, White Mound, 8th C. A, C-I, after Gladwin, A History of the Ancient Southwest; B, after Wormington, Prehistoric Indians of the Southwest.


A
B
C
D
E
F
G
H
I

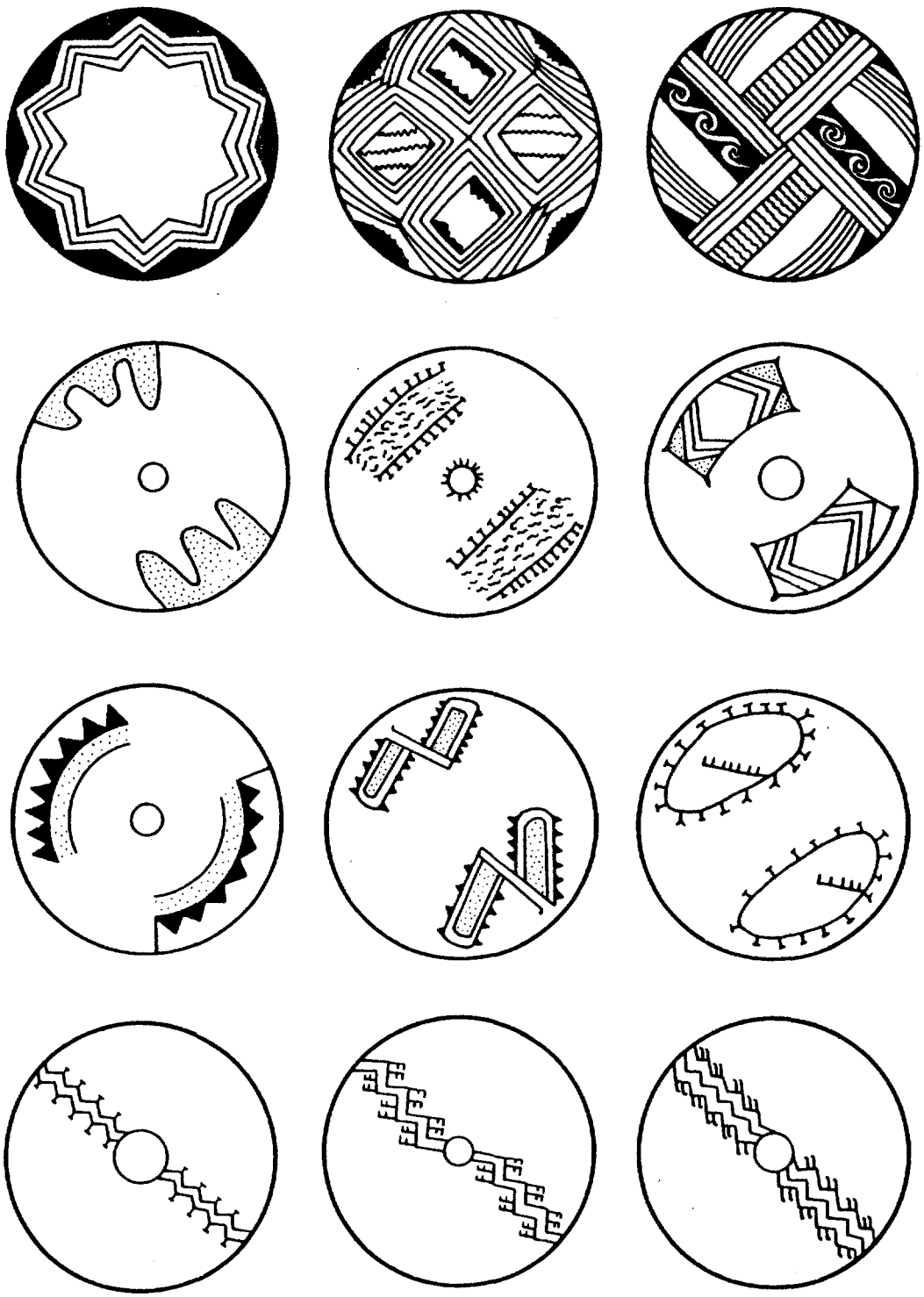

Figure 20. Design elements from earlier southwestern cultures. The top row is Developmental Pueblo and all remaining are Modified Basketmaker. After Gladwin, A History of the Ancient Southwest.

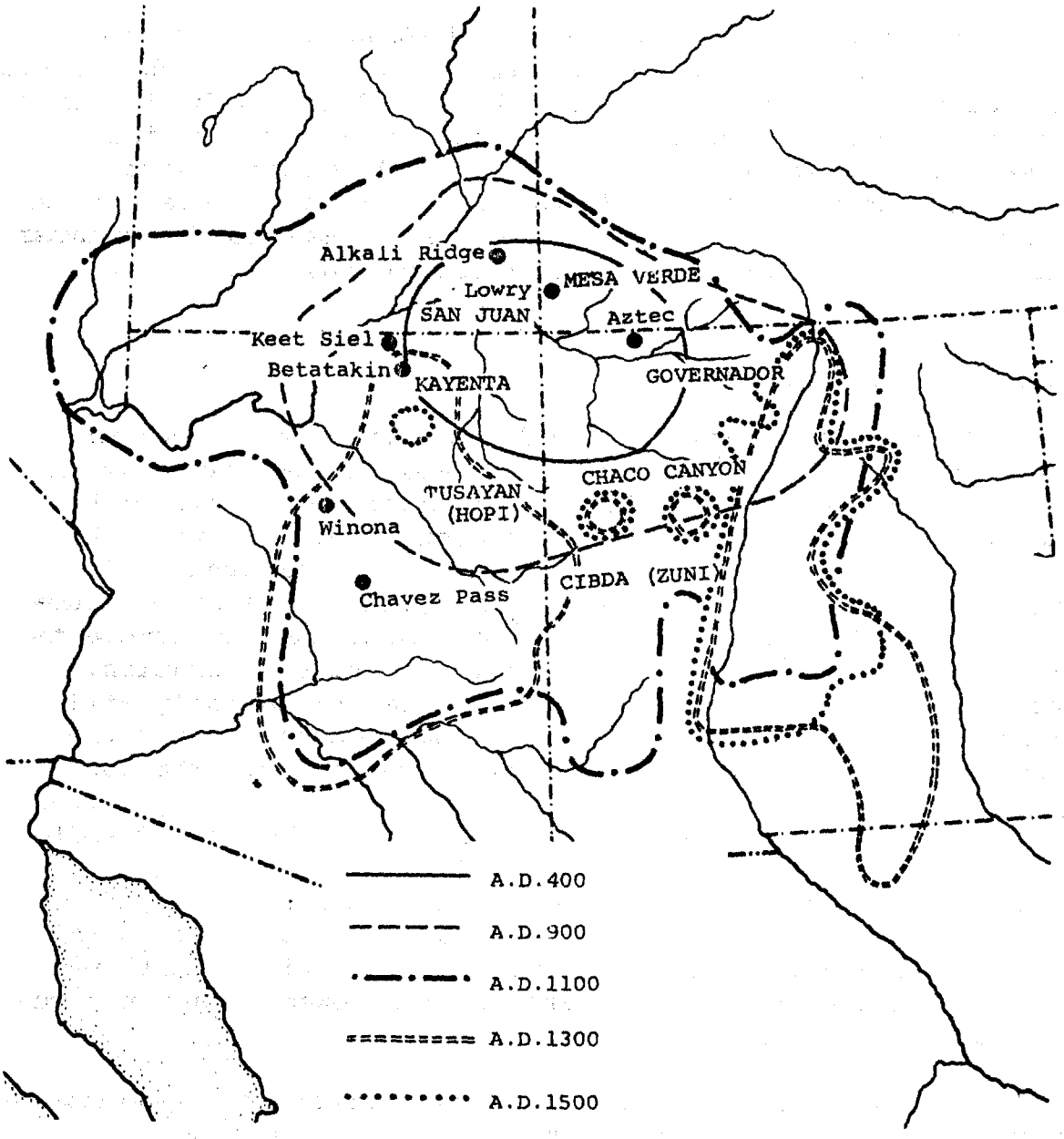

Figure 21. Anasazi culture area. The Anasazi regional designations are in capital letters; important sites are in lower case lettering. The various dated lines give an indication of the rate and extent of Anasazi culture spread.

during the Developmental period.

In the next period, however, the Anasazi were faced with several social and political problems. The archeologist is not able to grasp them directly, but they can be inferred at least to some extent by the nature of their material remains. The great block-pueblos, which were the next Anasazi architectural development, and the mass movements of population which began provide striking clues to the changes which must have been taking place in the other parts of their culture.

The Great Pueblo Period

By A.D. 1100 significant changes had taken place in Anasazi culture. Architectural development had now reached the stage where large blocks of rooms were constructed in one concentrated location. These great pueblos were either built in the open on the tops of mesas or sheltered under high rock overhangs. It is these huge and impressive structures which give the period its name, but other achievements might also deserve the label "great;" pottery decoration, stone and feather work, all based on the increasingly efficient dry farming economy which had been developed for the arid plateau at least five centuries previously. The most spectacular achievement during the period, however, was the spread of Anasazi ideas over much of the Southwest. Pueblo architecture and pottery and probably many other traits, including the people themselves in at least two cases, moved from the mountains and deserts to the south and west and into the Plains to the east. A slight withdrawal of Anasazi in the north was greatly overshadowed by a spectacular movement south.

The continuation of pueblo architectural developments, increase in luxury crafts, somewhat improved economy, and territorial expansion, all contributed to the flavor of the Great Pueblo period. A fifth trend, which began in the last period but culminated here and perhaps gives the period one of its most distinctive characteristics, was regional specialization. Whereas during the Developmental Pueblo period a more or less heterogeneous Anasazi culture had been spread over much of the northern Southwest, after A.D. 1100 the range of culture contracted somewhat and focused around four

dominant cultural centers: on the west the Kayenta center; on the north the Mesa Verde area; to the south, Chaco Canyon; and to the east the younger Rio Grande variety of Anasazi culture. Each of these was a center of influence with distinctive characteristics.

The best way to present the culture of the Great Pueblo period is to examine each of these regional centers (Fig. 21). Since they each shared a basic culture needless repetition would be involved if the same outline were used for each, so the discussions below will emphasize different facets in each area. In the Chaco region, since it was the first where great pueblos were constructed, architecture will be emphasized. In the Mesa Verde region the daily life of the people will be presented. The Kayenta area will be used to show something of the minor arts. Finally, in the discussion of the Rio Grande the differences between this peripheral area and the major centers of Anasazi culture on the plateau will be stressed.

Chaco Canyon early attracted aboriginal settlers into northwestern New Mexico. By the early tenth century building had begun on sites which later were to grow into the great pueblo sites of the area. At Pueblo Bonito (Fig. 67), for example, when the final construction had been completed, there were at least eight hundred rooms. It was this intensity of population concentration along with an excellence of architecture and crafts and, perhaps, of political, social, and religious organization that made Chaco Canyon one of the major centers during the Great Pueblo period.

Chaco architecture was characterized by buildings in the open, not in large rock overhangs. Great rectangular, oval, or D-shaped structures were surrounded by walls up to four stories high. At Pueblo Bonito, early in its history, entry was through a single gateway in the front of the pueblo. This was later narrowed and finally closed entirely so that the only access was by way of a ladder over the wall. The outside wall, which also formed the wall of the outer ring of rooms, and all the walls in the Chaco pueblos were made with a core of stone, adobe or rubble, faced by a veneer of horizontal, thin, tabular stones. The resultant outer facing was so well made that in many places it was difficult to insert a knife blade between the slabs. Careful

construction such as this produced rooms which were then roofed with equally carefully prepared beams. Over these, small poles were placed at right angles to achieve not only a well made chamber, but an esthetically pleasing result.

This care in construction carries throughout Chaco culture. The large D-shaped plan of Pueblo Bonito illustrates this. The arc, made by the outer rooms of this four-story building, was also the back wall. From this outer tier the height stepped down to an inner court at ground level. Here several kivas were excavated below ground level. Circular kivas were also built above-ground however, and were included within the building's rooms.

In addition to regular-sized kivas, great kivas -- sixty feet in diameter and large enough to serve the entire community -- were also constructed in Chaco during this period. This is not an isolated phenomenon, however, for these have a long and interesting history in the Southwest. Large structures, similar to what have been called big kivas from the Mogollon country (Haury 1940), appeared in late Basketmaker times in the Chaco area (Roberts 1929:73-81). From here they spread further north and west and by Great Pueblo times were widely used in the Anasazi country.

While the excellence of Chaco architecture somewhat overshadows the rest of the material arts, these people did produce fine pottery, large cotton blankets, beautiful cut shell ornaments and, as a capstone of their arts, exquisite turquoise mosaics (Fig. 18). This area, was the epitome of Anasazi development, its abandonment by 1150 A.D. or soon thereafter foreshadows the far-reaching changes which were to occur over the whole area. This ending to a rich and colorful culture history will be discussed later when the problem of abandonment is considered for the Anasazi generally.

North of Chaco Canyon, Mesa Verde, a large plateau in the Mancos River drainage, was the home of many Great Pueblo period Anasazi (Fig. 21). While most of the earlier settlements in the Mesa Verde area were on the mesa top, in the Great Pueblo period they moved down into the many large rock overhangs that abound below the mesa. There are over 300 such cliff dwellings in this area, and the influence which

the Mesa Verde culture had on surrounding areas would bring the number of ruins within this subculture area to many times this number.

An example of the type of construction engaged in at Mesa Verde can be seen at Cliff Palace, the largest and most famous of the sites (Fig. 68). This large structure contains over 200 living rooms and may have sheltered as many as 400 people at one time. The walls of these rooms were built of rock with the massive stones pecked to the desired shapes. There were also 23 kivas providing for the religious and social life of the inhabitants, as well as many small storage rooms. The many kivas were occasionally connected to multistoried towers of unknown function.

Watson (1949) has skillfully reconstructed the daily activities of the Mesa Verde inhabitants in the year A.D. 1266 at the site of Cliff Palace in a little book entitled "Cliff Palace, the Story of an Ancient City." In order to present the feel of everyday life, his chapter will be paraphrased below.

Summer was a slow period when man and plants concentrated on water. The Cliff Dwellers relied on water stored in pools and water jars while the crops had to live on moisture stored in the earth. This was also a time when the sun warmed the body and the pace of life was slow. Little clothing was worn, except for the women's small yucca fiber apron and the buckskin or cotton loincloths of the men. The men also wore yucca sandals, but the women and children usually went barefooted. The crops were maturing and it was only necessary to use the digging stick to remove weeds which would have usurped the precious moisture from the corn, bean, and squash plants. The men also did some hunting, but their main concern at this time of year was for the crops in the fields.

While the men spent much of their time in the fields, the women were not only busy carrying water, but gathering the edible plants like prickly pear fruits, yucca flowers, lily bulbs, wild onion, gooseberries, wild currants, sumac berries, and many other wild seeds, roots, bulbs, nuts, and berries which added variety to the diet.

The younger children watched all this activity from their secure position on a cradle board, a thin, smooth board to which the children were bound with soft folds of cotton cloth or buckskin and a lacing of strings. Since the back of the head rested directly against the board it was gradually flattened to produce the characteristic Pueblo head shape. The older children gradually took on the traditional tasks of the adults of their sex; the move to adult life seemed like a natural one.

During the time when the men were not completely occupied with their farms their hands were busy with various crafts. These included the weaving of turkey feather or cotton blankets, jewelry working, buckskin tanning, the sewing of sandals, leggings, the making of bows, arrows, planting sticks, stone knives, yucca fiber cords and ropes, and many other items. Most men had a specialty to which they devoted most of their time. This meant that a great deal of trading was carried out, not only within the village, but between villages. A few times a year the jewelry maker from another village would arrive with a bag full of fine necklaces, pendants and earrings of turquoise, colored stones, and sea shells. Some of the beads were so fine that there were thousands on a single necklace. He would trade these for well-made items from Cliff Palace.

Throughout the year the priests had a regular round of ceremonies. Healing rites were performed whenever they were needed. In the spring, fertility ceremonies were conducted and during the period of summer rain rituals were performed to insure that life-giving moisture would descend from the sky. When the prescribed day for these ceremonies arrived the elaborate preparations began. First, secret rites were conducted in the kiva of the particular religious society who performed that rite. This below-ground activity was followed by a public ceremony performed by the priests and watched by crowds from the roof tops surrounding the village plaza. This same ceremony has been performed for years and is part of what seems to be an unchanging cycle of rites tying man in with the supernatural. But life did change and by the beginning of the fourteenth century Cliff Palace and the rest of the pueblos in Mesa Verde were deserted.

At the western edge of the Anasazi country just south

of the Colorado River in the Kayenta country (Fig. 21) and further south toward the Painted Desert, in what has been called the Tusayan region, the third subcultural development was taking place. The large cliff sites of the Kayenta area, Keet Siel (Fig. 68) and Betatakin, might serve as type examples of the region. At both of these the masonry is somewhat inferior in finish to that of pueblos either in the Chaco or the Mesa Verde region. Walls were composed of irregularly-shaped stone, not accurately coursed. To make up for this deficiency, they were laid up with a great deal of adobe mortar. Wattlework walls, rarely seen in the other areas are relatively common here. Not only is the traditional subterranean circular kiva present, but also a rectangular, above-ground type. Flexed burials with pottery offerings are found in oval grave pits dug in rubbish deposits near the houses (Kidder 1924:68-9).

Compared to Mesa Verde, pottery generally was not as well-made but Kayenta designs were quite distinctive. Much more of the pot was painted black, sometimes with a minority of the white area showing through. Polychrome painting was also present with black, red, and white designs applied on an orange or yellow background. Stone tools which are most characteristic are scoop metates, and full-grooved axes, but by the middle of the thirteenth century a grooved metate and a two-handed mano were being used. These are important only as illustrations of the dynamic quality of parts of the culture other than architecture and pottery, upon which the archeologists tend to concentrate.

Prior to about A.D. 900 the area around Black Mesa, where the Hopi now live, was most similar to the Kayenta subculture to the north. Gradually, however, changes began to occur and the Tusayan area differentiated and took on characteristics of its own. Not only was the pottery somewhat different in design, but they used three-quarter instead of full-grooved axes, and perhaps, D-shaped kivas. These differences may appear minor, but archeologically they reflect other and perhaps more important nonmaterial differences.

Perhaps the real distinction of the Tusayan area is that, after the Kayenta, Chaco, and Mesa Verde areas were all abandoned, its sites still sheltered Anasazi. This last

period in Anasazi culture history will be discussed later.

The Rio Grande valley was to become a major center for the concentration of late prehistoric and historic Anasazi population. However, in the early prehistoric period, when Anasazi culture was first developing in the San Juan drainage, developments in the Rio Grande lagged far behind. During the Basketmaker period sites are extremely rare in the northern Rio Grande (Wendorf 1954). It was not until the early Pueblo period that small sites became at all numerous. Then shortly after A.D. 900 a significant increase in population occurred. The sites ranged "from small, ten room to twelve room pueblos, to fairly large communities of over a hundred rooms, having from one to more than four kivas, associated with above-ground cellular structures of small rooms with walls constructed of coursed adobe with stone foundations" (Wendorf 1954:207). The small artifacts which accompanied these sites included chipped axes with polished bits and notches for hafting, full-grooved mauls, simple tubular pipes of clay and stone, small triangular projectile points with diagonal corner or lateral notches, turquoise beads, and pendants.

This was the basic Anasazi pattern with some variations, such as construction with coursed adobe rather than of masonry. Kivas also differed in detail, as did pottery with the use of mineral as opposed to carbon paint. One other trait difference which might be mentioned is incised pottery. This may point to influences ultimately from the Mississippi Valley and has implications for the origin of the other differences.

At the time of the Great Pueblo period the Rio Grande began to come of age. Foreshadowed by a change from mineral to organic paint, probably an indicated of influence from the west (Wendorf 1954:210), there was a pronounced increase in population. By A.D. 1300 other pottery traits suggest an influence from the Mesa Verde area. Masonry even takes the place of coursed adobe. Kivas were probably above-ground structures now, again suggesting western influence. All of this would indicate that the Anasazi population center was definitely moving eastward and that at least some of the people who abandoned the Mesa Verde moved into the northern Rio Grande. The effect of this shift completely changed the

distribution of Anasazi culture and had far-reaching effects on the ultimate occupation of the Southwest by historic peoples.

During the Great Pueblo period not only had the Anasazi developed several strong regional centers, but their influence had moved deep into the territory of the other agricultural traditions of the Southwest. Anasazi traits and, in some cases, people, invaded the Mogollon and Hohokam regions completely changing, if not the resident peoples, certainly the cultures to which they had direct access. By the end of the Great Pueblo period the northern periphery country in southern Utah had been abandoned, but the movements to the south more than made up for the losses to the north. There was growing Anasazi strength in the Rio Grande, Zuni, and Tusayan areas. All of these changes were important for the future of Anasazi culture and its relationship to the whole Southwest.

The Abandonment of the Northern Southwest

The last days of the Great Pueblo period were characerized by a population concentration in the regional centers, followed by an exodus from the long-held San Juan drainage territory. After the spread of Anasazi territory during the Developmental Pueblo period there was, first, an abandonment of the northern peripheries, just prior to and during the Great Pueblo period. These people, who left areas like the regions north and south of the Grand Canyon and the headwaters of the San Juan River, moved closer to the Great Pueblo centers, swelling their populations. During the early part of the Great Pueblo period the abandonment of secondary centers, like the Aztec area in northwestern New Mexico, brought even more people to the main centers. Finally, during the later part of the period in the San Juan drainage only the Chaco, Mesa Verde, and Kayenta areas were left occupied. One by one these were abandoned. First the Chaco people dispersed, some presumably going to the Little Colorado centers, and others to the Rio Grande. The Mesa Verde population then followed, some traveling to the Kayenta region, others into the northern Rio Grande. Finally the last hold-out, Kayenta, gave up most of its populace, probably swelling the numbers in the Tusayan region. By A.D. 1300 none of the Anasazi population was left in the San Juan

drainage or further north in the upper Colorado River drainages.

The explanation of this major population upheaval, which, as will be seen later, ties into other movements in the rest of the Southwest, has been one of the real problems of the Southwest. Three main theories have been proposed: nomadic raiders, climate change, and disease. The disease theory proposed by Colton (1936) has the least support and is perhaps the easiest to reject. Colton suggested that the concentration of Pueblo people into the great villages brought diseases to epidemic proportions. Lack of sanitation increased the infant mortality, thus depopulating the whole area. Colton did not take into account that this same aggregation into large compact villages was going on in the Rio Grande without similar effect. Furthermore, Schwartz (1956:Fig. 33) has pointed out that the nearly coincidental habitation decline in the Cohonina area, south of the Grand Canyon, where there was no development of the apartment-like structures, also does not substantiate the theory.

Evaluation of the other two possibilities is not as simple, however; for each there is suggestive evidence for and against. As early as 1919 Nelson hypothesized that it was nomadic raiders who move into the Anasazi territory ultimately to make pueblo occupation impossible. Nelson's theory was supported by Kidder (1924:340-42) and others who generally assumed the culprits were the Athapaskan Navajo and Apache, who were still giving the Pueblo Indians a difficult time during the historic period. Recently, however, evidence which will be discussed later has supported the view that these tribes reached the area too late to have produced the population changes following the Great Pueblo period. Even if the Athapaskans are rejected as a cause, the nomadic theory would not be completely eliminated, for there are now indications that nomadic Shoshoneans were moving into the northwestern Southwest, at least near the right time to provide a possible source of disturbance. The presence of so many fortified sites in the form of cliff dwellings and walled pueblos in open areas in the Anasazi as well as the Mogollon area during the Great Pueblo period makes it quite difficult to reject completely the nomad theory.

Early workers in the Southwest were also struck by the delicate balance of climate and culture for one of the first hypotheses to explain the great abandonment focused on climate change (Hewett, Henderson, and Robbins 1913). Later, as a by-product of tree-ring studies by Douglass (1929), which did so much to provide a sound chronological basis for Anasazi archeology, there was the discovery of a great drought between A.D. 1276 and 1299. For many years this was pointed to as the specific cause of the population movements and concentrations. Further work by Bryan (1941) postulated a whole period of greater aridity around the Great Pueblo period, thus providing a temporal breadth for climate change. Schoenwetter (1962) has added important details and insights to the problem through intensive pollen analysis of the upper Little Colorado River area. His conclusions suggest that the main changes occurred in the distribution of annual precipitation rather than an alteration in the amount of rainfall. He postulates a shift from a pattern of beneficial winter rain to a predominance of destructive summer rain at approximately A.D. 1000. This added little to the growth of plants and caused widespread erosion. The drought years of the late thirteenth century could have been a final blow which caused the widespread exodus from the San Juan. Although Schoenwetter developed this sequence in the Vernon area of the upper Little Colorado River drainage, it fits nicely with the concomitant archeological changes in other parts of the Southwest. Linton (1944) has pointed out that perhaps it was not nomads who caused the building of fortifications in the Great Pueblo period, but interpueblo raiding. If Schoenwetter's hypothesis is accepted, support might be present for the theory that there was warfare over available water sources during the long dry summers.

Renaissance Pueblo

The development of Anasazi culture so far has been pictured as one of continual change, expansion, specialization, adaptation to new areas, and acceptance of ideas from outside sources. A final period in their prehistoric cultural development began about A.D. 1300 with some of these same characteristics. Its beginning is marked by the abandonment of a large part of northern Anasazi territory, which has just been discussed. This northern exodus was more than offset, however, by the increase in the size of

settlements to the south, the advances in ceramics and kiva mural artistry, and the crystalization of a culture which lasted to the historic period as one of the most colorful in aboriginal America.

The Hopi country, north and east of the Little Colorado River, during this time was characterized by pueblos which covered up to ten times the area of previous sacred structures. The floors of the above-ground rectangular kivas were now paved with flagstones. Construction itself improved with relatively thin single walls replacing the early type of double coursed masonry. The plastering of adobe over the entire wall added a finished touch consistent with the rest of the work.

In the field of crafts two main developments should be mentioned -- pottery and painting. A major change took place in pottery, with the appearance of a yellow background in place of the earlier grey and white. This change has been attributed either to the use of coal in firing or new ideas coming up from the Mogollon to the south (Jennings 1956:111). More striking, however, are the highly sophisticated geometric and life forms applied to the pottery. During earlier periods the Anasazi had painted kiva murals almost entirely geometric in form. After A.D. 1300 they began including birds and other symbols from the pottery as well as what appear to be mythological beasts, masked dancers, and other human representations. The pueblo of Awatovi (Smith 1952) has revealed the best examples of this art form and show the rather sophisticated level of Hopi art. In the Zuni area to the southeast similar changes were occurring. Glaze paint was added somewhat unsuccessfully to the other Anasazi techniques. Large pueblos were constructed, perhaps with Mogollon influences coloring the direction of cultural growth.

The major shift from the last period, however, was the great growth of Rio Grande population. After A.D. 1325 (Wendorf 1954) there was a climax of Anasazi population here. Some differences in architectural style are apparent within the area, but it was the very large multiplaza pueblos which distinguished this period from the last. Changes in pottery design styles reflect the important influences of the immigrant San Juan population and the addition of glaze

paint points to the introduction of ideas from the Zuni area. Essentially, however, it was a period when the future historic Rio Grande Pueblo culture was solidified. Beginning about A.D. 1450, first in the mountains, then in the deserts, there was a withdrawal of Anasazi influence. Probably by A.D. 1500 the pull-back had been completed and the distribution of Anasazi population became approximately what it was during the early historic period.

When the Anasazi were first encountered in historic times they appeared to be a unique conservative, plateau-dwelling group of farmers. It has taken 75 years of archeological work to appreciate the intricacies of their culture history, however, and there are still many problems yet unsolved. It is now known that in the past they were far from conservative, changing almost regularly in response to a whole range of factors. It would appear that this highly unique culture arose from a basic stock which they shared with several other southwestern cultures. It is true that they began and ended in the plateau country, but their history reveals movements and settlements in almost every environmental region in the Southwest.

MOGOLLON

Nestled in the high valleys within the knot of central southwestern mountains the Mogollon developed their own particular brand of culture (Fig. 11). In this region agriculture, pottery, and perhaps the earliest houses made an early entry. Here the beginnings of a slow but revolutionary change took place -- a change which took the mountain dwellers out of the nomadic gathering and hunting Desert Culture to the farming existence that was to be the base of the major southwestern cultures (Fig. 22). Yet, it would appear that in this rugged environment there was neither the physical or cultural atmosphere that was conducive to further spectacular growth. The evidence for this lies in their later history for, after the Mogollon reached the first stage of farming life, there were few important changes for a relatively long period of time. There was change of a type which produced regional subareas, but there was not a climax of the kind that occurred either on the plateau to the north of them or in the deserts to the southwest. The history of the Mogollon area, then, is one which begins as a testing ground for new ideas. The most successful of these ideas were then parcelled out over much of the Southwest and greatly influenced the early development of both the Anasazi and the Hohokam. For 1000 years little happened after this first development until influences began returning from these cultural offspring. Finally, Mogollon culture was almost submerged by a southward drift of Anasazi traits.

Although early work in the Mogollon area stressed regional differences, and some recent summaries have emphasized this phase of their development (Wheat 1955:8), most students of the Southwest now agree that a common pattern exists. For this reason, in the summary to follow there will be little emphasis on the differences within the area and more on the general trends evident in the culture history. Four distinct topics will be stressed in this discussion of the development of Mogollon culture: 1) the way of life of the early Mogollon farmers; 2) the nature and direction of the influences which finally changed the

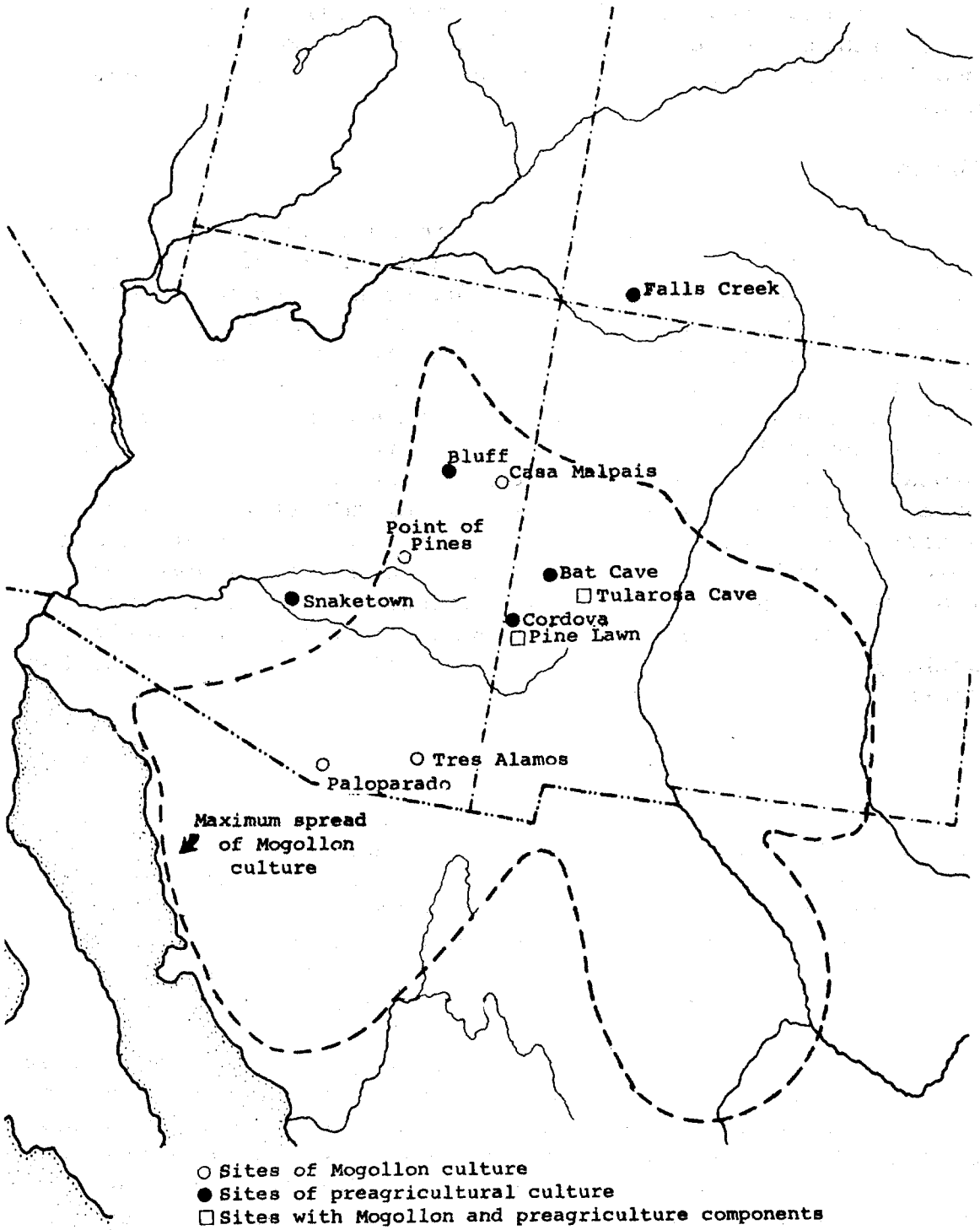

Figure 22. Index map for the Mogollon area.

Mogollon; 3) the new, startling, but short-lived cultural configuration that resulted from the outside influences; and, finally, 4) the reasons which might explain why the Mogollon abandoned the mountains and where they may have gone.

The Early Mogollon Farmers

The beginnings of settled farming life for the Mogollon can be set arbitrarily about 500 B.C. (Fig. 23). By that time agricultural products and the techniques necessary to produce them had become firmly integrated into their culture. The geographical characteristics of the Mogollon area were such that the people had a wide range of ecological zones close at hand. From the valley bottoms to the mountain ridges several types of resources were available. It was probably this feature of the environment as much as any other that contributed to the ease of adjustment toward agricultural life. Despite these facts, the Mogollon culture for hundreds of years retained many of the earlier features of the Desert Culture economy. Even after they had acquired agriculture they continued to depend on hunting and gathering to a greater extent than either the Hohokam or the Anasazi.

With the help of the digging stick the Mogollon added to their agricultural food supply by continuing to collect food plants such as yucca pods, cacti, black walnuts, acorns, grass seeds, desert primrose leaves, and sunflower seeds. By using the spear, spear thrower, snares, nets, traps, and, after about A.D. 900, the bow and arrow, various small animals were bagged and eaten. These included deer, turkey, dog, pocket gophers, squirrels, coyotes, mountain sheep, lynx, sage hens, rabbits, wolves, antelopes, and badgers.

Plant foods were brought in from the forest and fields in large burden baskets, the burden being eased by the use of a tumpline attached to the basket. Foods not eaten raw or cooked as they were collected were probably prepared following the techniques of their Desert Culture ancestors. The new domesticated plants were probably prepared like similar wild plants. But later, and especially with the refined use of pottery, new recipes were undoubtedly developed. The corn might have been ground to flour and hard seeds were

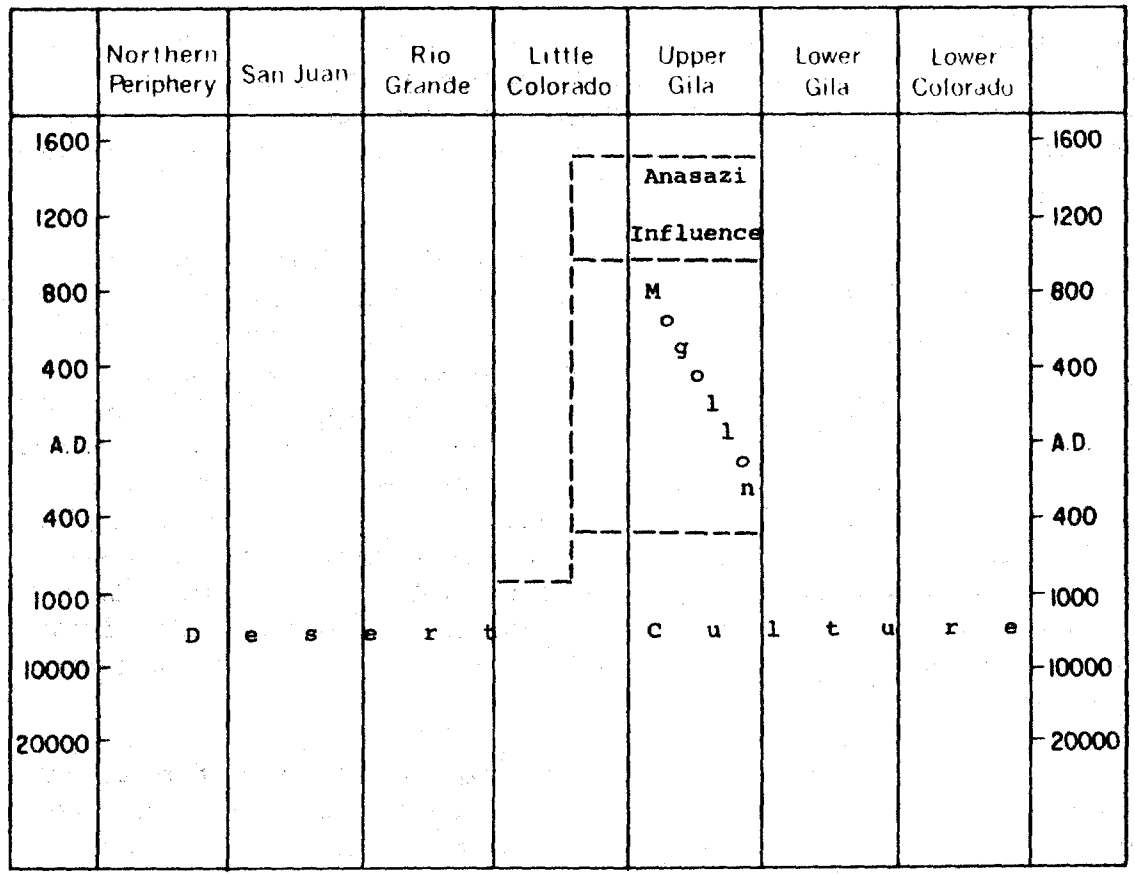

Figure 23. Mogollon time and space relationships.

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crushed in mortars. Probably the food was eaten with the fingers or with wooden spoons out of pottery bowls, while water and soups were drunk from gourd ladles. If the food were not to be eaten immediately, it was sealed in sub-floor house pits or in cave caches in pottery jars or in baskets. The economy of this period was based on a double life, a bit of both worlds -- some gathering and some farming. By 500 B.C., corn, beans, and squash were well under cultivation and with these more predictable sources of food and the beginnings of surpluses it was much easier to settle down. With the increased use of domesticates, wild food very gradually became less important.

Pottery, one of the characteristics which differentiates the early Mogollon farmers from their Desert Culture ancestors, was probably introduced from Mexico over the

same routes as the early domesticated plants. However, the history of earliest southwestern pottery is far from completely understood. In the Mogollon area the first pottery was well enough made to suggest that it diffused from an unknown source (Fig. 24).

Mogollon pottery was constructed by building up the desired shape from small coils of clay, following the technique used over most of the New World. After it had dried slightly the incipient vessel was thinned and smoothed by scraping, probably first with a piece of gourd or a rounded potsherd. Further smoothing was sometimes done with a small polishing stone. The surface may then have been decorated with red hematite or black magnetite in preparation for the final step, firing. This was done in an oxidizing atmosphere which produced a brown or red pottery, although Martin (1959:84) feels these colors may be the result of the clays used rather than the firing technique as has commonly been supposed.

As was the case with the Anasazi, two types of pottery were made -- cooking and decorated wares. Cooking pottery was not decorated, although on some forms neck coils were not smoothed and in other types none of the outside was smoothed, leaving a corrugated exterior. The outside of the cooking pot was also sometimes coated with a thin layer or slip of red (Fig. 24).

In an analysis of Mogollon ceramics, Wheat (1955:101-2) has noted that the earliest pottery "combined polished and unpolished varieties of brown ware, the polished varieties gradually gained predominance at the expense of the unpolished varieties." Later the plain wares "declined slowly as textured wares, including neck banded and corrugation, increased." During the early part of the period a number of vessel forms were made, "most being variations of

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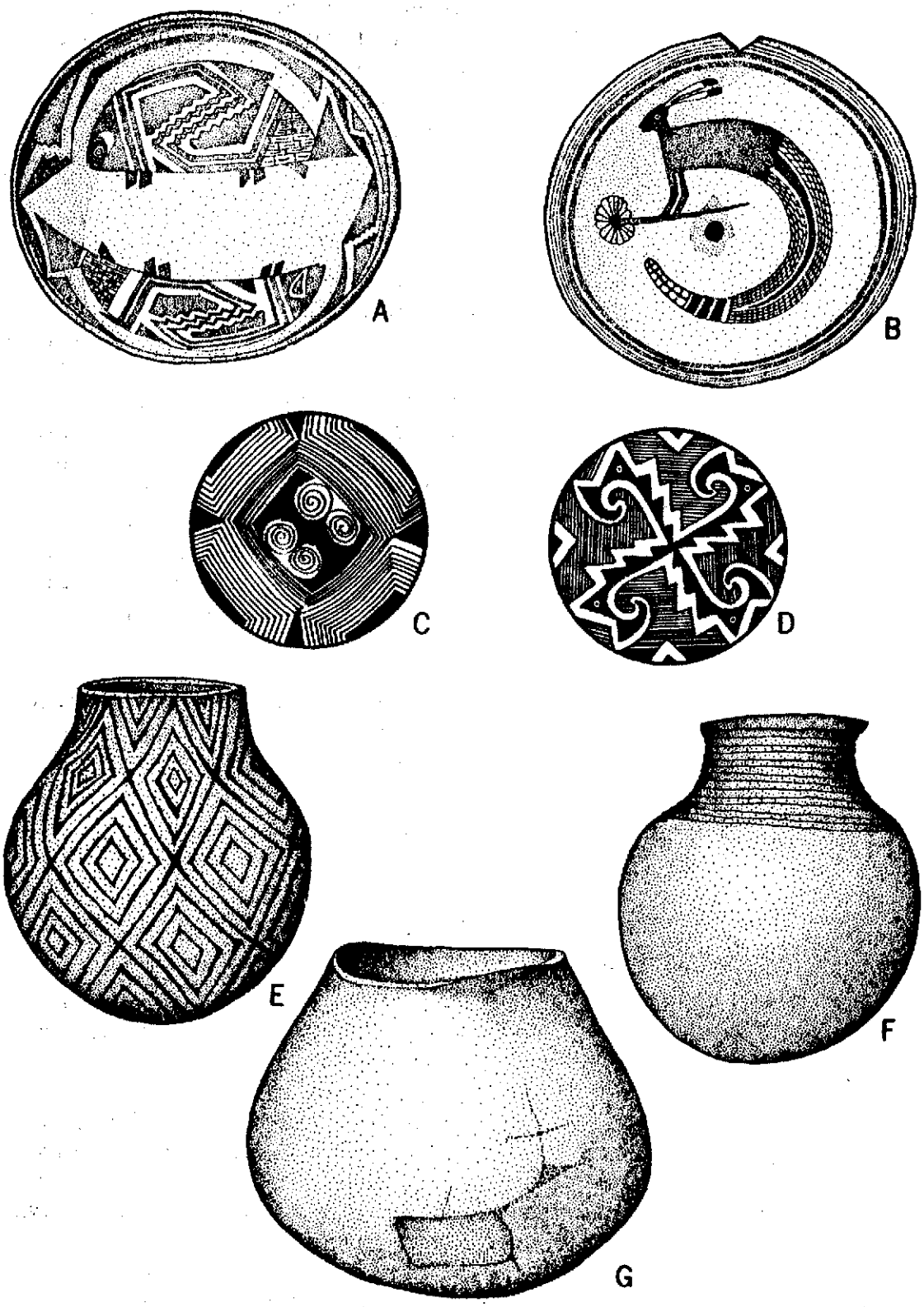
Figure 24. Specimens of Mogollon pottery. A & B, Mimbres Valley, 11th C.; C, R-on-W, 9th C.; D, B-on-W, 11th C.; E, R-on-Brown, 8th C.; F, 8th C.; G, 3rd B.C. to 2nd C. A and B after Wormington and Neal, The Story of Pueblo Pottery; C-G, after Martin, Digging into History.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hemispherical bowls and simple globular jars, neckless or with a simple vertical neck, and most [were] wide-mouthed, although a few forms [were] so constricted as to suggest bottles" (Wheat 1955:103). The earliest pottery lacked painted decorations but by A.D. 400 this technique was introduced. Decorated pots were frequently made with greater care but rarely constituted more than a small percentage of the pottery from any one site. The care taken with pottery decoration increased through the years. It began with red paint on the brown background, but this was followed by other decorative techniques. Along with painting came punched surfaces, smudging, where carbon from smoke is allowed to accumulate in the interior of bowls and then polished to produce a black luster. Near the end of the period red designs on a white background and black or white designs were being made. This later combination, at least, suggests the beginnings of influences from the Anasazi to the north. Designs, which began as simple bands and lines, became increasingly complex illustrating several refinements and new ideas in decoration. Also with the new decorations and the later developments in pottery came new forms, including ladles and pitchers.

Despite pottery changes in the later part of the period, prior to about A.D. 1100 the old unpainted brown wares remained the backbone of Mogollon pottery making. It was used with little change over the whole period and the seven hundred years it was exclusively used, before the decorated types were introduced, strongly points to the conservative nature of Mogollon culture.

Mogollon clothing was simple and limited. Sandals were the usual footgear. String aprons and sashes occurred, but commonly nothing was worn. In the cooler months fur blankets were used, which means that there was also little change in clothing from the earlier gathering days.

Many local materials were fashioned into useful tools. From stone were made spear points, blades, scrapers, drills, hoes, and tobacco pipes. Plants furnished fibers for carrying bags, baskets, matting, straps, and cordage. Weaving was done with cotton, wild bast, or yucca fiber. Local wood was widely used to make knife handles, awls, weaving tools, seed-beaters, torches, reed cigarettes, and even dice.

One of the important guide lines for setting the date of 500 B.C. for the beginnings of settled life is the first evidence of housing at this time. The pit house began to be extensively used in the Mogollon area about the time there was enough surplus developing from the economy to justify permanent settlements. The Mogollon pit house (Fig. 25) at this time was more or less round, although D-shaped and quadrangular shaped pits also occur. An entryway of some kind was more often present than absent. The pit was ten to sixteen feet in diameter and from two to five feet deep. It was roofed with poles leaning on the ground surface, most frequently crossing at a center post. These were covered with brush and sod to provide snug protection against the mountain cold and heat. Insulation from the heat may have been the most important factor, however, since some of the early houses lack evidence of fire hearths, which might indicate use only during the summer. When the hearth does occur it is an unlined depression between the center of the room and the entry. In the floor of the houses were large food storage pits to accomodate the increasingly important surpluses.

After A.D. 500 the houses were more uniformly rectangular with a long lateral entryway increasing in size and with finished interiors. This reflects not only a greater care in construction but much less regionality and a greater uniformity over the whole area in the realm of architecture. The large central post was now replaced by four corner supports. The remainder of the construction was the same, however, with the exception of the fire hearth which became increasingly a standard feature.

The numerous activities that went on in the house are reflected in the types of objects found there -- yucca pads probably used in cleaning pots and metates, tongs for lifting hot rocks or foods from the fire, an increase in the amount of pottery and a decrease in the number of floor pits reflecting changes in the style of storage. Beds of grass and blankets of rabbit fur or bird feathers were probably similar to those used during Desert Culture times as perhaps were the drills for making fires and the flexible cradles for the children. In general, Mogollon artifacts are not very individualistic or unique (Fig. 26).

The earliest villages were house clusters with no particular plan. Usually they were in isolated locations away from streams, such as ridge or mesa tops, perhaps for defense or better drainage. Although seclusion does seem to have been one major factor in choosing a village location, another and equally important one was the availability of farm land (Bluhm 1960:54). Some of these early house clusters were relatively large, containing 25 pit houses or more.

In the later part of the period, after about A.D. 500, there is a noticeable increase in the number of villages. Whatever the cause of this increase, it was accompanied by other changes. Now houses were no longer put in isolated out-of-the-way spots, but rather in open valleys near streams. Whatever may have conditioned the choice of sites earlier, an eye for defense was not absent.

The pit houses in each village were usually grouped around a special pit house, three or four times larger than the others. These were probably used for ceremonial purposes, in the same way as the Anasazi kiva. They are frequently referred to as "great kivas." Not only were they several times larger than the pit houses used for dwellings, but more care was taken in their construction. They differed from the regular houses by such features as greater depth, a lack of domestic tools, floor drums, floor grooves, or large fire pits.

Aside from a special ceremonial house there are several suggestions that rituals were a vital part of the Mogollon culture. The presence of tobacco pipes and, after A.D. 700,

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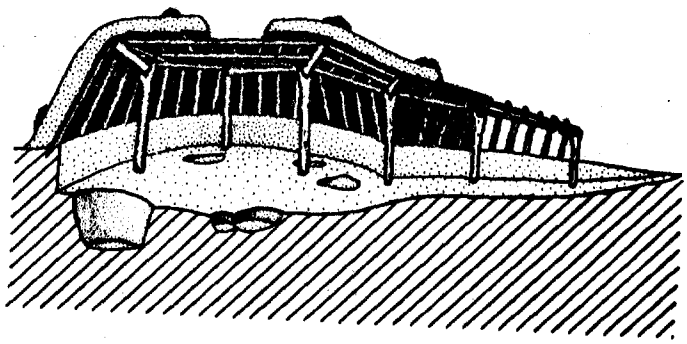
Figure 25. Mogollon house types. A, circular pit house with entryway, 500 B.C.; B, rectangular pit house, with lateral entrance, A.D. 500; C, ground plan of crude masonry surface structure with plaza, dotted lines show unexcavated area, A.D. 700-1000; D, restoration of a masonry surface structure of contiguous rooms, Foote Canyon Pueblo, about A.D. 1200-1450. A and C, from Martin, Digging into History; B, Gladwin, A History of the Ancient Southwest; D, Martin, Foote Canyon Pueblo.



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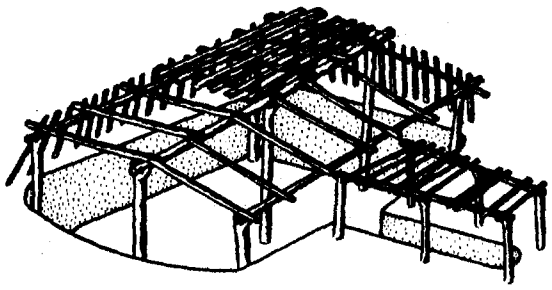

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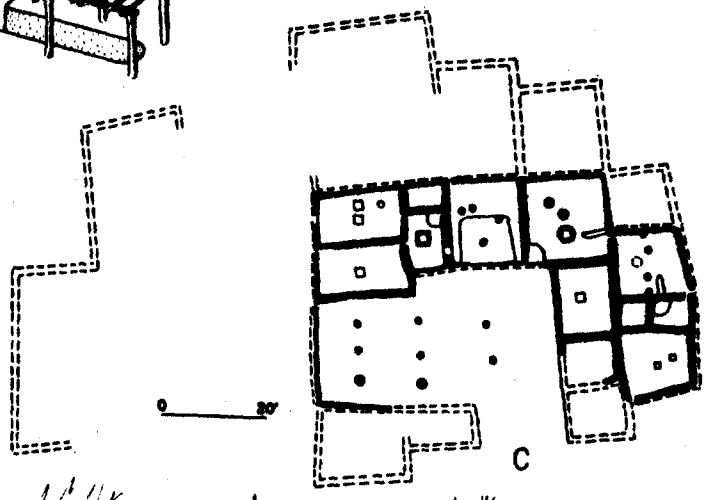

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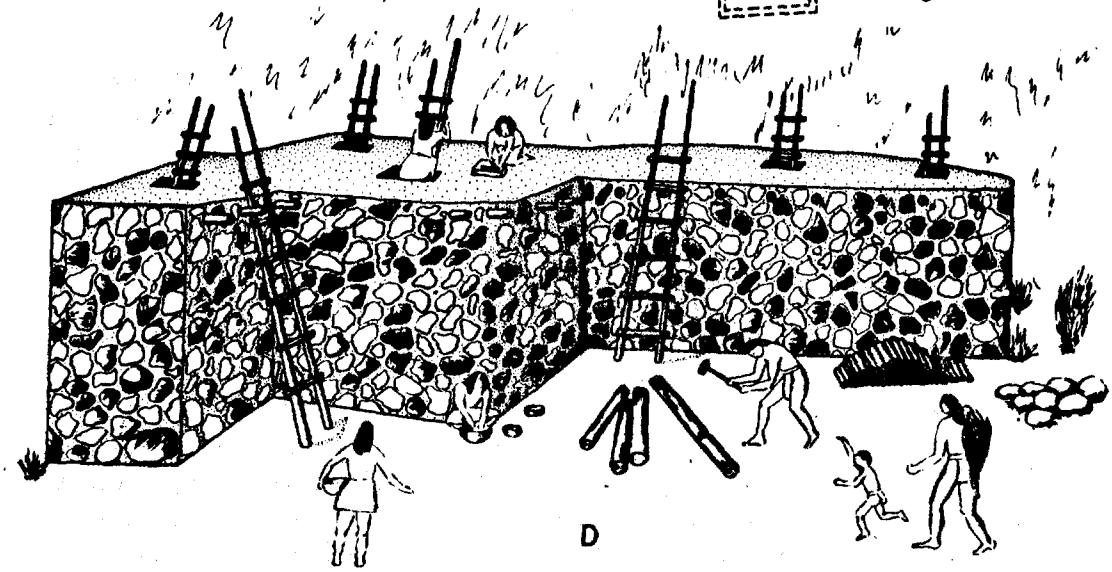

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the increasingly popular reed cigarettes, suggest something special since, throughout North America, tobacco had frequently been connected with ritual. Other items also occur which do not appear to have been necessary for everyday existence. These include animal shaped figures, phallic symbols, animal claws, and pieces of crystal. Martin (1959:98) has found what might have been a shaman's medicine bag. Neatly tied in a muskrat skin were obsidian flakes, crystals, curiously shaped concretions, toes of a great horned owl, a horn of a rhinoceros beetle, sherds, and many other items.

Death, too, was most likely related to religious observances. Pits were dug in the house floor, in the fill of abandoned homes or between homes, or old storage pits were used to take the flexed body of the dead, sometimes in a semiseated position. Placed on a bed of grass they were accompanied by pottery -- frequently killed by breaking a hole in the bottom -- jewelry, tools, and perhaps, food. Then the pit was covered and the family apparently continued to live in the house. If it is ever possible to demonstrate that the descendants of these early Mogollon farmers are any living groups, additional light might be shed on the general nature of the ceremonies.

The early Mogollon farming way of life began about 500 B.C. and lasted for some 1500 years to A.D. 1000 (Fig. 23). During this time far fewer alterations occurred in the mountains than took place either to the desert Hohokam or the plateau Anasazi during the same period of time. This lack of change must reflect a nice adjustment to the environment or an ability to compensate for the population increases taking place by their more efficient economic techniques. Furthermore, the slow steady change, especially in the

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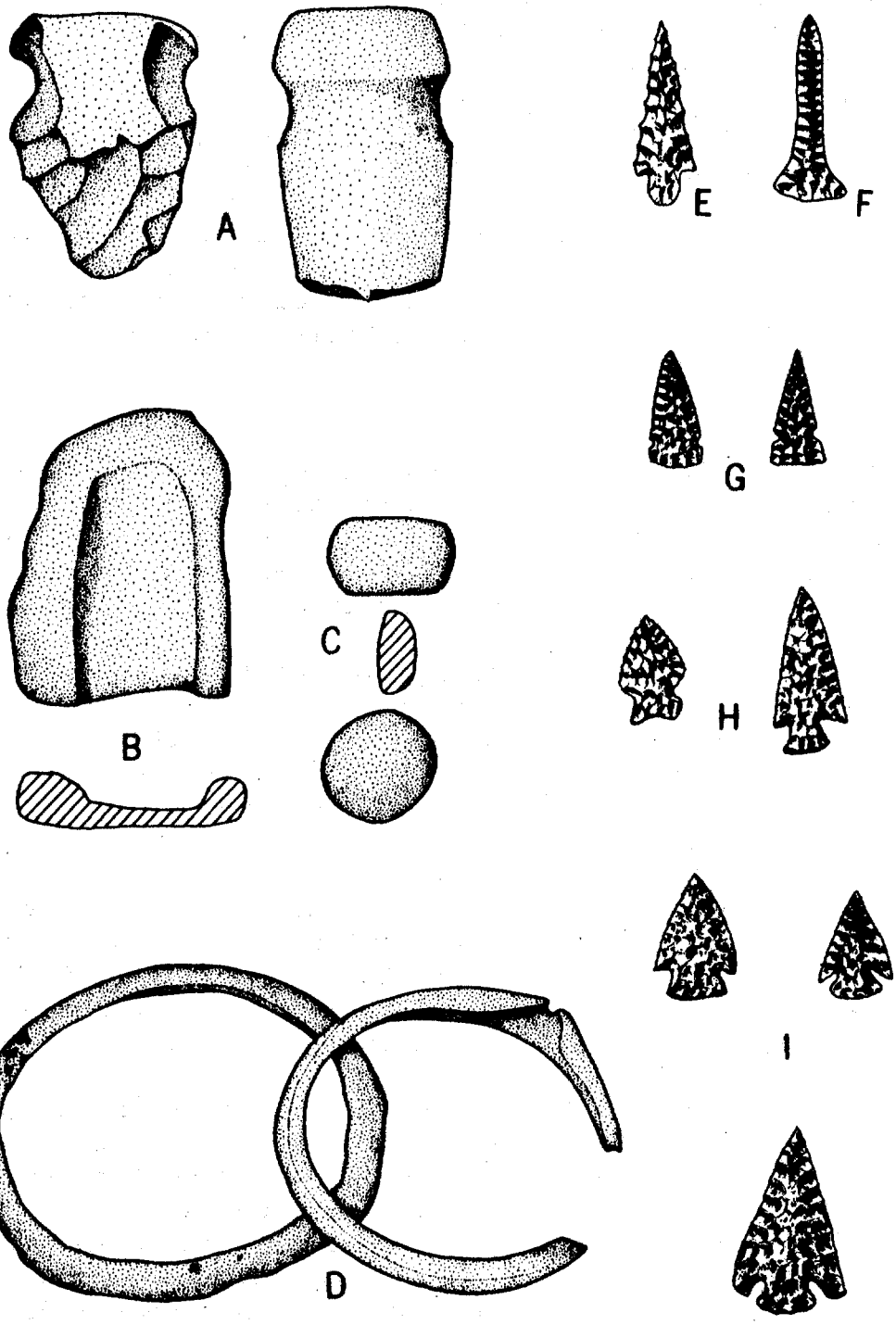
Figure 26. Mogollon artifacts. Stone axes, A, are fully-grooved; B, open-ended metate; C, manos; D, imported shell bracelets; E, unique serrate point; F, common winged drill; G, thick-bodied points (early?); H, about 100 B.C.; I, three examples from about A.D. 1000. A-G after McGregor, Southwestern Archaeology; H and I, after Martin, Digging into History.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houses and the pottery, perhaps points to the possibility that the Mogollon at this time were able to accept selectively only those items which fitted into their conservative pattern of life. This may characterize the early life of these mountain people, but it is directly opposite to what transpired in the second major phase of their culture history. After A.D. 1000 they were continually bombarded by new ideas. They rapidly changed many parts of their culture, almost as if they were searching for the right formula to regain the old equilibrium they had achieved but lost. Their success, or lack of it, will be examined after a brief consideration of the type and direction of the influences which caused these great changes in their lifeway.

Outside Interrelationships

It has already been noted that the developed cultures in the prehistoric Southwest probably derived from a common base. Given this similar background, it is not surprising that early Mogollon shared certain cultural items with the Anasazi and the Hohokam. This early interrelationship was only the beginning of the complex series of connections among them. It was the intensification of these interconnections which greatly altered the Mogollon about A.D. 1000. The specific changes which took place may be better understood by examining the earlier diffusion of traits, first between the Mogollon and the Hohokam, then between the Mogollon and the Anasazi.

At the center of the Mogollon and Hohokam areas little difficulty is encountered in differentiating the two cultures, but at contiguous borders of their territories there is a broad area of overlap (DiPeso 1953). This is most marked between the Santa Cruz and the San Pedro rivers.

Early similarities between the two are seen in houses and pottery. Later definite trade in shell bracelets can be traced from Hohokam to Mogollon, suggesting a continuing relationship. Finally, after A.D. 900, a whole series of Hohokam traits were accepted into Mogollon culture including full-trough metates, three-quarter grooved axes, carved stone palettes, and elaborate shell carvings (Wheat 1955: 201). Throughout the early history of the Mogollon, then, they were more of a recipient of Hohokam culture than a

donor to it. This was not the case with the Anasazi.

The Mogollon seem to have developed and/or received many traits earlier than the Anasazi. Before A.D. 700 the Mogollon had contributed to the culture of their northern neighbors in at least three main areas -- agriculture, architecture, and pottery. We have already discussed the contributions of corn and other plants which were transmitted to the Anasazi through the Mogollon. In architecture, although the evidence is less clear, the indications are that at least the pit house antichamber moved north. Certainly the idea of the great house, be it kiva or not, and perhaps the pit house itself were diffused from south to north. If the pit house ultimately can be derived from Asia and be shown to have traveled south into North America from that source, then its introduction to the Anasazi from the south is going to require some explanation. Many auxilliary pottery traits also moved north, including smudging, slipping, neck banding, and broad line painting (Wheat 1955:228). Therefore, it can be seen that during the early developmental period Mogollon culture had a profound effect on that of the Anasazi.

After A.D. 700, and to a greater extent around A.D. 1000, this relationship was reversed, when the Mogollon, the donor culture became the receiver. Two major trait complexes moved south from Anasazi country to Mogollon. On the surface, at least, these changed the whole complexion of Mogollon life, for they were the archeologically obvious traits of masonry pueblos and black-on-white pottery. Both to some extent had characterized the developmental Anasazi period and, hence, when they moved south they gave the Mogollon a veneer of Pueblo culture. The real problem is how deep this veneer penetrated. Were there also important nonmaterial items which travel with these material ones? Did changes in social organization, religion, and political structure accompany the pueblo? Did alterations in the division of labor, for example, travel with the pottery? Much work and speculation will have to be done before these questions can be answered and because of the nature of the problem some never will.

The growth of Mogollon culture during this later part of their occupation in the mountains was controlled by at

least two main factors. First, the nature of the earlier culture, which varied from one mountain region to another. Second, the diffusion of traits into it from the outside. From the north came masonry pueblos and black-on-white pottery, from the southwest came shell bracelets and house forms came from the Hohokam to the west, along with ball games and some craft influences. Still a third significant influence may have been working on the Mogollon -- the actual movement of people. A known migration situation which will concern us here involves the Mogollon of the Point of Pines area (Haury 1958) and is perhaps the clearest example of southwestern migration. About A.D. 1280 a group from the Kayenta area on the plateau in the northwestern section of the Anasazi country migrated bag and baggage into the heart of the mountainous Mogollon country. Next door to a Mogollon community they began building their own 70 room pueblo. They also constructed their own distinctive kiva and planted their own distinctive varieties of corn. They brought with them other things like pottery which soon had to be replaced and when this was necessary they did not make the pottery of the local tradition, but constructed types following the traditional lines of their own northern ancestors. They, or a group like them, even brought with them very special ceremonial paraphernalia, including wooden flowers and cones, strings of miniature baskets, cotton cloth, and bows and arrows which were secreted in a special cave (Wasley 1962).

Construction of the immigrants' pueblo ended a little over a decade after it had begun and shortly afterwards most of the rooms were burned. Although the complete pueblo has not been excavated, it appears to have been deliberately burned. Some of the rooms were filled with stored corn, suggesting that the burning occurred just following the harvest, probably the worst time for a farming group to be hit by disaster. Perhaps as a result of this action the migrants from the north left the mountains, going we know not where. Since their arrival came at the time when large areas of their own plateau homeland was being abandoned, they may have looked to the mountain people for refuge. They did not find it, however, for like the myriads of displaced persons in our world today, they may have had to move lest they upset the neat balance of life that had grown up in that area. If the Mogollon had been able to look into the future they would have seen that the unsettled conditions

of the wandering Anasazi were simply a foreshadowing of the fate which awaited them in less than two centuries.

A New Way of Life

By A.D. 1000 important changes were occurring in Mogollon life. New ideas were reshaping parts of their culture. Not only were material things like pottery and architecture different, but there were more basic changes. Whereas in the early days their ideas had been accepted by surrounding cultures, now the Mogollon were the ones to incorporate new ideas from the outside. Whereas formerly their culture had changed slowly, now changes were occurring rapidly. This climax in their life history lasted only a third as long as the last, but at least an equal number of cultural alterations took place.

The final change of this period was certainly the most drastic, for by A.D. 1450 the Mogollon abandoned their mountain homeland forever. Perhaps the drastic changes which were occurring in the three or four centuries before this were leading to such a catastrophe. Perhaps there was in the sequence of events which began about A.D. 1000, a foreshadowing that was seen by the Mogollon or can be seen by the archeologist.

By A.D. 1000 the Mogollon were highly skillful farmers with cultivated plants being the main source of food. By a combination of selective breeding and the introduction of new strains, a large corn cob with nourishing kernels had been developed for the mountain environment. There is good evidence that surpluses were available to support the many specialized activities of the period. Haury has noted that one burned room of this period contained 25 bushels of corn (Haury 1958:2). This, then, was a time of plenty, not only from corn but from the other cultigens -- kidney and tepary beans, two kinds of squashes, and the bottle gourd.

The types of field systems to control water or take advantage of what was available during this late period indicates a well developed agricultural technology. Three main types may be distinguished: linear borders, terraces, and grid borders. The parallel rows of boulders which made up the linear borders were originally piled two or three

high. These were found along hillsides and served to aid cultivation by clearing long strips of land, inhibiting erosion, and slowing the runoff during heavy rain storms. Occasionally, these lines of boulders were made into grid patterns which served perhaps to outline the field itself as well as to make more efficient use of the rain on the fields. In some cases, flat surfaces for cultivation were desired in usually dry stream beds. Here a low stone embankment or rough well of unshaped boulders was built across the bottom of a small rocky stream that occasionally carried water from a considerable area of hillside or ridge top. In dry years these may have been the best farming plots. These and other indications suggest that the late Mogollon farmers were well aware of the possibility for farming this territory.

Other changes in the economy include what may have been an increased interest in hunting, possibly as a result of the then-recent introduction of the bow and arrow. Deer, wild pigs, antelopes, rabbits, turkeys, and mountain sheep were all hunted. In addition, the old stand-by forest plants still provided their share. Walnuts, pigweed, salt-brush seeds, wild gourds, pinyon nuts, mutton grass, grapes, tansy mustard, prickly pear, and sunflower seeds were all used as they had been for hundreds of years.

Several changes were also taking place in Mogollon crafts and general technology during this period of early town life. New kinds of utility ware were becoming popular. Bowls with a shiny black interior and a brown-black exterior with a few coils on the exterior of the rim were growing in popularity, but the greatest ceramic changes were in the painted types (Fig. 24). The place of the popular red-on-white ware was taken by black-on-white types. These were probably made in the Mogollon area, but patterned after Anasazi styles. A greater variety of new shapes was also in evidence -- pitcher, jar, and ladle forms, and later, canteen-shaped jars and effigy vessels made in the form of ducks and mountain sheep.

Perhaps the finest Mogollon pottery manufactured during this period was centered in the Mimbres Valley in southern New Mexico. This black-on-white pottery was decorated with complex and delicately executed designs, many showing people, landscapes, and animals. There is little question but that

some of this pottery is among the finest made in North America. Another late type was a red ware decorated with black paint. Still later, white was added to produce a polychrome type.

Generally, tools were more expertly made and sometimes reduced in size (Fig. 26). Small triangular, side-notched arrow points, rectangular stone bowls were some of the few new items. Shell bracelets, cut and carved from bivalve shells, were traded in from the Hohokam area. Turquoise was used in ceremonies and in ornaments, probably traded in from the north.

Evidence for the success of these new techniques in making a living comes from the increased population during this period. Bluhm (1960) has postulated that for the Pine Lawn Valley there were more than twice as many dwelling units as were present in the earlier period. This is not an isolated occurrence but holds also for other Mogollon areas. The towns were no longer erected in defensive locations, as was the case earlier. Now proximity to a good stream or spring, a flat plain near water, or a terrace just above the flood plain of running water were the desirable spots. At least until near the very end defense of these towns did not seem necessary, judging from the types of locations chosen for settlement.

Following A.D. 1000 there was a transition from the earlier pattern of villages of scattered unit pit houses, often clustered about a large ceremonial house, to masonry pueblos. It is these Anasazi-like houses which on the surface give much of the new face to Mogollon culture. Martin (1959), in describing this period, has characterized it as involving "the beginnings of town life." The increased population concentrated in villages whose pueblo style reflects the fact that the same trend of population concentration was going on to the north.

In some areas pit houses continued to be built, along with the pueblos, throughout the period. Frequently these were lined with masonry walls, demonstrating that they were not entirely immune to change. Since most of them were provided with the accouterments of everyday living such as corn grinding bins with metates, firepits, and pottery, they may

simply have been the domiciles of the conservative faction who did not care to live in the pueblos as the younger generation was doing. On the other hand, these may have served as winter dwellings, priest houses, or small religious structures (Martin 1959:124).

This transition to pueblos was accomplished in different areas through slightly different paths (Wheat 1955:52). The basic pattern, however, was the same, viz., from pit houses, sometimes through an intermediate step involving contiguous masonry lined pit houses, to small pueblos with less than 12 rooms and finally to the large pueblos with 20 to 250 rooms. By the end of the period, pueblos were the dominant architectural form throughout the area, although pit houses were still being built and used in some places at the same time.

At first the Mogollon were not very good masons, using crude, unshaped boulders with great amounts of mud for mortar to fill the gaps left by the unworked rock. With the passage of time their stone working skill improved to the point that near the end of the period they were working the stone to desired shapes and producing much finer appearing products.

The Mogollon pueblo, as the Anasazi, was a cellular structure, made up of a number of continuous rooms, built on the surface of the ground with a private entrance to each set of family rooms or apartments. Definite planning went into the whole pueblo prior to construction, although additions and alterations were frequently made. The rooms varied from six to 15 feet square and some of the pueblos were two or perhaps three stories high and may have housed from 100 to 500 people.

These blocks of rooms were either square or rectangular and many were built around a court or plaza. This meant that the houses looked inward, since there were no rows or "streets" which faced to the outside. This differentiated them from the Anasazi pueblos of this period which were outward facing. Martin (1959:126) has chosen this "inward-facingness" as a reflection of the Mogollon mental attitude. He sees their mode of existence and isolation in the mountain valleys as one which would have made them introspective and possibly self-centered.

Using the Tularosa region of the upper Gila, Wendorf (1956) has described a sequence of changes in architecture which might be taken as a model for Mogollon generally. By about A.D. 1150 in this area, the pit house was abandoned in favor of the above-ground dwellings. Instead of going directly to the large pueblo, they first built at least five separate units, each containing from ten to twenty rooms, some of which were used for storage. Integrating each of these little communities was a ceremonial chamber. About A.D. 1200 the many small villages which were scattered around the valley began to concentrate into a few large communities. This was accomplished initially by relocating existing villages sometimes into blocks of over a hundred rooms, each with one or two kivas. Later the large aggregations were shifted to new and more easily defended locations. In some cases the very large great kivas were located in the areas between the pueblos and some distance from the nearest living structure. By A.D. 1250 further consolidation of the pueblos was taking place; now less than half a dozen very large communities were scattered throughout the valley, each with probably several great kivas. About A.D. 1300 the Tularosa Valley was abandoned which, like the development of house forms, was also part of the pattern of Mogollon culture history.

It is not surprising that the first area to take up the use of this new form of large dwelling was in the north, for it was the region that was closest to the Anasazi. The strength of this northern influence can be seen in the fact that the pueblo style spread throughout the Mogollon territory. Only in the west, especially around the San Simon River, did the Mogollon reject the pueblo but rather there it seems to have intensified earlier ties with the Hohokam. They kept the pit house structure, but with many Hohokam traits such as form, post hole arrangement, and step entry.

The southwestern edge of the Mogollon area, where we have already seen so many deviations from the normal pattern, did not have the great kiva. Instead, the purpose of a communal gathering place was served by the Hohokam style ball court. This demonstrates quite nicely the shifting of boundaries of cultural dominance. The San Simon area (Fig. 22) could never quite pull itself into the Mogollon sphere but near the end of the period it was accepting more and

more of the Hohokam traits.

Abandonment

The pattern of settlement in Mongollon culture generally progressed through three major stages. As they were developing out of the Desert Culture and beginning to build houses, the tops of ridges and mesas were occupied in what appears to have been defensive locations. It is possible, of course, that they may simply have, at this time, required a location that was more suited to the mixed subsistence pattern of hunting and agriculture (Bluhm 1960:541). Later there was a movement off the ridges and houses were built at elevations in the valley bottoms. Again, this has been interpreted in two ways -- either a lack of concern about defense or an increasing emphasis on agriculture which required more arable land near dependable sources of water. This second phase includes the time when masonry pueblos were constructed -- after A.D. 1000. Most of these were built in the valley locations where sufficient agricultural land was available. It was also at this time that Mogollon population probably reached its peak. The third and last pattern of settlement is found spotted over the mountainous area and is one characterized by defense. It is this final step in development which preceded the Mogollon abandonment and which requires some elaboration in order to understand the end of the mountain way of life.

It has already been noted that the Mogollon pueblos had an inward facing character. Perhaps this in itself might be taken as a defensive posture and could have been a foreshadowing of the abandonment. But more definite signs of defense did develop later.

The Casa Malpais site (Danson and Molde 1950) might be used as an example of this period (Fig. 22). Situated on a lava-capped mesa near Springerville, Arizona, at an elevation of about 7000 feet, the site overlooks the upper Little Colorado valley. Below this more or less inaccessible spot they built agricultural terraces for their dry farming activities. Above this was constructed a great kiva and a 58-room pueblo. The kiva was approximately 36 by 45 feet and the walls rise about nine feet above the present floor level on the interior of the building. Some idea of the care

taken in the construction of the whole complex can be gained from part of Danson's description. "To the north of the pueblo is a sheer escarpment and valley partially filled with trash and rock. Across this valley had been built a path of stone leading from the pueblo to the base of the cliff where a hidden stairway, built up behind a partially free section of the cliff, leads to the mesa top. The stairway cannot be seen from the pueblo and only chance would lead one to it at the mesa top" (Ibid.:64). In addition, "The entire terrace on which the plaza was built has a wall around its outer edge, and the pueblo and great kiva terrace has walls in all places where access to the terrace was easy."

The whole problem of Mogollon abandonment is one of the biggest mysteries in southwestern archeology. For the Mogollon area the same two explanatory hypotheses suggested for the changes in the Anasazi area have prompted the greatest discussion -- the influence of enemy people and/or some drastic change in the climate.

The climate change hypothesis has been discussed in the previous chapter. It will only be necessary here to mention the enemy peoples theory as it relates directly to the Mogollon area. The construction of defensive sites in the mountains late in the Mogollon period, plus the presence of a warlike nomadic Apache in the area at the time of first white contact are bits of evidence which cannot be overlooked in evaluating the enemy people hypothesis. This hypothesis, simply stated, is that the agricultural people were harassed by Apache who moved into the area from the north about A.D. 1100. At first the Mogollon were able to withstand their raids by simply building defensive structures, but later the nomads were too much for them and they were forced to leave. This hypothesis stood along with others for a number of years until it was realized that no evidence could be found for the entry of the Apache and the other Athapaskans into the Southwest until at least A.D. 1500, at least two to three hundred years too late to be the major factor in this upheaval.

Other alternatives then gained favor and the enemy peoples theory was discarded. Recently, however, they have regained favor -- at least in some quarters. Danson (1957: 111-118) notes that climate change was most likely not a reason for abandonment since they left areas where today

there are still constantly flowing streams. Furthermore, he insists that just as there is no evidence that the Apache or some other nomadic group was in the area, there is also no evidence that they were not in the area. He rightly maintains that nonfarming people frequently leave little living trash, making archeological discovery difficult. Finally, although he admits that the "case for the enemy peoples is not a strong one; nevertheless, the other reasons given for the abandonment of this large region are not strong either, and they always leave some questions unanswered."

Final History of the Mogollon

It cannot be assumed that during the period of defense all the Mogollon were killed off. This would seem reasonable in the light of our knowledge of primitive warfare; in fact, most probably survived. If this is true, then some attention must be given to where the surviving Mogollon people went when they left their ancestral mountain homes. Martin and his co-workers (1961:168), who are presently working on one phase of the problem, at this time favor a movement north which would have joined the Mogollon with the Hopi and Zuni. In fact, they suggest that the flowering of these two cultures in the fourteenth and fifteenth centuries may have been due to the "influx of the vigorous, distinct, and desirable Mogollon ideas."

Reed (1948) has also supported the movement of Mogollon traits into the culture of not only the Hopi and Zuni, but also the Acoma. Traits which they have as part of their culture, including rectangular kivas, oxidized pottery, three-quarter grooved axes, vertical occipital deformation, he believes are the result of such a movement of people from south to north. If future work proves this hypothesis to be correct, it would present a most interesting cultural sequence for the mountain area. Beginning as a hearth out of which the Anasazi drew, at least for the economic development of their way of life, there was later a reversal of the pattern. The Anasazi influence became strong enough so that the Mogollon accepted architectural and technological traits which gave an entirely new veneer to their culture. Martin's hypothesis would add still another dimension, reversing the trend as a finale. The Mogollon returned to their initial role and once again began influencing the development of Anasazi culture.

HOHOKAM

In the desert area centering around the confluence of the Gila and Salt rivers, the Hohokam developed perhaps the most advanced adjustment to an extreme environment in North America (Fig. 27). Their origin is somewhat clouded, except for the fact that, like the Mogollon and the Anasazi, it grew from a Desert Culture base (Haury 1943). The specific kind of life led by these nomadic gatherers must have been quite different in detail from the Desert Culture manifestations in the better-known mountains. The Cochise culture, as the local Desert Culture is called, is characterized by a well developed inventory of grinding tools, including the metate and mano. In the light of the importance of this type tool, a more favorable climate supporting a somewhat more lush vegetation might have been present in the area at that time. Since it would follow, from our earlier discussion on the domestication, that corn was not available as a staple prior to the development of Hohokam culture, then these grinding tools must have been used for wild seeds and grains which grew in the desert. The steps by which the transformation from gathering to agriculture took place are as little known in the Hohokam area as in the Anasazi region.

Despite the importance of Hohokam culture to the understanding of southwestern culture history, little work has been done on it. The major excavation was at Snaketown, a large site southwest of Chandler, Arizona. Recently, DiPeso has contributed to an understanding of work on the eastern Hohokam range. Until more excavations in the central area are undertaken, however, much of the interpretation of the nature and spread of this culture will have to be based on surface material.

The following description of Hohokam culture history has been broken into five subsections, each of which corresponds to an important phase in the development of this way of life or a significant change which altered it (Fig. 28). The earliest Hohokam period has been called the Pioneer. Its striking difference from the material which follows justifies separate treatment. During the next periods, called here

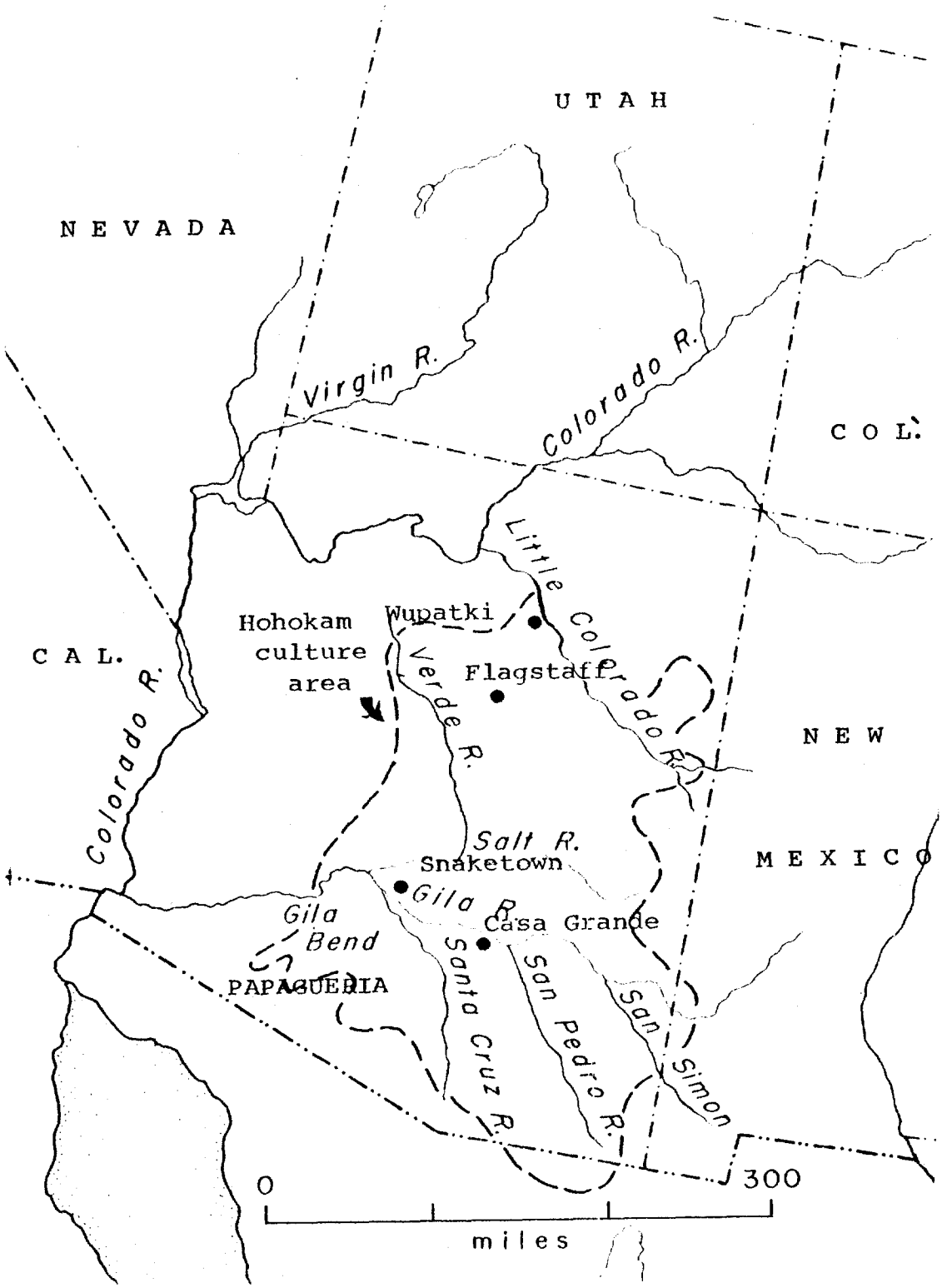

Figure 27. Hohokam culture area map.

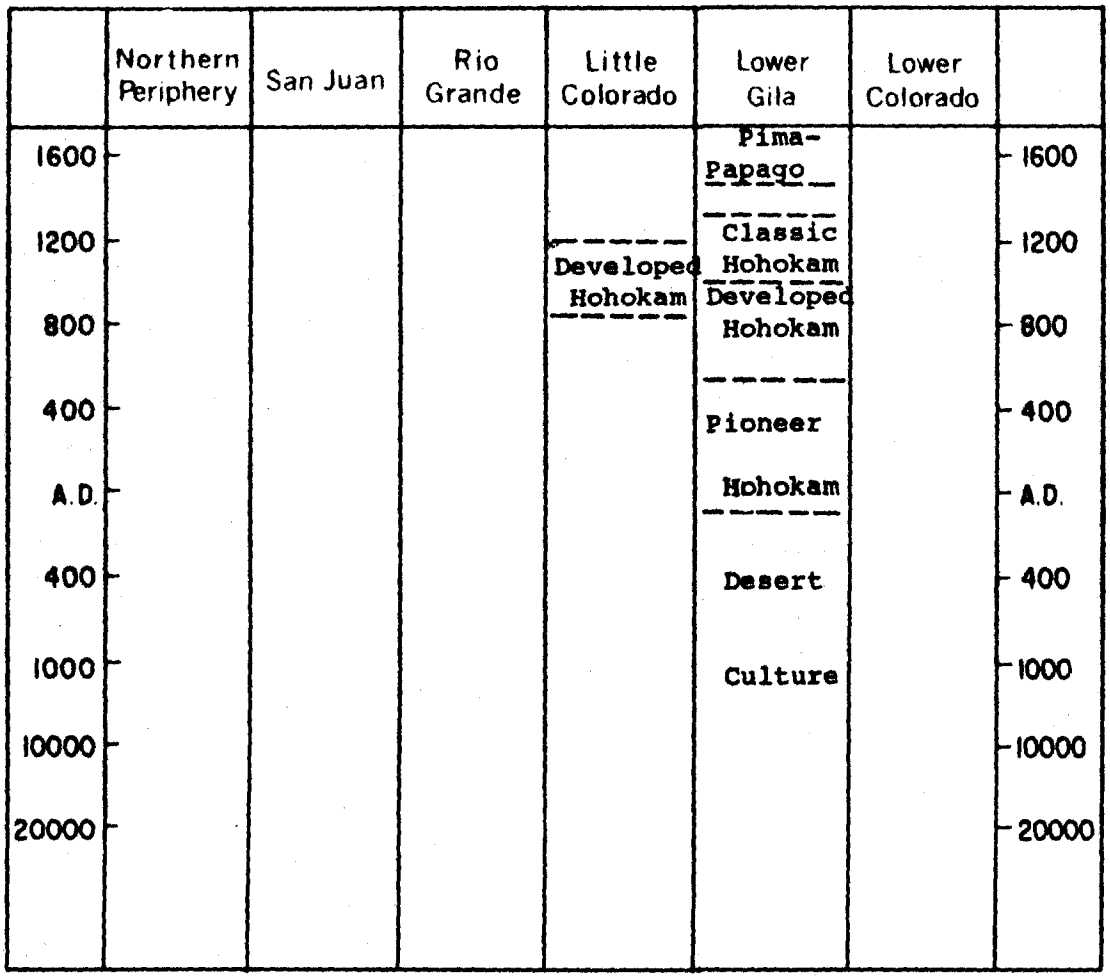

Figure 28. Hohokam time and space relationships.

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Developed Hohokam, distinguishing Hohokam traits are introduced to bring the culture up to its characteristic form. After it had developed to the extent that there was a control of the desert environment and ability to produce a surplus a movement north began which reached the Colorado Plateau and mixed with the Sinagua. The Hohokam abandoned this plateau area in short order, however, after at least one earth-shaking experience with a volcano and pulled back their frontiers far to the south. Following them off the plateau was a group of Anasazi who for several generations lived side by side with the Hohokam during the Classic Period. The possible relationship between the Hohokam and historic tribes in the area will be the last topic.

Pioneer Period

The first evidence of Hohokam culture is centered in southern Arizona on the middle Gila River and the lower Salt River drainages. The Pioneer Period, as this first indication of Hohokam life is called lasted from the beginnings of the Christian Era to about A.D. 700. Its differentiation from the Desert Culture probably resulted from the diffusion of several new traits from Mesoamerica. Each of these major traits suggests something about the new way of life that was developing. Houses point to a more settled existence. The rectangular mano and trough metate do not reveal a new type of economy, for the mano and metate are old in the desert area, but the new tool forms manifest the strong influences from the outside. Clay figurines might be taken as a new interest in either the unknown or in nonessentials, but both require some measure of free time. The presence of a distinctive pottery sets the early Hohokam off from the other pottery users of the period and suggests certain different influences beginning at this early stage in their cultural development.

It is only an assumption that the Pioneer Hohokam had agriculture, for no direct evidence of corn, or other cultigens has yet been found. Perhaps more important, neither is there evidence of irrigation. The remnants of early canals might have been destroyed in the construction of later ones, but present information would lead to the belief that they were not present. This would mean that the earliest Hohokam were living in a desert area much the way the historic Papago who inhabit the driest and most unfavorable parts of the desert area lived when the settlers first reached the area. More will be said concerning the relationship between the Hohokam and the Papago later.

Some indication of the settled nature of Hohokam life during this early period comes from an examination of their house form (Fig. 29). Although few have been excavated, the pattern which seems to emerge begins with the slight excavation of a large square room, roughly six feet on a side. The outside walls were made of posts, thatch, and mud. The posts were set in the ground at the bottom of the excavation, which means that this was not a pit house of the Mogollon type, but a house in a slight pit. A six-foot long covered

passage or vestibule in the middle of one side formed the entrance. This single-unit structure probably was covered by timber rafters, overlaid by smaller logs supported, at first, by four or more upright and, later, by two main posts set in the floor. The prepared floor contained a fire pit near the entryway. Apparently, a similar but larger structure served as a communal house (Gladwin 1948), although there seems to be some disagreement on this point (Haury 1962:124). There is no doubt that during this early period in Hohokam history a rather large, well-made structure was being constructed. The fact that it was being used for living or ceremonial purposes is not as important as its presence, which manifests on the part of the Pioneer Hohokam a rather sophisticated technology and certainly a settled life.

Some of the sites of this period are located at the base of hills and others on the upper stream terraces some distance from the stream proper. Excavations at Snaketown suggest that small groups of houses were clustered in irregular fashion to form small rancherias.

Early Hohokam pottery was all smooth with none of the corrugated types found to the north (Fig. 30). It combined the paddle and anvil finishing technique with oxidized firing, so that the earliest types were plain gray-brown or red. Later, designs begin to appear in simple rectilinear or curvilinear forms, and, finally, with hatching. Pottery figures of human forms were also made during this period, beginning a long and interesting artistic tradition among the Hohokam.

Many of the stone artifacts which characterize the fully-developed Hohokam are present in the Pioneer period (Fig. 31). These same stone tools, as well as relating the Pioneer period with the later Hohokam sequence, reflect something of the diversified nature of the technology of these people living in the barren desert region. The mortars, pestles, oval and rectangular manos, and trough metates point to a continuation of exploitation of the wild plants along with more intensive use of the products from a growing agricultural industry. Items such as hammerstones and knives reflect still other parts of the culture, possibly work with skins, wood, and fibers. It is interesting to note that,

although projectile points, scrapers, and chipped stone tools were made, they were not common. On the other hand, stone beads, pendants, and turquoise mosaic pendants suggest that there was definitely a place for the nonessentials, that ornamentation of the body was already practiced, although its importance cannot be determined. Shell was also used for nonutilitarian objects, being made into bracelets and beads. A distinctive bone tube decorated with rectilinear designs is also present at this early level, suggesting again that there was something more going on in the desert during the Pioneer period of the Hohokam than simply a struggle for survival. This problem must have been solved, at least to the extent that some free time was available to spend on personal interests, whether they were religious, artistic, or otherwise.

Though no burials have been recovered, small quantities of burned bone and ash suggest that cremation was practiced. During the later part of the period, crushed burned pottery and some stone objects were also placed in the graves. The practice of cremation ties this period with the rest of the Hohokam sequence. Cremation is also one of the traits which distinctly differentiates Hohokam from both the Mogollon and the Anasazi cultures, although there is some indication that it was an old technique in the Southwest.

The little that is known about Hohokam culture during the Pioneer period can be summed up in this way. It would appear, as the result of the diffusion of new agricultural crops, pottery, and houses, from the mountains to the east or south, that the Cochise variety of the Desert Culture around the confluence of the Gila and Salt river achieved an adjustment to a settled farming way of life by about A.D. 700. Although there is no direct evidence of agriculture the adjustment appears to have been complete enough by the end of this time so that significant amounts of time could be

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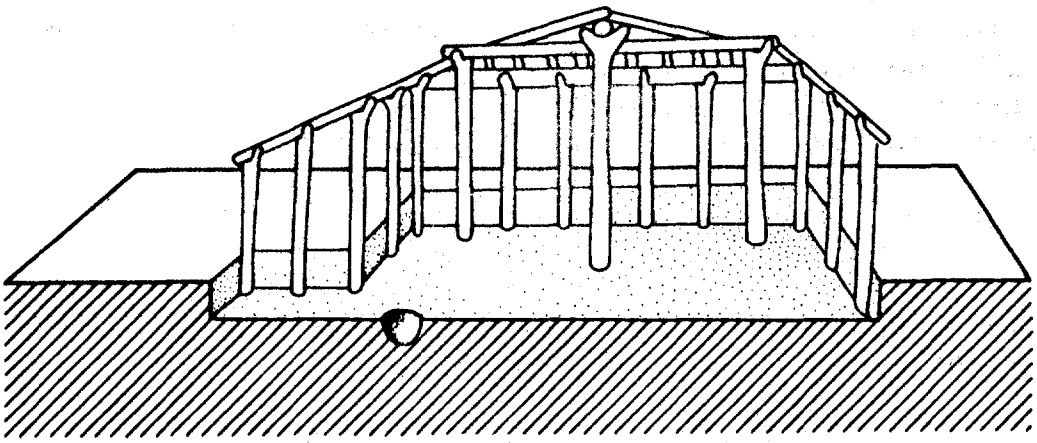
Figure 29. Hohokam house types. A, Pioneer Period house framework restored; the small pit is the fireplace. C is an example of this period house from Sweetwater. Compare these with B, a Sedentary Period structure about 25 feet long by 14 wide. After McGregor, Southwestern Archaeology.



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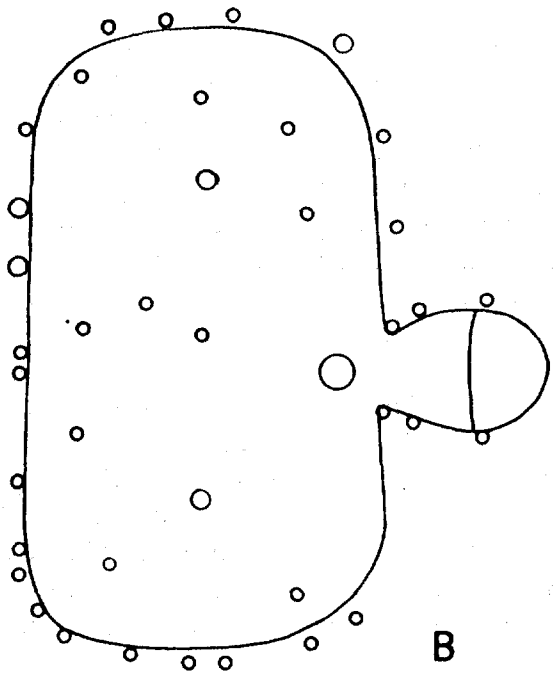

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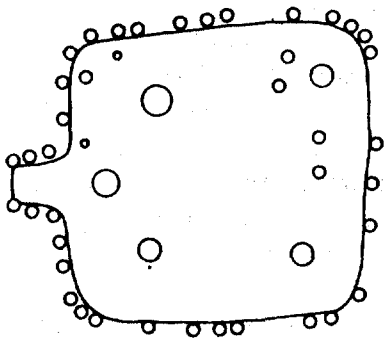

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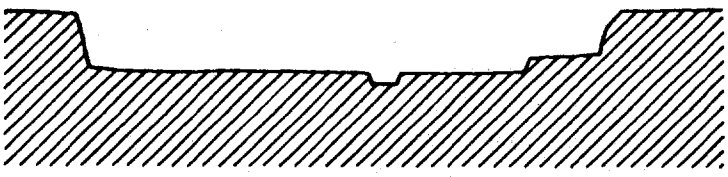

spent on artistic and other nonessential tasks. Perhaps also there was time enough to engage in productive experiments with the desert environment and to lay a base for the rapid changes, both technological and social which were to be made in the next few hundred years.

Although the Hohokam culture around the rivers changed radically in the years that were to follow these changes definitely did not reach all adjacent areas. Away from the rivers, and especially in the Papagueria the new ideas did not penetrate with any kind of force. As a result the Pioneer Hohokam culture continued in this area long after it had passed out of fashion in the core Hohokam territory (Reed 1951).

Developed Hohokam

Near the end of the Pioneer period, between about A.D. 600 and 700, several new traits began to appear in the Hohokam area. These included such diverse items as rectangular houses with two posts, the disposal of trash in mounds, as opposed to the practice of scattering rubbish randomly over the ground; red-on-buff pottery with new elements of decoration, in contrast to the earlier red-on-gray-brown; and pit cremations with pottery offerings rather than the disposal of human ashes in the trenches, as practiced before (Schroeder 1960:68-69). These were minor elements, however, compared to the changes that they were foreshadowing for by A.D. 700 other new traits appeared which reflect alterations in the whole nature of the Hohokam life and justify setting up a new period. Irrigation which occurs significantly for the first time in Hohokam culture had the most profound effect, not only in the economy but in all aspects of life. Perhaps the new artistically-oriented craft elements appeared because of an expanded economy made possible through intensive

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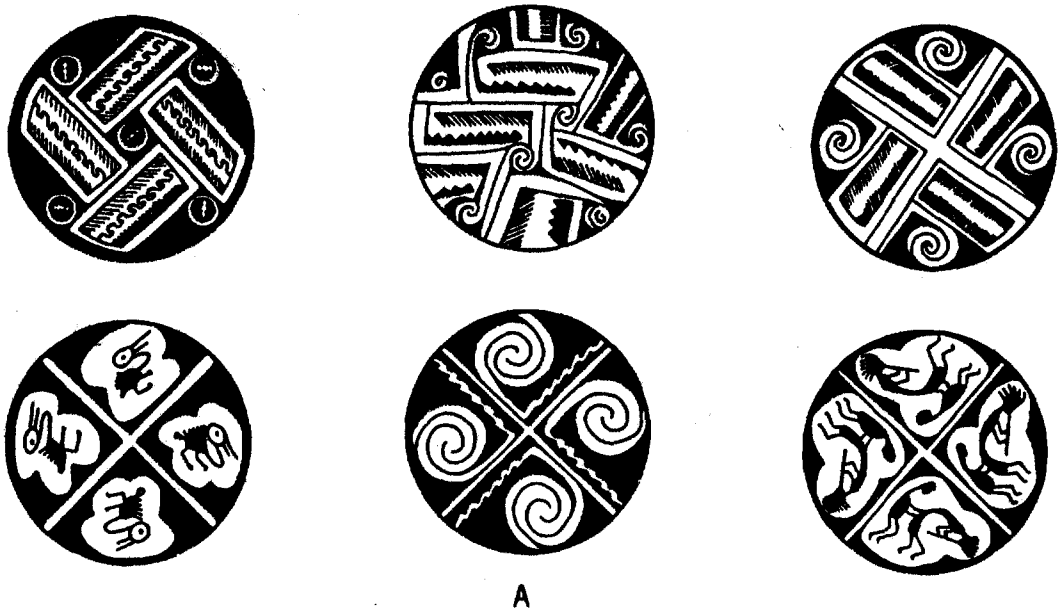
Figure 30. Hohokam pottery. A, design elements in Developed Hohokam periods; B, plain jar, Snaketown, Pioneer Period; C, design elements in bowls and ladles, Snaketown, Pioneer Period; D and E, R-on-Buff, Snaketown, Developed Hohokam. A, D, and E, after Gladwin, A History of the Ancient Southwest; B and C, after Gladwin, Excavations at Snaketown. I.



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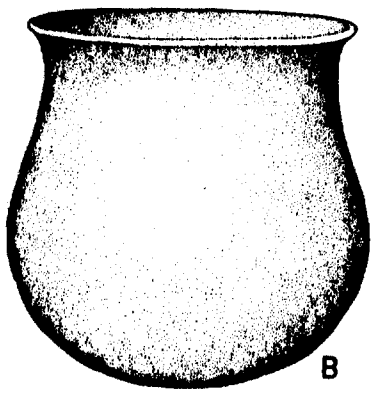

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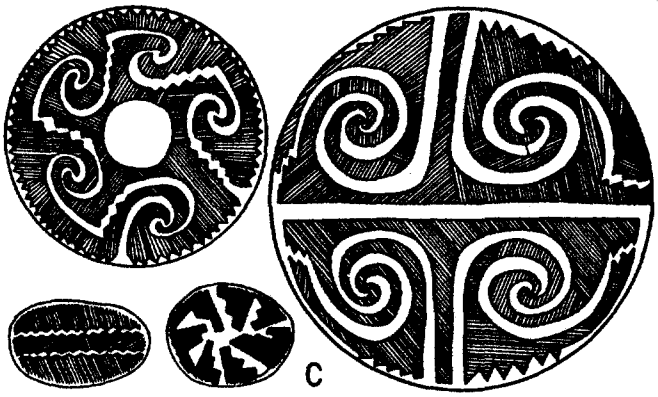

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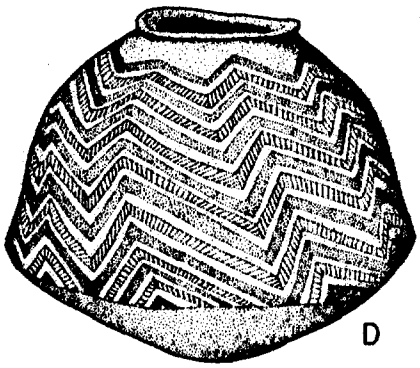

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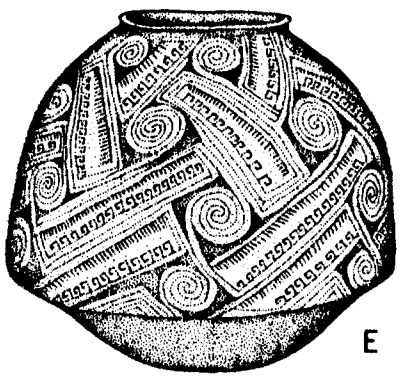

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irrigation. Items such as mosaic plaques, slate palettes, and stone and shell carving certainly indicate the availability of free time and possibly of specialists. Furthermore, the appearance of the ball courts opens up many possibilities for speculations concerning more complex social relations (Haury 1945). Thus, at the end of the Pioneer Period an entirely new cultural pattern was introduced into the Southwest.

Many of the items found in Developed Hohokam are known to have been in existence at an earlier date in Middle America, where large ceremonial centers were in vogue. Some workers in the area believe the Developed Hohokam was primarily a local cultural growth onto which foreign traits were added (Haury 1945). Others, however, suggest that the Hohokam migrated as a unit into the Southwest from Mexico, mixed with or subjugated Pioneer Period people (DiPeso 1956: 562-64). In evaluating these two hypotheses, the archeologist is limited by the lack of skeletal material for comparison since the Hohokam practiced cremation and hence it is not possible to determine if a change in the physical population took place. The fact that cremation, as well as a number of other traits, did continue on from the Pioneer Period does suggest that at least some cultural continuity did take place and, therefore, must be accounted for in any discussion of the origin of the Developed Hohokam.

The Developed houses, of which more is known than in the earlier period, are rectangular with rounded corners, as they were during the later part of the Pioneer Period. They continued to be built in a slight depression with walls of slanting poles, lined with reeds. The central ridgepole of the roof was supported by two major posts and the roof was probably thatch. The floors were usually encircled by a low mud rim, six inches or less in height, probably used to keep the surface water out of the house when it rained. No evidence has been found for fireplaces inside the houses, but firepits are known in front of the entrance, suggesting that cooking was done outside the house, perhaps in open shade. In the desert, where the houses were mainly for shade, it would seem reasonable that they would keep the heat of the cooking fires outside their houses. These houses were, at first, scattered on the upper terraces of the streams, presumably to free as much land as possible for irrigation

in the lowlands.

The most interesting of the new developments was the irrigation system. At this time, the Hohokam had as much as 200 miles of canals in the Salt River valley along, carrying water from the rivers to the fields (Turney 1929). These were up to 60 feet wide and as much as 10 feet deep with smaller ditches running off main ones. They appear so well developed at this time that either they were present in rudimentary form during the earlier Pioneer Period and just have not been recognized, or irrigation came up from the south fully-developed with the other new traits which appeared during this period. Haury (1962:122) has speculated that it could also have been an independent development following the obvious example of shallow channels in the flood plain. This would mean that the forerunners of the system would ultimately be found in the Pioneer Period. Woodbury (1960), in the most recent re-examination of the problem, feels that "Present evidence is insufficient for a choice between diffusion from central Mexico and local development."

The amount of physical energy needed to produce this system must have been tremendous, especially when it is realized that the only tools available were made of stone and wood. It would seem that several important consequences should follow from this large-scale hydraulic operation. First, since several villages were occasionally dependent on the same canal, not only is there a suggestion of centralized authority necessary in the planning, construction, and maintenance of these ditches, but in the handling of problems such as water rights and, possibly, land ownership. Second, as Haury (1956:9) has pointed out, these ditches freed the large agricultural village from a direct tie to a source of naturally-occurring water. Communities could now be constructed miles away from the rivers and streams as long as a channel to carry water to them was possible. A controversy now obtains as to how strong a political authority would have been necessary to control such a system.

Another trait which occurs at this time and which has implications over and above those of its actual use is the ball court. These have easily identifiable antecedents in Mexico and farther south and the number of specific

similarities leaves little doubt that they came from that area. The courts themselves are unroofed oval areas up to 200 feet long surrounded by earthen banks 15 to 20 feet high. The floor was excavated to a slight depression and stones were placed in the ends and the middle, probably as markers. The game was most likely played with a rubber ball and, if it followed the pattern in the south, it was a combination of basketball, volley ball, and soccer. A great deal of gambling and festivity accompanied the game and intervillage play also was important. Ball courts must have been most important to the Hohokam for, as far as they spread, even to the southern lip of the plateau at the backdoor of the Anasazi, they built these courts.

In 1958 a platform mount, the Gatlin site (Fig. 62), was found near Gila Bend which has similarities to those in Mexico (Wasley 1960). This may be the first evidence of Hohokam ceremonialism. It was a flat-topped slope-sided mound about 130 feet long and 100 feet wide and seven feet high. The general shape was rectangular with rounded corners and the sides were faced with a plaster of mixed caliche and adobe over an earth core. Periodic enlargement and modification took place and, eventually, out from the core mound there were constructed radial walls ending in ancillary mounds. No evidence was found that it was built over a tomb and it has been assumed that the platform was the scene of special ceremonies. Direct evidence of contacts with Mexico is seen in the 60 to 80 copper bells found at the site and presumed to have been made in Mexico. An estimated 2000 projectile points were also found in association

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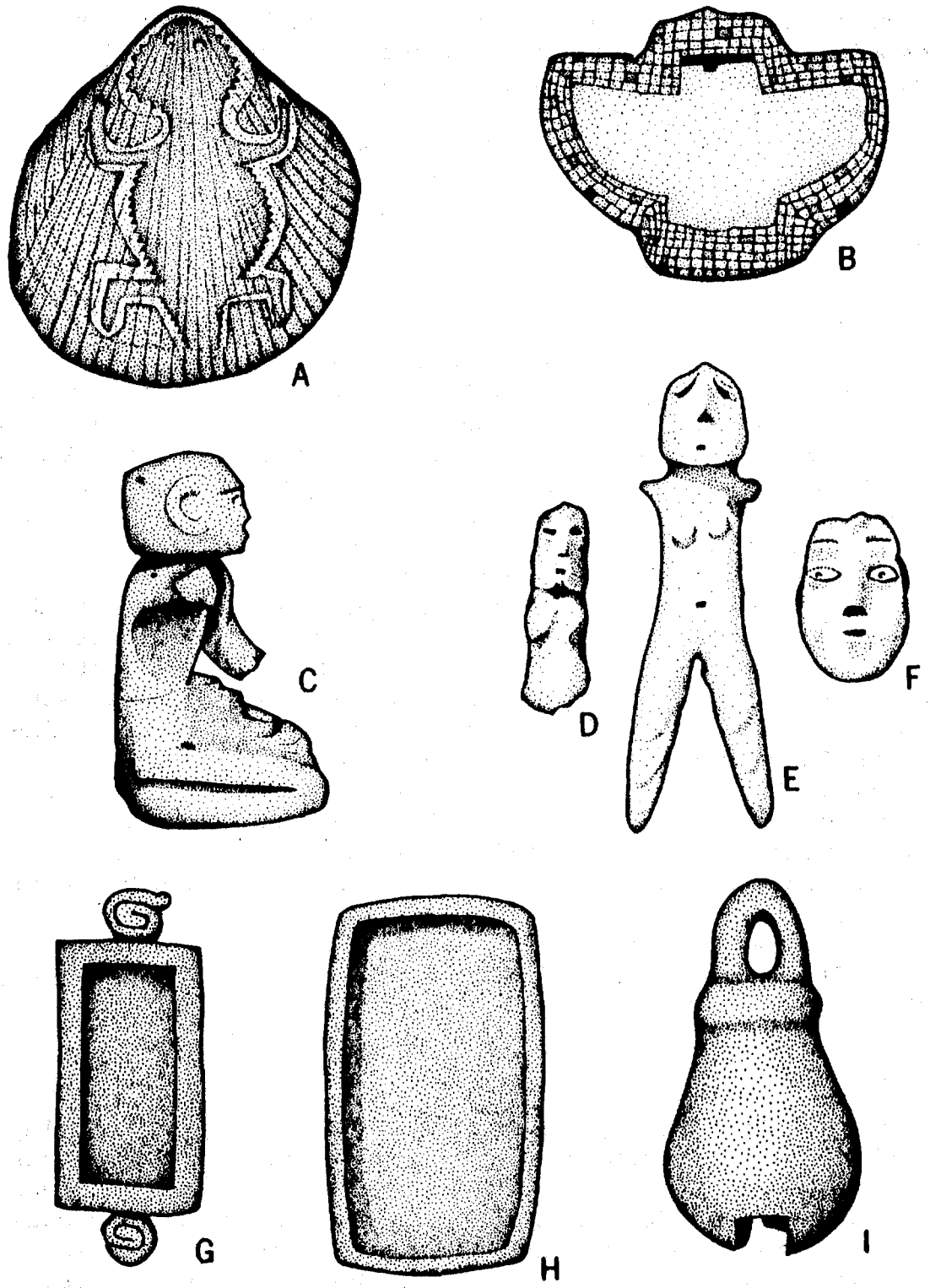
Figure 31. Hohokam artifacts. A, Snaketown, Developed Hohokam, etched shell; B, Casa Grande, Developed Hohokam, turquoise mosaic on shell; C, Snaketown, Developed Hohokam, stone figure; D, Pioneer Period, pottery figurine; E and F, Developed Hohokam, pottery figurines; G, Snaketown, Developed Hohokam, slate palette; H, Pioneer Period, stone palette; I, Snaketown, Developed Hohokam, cire perdue copper bell, less than 1" long. D-F, after Wormington, Prehistoric Indians of the Southwest; C, after McGregor, Southwestern Archaeology; remainder after Gladwin, A History of the Ancient Southwest.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with cremation pits which dotted the east side of the mound. This mound is assumed to have been the scene of important ceremonies among the Hohokam. Whether or not other such sites are present in the Hohokam area is not yet known. Their presence or absence will make an important difference in any interpretation of Hohokam ceremonial life.

As has been mentioned, new developments in the arts also occurred during this time. Pottery decoration was mainly limited to painting, with the repetition of small elements being important at first, then later, a great elaboration of panels, interlocking scrolls, and negative designs become important (Fig. 30). The pottery figurines continued to be popular with definite differences in styles developing. In addition to some new utility stone tools, the major innovations in stone working came when pieces of iron pyrites were inlaid to form mosaic mirrors. Judging from the difficulty of working iron pyrites these must have required much time to produce. Another true diagnostic Hohokam trait of this period was the thin, rectangular palette with ornamented borders. Taken in conjunction with the carved stone vessels, the intricately decorated pottery vessels, and the shell etching and overlay, this reflects rather large amounts of time were available to at least some artisans for the production of luxury items. Another striking example of this is the small pear-shaped copper bell (Fig. 31). It seems rather clear such were imported directly from Mexico. Noting the number of these found in the platform mound, the degree and intensity of contact with southern ideas is rather impressive. There is little wonder that Hohokam has frequently been considered a northern extension of Mesoamerican culture, an extension which provided a flavor all its own to the prehistoric culture history of the Southwest.

Radiation to the North

The Hohokam culture was virile enough to wrest a living from the desert environment, to support specialized artisans in shell, stone, and possibly pottery, and to construct such large works as platform mounds, irrigation systems, and ball courts. As might be expected, during its Developed phase its areal extent was also expanding. Beginning about A.D. 500 near the end of the Pioneer Period and continuing through

the Developed Period, there was a peripheral extension of Hohokam culture into the Verde Valley (Fig. 27). All of Hohokam culture was not represented at every site, but there was enough to suggest that Hohokam traits may have diffused into the area and mixed with the local culture. Another possibility is that during this time Hohokam migrants were living in an area which would not fully support the Developed Hohokam culture. For example, in the Verde Valley they did have irrigation agriculture and with it grew corn, beans, and squash. Their houses consisted of the single unit jacal square structure, built in a shallow pit with an inclined ramp entry like those to the south. They also possessed ball courts and typical Hohokam crafts, such as red-on-buff pottery.

Just after A.D. 1000 the Hohokam moved even further north onto the plateau. The reasons behind this rather startling migration into an environment which was totally different from their homeland is one of the most interesting in all of southwestern culture history. For 500 years prior to this time, in the area around Flagstaff, Arizona, in the shadow of the San Francisco Peaks, there lived a people called by the archeologists the Sinagua (Colton 1960). These were sedentary agriculturalists -- dry farmers -- although the high altitude and cold nights made corn growing precarious. This way of life probably had mixed cultural origins with elements of both Hohokam and Mogollon. They lived in small, scattered clusters of, mainly, deep timber, pit houses with long sloping entryways and a definite central fireplace. Their crafts seem to have been poorly developed, although they did have a brown pottery, finished by the paddle and anvil technique and fired in an oxidizing atmosphere. Much of their trade pottery was from the Anasazi, however, who lived just to the northeast.

This most interesting culture demonstrates better than any other the lack of sharp boundaries between the basic cultures in the prehistoric Southwest. On the one hand, it has been necessary to talk about Anasazi, Mogollon, and Hohokam as if they were real entities, as if there were lines at the edge of the desert or the plateau or around the mountains which set each off from the others, but, on the other hand, the Sinagua houses were most like those of the Mogollon, its pottery firing was like the Mogollon and Hohokam,

its finishing technique was most like the Hohokam, yet most of its finer pottery was either traded from or a copy of the Anasazi. An examination of their other traits would also reveal this degree of mixture. On the peripheries of all the major cultures there were these mixed ways of life. The degree of mixture, the amount of influence of one of the dominant patterns, i.e. Anasazi, Mogollon, or Hohokam, varied as the strengths of these grew or waned.

About A.D. 1066 a startling event occurred to alter completely the quiet and unspectacular life of the Sinagua. Probably their first intimations were earthquakes which shook the ground and opened large cracks in their ancestral homeland. Out of one of these cracks rose molten lava that probably scared most of the Sinagua from the area. Eventually the violent activity ceased, and the dispossessed Sinagua could see that this great disturbance had not only destroyed some of their homeland, but had left as a permanent reminder a new mountain. The Sinagua discovered that the ash which the volcano had spread so widely over the ground, and which initially killed every living thing, also added to the soil an element which made corn grow better than it had before. It was rich soil that held the rain water. In fact, some areas of the warmer low altitudes to the east, which had never been arable before, now could be planted and a rich harvest would result.

This new found wealth of rich land was a mixed blessing, however, for the word soon spread to the south, north, and west. From village to village the wealth and wonders around the new mountain must have been discussed. From all sides came visitors and then settlers. Since the number of families which can be supported by an irrigation ditch is limited in a narrow river valley, the Verde Valley Hohokam must have welcomed a chance for new land. So, from the upper drainages of the Verde River men, followed by their families, covered the well worn trading trails to the north, out of the desert into a whole new, pine-covered plateau world. Each new group selected the best land available at that time and immediately began rebuilding their life. At first they built homes like they had in the Salt River and along the Verde, but they soon found out that in the mountain country the deep pit house was warmer in the cold winters and surplus crops could be stored better in the above-ground masonry

granaries of the type the Sinagua built. Still later they constructed masonry pit houses, using, like most cultural traits, ideas from a variety of sources: the Anasazi masonry technique, the depth of the house and the ventilator from the Sinagua, and only the gabled roof from their own old building traditions. One thing the environment could not affect was their ceremonial life, so they built a ball court similar to the ones they had used to the south.

Only for about a generation were the Hohokam migrants able to live as they had in the south. By A.D. 1100 they were even building the new above-ground masonry buildings which had been so popular with the Anasazi for over a hundred years. These were not only drier and more convenient than the old pit houses, they were also more flexible since they could be enlarged with relative ease. This eventually produced numerous small pueblos. The ball courts continued to be used, however, and were rebuilt several times.

By the thirteenth century the population had begun to fall off sharply, probably for the same reason this occurred in the north. Another factor might also have been operative here, namely, the eventual lowered fertility of the volcanic soils. One of the last settlements left in the area was the site of Wupatki. It had been started in what had been barren lands near the intermittently wet Little Colorado River, before the moisture holding ash had spread over the land. In its prime it held as many as 200 Indians and was, in some places, three stories high. It included a circular and unroofed amphitheater as well as a ball court of red sandstone.

By A.D. 1325 all inhabitants were gone from the land of the "black sand," but the traditions of the thoroughly mixed Sinagua were still being carried back to the Verde Valley. Just after the beginning of the twelfth century Sinagua immigrants began filtering into this valley in a counter wave, following the great population explosion near the new mountain areas. Here the Sinagua were no longer the "in-group" as they had been on the plateau. The resident peripheral Hohokam population remained in a somewhat dominant position. Here, then, it was adjustment to the desert environment and the original Hohokam culture which lent the basic flavor to the changing Sinagua life. Farming was practiced, both dry in the uplands and with the use of irrigation

in the finest Hohokam tradition along the river valleys. The idea of masonry pueblos which the Anasazi had given to much of the rest of the Southwest was also popular here by this time, but the main emphasis seems to have been trying to make a living.

By the time the last of the Sinagua were leaving the southern plateau, about A.D. 1300, the Verde Valley had taken on a somewhat new complexion. Rather rapidly there had been a drop in the number of sites. Most lived in a few large, poorly constructed pueblos which were situated on elevated spots along the streams. All of these had defensive features such as parapets, approach walls, low doorways, and no entryways at all in the exterior walls. Near the main dwelling there was usually a large, good masonry room, which may have served as a ceremonial chamber of some kind. If this is the case, then perhaps the Anasazi idea of the kiva was slowly making some progress in this gateway to the desert. It was this very Anasazi influence which, back in the heartland of the Hohokam, was altering the whole face of the desert dwellers' life.

Intruders from the North

When archeologists began working in the Hohokam territory they observed that late in the sequence there was constructed in the desert large pueblo-like buildings (Fig.29). For this reason the term Classic was applied to the period between A.D. 1200 and 1400. Not until sometime later was it realized that these large structures were not built by the Hohokam, but by a group of Anasazi designated the Salado or Anasazi-influenced Sinagua who during this time moved in from the north. The Hohokam continued to live their lives much as they had before, except that for some two hundred years they shared their desert homeland with these outsiders.

Hohokam life was a little different from what it had been. The houses had changed somewhat, now being built on the surface, with thin walls of clay often reinforced with vertical poles tied together with finer material and around these houses was a rectangular wall to form a compound. Both of these new items were probably introductions from the north (Schroeder 1953). Many other practices continued unchanged, however. Cremation with the ashes placed in a

bowl was still in vogue. Ball courts were somewhat smaller. Irrigation reached a climax, probably in response to the influx of new people the system had to support. Smaller items were about the same with a few minor changes. Stone bowls, palettes, and pyrite mirrors were no longer made. Some stone carving and inlay were more finely done than before.

It was not Hohokam culture which had changed then, but the fact that they had fancy neighbors. One look at the great Casa Grande site (Fig. 32) is sufficient to appreciate how the Hohokam must have felt looking from their small one room brush jacal structures. Dominating their landscape was this four story clay building with great thick walls. Eleven rooms were in this one structure and around it, within the compound, were many other structures with a varying number of rooms. Not only was the architecture strange to the Hohokam, but other things were different, too. Pottery was finished by scraping instead of paddling, and it was painted in red, black, and white. The Anasazi even buried their dead without burning them, either laid out straight or in a semiflexed position. The graves were placed in the trash mound or in the houses. The Anasazi, in turn, were also influenced by the Hohokam for their grooved axes, triangular projectile points, and cut shell pendants were probably traits picked up from their new neighbors.

Archeological work will probably never reveal the true nature of the relationship between the resident Hohokam and the immigrant Anasazi. The evidence would indicate it was peaceful. It also suggests that the Anasazi were dependent on the Hohokam irrigation system. But other questions remain unanswered, the kind of questions which do not lend themselves to archeological analysis. What does seem clear is that this movement is one of many examples of Anasazi expansion.

Last of the Hohokam

The Anasazi moved out of Hohokam territory about A.D. 1400. After this date the archeological record in this area comes to an end. The fate of these recent immigrants, who had survived the desert heat for about 200 years is not positively known. The important thing was that they left.

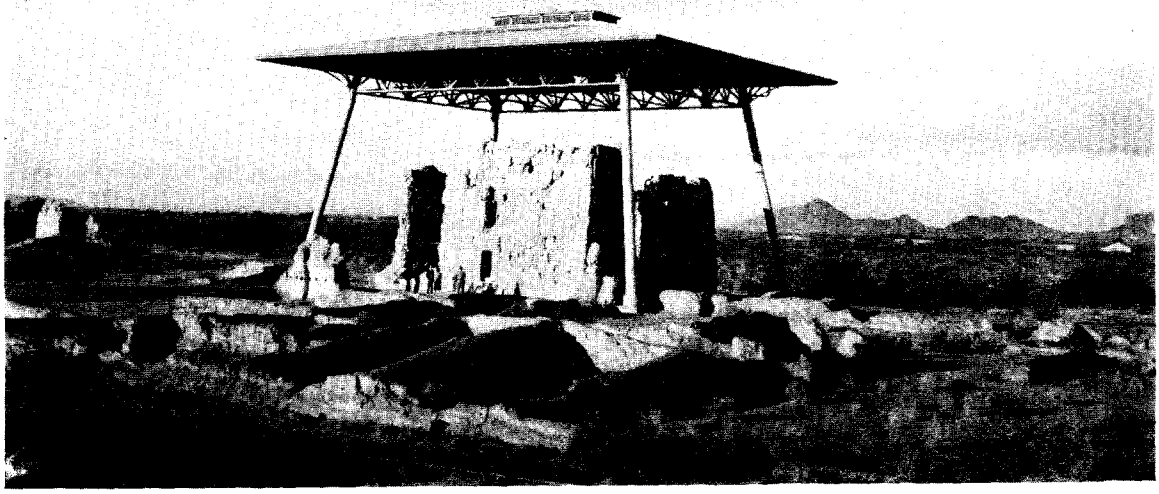

Figure 32. The Casa Grande site compound. The walls are made of puddled adobe without reinforcements. They are nearly five feet thick at the base. The shed protects the structure from occasional rain. A National Park Service photo.

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The record of the Hobokam also vanishes. It is possible that overuse of the canals produced a deposition of mineral salts which made the areas useless for a time. Perhaps later sites have not yet been found. When the first white Americans arrived, they found the Pima Indians making full use of this part of the Gila Valley and leading a life somewhat like that of the earlier Hohokam. The easy explanation that the Pima are simply the descendents of the Hohokam may be correct, if so, a great many details need to be worked out to fill the historic-prehistoric gap in our knowledge that now confronts us.

Buried Beginnings

Near the northwestern corner of Arizona the great Colorado River ceases its meandering through deep canyons and turns due south to cut a straight course toward the Gulf of California (Figs. 11 and 33). In this area the river is "flanked by barren ranges and mesa edges whose curves segment the valley into a series of plains, ten to twenty-five miles across, separated by stretches of gorge" (Forde 1934: 246). The river everywhere in this part of its drainage flows over deep alluvium and nowhere is bed rock exposed. The bluffs, which are fifty to a hundred feet high, form the limits of the flood plain. It is this flood plain which each year is covered by the water carried south and west by the upper Colorado River from its source in the Rocky Mountains. This annual flooding produces along its banks what has been called "longitudinal oases," dense growths of willow, cottonwood, sycamore, mesquite, and arrowwood. Beyond the river are mesas and low mountains in true hot desert with almost no precipitation. Here only hardy xerophilous plants such as creosote, cacti, and ironwoods grow.

Along these flood plains the earliest Spanish and American explorers found several groups of Indians, including the Mohave, Halchidhoma, Yuma, Cocopa, and in the lower Gila adjacent to this area, the Maricopa (Fig. 33). All of these had certain features in common, the most binding perhaps being the Yuman language. Although they farmed along the flood plain of the river, planting just after the flood water receded, interest in gathering was equally important. The cultures of all these groups were rather impoverished. This is reflected in their scattered impermanent villages, scanty clothing, rare weaving, limited basketry, little use of skins, and cremation of the dead. Their religion even underplayed "....visual ritual and symbolism and substituted emphasis on songs acquired by ....dreaming ...." (Kroeber 1939:42-3).

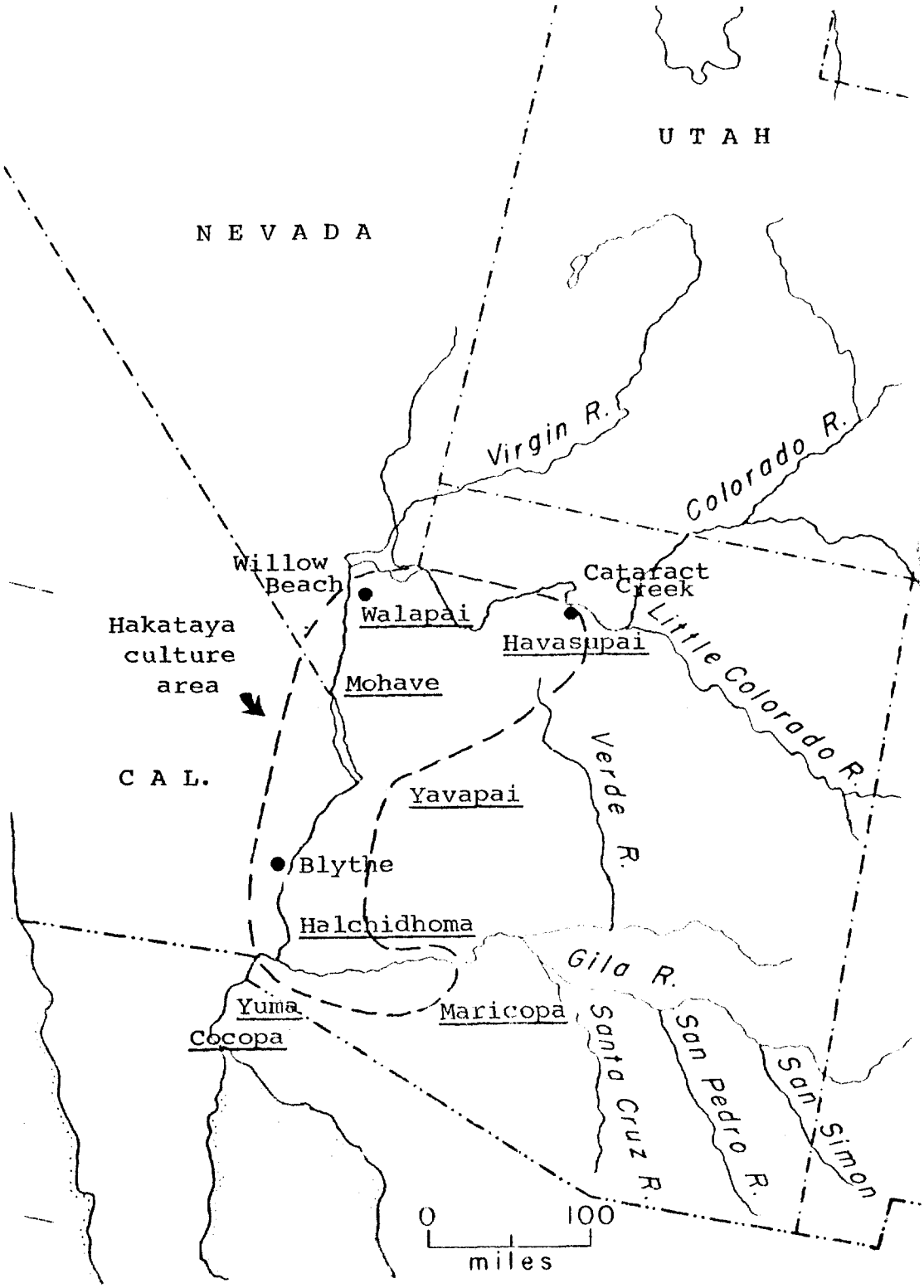

Figure 33. The Hakataya area, showing the important sites. Underlined names are historic tribal locations.

These so-called Lowland Yumans also had relatives to the northeast. Near and on the southwestern edge of the Colorado Plateau lived the Yavapai, Walapai and Havasupai, grouped together linguistically as Upland Yumans. Except for the Havasupai, who each summer intensively irrigated and farmed an oasis in the depths of Grand Canyon, these tribes practiced agriculture sporadically and insignificantly. For the most part, they resembled the seminomadic Shoshoneans to the north and they were more similar to the Desert Culture pattern than to their singing, river farming, cousins to the west (Fig. 34).

It should be clear that investigating the Yuman culture would not be easy for the archeologist. He would be hampered by annual flooding. He would be studying people who did not live in villages long enough to leave significant amounts of midden, a mainstay of prehistoric research. It is not difficult to see why so little is known of the area's prehistory, if people of the same culture type have lived in this area for a long time. On the other hand, if some other group lived in the area in the prehistoric period, the great volumes of water and silt carried by the Colorado River during its annual flood may have either washed away forever or deeply buried the beginnings of human culture in this region.

Similar pottery over this whole area led H. S. Gladwin (1934) to postulate a prehistoric Yuman Stock comparable to the Hohokam, Mogollon, and Anasazi. Later, Hargrave (1938) and Colton (1939) suggested that the name Yuman should be changed to Patayan, a more neutral term which would not presuppose a cultural relationship between any prehistoric and historic group. Finally, Schroeder (1952) working with more data, suggested the name Hakataya to refer to the prehistoric pottery-bearing cultures which ranged from the Colorado River on the north to the Gila River on the south, and from the Verde Valley on the east in central Arizona to the desert land of southern California and Lower California on the west.

The problem of the age and beginnings of the Hakataya culture might be examined following three approaches -- linguistic, ethnological, and archeological. The language spoken by the historic inhabitants of the area -- Yuman --

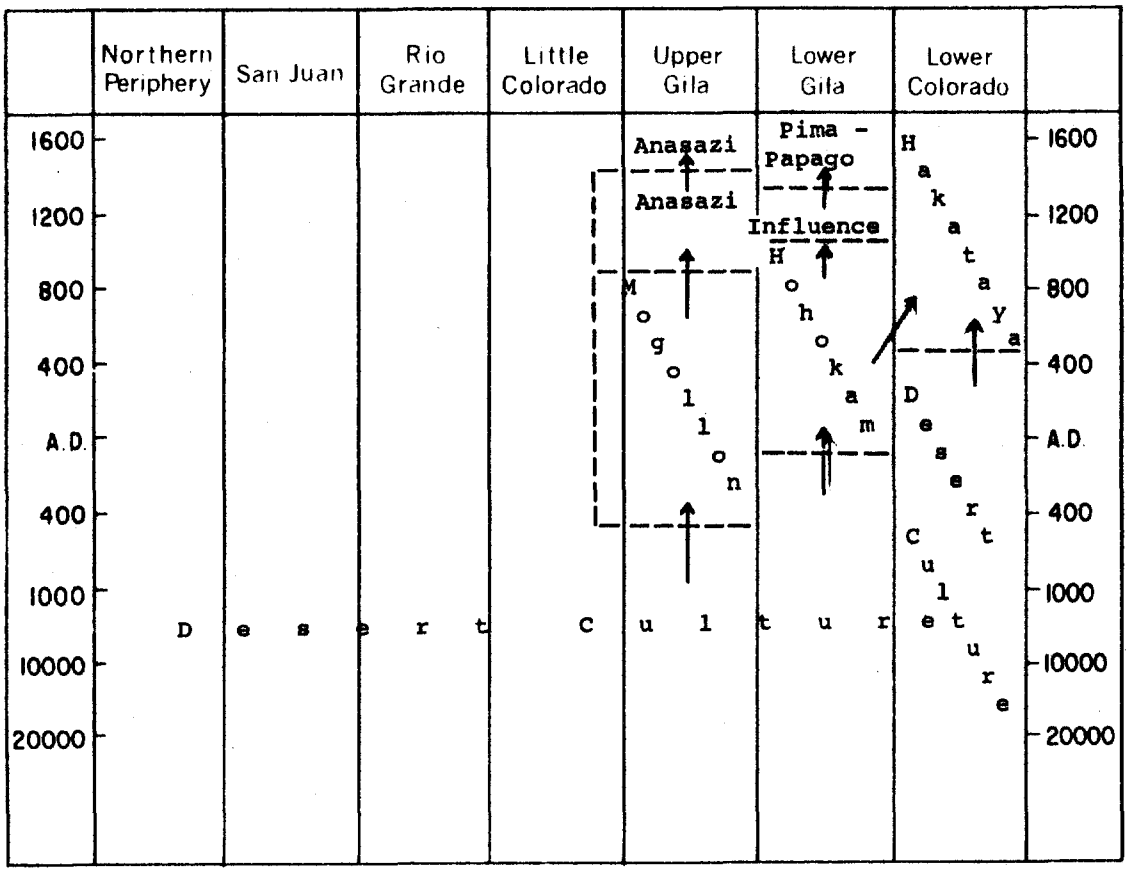

Figure 34. Hakataya time and space relationships.

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has been judged by at least one worker in the field to be one of the oldest in California (Klimek 1935). He feels that th Hokan-speaking tribes, to which the Yuman belong, once occupied nearly all of that state, including the Colorado River Valley, which implies a substantial antiquity. More recent evidence on glottochronological analysis suggests a time depth of approximately thirty-seven centuries for the separation of the Colorado River and central California Yuman speakers (Swedish 1954). Even allowing for the difficulties of dating with this method, it would indicate that the Yuman pattern could have been in the lower Colorado River area prior to the beginnings of the agricultural period, and perhaps 1000 years before the beginning of the Christian Era.

Colton has proposed an ethnological base for Yuman time depth along the Colorado River. "The Yumans, wherever

found, were war-like and made raids on neighboring tribes and on each other, not for any particular gain, it would seem, but just because they were naturally belligerent. In general they maintained no elaborate military organization, so that their expeditions were usually extemporaneous affairs" (Colton 1945:118). From this base Colton then reasons that "A dense war-like population producing a surplus of food and surrounded by deserts, no matter if they fought among themselves, could not be easily conquered by enemies who had to cross and subsist on these deserts on the way. We can therefore postulate that the ancestors of the present Yuman tribes have long lived in the Colorado Valley and have produced a surplus population that radiated out. . . ." (Colton 1945:118).

The beginnings of Patayan culture have been examined by two archeologists. Initially, Rogers (1945:169,184,190) suggested that the Yumans moved east out of California onto the river around A.D. 800 to 900, and that their culture was immediately enriched in the area of the Gila-Colorado River junction by neighboring groups. More recently, Schroeder (1960:87-88) has hypothesized the beginnings of the Hakataya tradition as part of a larger pattern tying together all the cultures on the lower Colorado River and in western and central Arizona and those in the California desert and the northern portions of Lower California. These appear in the lower Colorado River near Blythe, California, about A.D. 600-700, originating from the middle Gila where they were the same as the Pioneer Hohokam. Schroeder (1961 has also found Desert Culture-like material underlying the pottery bearing Hakataya material at the Willow Beach site which might be the base from which the Hakataya grew. Certainly it would not appear from the unspecialized nature of the economy practiced by the historic Indians in the area that the presence or absence of agriculture would have been a decisive factor in any decision to occupy initially this area. Furthermore, the one area of agreement from all approaches is that the Yuman tribes found along the River have been there for at least 1000 years.

Accepting this latter possibility, that the preceramic material underlying the later Hakataya material could be ancestral to it, the following hypothetical reconstruction of the beginnings of the Hakataya tradition might have

followed these lines. Sometime prior to the beginning of the Christian Era groups speaking an ancestral Yuman language entered the Lower Colorado River valley from the west. Their culture was a regional variation of the Desert Culture. Along the river they developed some regional specialization of this way of life, initially being influenced by similar cultures to the east and north. Gradually, however, their affinities reverted back to the west and south. About A.D. 600 to 700, pottery was introduced from the south and strong ties with the Hohokam area developed, perhaps prior to the major influx of traits from Mexico which initiated the Developed Hohokam period. At about the same time, a reasonable agriculture technology was added to their gathering base so that their numbers expanded and there was a spread of peoples toward the uplands to the east.

The Hakataya Pattern

Compared to the detailed knowledge available on such traditions as the Anasazi, the Hakataya culture along the river is little-known. They probably emphasized gathering with some fishing and hunting and perhaps agriculture. Some, at least, used the bow and arrow and employed the metate and mano for grinding wild and domesticated foods. A few built rectangular houses with a rock substructure, but the brush house was undoubtedly the main architectural type. The dead were cremated. Cooking and roasting in pits were the major techniques for preparing food. Their pottery was paddle and anvil finished, with scraping and polishing. Decoration was of fugitive red or red and black in broad lines, and poorly fired to a brownish color (Fig. 35).

This may be a poor characterization for such a widespread culture but, essentially, this is all available. However, away from the valley itself, in at least one of the upland manifestations a somewhat more complete picture is found. The Cohonina material, the easternmost Hakataya manifestation, has perhaps received the most attention (Schwartz 1959:1062-62). They appear to have entered the plateau area from the west about A.D. 600, as the easternmost arm of a spread of Yuman peoples. After one hundred years their scattered population began to be more proficient in the techniques of exploiting this new area. By A.D. 700, they moved from the explorer to the pioneer class and gained

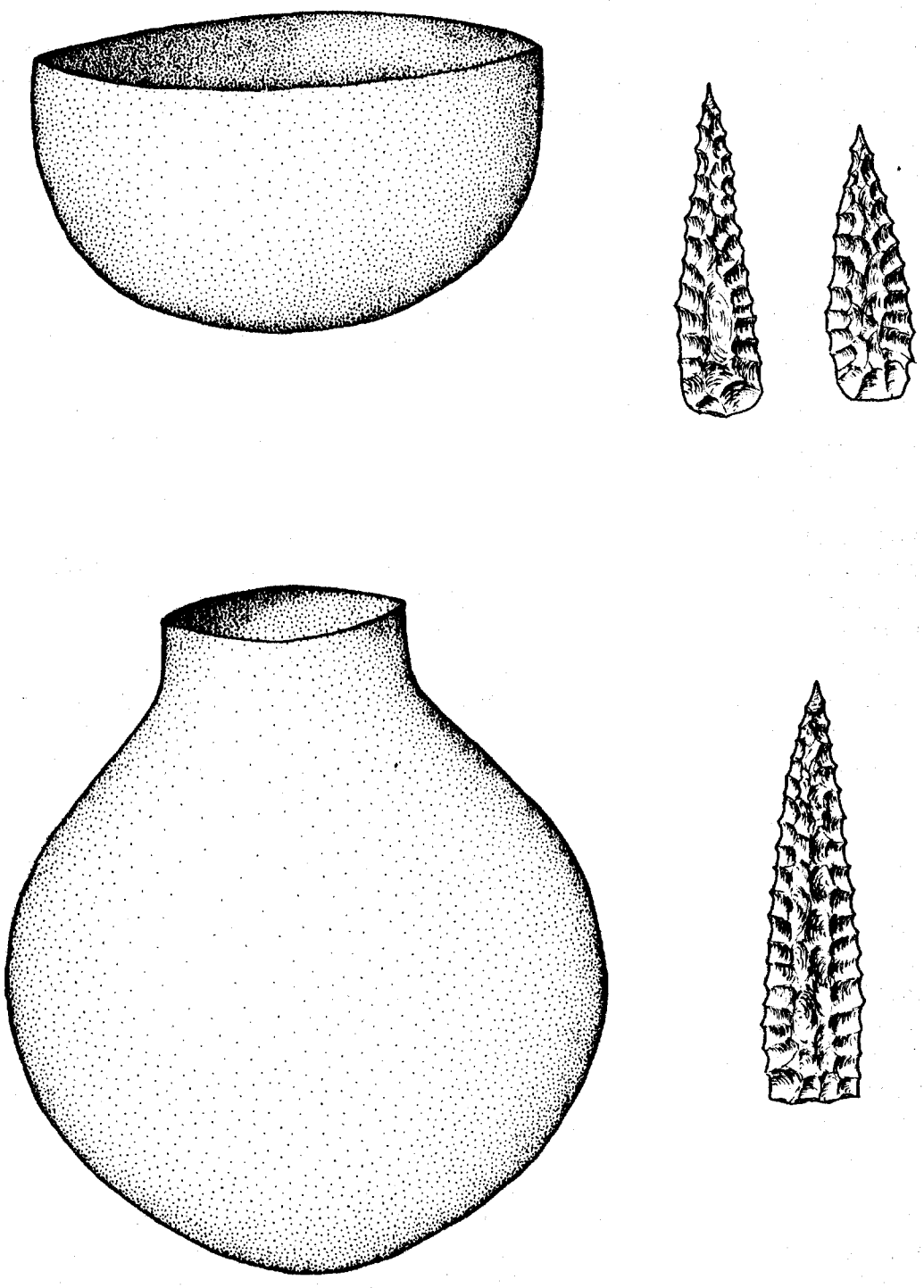

Figure 35. Artifacts from the Hakataya culture area.

increasing control over their environment. During this time their population increased rapidly, they began to make more permanent dwellings, and their pottery took on many designs obviously borrowed from the developing Pueblo culture to the east from whom they probably also obtained farming techniques. The advantageous climate made farming not only possible but even easy, so that they were able to expand greatly their territory.

By A.D. 900, the Cohonina had reached a population climax, and for the next two hundred years there was no significant change in the number of people living on the plateau. They pushed their economy as far as the environment would allow with the existing technology. Various types of houses and possibly, nonutilitarian structures were begun (McGregor et.al. 1951:55-86)but never with what might be called an excellence of workmanship. They continued to trade with and be influenced by the Pueblo people, this relationship being manifest particularly in their pottery designs. The population pressure during this time led them to inhabit several areas in the southern Grand Canyon, one of which -- Cataract Creek Canyon -- was to become extremely important to their future survival. By this time they possessed a culture well-adapted to their environment, based on agriculture, and supplemented by hunting and gathering. They made passable pottery, habitable huts of brush and stone, and a limited range of chipped and ground stone tools.

Between 1100 and 1200 the Cohonina completely abandoned the plateau for the canyon. This was a time of defense, and the cliffs lining the canyon were filled with protective dwellings, while the habitations near the canyon bottom were left vacant. During this time, and perhaps triggering some of the demographic movements, a period of marked increase in aridity culminated a long and gradual drying of the entire northern Southwest. Therefore, after A.D. 1300, when the defensive pressure was off, and it was again possible to live in safety on the plateau, they could no longer farm there and were forced to remain in the canyon where they could irrigate from the perennial stream. However, the Havasupai returned to the plateau in the winter when they could supplement their summer farming activities by hunting and gathering. This was the beginning of the Havasupai's economic double life. For the next 300 years the ancestors

of the Havasupai lived a relatively uneventful life, the pattern had been set and the adjustment to the environment completed. Trade continued with the Pueble peoples to the east, while social relationships with the Walapai, their close linguistic and cultural cousins on the west, were unchanged.

Beginning about 1600 the first European trade goods were passed to the Havasupai through their Hopi contacts. From that time on they gradually became acquainted with and were encroached on by the expanding American frontier. Due to their isolated position, their contact was peaceful and very late, intensive acculturation not beginning until after the start of the nineteenth century.

Summary

The story of the Hakataya tradition, then, is largely unknown. It begins, perhaps, in the preceramic period with a variety of Desert Culture gatherers and hunters living off the land near the Lower Colorado River Valley. With the introduction of agriculture, a slight change in their way of life may have occurred; except for somewhat more surplus, the only real difference was an intensification of leisure time activities, such as war. From the river valley there was a spread of peoples to the east; in the south the Maricopa spread up the Gila River valley about A.D. 1300 while in the north there was also an eastern extension onto the southwestern edge of the Colorado Plateau, historically manifest in the Upland Yuman tribes.

With the Hakatayan tradition, then, as almost nowhere else in the Southwest there was a rather stable, long-term occupation of one area, without significant intrusions or breaks in occupation. Schroeder (1961:106-8) has demonstrated that Shoshonean peoples moved into the northwestern part of the territory about A.D. 1150, but it would appear that the rest of the region was left reasonable free of the great population shifts which effected much of the Southwest.

THE BASIN SHOSHONEAN AND THE ATHAPASKAN

The Basin Shoshonean

Each of the cultural traditions discussed thus far have had deep roots in the Southwest, usually in the Desert Culture. From this base it has been seen how agriculture and various other items reshaped the seminomadic hunting and gathering cultures into unique sedentary agricultural configurations. However, in the Basin north of the main southwestern development, agriculture and its related traits did not penetrate and the Desert Culture tradition continued to historic times. Ethnographically Basin Shoshonean groups, like the Ute and Paiute, represent this tradition and are described in the preceding section on the Far West. Their conservative way of life did penetrate the Southwest, however, for there is good evidence that soon after A.D. 1150 they moved into some of the northern territory of the Anasazi and Hakataya (Fig. 36) (Schroeder 1952). It was probably during this time that the Ute and Paiute also occupied what was, in historic time, their homeland north of the Colorado River. Since some of this area had previously been occupied by the northern extension of the Anasazi culture, their movement into it can be explained in one of at least three ways. They may have pushed in by force, which would not seem likely unless the sedentary Anasazi had in some way been weakened. What appears more reasonable is that the semisedentary Shoshonean peoples filled the vacuum left by the Anasazi as they moved out as the result of other forces, such as a change in the climate making a continuation of the agricultural Anasazi life extremely difficult. The appearance of the Shoshonean culture in the area at about the same time that the Anasazi were beginning to leave suggests that Shoshonean peoples may have hastened what might have been an eventuality.

Rudy (1953:169) has suggested a third possibility to account for the occurrence of the Desert-like culture in northern Anasazi territory after A.D. 1150. It is possible that some of the Shoshonean may have originally moved out

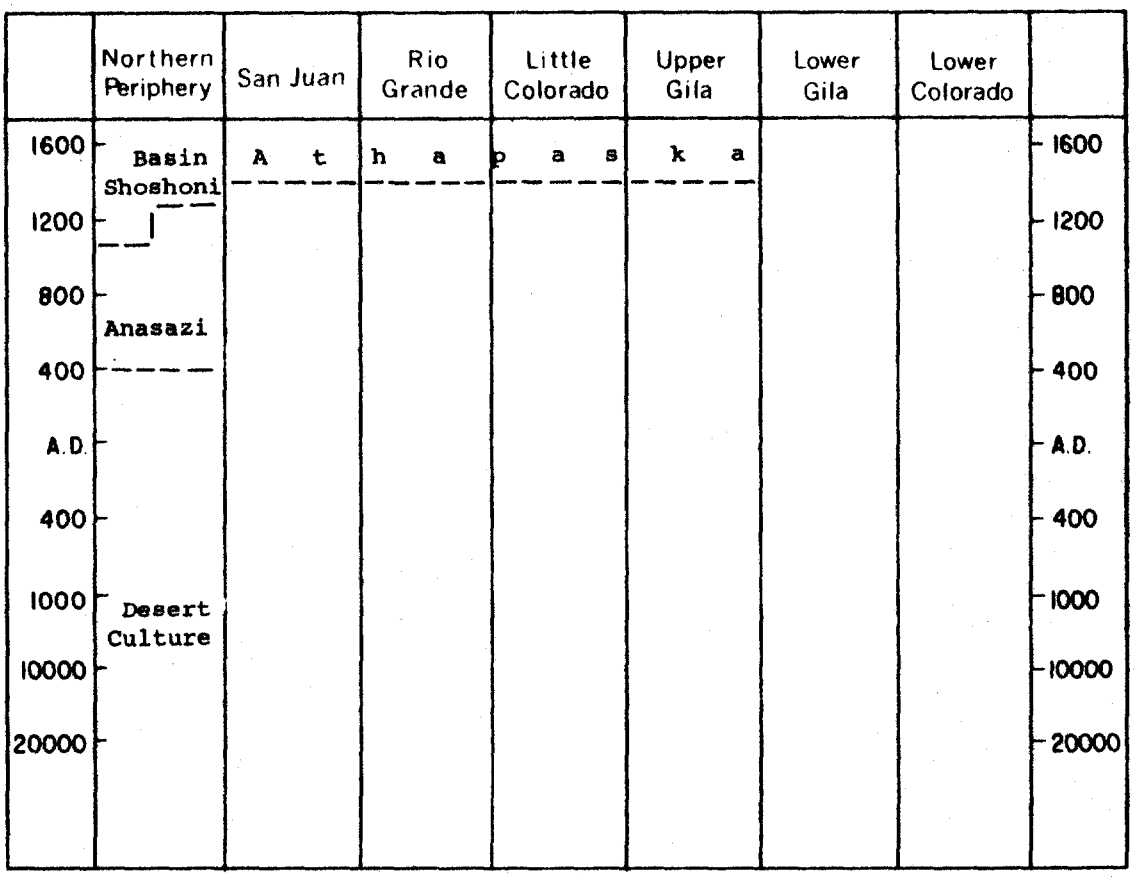

Figure 36. Shoshoni-Athapaskan relationships.

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of the Desert Culture stage with the adoption of agriculture, pottery, and a mantle of Anasazi culture. Then, for one of several reasons related to the general abandonment of the northern Southwest by agricultural peoples, they dropped those traits which related to settled life and reverted back to a Desert Culture-type existence. The historic seminomadic groups first found north of the Grand Canyon, then, would have been the descendents of agricultural people. They adjusted to the changed conditions in place instead of moving to a new location where they could have continued their sedentary way of life, as it would appear many of the other Anasazi did. This hypothesis has less evidence than the first two to support it, nevertheless it should not be summarily rejected as a possibility or, perhaps more important, as a heuristically fruitful way of viewing the changes which may have occurred.

The Athapaskan.

The presence of Navajo and Apache interspersed among the agricultural tribes of the Southwest during historic times also needs explanation. Although here again the archeological record is far from clear, enough evidence from various sources is available to make certain facts apparent. First, these two groups, who both belong to the Athapaskan linguistic stock, did not have their basic beginnings in the Southwest, as it would appear all other groups thus far discussed have. Furthermore, these Athapaskans are relative newcomers to the Southwest and, like the Basin tribes, either moved into territory vacated by the Anasazi and Mogollon or occupied land between agricultural groups. Since they played a rather significant part in shaping the path of later southwestern culture change, what is known of their prehistory will be discussed below.

Linguistic data is accumulating to support a hypothesis that the Nadene linguistic family, which includes the Athapaskan, were the last migrants into the New World (Fig.37) (Hirsch 1954:831). The time of this entry is not precisely known, but glottochronological evidence suggests that 1000 B.C. is the correct order of magnitude. Other linguistic analyses, summarized by Vogt (1961:282-85), suggest that by A.D. 1 these wandering hunters and gatherers had reached the area of southwestern Canada where they left evidence of their movement in the form of linguistic relatives, the Tlingit and Haida (Fig. 37). Between A.D. 400 and 700 an offshoot of the Athapaskan had migrated to the Pacific coast of California, leaving further traces of their movement south. Between A.D. 700 and 1000 the remainder of the group continued the movement toward the Southwest on the High Plains, just east of the Rocky Mountains. This route is generally considered to be the one followed. At this point their pace slackened, for the Athapaskans are not known to have reached the Southwest until near the beginning of the sixteenth century. Their first definite remains are Navajo hogans in the Governador Canyon in northcentral New Mexico, tree-ring dated between A.D. 1491 and 1541 (Hall 1944 and 1944a). If these dates are correct, the Athapaskans would have arrived too late to have caused the great architectural and population changes in the Anasazi area which began about A.D. 1150. These changes culminating in the abandonment of

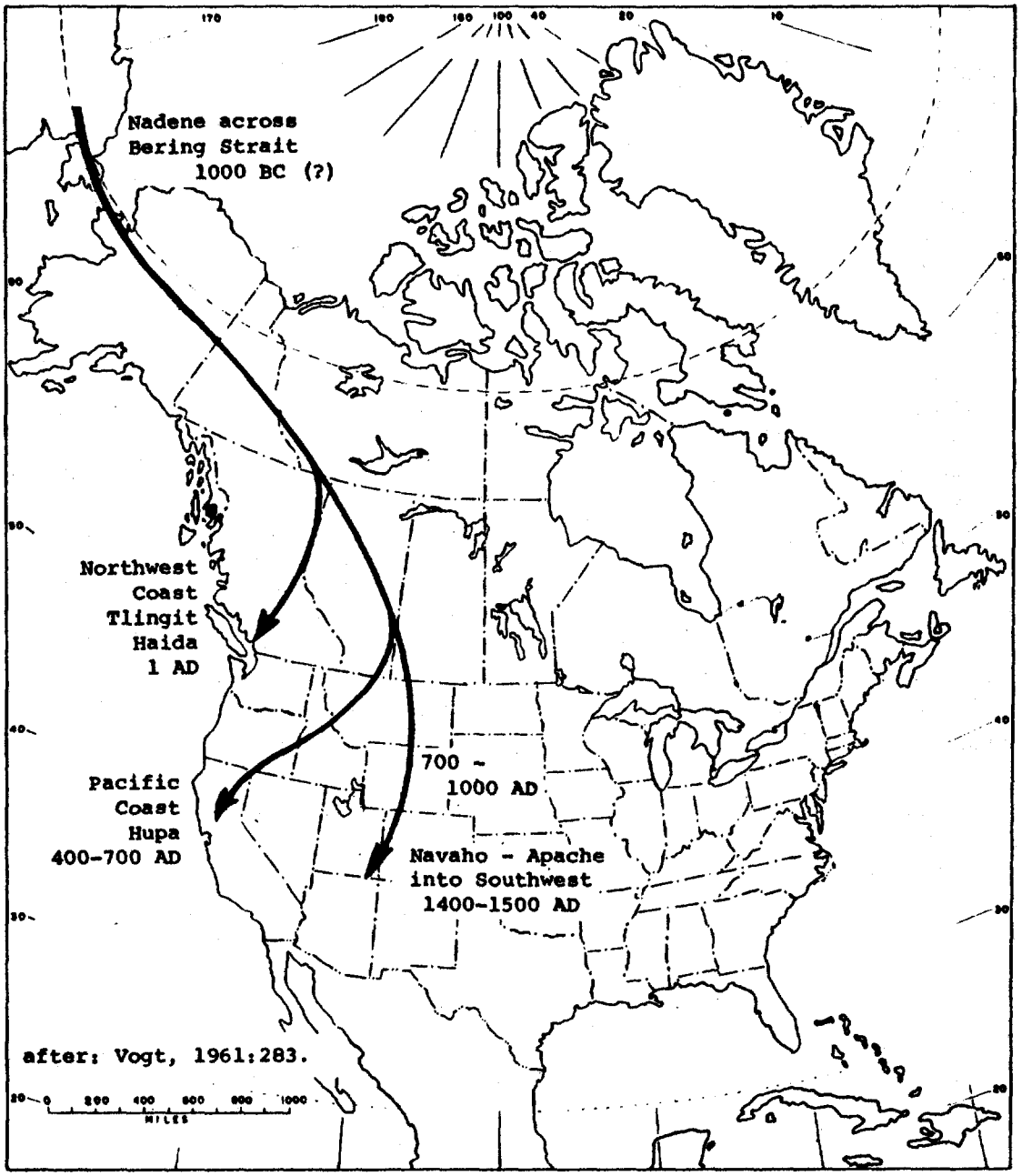

Figure 37. Conjectured migration of Athapaskans and their relatives along the High Plains and into the Pacific Coast and Southwest. After Vogt, Studies in the Acculturation of the Navajo.

much of the Anasazi northern territory late in the thirteenth century have frequently been attributed to the Athapaskans. Considering the significant amount of evidence pointing to the possible presence of enemy people in the Southwest, the possibility remains that the Athapaskans may have lingered on the periphery of the Anasazi for an extended period of time, harassing the Pueblo groups but not occupying any area long enough to leave archeological evidence. The Athapaskan were seminomadic hunters and gatherers when they first reached the Southwest. Their main weapon was probably the highly efficient sinew-backed bow which the men used to hunt deer, antelope, bison, and small game. The women gathered wild plants essentially the same as those the Desert Culture women had depended on. Small scattered encampments composed of loosely organized extended families followed the game and wild plant harvests. Their conical frame houses were made of poles and covered with whatever materials were available. A smaller variety of this structure was used as a sweat house. Their undecorated, pointed-bottom pottery was similar to that of the Basin Shoshonean to the west and the Woodland tribes to the east. Their simple stock of material items also included the fire drill, tailored skin clothing, and moccasins. It is reasonable to assume that the focus of their religious practices was the shaman who performed curing ceremonies and derived his power from visions or other supernatural manifestations. "Girls puberty was emphasized ceremonially as an important rite of passage. Strong beliefs included fear of the dead and ghosts and that disease is caused by contact with lightning and with certain animals, such as the bear" (Vogt 1961:289).

Once the Southwest was reached, there was significant interaction, from the Hopi country to the Rio Grande, between the Athapaskan and Pueblo groups. By the beginning of the historic period, the Navajo, for example, were practicing agriculture, and had adopted many ceremonial ideas and procedures from their Anasazi neighbors. These included such Pueblo traits as ceremonial masks, altars, prayer sticks, the use of corn meal, and sand paintings. Although traits of this type must have been exchanged under peaceful conditions, the population growth of the Navajo and the relative decline of the Pueblo must have added to the stress between the two.

Summary

The Athapaskans and the Basin Shoshoneans were late comers in the Southwest, bringing new cultural configurations. The Shoshoneans, however, were carrying on a way of life that was essentially like that of the ancestral agricultural Southwesterners. Although the Shoshonean entry into the Southwest may have triggered some movement and architectural change on the part of the Anasazi, there was otherwise little apparent effect on either culture. Athapaskan culture, however, was new, being only recently imported from Asia. Cultural interchange between it and Anasazi culture appears to have been somewhat onesided; Navajo culture changed dramatically as a result of their contacts with the Pueblo people. Present evidence would suggest that the Navajo and Apache caused only minor irritation to the Pueblo groups as compared to the major cultural upheaval the Anasazi had undergone a few centuries earlier. The Athapaskans may not have significantly changed the basic cultural configuration of the Southwest but they were so changed by it that by the historic period it was difficult to realize that they were late comers from the far north and not old time Southwesterners.

THEMES IN SOUTHWESTERN CULTURE

Following the introduction of agriculture four major themes shaped the culture history of the prehistoric Southwest -- environmental contrast and change, regional specialization, population movement, and shifts in cultural focus. While these factors did not equally influence the direction or rate of culture change in the Southwest their interaction clearly brings out the outline of developments that took place. Each of these interlocking themes and their effects will be discussed below in an attempt to summarize southwestern prehistory (see Fig. 38).

Environmental Contrast and Change

Environment affected the development of southwestern culture history in two ways. First, the cultural developments took place against a background of contrasting environments -- desert, plateau, and mountain. Second, during the time the Southwest was occupied by prehistoric farmers, changes in this environment took place. The environmental contrast which confronted the earliest inhabitants in the Southwest was certainly a factor in differentiating them into separate cultural traditions. It is not surprising that the four basic cultures centered at first around quite distinct environmental regions. With the development of these ways of life the environments became less important, as evidenced by movements which took place between them. Part of this movement may have resulted from the fact that these environments were not static. About A.D. 1100 what had once been areas favorable for agriculture began to become somewhat drier. The effects of this climate change and its interaction with other factors, such as population movement, produced many of the complexities of southwestern prehistory.

Regional Specialization

The environmental contrasts gave initial impetus to the regional specialization which developed to become one of the most characteristic features of the southwestern culture-historical configuration. Mogollon culture was the first of

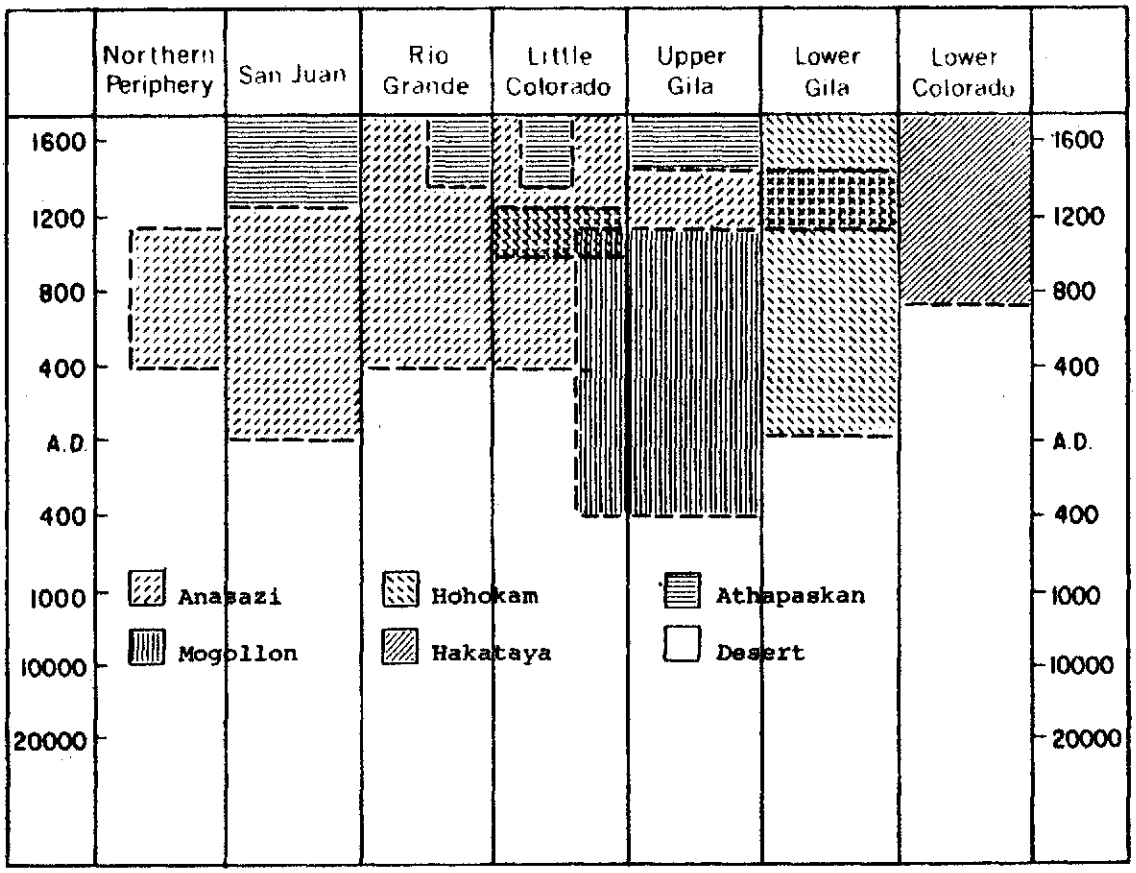

Figure 38. A recapitulation of the cultural relationships in the Southwest throughout its culture history.

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these traditions to grow away from the Desert Culture base, and once these mountain people had reached the simple farming stage they changed very little. Not until about A.D. 1000, when Anasazi influences flooded in upon them, did any significant alteration become evident.

The second tradition to show distinctive characteristics was the Hohokam, who made a remarkable adjustment to the harsh desert environment. The use of irrigation may have accelerated their rate of culture change initially at a faster pace than the other groups for their culture blossomed in a reasonably short time. Their distinctiveness and rapidity of culture change may also be attributed to their direct tie with Mexico.

The Anasazi tradition, at first limited to the Plateau,

was the third to appear. In just over 500 years they changed from simple farmers to the most dominant group in the Southwest. They changed the Mogollon, infiltrated the Hohokam, influenced the Athapaskan, and even developed their own regionally specialized subcultures.

Three less well-known regional specializations were the Hakataya, Shoshonean, and Athapaskan. The Hakatya along the lower Colorado River were one of the most isolated peoples in the Southwest. The Shoshoneans, who moved into the northern Southwest about A.D. 1150, were a living remnant of the Desert Culture. Finally, the Athapaskans, who entered even later, may, for the most part, have simply slipped into voids left by the abandonment of the northern Anasazi territory and the mountains of the Mogollon.

Population Movement

As has already been indicated, the distinctive regional specializations were far from regionally static. The Anasazi, although conquerors of their own environment, and, perhaps, because of extraneous factors, began migrating into the territory of the Hohokam and Mogollon. They also removed completely out of their own northern territory. In fact, the momentary dominance of the Anasazi tradition is one of the major features of southwestern culture history. Movement was not all one way, however; in the face of Anasazi movements south the Hohokam moved north and even the Mogollon, somewhat later, bucked the main tide to make an impression in Pueblo country.

The two main possible explanations for these shifts in population are changes in climate and the intrusion of other peoples. Climate change undoubtedly played a part in this movement; the prime question less certain is the invasion of outside peoples. It has been noted that the Shoshonean moved into the northern Southwest about the time the Anasazi were abandoning it. Whether or not they could have caused the more widespread movements to the south is not known. A final movement of population was the entry of the Athapaskans. Although it would appear that the Athapaskans arrived too late to effect the Anasazi, they may have hastened the movement of the Mogollon from the mountains. Whatever the interplay of factors, another striking feature of southwestern

culture history is that during and following the development of the regional traditions there were important movements of population.

Shifts in Cultural Focus

On the stage set by environmental contrast, leading initially to regional specialization and characterized by significant population movements, the culture history of the Southwest went through five temporal periods. Each of these had its own flavor and style, yet each cross-cut the regional traditions to produce a unity of development, even in the face of the environmental and cultural diversity.

Underlying the agricultural traditions was a preagricultural period, manifest in the Desert Culture. Here the major interest was making a living and adjusting to the environment. The Basin Shoshonean to the north continued this way of life, bringing it back into the Southwest in a later period. With the introduction of agriculture from the south the cultural focus shifted to farming. During the same period pottery and housing appeared indicating a progressively settled way of life. Also at this time, the regionally specialized cultural traditions first began to appear, and, with their new-found techniques, to grow in mastery over their surroundings.

The early agricultural period was followed by a time of cultural competency. By now the culture of each of the regional groups had developed its characteristic stamp and was thoroughly distinguishable from the others. Making a living by efficient farming was commonplace but pushing further their new culture was the major interest. Both the Hohokam and Anasazi cultures were to reach greater heights than they had before, but they would never again occur in such pure form.

The period of competency was soon interrupted by several outside influences which laid the base for a time of upheaval. A general change in climate and the entry of a new people in the north were important elements of this period. The Anasazi first abandoned much of their northern territory and spread east and south, but only after the futile construction of large defensive structures. Many migrated out of the

plateau country into the mountains and the desert, here greatly influencing the Mogollon and Hohokam. As we have seen, the Shoshoneans filled in some of the territory left vacant by the retreating Anasazi. An important contingent of Hohokam moved north onto the southern lip of the plateau, manifesting the complexity of the period. Hence the interplay of three factors contributed to upheaval -- migration, climate change, and defense. Together they produced the most colorful period of southwestern prehistory.

The cultural focus of the final period is more difficult to characterize. The dominance of the Anasazi was over. The climate had stabilized at a level less favorable for agriculture. The Mogollon had left the mountains for parts not completely known. The great culture of the Hohokam was gone, leaving only a simple farming life in its stead. Compared to the earlier periods the cultural focus might be termed one of equilibrium. The final configuration of the southwestern culture was taking place. The Anasazi developed with little pain to their historic form, the pueblos of the Hopi, Zuni, and Rio Grande varieties. The Hakataya became the Yuman groups with their peripheral and somewhat isolated culture. The Shoshone continued to practice a form of the Desert Culture, as their ancestors had for more than a millenium. The newly arrived Athapaskans were perhaps the only upsetting factor, but initially their small numbers made little impression on the settled Anasazi. Although there were changes during this period in contrast to the previous ones, none was of a spectacular nature. Just before the Spanish entry a relative equilibrium had been achieved. With the beginning of the historic period, however, this was to be upset and the Southwest would begin a totally new phase of its culture history.

THE PLAINS

Introduction

For more than a thousand years before the coming of the whites, the Great Plains area was dominated by Indians who lived in semipermanent villages and whose livelihood was based on a combination of horticulture and hunting. This situation contrasts with the more familiar picture of the eighteenth and nineteenth centuries, when mounted bison-hunters such as the Sioux, Cheyenne, and Comanche, overran the region and were among the last native American peoples to offer serious armed resistance to white encroachment. The equestrian hunters made a strong mark on the history of white settlement of the Plains, so that a superficial picture of their colorful way of life is part of American folklore today. Actually, however, the mounted hunters constituted only a brief spectacular episode in native Plains history. Archeological research has shown that before them for a thousand years and more, farming along the rivers of the Plains was the most important way of life in the region. The horticulture practiced by these people permitted them to live a relatively stable existence in villages, a very different situation from the mobile hunting life of the more recent horsemen.

Geographic Background

The Great Plains is the grassland reaching west to the Rockies from the present western borders of Minnesota, Iowa, and Missouri, and west of the forested area of eastern Oklahoma and Texas. It is relatively flat and treeless. There is enough moisture only to support grass, except in the river valleys where the woodlands of the East finger westward. The summers are hot, and the winters cold and windy (see Figs. 2 - 5 and 39.)

In the days of the Indian farmers, the Plains environment was not significantly different from what it is today, and the cultivated plants of the Indians were well adapted to those conditions. The limitations on Indian agriculture,

Figure 39. Site locations in the Great Plains area.

as contrasted to the farming of the whites, were primarily those imposed by the relative inefficiency of the Indian methods of cultivation.

A very high proportion of Plains soils are well suited to agriculture (Fig. 3). Compared to other parts of the continent, there are relatively few districts too rugged, rocky, or alkaline for crop growing. However, until recently only the river bottomlands could be cultivated. The soils there, frequently renewed by floods, are readily broken up by simple tools such as the Indians had. On the uplands, the grassland sod is too heavy to be broken by such tools. Later white men would not have been able to cultivate the grasslands had not the self-cleaning steel moldboard for plows been invented in the early nineteenth century, in time for the homesteaders to bring it across the Missouri. Until that development, the prairies and plains remained largely a grazing area.

Water supply and temperature are the other two factors limiting native agriculture on the Plains. The available water supply becomes less as one goes westward and southward, because westward the "rain shadow" of the Rockes cuts down the rainfall, and southward the higher temperatures increase the rate of evapotranspiration. This latter effect means that a 25-inch annual rainfall in North Dakota can benefit plants much more than the same amount in Texas. However, as one goes north the growing season becomes shorter, and by the time the Canadian border is reached the frost-free season is too brief for the type of agriculture practiced by the Indians.

Rainfall variation in this region is great from year to year, as Plains farmers can certify today, and crop failures are now only too familiar where irrigation is not practiced. This is, in other words, a borderline region agriculturally, where slight variations in annual rainfall, which would have relatively minor effect in the more humid eastern part of the continent, can mean the difference between famine and plenty. Only in the river valleys does a greater available water supply partially modify these protean circumstances.

It is to be expected that under these conditions, Indian agriculture would be limited to the river valleys.

The soils there could be cultivated by native digging sticks and hoes, and the crops were less liable to loss by drought. The valleys also afforded wood for housebuilding and to keep the fires burning on the hearths, and an abundance of berries, wild plums, and other wild vegetable products, as well as small game. On the nearby uplands wandered the herds of large grazing animals, mainly bison, which constituted a major source of food to Plains farmers and hunters alike.

Ample evidence exists for significant climatic variations in the Plains in the course of past centuries. This evidence takes the form of changes in patterns of soil formation, tree growth, stream behavior (gullying and silting), and other natural phenomena. For example, no less than seven severe droughts, each lasting for at least a decade, are recorded in tree rings in western Nebraska be- A.D. 1400 and 1900. Still painful in memory today are the Dust Bowl days of the 1930's and the "seven year drought" on the southern Plains in the 1950's. Under these circumstances we might expect that the history of native farming on the Plains was characterized by varying fortunes; and such indeed appears to have been the case.

The Archaic Heritage

Throughout native history on the Plains the hunting of large grazing mammals, usually the bison, was a major means of food-getting, whether in conjunction with crop-raising or as the primary economic base. The earliest occupants of the area, the so-called Paleo-Indians, hunted mammoths, the native horses, and other grazing animals now extinct. Late in Paleo-Indian times, and subsequently, bison became by far the dominant food source of the hunters. The meat diet was supplemented by wild vegetable foods -- seeds, roots, and berries -- and, where available, by river mussels and fish. Implements for the preparation of vegetable foods, notably hand mullers and milling slabs, are common finds in sites of the millennia immediately preceding the Christian Era, sites of what is termed the Archaic stage.

The Archaic cultures of the Plains were the immediate precursors of the first pottery-using villagers, and probably shared in the ancestry of the latter peoples. Not much attention has been paid to the Archaic stage in the Plains, even though signs of it are by no means rare in many sections of the region. Like their Paleo-Indian predecessors, the Archaic people utilized whatever food sources were most readily available, and as a result the few sites that have been investigated vary greatly in nature: some contain great numbers of bison bones, whereas in others the food remains emphasize vegetable foods, shellfish, and small animals. Big game does not seem to have been plentiful except in locally favorable spots. It is possible, but not yet certain, that the bow and arrow appeared in the Plains in Archaic times; if so, the greater portability of arrows, as compared to the earlier atlatl darts, would have increased the fire power of the hunters and would have improved their ability to bring down game.

The specific styles of stone tools found in Plains Archaic sites point to relationships both to the east and to the west. Stemmed and corner-notched projectile points

varying widely in size, scrapers, knives, choppers, and ground stone seed-grinding tools are characteristic. More important is the similarity of many of these styles to those of the tools of the later village peoples, a similarity which signifies that the end of Archaic times did not see one culture wiped out by another, but rather that a new way of life appeared which had strong roots in the older culture.

First Village Life.

The establishment of settled life, based on horticulture, was a slow and gradual thing on the Plains. The first beginnings took place several centuries before the beginning of the Christian Era, and it was nearly a thousand years before true stable village life was attained. It was preceded by many centuries of hesitant beginnings -- little settlements whose people had developed new crafts such as pottery, shell beads, and polished stone ornaments, and who buried their dead in ossuaries and mounds. These were the so-called plains Woodland cultures (Fig. 40). This way of life was very different from that of the Archaic peoples, and it is natural to assume that some significant change in the economic base accompanied the appearance of the new culture. The economic change, whatever it may have been, is as yet not at all clear. In the earliest sites there are no signs of agriculture, and even later, the evidences of farming are minimal.

What, then, brought on this new way of life? Was it environmental change, increasing the natural food supply? As yet there is no clear evidence that there was any significant shift in environmental conditions in the centuries before the beginning of the Christian Era, when the pottery-making cultures were spreading up the Plains valleys. However, it may well be that this seeming lack of environmental causes is really a reflection of our ignorance on the subject.

In any case, whether brought on by environmental changes or not, the beginning of village life on the Plains was not an isolated phenomenon. These early village cultures of the Plains were related to the eastern Woodland cultures of the forest lands between the Atlantic and the Mississippi. These are the first village cultures to appear north of the Rio Grande. In many areas of the woodlands, villages appeared

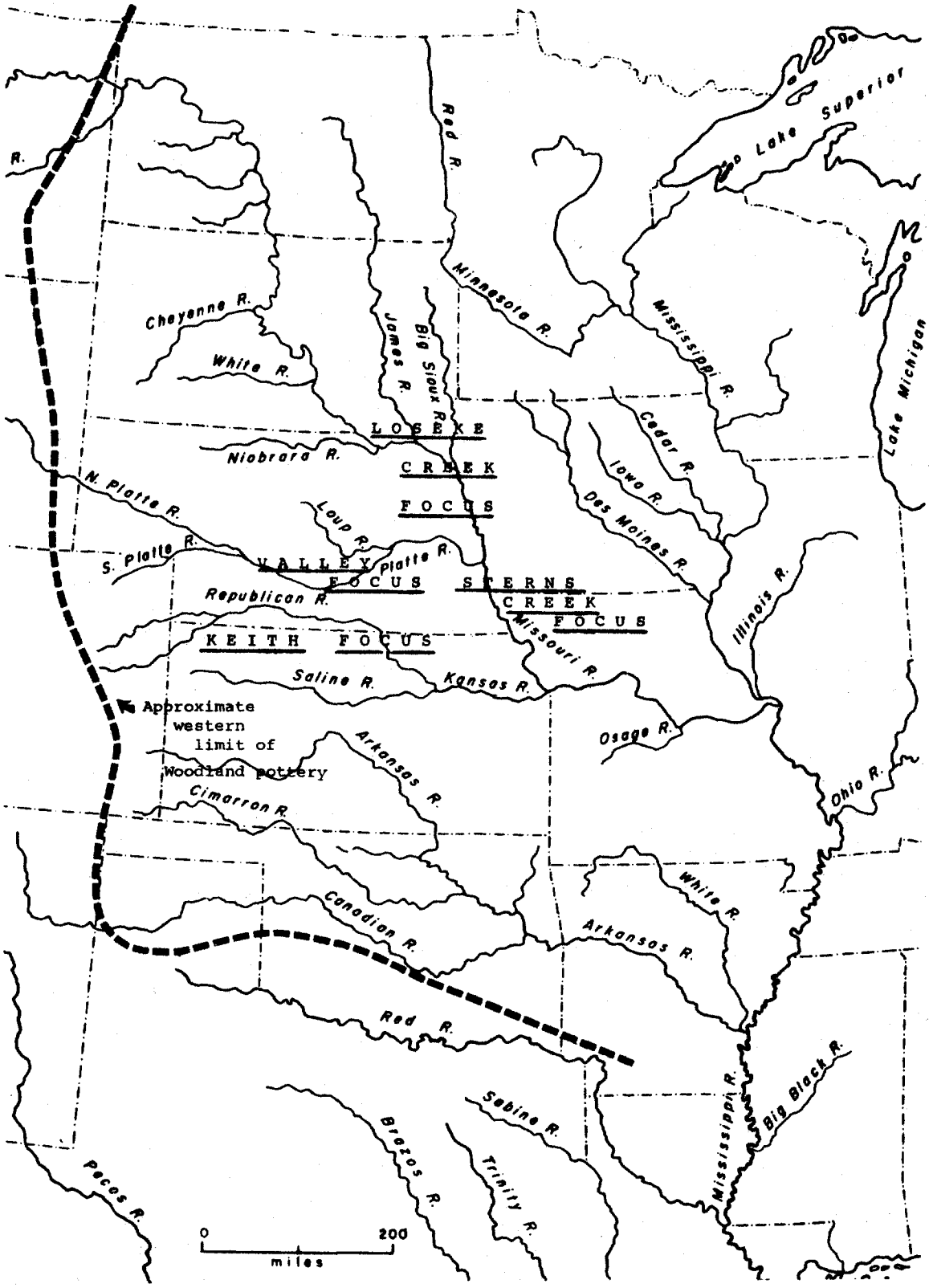

Figure 40. Phases of the Plains Woodland culture.

by 1000 B.C., several centuries before similar cultures appeared on the Plains. The most obvious sign of the relationship is in pottery styles. The earliest pottery types in the Plains are so much like the Woodland pottery of the Middle West that the term "Plains Woodland," seemingly a logical contradiction, is universally applied to the early Plains village cultures. There are also signs of relationships in other artifact styles, for instance in projectile point shapes and in the forms of certain polished stone implements such as celts and boatstones (Fig. 41).

The origins of the Plains Woodland cultures clearly lie to the east, and the location of most of the sites along the wooded stream valleys of the Plains suggests that the spread of these cultures was basically an expansion of a woodland way of life up the forest fingers of the Plains valleys. This parallel must not be stretched too far, however, since signs of Woodland style pottery are found all the way to the Rockies, beyond the reach of the valley-bottom woods of the eastern Plains. Still, the nature of these westerly finds, as at Ash Hollow Cave, suggests the activities of small hunting parties which were based on the tiny villages in the eastern Plains valleys.

There remains an important question, viz., did the coming of Woodland cultures to the Plains result from migration of peoples, or from transmittal of customs from group to group? There is evidence for both possibilities. Very important traits -- pottery, point styles, semipermanent settlements, burial mounds -- are new, and come from the east; but many chipped stone implements, such as the snub-nosed end scrapers so characteristic of the Plains, carry over from Archaic times, indicating cultural continuity within the region. If there were a change in physical type associated with the cultural change, we could be sure of an invasion. While much is known of the physical type of the Woodland peoples, there is no skeletal evidence yet at hand

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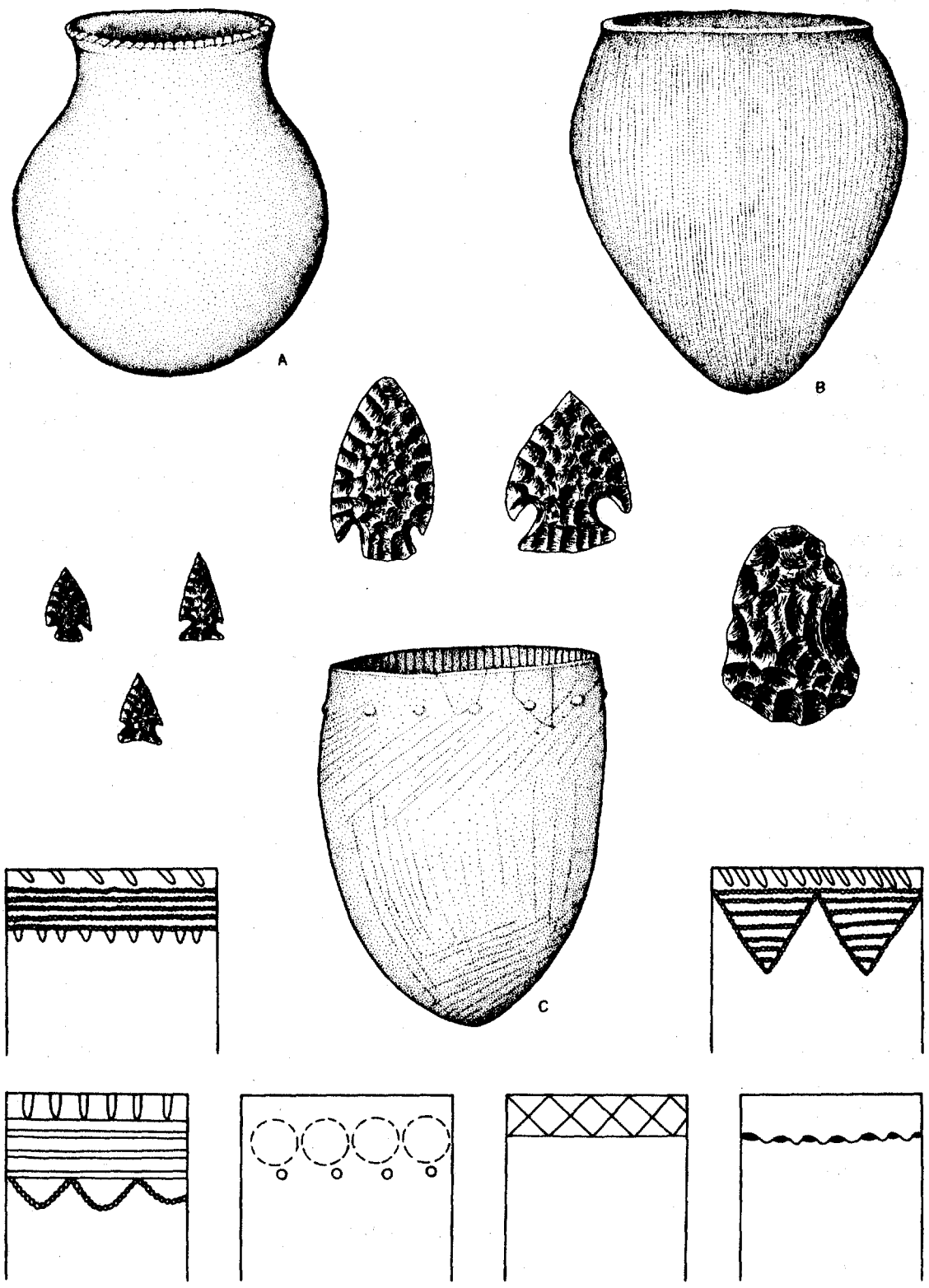
Figure 41. Prepresentative artifacts from Plains Woodland. A, Sterns Creek Focus; B, Keith Focus; C, Valley Focus; the rim designs around the bottom of the illustration are Loseke Creek Focus; all the chipped stone artifacts are typical for Plains Woodland.


A
B
C

regarding the peoples of Plains Archaic cultures.

Probably the most intriguing aspect of Plains Woodland Culture is the way the people were able to develop crafts and maintain small villages in the absence of any firm agricultural base. A few squash seeds at Sterns Creek and a few kernels of corn at Loseke Creed are our sole direct indications of domesticated plants in Woodland village sites west of the Missouri. The economic facts of life would seem to dictate that semipermanent communities, however small, and elaboration of burial offerings, would be signs of a more stable food supply than that provided by hunting and gathering. Yet the Plains Woodland sites of the Missouri Basin are, with the two exceptions just noted, devoid of direct evidences of agriculture. We are forced to infer that these people obtained their food from the countryside -- by hunting and gathering -- except that late in Woodland times some crop-raising was practiced. The valleys of the eastern Plains must have provided a good deal of food to enable the accumulation of middens such as were found in such sites as those of the Valley Focus.

In summary, the picture seems to be one in which life remained relatively simple, with small groups living together, but with enough food within close traveling distance to enable semipermanent residence, and to give some time for development of crafts. The situation is one midway between the peripatetic existence of the foraging Archaic folk and the settled and complex village life that followed Plains Woodland times.

Woodland Cultures of the Missouri Basin.

The specific origins of the Woodland Cultures of the Plains are still obscure. There is one well-known Woodland complex at the edge of the region, the "Kansas City Hopewell," which may have some relationship to early Plains Woodland cultures, but, if so, the relationship is indirect. The Kansas City Hopewell complex (Wedel 1943) is made up of Hopewellian materials at the Renner and other sites in the vicinity of Kansas City. It dates from the second or third centuries after the beginning of the Christian Era. The sites were small villages. The thickness of middens indicates the occupation was fairly stable. House types are unknown, but

nearby burial mounds contained stone-lined graves. The economy was based on horticulture -- maize and beans were raised -- as well as hunting.

This Kansas City Hopewell was the earliest maize-growing culture at the edge of the Plains. Extensions of it are found a short distance west in the Kansas River valley and vicinity (Wedel 1959:542-549) and southwestward as far as the prairie borders of present northeastern Oklahoma (Bell and Baerreis 1951:27-33). Nowhere, however, is there a true Plains Woodland culture which seems to have derived from Kansas City Hopewell. Rather, the latter seems to have been partly contemporary with, not ancestral to, the former.

We probably must wait until the archeology of the state of Iowa is better known before we will learn much about the specific origins of Plains Woodland cultures. As of now, no eastern Woodland complexes have been identified as directly ancestral to Plains Woodland cultures.

Enough similarities have been noted among Plains Woodland materials to determine that many of the sites can be classified into certain groups, which are usually called foci, but will be referred to here as cultures. Four such cultures have been defined: Sterns Creek, on the Missouri River Valley south of Omaha; Valley, in Nebraska and Kansas; Keith, in central and southwestern Nebraska and vicinity; and Loseke Creek in northeastern Nebraska and adjacent Iowa and South Dakota. Woodland materials in the eastern Dakotas, and west to the Rockies, which are either insufficiently studied or unpublished, will doubtless fall into additional cultural divisions.

Along the Missouri Valley below the mouth of the Platte is the area of the Sterns Creek culture, known from investigations at one site, the Walker Gilmore or Sterns Creek site, and from surface collections at other localities (Strong 1935:175-198; Champe 1946:66-75). The evidences of occupation at Walker Gilmore (Fig. 40), which was apparently a small village, have been preserved by burial under ten to sixteen feet of stream-laid silts. Gullying in the past fifty years has exposed the occupation zone. The environment along this part of the Missouri Valley is more like the eastern Woodlands than the Plains, but the upland prairies are

near. A few post molds and some "masses of charred materials" suggest that there were pole and thatch structures, but the house type is otherwise unknown. Remains of summer squash and bottle gourd were plentiful enough to show that these people practiced some agriculture, but there were no remains of maize or beans. The pottery from the site is reminiscent of some eastern Woodland wares. Animal bones in the site indicate that the chief game hunted was deer and other small forest game, there being no emphasis on bison or other upland grazers. The whole impression is that of a marginal eastern Woodland culture.

An important small Woodland village site, representing the Valley culture, is the W. H. Schultz site in Valley County, central Nebraska, nearly two hundred miles west of Sterns Creek (Hill and Kivett 1940:147-191). This site was a small settlement, barely an acre in extent, in which basins with central fireplaces may indicate impermanent pole and skin structures with the floor slightly below ground level. The thickness of the midden suggests reasonably stable occupation, perhaps for a good many years, but there was no evidence of agriculture. The artifact complex is simple, the most distinctive trait being the cord-marked pottery, which is thick and elongate with conoidal base. Often there are rim decorations. It is a distinctive ware, which has been found scattered over much of eastern and north-central Nebraska and parts of eastern and northern Kansas (Wedel 1959: 551-552). Possibly the distribution of this pottery reflects the range of the whole valley culture, but as yet no other Valley culture village sites have been dug and the range of the culture is unknown. Radiocarbon dates for the Valley culture are too few to be definitive, but it is believed to date from early in the Christian Era. In general, the Valley culture seems to represent a simple culture of little settlements on small streams, the food being obtained by hunting deer, bison, and other game and by gathering wild vegetable products, with pottery-making an important industry.

Farther west in Nebraska and northern Kansas are the evidences of a very similar but better-known culture, termed the Keith culture (Kivett 1949, 1952, 1953). The settlements, a number of which have been excavated, seem to have been much like those of the Valley culture. The pottery is like that of the Valley culture but is distinct in its tempering

material and in lacking rim decoration. Keith culture burials are usually of disarticulated bones, with large numbers of perforated mussel shell disk beads as grave offerings. Some ossuaries, like the Woodruff Ossuary (Kivett 1953), contained the bones of so many individuals that it was very likely the cemetery for a number of villages. As currently known, the Keith culture centered in the upper Republican drainage of southern and southwestern Nebraska, but possible evidences of it in the form of its distinctive pottery are found widely in central and western Kansas and eastern Colorado, as well as in many parts of Nebraska. The age of the culture is probably about the same as that of the Valley culture -- early in the Christian Era.

A Woodland culture that is probably later than those just summarized is the Loseke Creek culture of northeastern and eastern Nebraska and adjacent Iowa and South Dakota (Kivett 1952; Hurt 1952). The village sites of this focus have not provided evidence of house types, but middens and small trash pits have yielded a small artifact inventory and distinctive Woodland pottery. Kernels of maize have been found at one site, the Lawson site, so that agriculture was probably practiced, even if it were a minor activity. The pottery, varied enough to form several types, is elongate-globular in form and mostly cord-roughened with decorated rims. In South Dakota (Hurt 1952) this pottery is associated with a more elaborate artifact complex than in Nebraska. All the evidences are that the Loseke Creek culture was later in time than Sterns Creek, Valley, and Keith. The pottery suggests that Late Woodland influences from the east were finding their way into the Plains by this time. The culture may date from the latter half of the first millennium of the Christian Era.

Aside from these cultures, numerous low burial mounds, chiefly along the Missouri Valley in Nebraska and in the valleys of the eastern Dakotas, also are identifiable as having been built by Woodland peoples (see the review by Neuman 1960:87-90). Burial practices associated with these mounds vary a good deal, but few of the mounds have been subjected to controlled excavation (although many have been looted by relic hunters) so that no establishment of archeological complexes is yet possible. Neuman (1960:90-91; 1961) suggests that certain of the mounds in the Missouri River in

central South Dakota date from the latter part of the first millennium A.D. Recently several North Dakota sites have been dated by radiocarbon and the number may be expected to increase in the future.

Some of the mounds are associated with village sites, as at Scalp Creek (Hurt 1952:22), but for others no villages are apparent. The use of Woodland pottery in the Plains appears to extend far beyond the area where people lived in villages, although lack of excavation makes it difficult to say just how far westward this early Plains village life did extend. Woodland pottery is found west to the Rockies in Colorado, and south into the Texas Panhandle, but signs of actual villages are lacking in those areas. It remains to be determined whether the western Plains Woodland pottery was made by people who kept on the move, or whether some village life was possible on the High Plains or the Colorado Piedmont in the early part of the Christian Era.

VILLAGE FARMERS

Introduction

Late in the first millennium A.D., probably after A.D. 800, important new techniques and ideas moved up the Plains river valleys and across the prairies from the east and southeast, creating a new way of life, the most stable and successful one in the native history of the region. We now find archeological evidences of villages of true farmers, living in substantial houses and practicing horticulture in bottomland gardens. Some of the villages were quite impressive, especially in the north where elaborate fortifications surrounded some of the towns. Storage pits testify to the accumulation of crop surpluses for use over the winter. Hunting remained an important source of food, as evidenced by abundant bison bones in the village sites and by sites of hunting parties of these people on the High Plains, west of the horticultural area. (See Fig. 42.)

What caused this change? A major factor, certainly, was the rise of the Mississippian culture in the Mississippi Valley and the spread of certain of its ideas and practices to the Plains. Bottomland horticulture, village fortifications, and certain pottery styles are among the Plains farming culture items which ultimately have origins in the Mississippian culture. It must not be thought, however, that this new culture was a "Plains Mississippian" complex. It was distinctly a Plains culture. A great many of the traits -- the storage pits, houses, and skin-working tools, for instance -- show a specific adjustment to the Plains situation. Numerous artifact styles, such as cord-marked and simple-stamped pottery and diamond-shaped beveled knives, are non-Mississippian.

It is likely that population movements were involved in the change which led to the development of farming cultures on the Plains. Some changes in physical type are apparent. Plains Village Farmer skeletons have, in general, rounder and lower skulls than those of the earlier Plains Woodland people. There is also ethnohistoric evidence suggesting the

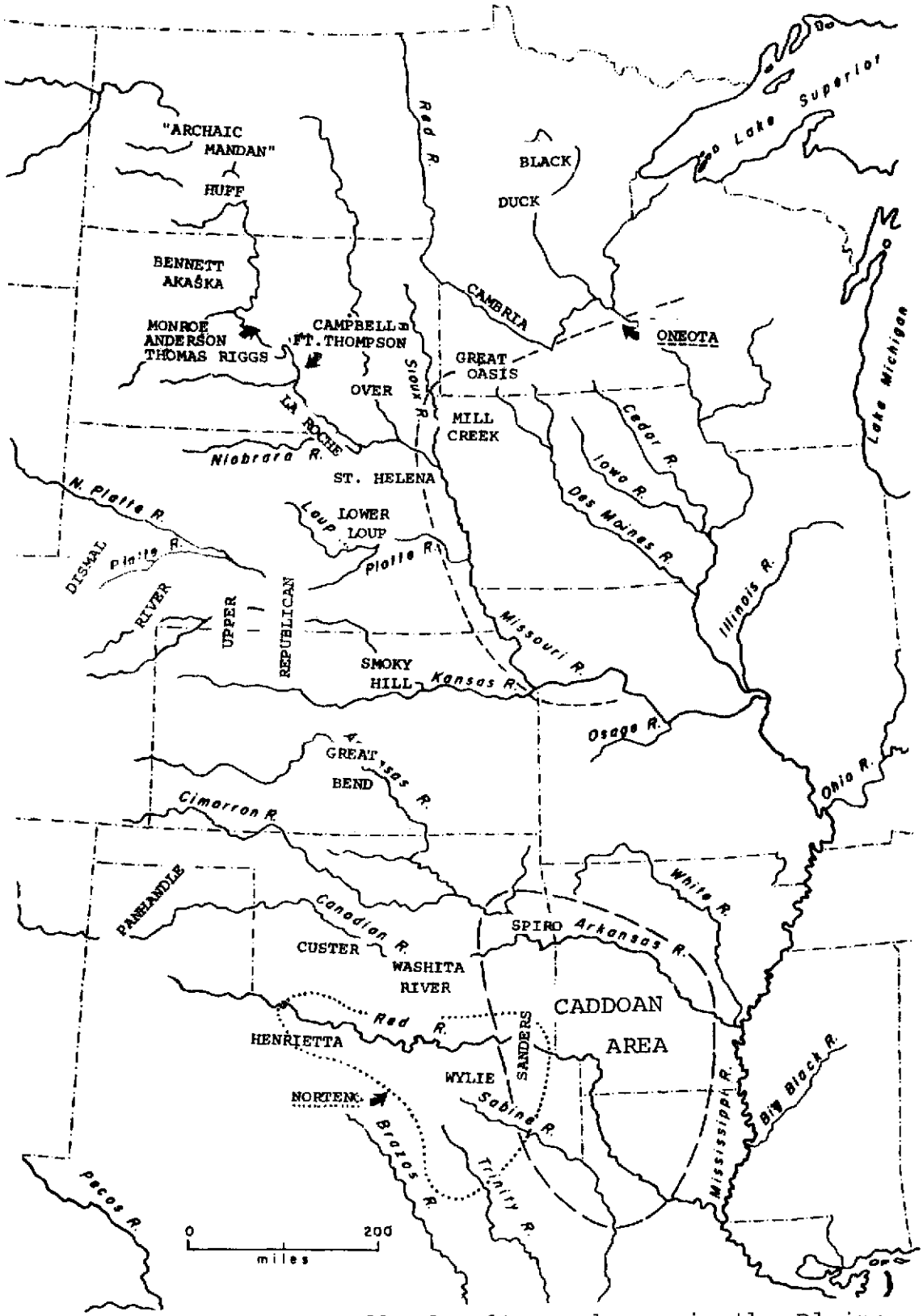


Figure 42. Post-Woodland culture phases in the Plains.

movement of peoples to the Plains from the east and southeast. The 19th century distribution of horticultural Plains tribes, descendants of the prehistoric villagers, shows a long peninsula of Caddoan speakers reaching up from the Caddo of northwestern Louisiana and vicinity -- the presumed Caddoan homeland -- through the Wichita of Oklahoma and Kansas, and the Pawnee of Nebraska, to the Arikara tribe of South Dakota. These peoples have vague traditions of southeastern origins, and their cultures and particularly their ceremonial life were, as of the 19th century, quite different from those of their neighbors and included many southeastern traits. Similarly, the Siouan languages of the Mandan and Hidatsa of the Missouri Valley in the Dakotas have their relationships to the east and southeast, and tribal traditions tell of movements which reflect the same origins. Thus, it is quite likely that the new cultural traits of the Plains farmers were carried from the eastern forests by people on the move. It is unlikely that these people engulfed and obliterated their Plains Woodland predecessors; the numerous continuities between late Plains Woodland (for instance, the Loseke Creek Focus) and the Village Farmers make it more probable that the newcomers blended with groups already present.

The most important single feature of this new way of life was that the people were farmers. They also hunted and gathered, but horticulture on the floodplains was now carried on in earnest. Plant remains in the sites show that they raised crops of corn, beans, squash, and sunflower. There is every reason to believe that the farming methods in prehistoric times were not essentially different from those practiced in the 18th and 19th centuries by the Wichita, Pawnee, Omaha, Mandan, and other historic Plains horticulturists. Among these people nearly all the agricultural work was carried on by the women. Floodplain fields were planted with digging sticks and cultivated with hoes. The bison scapula hoe blade -- a hallmark of Plains horticulture -- is found in numbers in the farming sites. Pressure for agricultural land became great enough, as time went on, so that often fields were being utilized several miles from the village. However, the fact that villages had to be moved now and then seems to have been not only a matter of exhaustion of the soil, but also of exhaustion of the wood supply -- wood for fuel and for house-building and repair.

While the women were responsible for agricultural work, the men hunted; and both the historic and the archeological records indicate that the men's hunting was by no means a minor part of the food-getting activities. In times of crop failure it must have been of major importance. In historic times, once the horse was acquired, it was customary for the whole village to become nomadic during certain seasons of the year, as the crops permitted it, in order to carry on bison hunts.

Relative to earlier times, the Plains farming culture was complex and sophisticated, and became more os as time progressed; but from a broader perspective it was a simple subsistence culture, with each village, and to a degree each household or group of related households, being essentially self-sufficient economically. However, self-sufficiency is a relative matter. Traditions, historical accounts, and a good deal of archeological evidence point out the importance of communal effort in hunting bison and antelope on the Plains. The coming of the horse probably added emphasis to communal hunting by making it more practical and effective through the technique of the surround. But even in pre-horse times, the masculine aspect of the culture, in hunting and in war, must have emphasized extrafamilial group effort more than the women's side did. Doubtless as villages grew to towns in the late prehistoric period, the elaborate and integrated ceremonial life recorded in the last century, designed to emphasizing the unity of clan, village, and tribe, became more and more important. But despite constant contact and trade between villages the economy was basically self-sufficient for each village and, in prehorse times, for each household or group of related households. There was little incentive for the formation of effective large economic units except for the impermanent ones involved in communal hunts; nor is there evidence in prehistoric times of significant economic stratification.

This village farming way of life achieved a far more efficient utilization of the Plains environment than any that had gone before, in the sense that it permitted more people to live in the region. The Village Farmers exploited the valleys as farmlands, hunting and gathering areas, and sources of wood; they fished and gathered shellfish in the streams; and on the uplands they hunted bison and other game.

It is not surprising that the archeological record gives ample evidence, in numbers and size of sites, of population increase at this time. Furthermore, larger and more stable concentration of population meant inevitably that interpersonal contacts increased, ideas proliferated, and political, social, technological, and symbolic traits multiplied. In short, given the proper subsistence base, this Plains culture could be expected to become more complex, as it did, as time went on.

Village Farmers of the Missouri Basin

Most of the archeological work in the village sites of the Plains has taken place in the valleys of Nebraska and the Dakotas, initially because of WPA-sponsored work in the 1930's, and more recently because of the reservoir salvage excavations in connection with the Missouri Basin development program. Throughout this central and northern area the development of village farming life followed a generally uniform pattern, as typified by an area-wide sequence of house types, from early rectangular ones to later round ones. In detail, however, differences are seen between the developments that took place along the Middle Missouri -- the stretch of the river in South and North Dakoto -- and those in the Central Plains of Nebraska and Kansas. (For an excellent brief summary, see Lahmer, 1954a.)

The Middle Missouri

On the Middle Missouri, the farming villages were large enough to have populations of several hundred people, and many of them were fortified with ditches and bastioned palisades. They appear rather suddenly, but some of their progenitors are known in southeastern South Dakota and neighboring Iowa, where two archeological complexes known as the Over and Mill Creek cultures tell much about the origins of the northern plains horticulturists.

The Mill Creek culture is represented by a series of midden sites on the Big Sioux and Little Sioux rivers in Iowa and South Dakota (Ives 1962; Fugle 1962). The Mill Creek people were horticulturists of the Plains type, with bison-scapula hoe blades, many skin-working tools, and pottery styles like those of the Plains villagers. Their

houses were long and rectangular, and signs of village fortifications have been found. A significant number of Mill Creek traits are clearly derived from the Mississippian culture to the east and southeast, examples being small triangular notched arrowheads, stone pulley-type earspools, and numerous marine shells used for ornamentation. The origins of these traits lie in certain of the great Mississippian ceremonial centers, probably Aztalan in Wisconsin and Old Village Cahokia near St. Louis. Only one Mill Creek site, the Phipps site near Cherokee, Iowa, has been excavated and published in any detail, but enough is known about the sites in general to indicate that the Mill Creek culture lasted for many centuries, perhaps starting as early as A.D. 850. With its combination of Plains and Mississippian traits it is believed to represent one of the ancestral forms of Middle Missouri village farming culture. In this respect its part in Plains village history is parallel to that of other prairie complexes farther north, such as Great Oasis, Cambria, and Black Duck, which will not be discussed here but which also are believed to have played a part in the origin of Middle Missouri farming culture. All of these complexes probably represent groups of Siouan-speaking peoples moving westward, spurred by the development of the Mississippian culture which provided new horticultural techniques making exploitation of the Plains valleys feasible for native farmers. (See Figs. 43 and 44.)

The Over Focus (Hurt 1951; Over and Meleen 1941), probably represents a further stage in the development of Plains village culture. It lies west of the Mill Creek culture, extending across southern South Dakota as far as the Missouri River. It seems to have been the earliest village farming culture on the Middle Missouri. Such sites as

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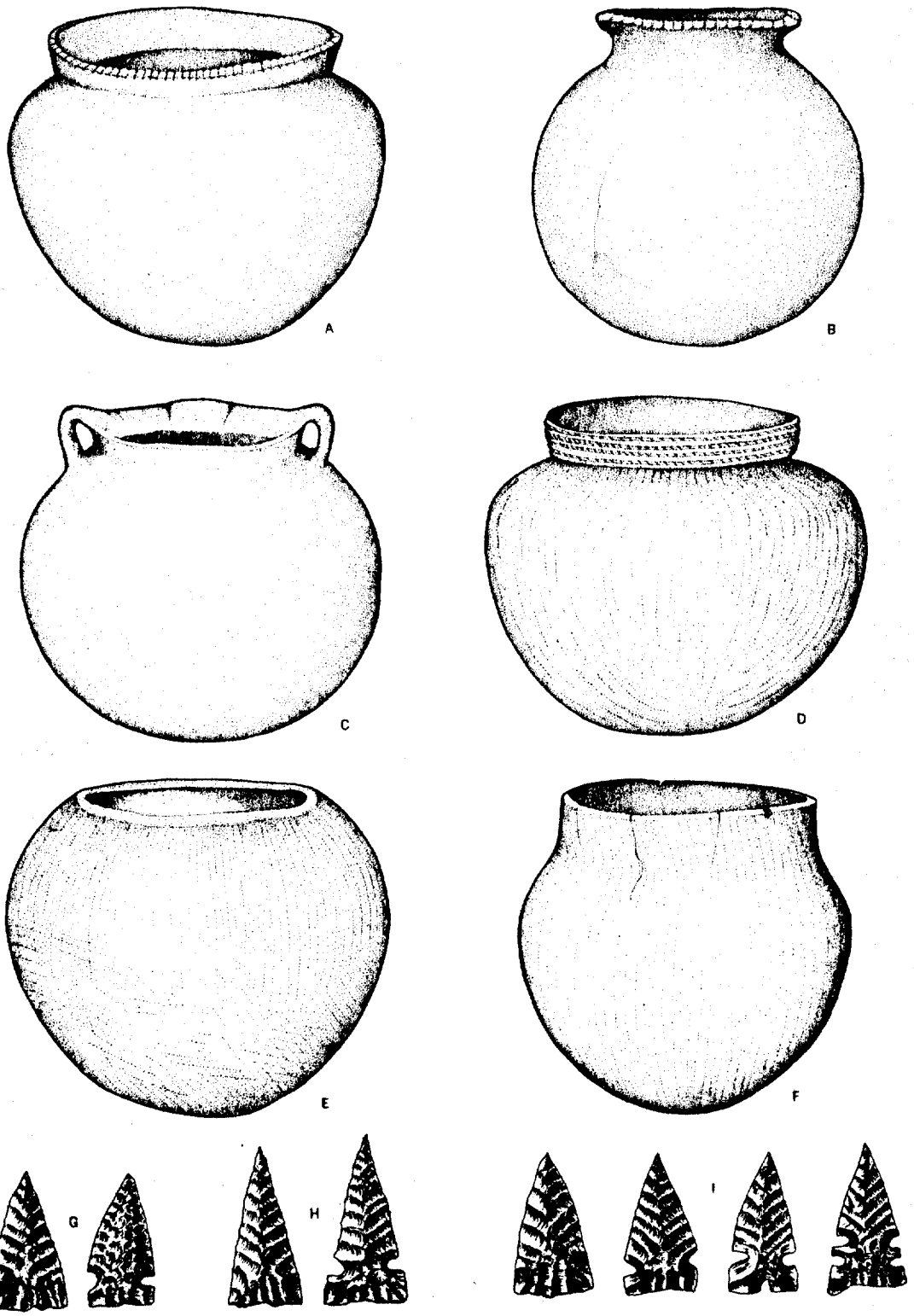
Figure 43. Pottery and projectile points from post-Woodland cultures in the Plains. A, Thomas Riggs, Mid-Missouri tradition; B, Rock Bluffs, Central Plains tradition; C, Behrnes site, Central Plains tradition; D, Sweetwater (Upper Republican), Central Plains; E, Smoky Hill, Central Plains; F, Antelope Creek Focus, Panhandle culture; G, two Mid-Missouri projectile points; H, two Coalescent tradition points; I group of four typical Central Plains tradition points. Projectile points after Lehmer 1954a.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Mitchell, Brandon, Swanson, and the early component of Crow Creek, are settlements of twenty or more long rectangular houses with the floors dug below ground level. It is not known with what the houses were covered, but it does not appear to have been earth or clay, and there are some indications of thatch. Some village fortifications have been found. Corn and squash have been identified in the storage pits, and bison-scapula hoes further testify to agricultural activities, just as abundant bison bones indicate hunting. The Over Focus pottery is globular and quite varied in finish and decoration, showing relationships not only with Mill Creek and with later Middle Missouri cultures, but also with the Cambria culture of Minnesota, the Loseke Creek Focus which we have already discussed as a late Woodland complex, and the Upper Republican culture of Nebraska.

The Mill Creek and Over Cultures, with their mixtures of traits, appear to represent a time at the end of the first millennium of the Christian Era, when new peoples and new ideas were spreading up the Missouri Valley and across the prairies of Iowa and Minnesota, adapting to new ecological circumstances as they moved, and joining forces, in some degree at least, with the late Plains Woodland peoples who were already on the scene.

Soon after this, we find on the Missouri River substantial villages of the Middle Missouri tradition, a full-fledged Plains village culture which lasted from about A.D. 1050 to 1500. At such sites as Thomas Riggs, the late component at Crow Creek, Huff, Prettyhead, and others northward as far as the Knife River in North Dakota, there are sizable villages of long rectangular semisubterranean houses often arranged in regular rows. The villages are often heavily fortified with ditches, palisades, and bastions.

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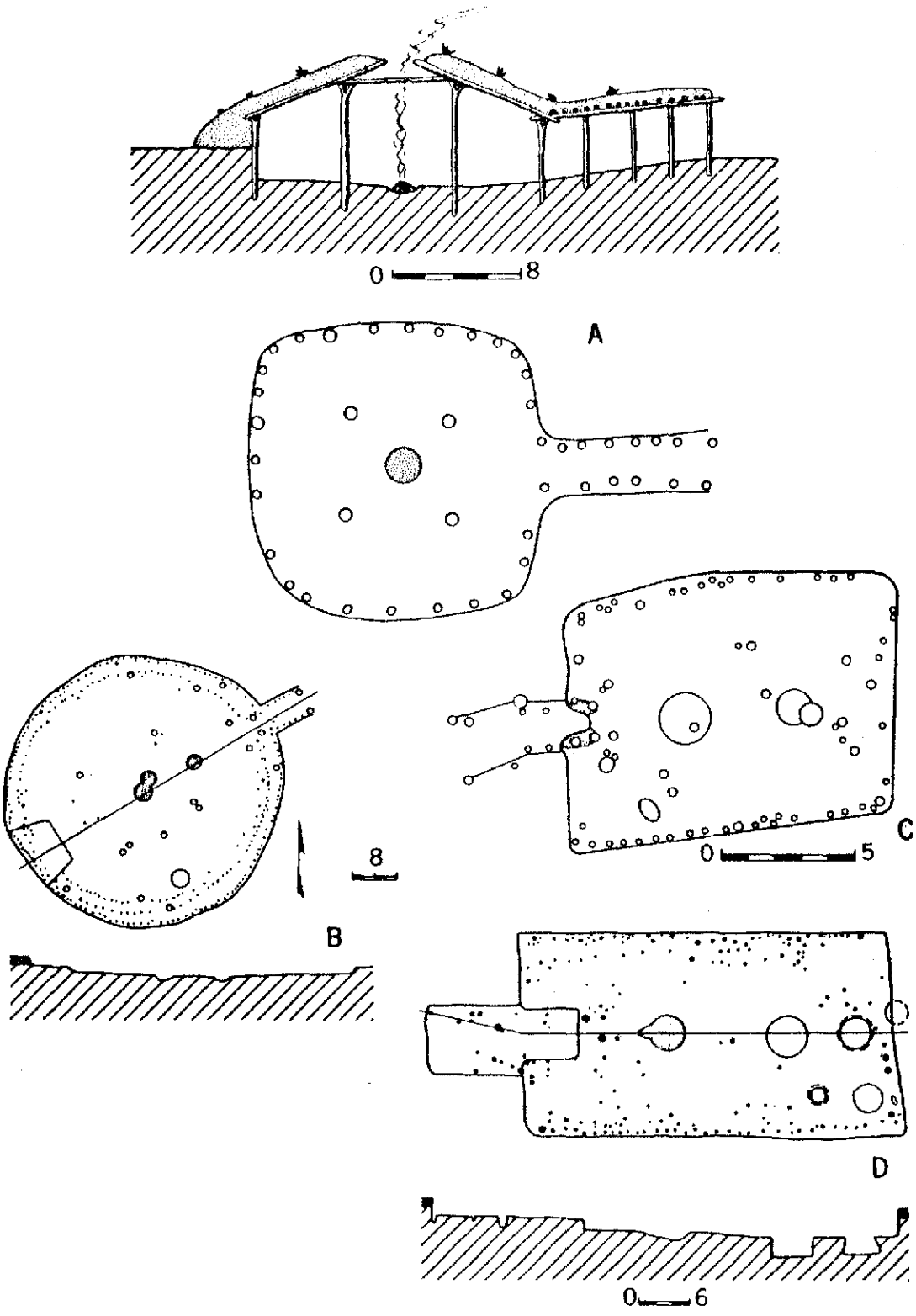
Figure 44. House types in the Central Plains. A, generalized Central Plains tradition house plan and its restoration; B, circular house of Coalescent tradition; C, rectangular house of Mill Creek and Over phases; D, rectangular house of Middle Missouri tradition. A, from Wood, The Square Earthlodge of the Central Plains; B and D, after Lehmer, Archeological Investigations in Medicine Creek Reservoir, Nebraska; C, from Hunt, The Thomas Riggs Site.


0 8
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The middens at these sites testify to a rich and varied life (Lehmer 1954a:140-143; Wedel 1961:172-178). The artifacts point to the importance of agriculture, hunting, skin-working, and pottery making, and to the elaboration of the use of bison and other bone, in addition to chipped and polished stone, as materials for tools. The pottery is well made, most of it utilitarian in function. Many of the vessels have Woodland-style cord-marked exteriors, but during the time of the Middle Missouri tradition the practice of simple stamping -- that is, paddling with a grooved paddle -- superceded cord-marking, spreading down the river from the north. There is a wide variety of rim form and decoration. Other specific material traits, such as house-building details, also changed as time went on.

The detailed history of the order of events within the time of the Middle Missouri tradition is still obscure. At many sites stratigraphic evidence is lacking; and radiocarbon dates, which must be obtained in considerable numbers before they can be taken as good evidence, are only now beginning to provide significant data. Within the tradition a number of foci have been distinguished, examples being the Monroe, Anderson, Campbell, and Thomas Riggs foci in South Dakota and the Huff focus and "Archaic Mandan" sites in North Dakota. This variability in culture gives some credence to the picture painted by Mandan traditions, which speak of different ancestral groups moving here and there, abandoning old villages and establishing new ones, sometimes in close contact with their neighbors and at other times more isolated.

Some time around A.D. 1500 major changes began to occur in the Middle Missouri area, in the form of new house styles and modifications in the types of many artifacts. In most cases the new fashions came from the central Plains. There is a great deal of inferential evidence in the Nebraska-Kansas area that major drought conditions at this time were forcing many village farmers out of that area to the Missouri Valley and up the valley into the Dakotas. In central South Dakota at the huge Arzberger site (Spaulding 1956) there is evidence for close relationship with the Upper Republican culture of Nebraska, to the extent that an actual migration of Upper Republican peoples is a possibility. In short, it is believed that about A.D. 1500, Central Plains groups, probably speaking Caddoan, moved up the river into the

territory of the Siouan-speaking bearers of the Middle Missouri tradition.

The combination of Central Plains and Middle Missouri culture which resulted from this northward movement and contact of peoples produced a new tradition on the Missouri which has been appropriately called the Coalescent tradition (Lehmer 1954a:147-154). This new culture, which soon spread to all the peoples of the Middle Missouri, was characterized by circular earth-covered lodges with central fireplace and entrance passage, and four primary roof supports in a square around the firepit. This house style derives directly from earlier square houses in the Central Plains. The Coalescent pottery, like that of the previous Middle Missouri tradition, is globular and simple stamped, but otherwise it is extremely varied in rim form and decoration. Nonpottery artifact styles also show a combination of Middle Missouri and Central Plains traits.

The Coalescent villages varied in size, most of the earlier ones being of twenty or so lodges, often unfortified, whereas many later ones were much larger. The combination of the two earlier traditions seems to have resulted in a more efficient and effective adjustment of Plains village culture to the relatively rigorous environment of the Middle Missouri area. The richness of the material complex and the skill in craftsmanship shown in the artifacts make it clear that a cultural climax was being reached, a climax which was achieved at about the time European trade goods began to appear, in the 1600's. When the first Europeans visited the Mandans in the 1740's they found this culture in full flower. It was soon to collapse, however, when a series of smallpox epidemics and the Sioux with the recently acquired horses decimated the village tribes in a few brief generations. That story, however, is beyond the scope of this study.

The Coalescent tradition is manifested historically in the well-known river tribes of North and South Dakota -- the Siouan-speaking Mandan and Hidatsa and the Caddoan-speaking Arikara. Where prehistoric complexes lead into known historic tribes in this way, it is often possible to infer many more cultural details from the archeological record than would otherwise be possible. Thus, we are able to identify the functions of certain artifacts, such as the grooved

stone mauls which were used for pounding pemmican, which might otherwise remain enigmatic. However, when one tries to identify specific archeological complexes with particular tribes on the Middle Missouri, the task becomes unexpectedly difficult, although some identifications of this sort have tentatively been made. The reasons for the difficulty are themselves illuminating. The Coalescent villages were lived in for considerable periods of time, but they were not really permanent. The people had to move from time to time, and the traditions of the river tribes tell of such movements, and of splittings and amalgamations of groups, a complex situation possibly reflected in the nemerous phases which have been distinguished archeologically within the Coalescent tradition, such as the Stanley, Bennett, Akaska, and La Roche foci. In general, it can be inferred that Plains village culture was not quite stable enough in terms of locale to permit the development of distinctive and long-lasting tribal traditions in styles of material objects. Linquistic identities remained clear; the historic Arikara spoke the Caddoan tongue that probably moved north with the Central Plains tradition, and the Mandan and Hidatsa spoke Siouan languages which we believe were associated with the Middle Missouri tradition. But although these old linguistic groups are seen to remain distinct, the material cultures are difficult to sort out. As an example, it has been suggested that the Hagen site in eastern Montana (Mulloy 1942) which is by far the most upstream of the Coalescent sites, is a Crow village at the time when the Crow had just split off from the Hidatsa but before they had become fully nomadic. This suggestion is based primarily on the location of the site, because the pottery and other material traits do not specify that the occupants were necessarily Crow or Hidatsa or, for that matter, Mandan.

The Coalescent tradition, as a material complex, had sufficient technological advantages so that it spread throughout the Middle Missouri and recognized no tribal lines. It permitted a relatively rich life in an environment that might otherwise have been considered inhospitable to native agriculture. If the white men's horses and diseases had not appeared on the scene, the villagers of the Middle Missouri might well have had many centuries of prosperity ahead of them.

The Central Plains

The central Plains is, roughly, the area between the Niobrara and Arkansas rivers. It was here that the pioneering research in Plains archeology was done in the 1920's and 1930's (Strong 1935:40-55; Wedel 1940; 1959:82-98). Here the sequence of Plains Woodland, followed by rectangular house cultures, in turn followed by round house cultures, was first outlined.

As already noted, the history of village farmers in the central Plains parallels that on the Middle Missouri. From about A.D. 1000 or 1100 until 1500 there were small horticultural villages of rectangular houses scattered along the valley. Later, the villages were larger and the houses were round. There were, however, differences in developments in the two areas. Central Plains village farming spread far west, into western Nebraska, and did not cling to the major valleys. The villages were small and never fortified or arranged according to a plan. The earlier period, characterized by rectangular houses, ended with virtual abandonment of the region. Between these cultures and the later round house peoples there was a gap, both in time and in style. The round house cultures did not appear until European trade goods were making their way into the region, and for this reason these cultures will receive only brief mention here.

The earlier Central Plains village farming complexes manifest, as a group, a general pattern, the Central Plains tradition (Lehmer 1954a:143-147; Wedel 1959:566-567). The villages were made up of square earth-covered lodges, with rounded corners and extended entranceways, and with four primary roof supports arranged around a central fireplace. The communities were small, often nothing more than strings of houses along a ridge or a river terrace. Storage pits are found in and around the houses. A Central Plains hallmark is the diamond-shaped chipped stone knife. Animal and plant remains show that, as elsewhere among Plains Village Farmers, subsistence was about equally divided between horticulture and hunting, with fishing also playing a part.

The specific origins of village farming are less clear here than on the Middle Missouri. Correlations with historic linguistic distributions indicate that the Central Plains

tradition people spoke Caddoan dialects, suggesting a southeastern origin for these cultures. There are, indeed, certain archeological similarities with the Spiro focus of the Caddoan archeological area in eastern Oklahoma, but the evidence is more suggestive of cultural contact than of origins. Equally significant in this respect is the Mississippian complex represented by the Steed-Kisker site on the east side of the Missouri Valley above Kansas City, in the prairie country at the edge of the Plains (Wedel 1943: 62 ff.). Steed-Kisker (Figure. 39), and related sites up the Missouri as far as southeastern Nebraska, have the characteristic Mississippian shell-tempered pottery and many other Mississippian traits as well. However, the one house excavated at Steed-Kisker was not Mississippian but a good Central Plains earth lodge. The presence of this Mississippian culture at the edge of the Plains, evidently in close contact with Plains cultures, does not suggest a group ancentral to the Central Plains tradition, but it does mark one of the routes by which Mississippian traits reached the Central Plains to contribute to the Central Plains tradition, just as the Caddoan connections already mentioned point to another route.

The Central Plains tradition sites are classified into three groups, technically known as Aspects: the Nebraska, Upper Republican, and Smoky Hill cultures, each one divided into several foci or phases (Wedel 1940:310-323; 1959:557-571; 1961:94-97). The Nebraska culture sites, of which Fontenelle Forest in Omaha is an example (Fig. 39), are found along the Missouri Valley from Siouz City downstream nearly to Kansas City. The houses are semisubterranean, being excavated two or more feet into the ground, and are scattered in loose communities along ridges. Some of the artifacts show strong Mississippian influence, probably coming from the culture represented by Steed-Kisker.

Farther west in Nebraska and Kansas is the Upper Republican culture, well known from many excavations such as those at Medicine Creek (Kivett 1949) and near Sweetwater, Nebraska (Champe 1936). The Upper Republican villages are on low terraces of main rivers and smaller tributaries, and are found westward into the relatively dry country of southwestern Nebraska. These western villages, beyond the present 20-inch rainfall line, represent an extension of

Central Plains culture to the extreme edges of its possible habitat. The Upper Republican earth lodges are like those of the Nebraska culture, but were not excavated below ground level. Burials were in ossuaries or single interments, with relatively few grave goods.

The Smoky Hill culture (Wedel 1959:562-566) is relatively little known as yet. Its characteristic orange-brown pottery is distinct enough from that of the Nebraska and Upper Republican complexes to indicate a separate culture, one which Wedel suggests is a little less specialized than the other two. The Griffing site near Manhattan, Kansas, is one of the few excavated sites, except for the commercially developed Whiteford site, or "Indian Burial Pit," outside of Salina. The latter is a large burial area containing some 140 primary burials, with an accompanying village in which only one house has been investigated.

The similarities among the three Central Plains cultures are close, but their exact relationships are not clear. There are intermediate sites wherever the areas of the different complexes meet. For instance, the Coufal site in Nebraska shares traits of the Upper Republican and Nebraska cultures. It could be argued that this situation represents one culture developing out of another, or on the other hand, it might indicate a mixture of two contemporary cultures. Lacking concrete evidence, it would seem most logical to suggest that the Upper Republican complex, being farthest removed geographically from the Mississippian-Late Woodland origins of these cultures, was a westward development out of the Nebraska and/or Smoky Hill cultures. Wedel has, in fact, very tentatively suggested (Wedel 1959:564-565) that the Smoky Hill culture may be most like the ancestral type which was affected by Mississippian and late eastern Woodland streams of influence, such as Steed-Kisker, Gibson Aspect Caddoan, and Mill Creek, to form the more full-blown Central Plains complexes, the Nebraska and Upper Republican cultures.

By A.D. 1500, the sites of the Central Plains tradition appear all to have been abandoned. Many of the sites in Nebraska are buried under as much as two feet of wind-blown silt. It is generally presumed, although still not demonstrated, that major drought conditions drove the people east and northeast to the Missouri River Valley. Tree-ring records

in central and western Nebraska show major dry periods in the 1400's and 1500's (Wedel 1961:14, citing Weakly) which might well have forced groups to abandon their little settlements and move to more favorable territory. It was at this time, as we have already seen, that the Central Plains tradition appears on the Middle Missouri, resulting in the formation of the Coalescent tradition there. The Arzberger site near Pierre in central South Dakota, mentioned earlier, is considered to be a Central Plains site stylistically, the most northern one known. There is also a complex on the Missouri River in northeastern Nebraska, the St. Helena focus (Cooper 1936), which appears to represent a late mixture of Upper Republican with Nebraska culture elements.

Since in Nebraska and northern Kansas there is a stylistic and temporal gap between the Central Plains tradition sites and the later protohistoric Pawnee sites with round houses, it seems most probable that in the 1600's more favorable climatic conditions led to a movement back from the Missouri River by the people who appear historically as the Pawnee. The increased exposure to Middle Missouri and Mississippian cultures that took place during the stay of these people on the Missouri must have produced the changes that make the protohistoric Pawnee material (the Lower Loup focus) clearly different from its forebears. Indeed, Lehmer (1954a: 150) has classed these protohistoric Pawnee villages in the Coalescent tradition together with the late sites on the Middle Missouri.

At the dawn of history, then, when European trade goods appear in the Central Plains, the villages of the protohistoric Pawnee were established in eastern and central Nebraska. They were a strong and prosperous people experiencing a cultural climax like their northern neighbors on the Middle Missouri. The climax was short-lived because of the rise and eventual dominance of the equestrian nomadic culture of the High Plains in the 1700's, and the appearance of Europeans in increasing numbers.

While the developments which have just been reviewed were taking place, an archeological complex quite foreign to those we have been discussing made its appearance at the eastern edge of the Central Plains. This was the Oneota culture, well known in Iowa and surrounding states (Mott 1938;

Wedel, W.R. 1959:600-615; Wedel, M. M. 1959; Henning 1961: 30-44). Oneota is a Mississippian complex, with shell-tempered pottery having characteristic trailed chevron designs lined with punctates on the shoulders of the pots. The Oneota sites west of the Missouri differ from those east of the river in having earth lodges, and a number of other Plains characteristics. In economy the sites display the typical horticulture-plus-hunting subsistence of Plains and prairie village cultures.

Four Oneota village sites are known in eastern Nebraska and Kansas, all of them within fifty miles of the Missouri River. Two of them have European trade goods, but the other two may date more than a century before European influence reached the area. The presence of some Oneota influence in the St. Helena complex, mentioned earlier, suggests that the Oneota culture appeared in the area by around A.D. 1500. However, the fact that no Oneota trade material is found in protohistoric Pawnee sites suggests that the role of Oneota west of the Missouri was a sporadic one, even though some sites, like the large prehistoric Leary site in southeastern Nebraska, were important settlements.

Ethnohistoric evidence indicates that the trans-Missouri Oneota sites represent Central Siouan groups -- ancestors of such tribes as the Iowa, Oto, and Kansa -- who were making temporary forays out on the Plains. The earliest such forays probably played some part in transmitting Mississippian influences to Plains cultures at the time that drought had forced the people of the central Plains to retreat eastward to the Missouri River.

The Southern Plains

South of the Arkansas River the picture of prehistoric events is not as clear as farther north, because much less archeological work has been done. The general pattern of events is the same: Mississippian elements, and presumably Mississippian peoples, moving from the eastern forests and prairies up the river valleys to the Plains and changing as they moved, and of plainsmen moving north and south to complicate further the picture.

Dating of archeological complexes is in most cases

still unsure in this region, so that it is difficult to fit the known cultures into a coherent narrative. Nevertheless, some pieces of the record are starting to fit together, and a picture is beginning to emerge; but a great deal more research will be required before the southern Plains can match the central Plains and the Middle Missouri in the completeness of the archeological picture.

In central and western Oklahoma and adjacent northern Texas are a series of prehistoric village horticultural complexes with many similarities to one another: the Washita River and Custer cultures in Oklahoma and the Henrietta and Wylie cultures in Texas. Probably growing out of these cultures are two that emerge into historic times as the Wichita-speaking peoples: the Great Bend culture in Kansas and the Norteño culture in Oklahoma and Texas. To the west, extending up the valleys of the semiarid High Plains nearly to the Rockies, are the Panhandle culture and related complexes, which show the effects of contacts with Pueblo groups.

The more easterly of these cultures are related to the Caddoan complexes in the woodlands to the east. As one goes west, the cultures look less and less Caddoan and increasingly more like typical Plains groups, until they are far enough west to take on some Puebloan traits. The impression is that Caddoan cultures moved west and became Plains cultures. It is still not known which Caddoan cultures did the moving or when the moves took place. The suggestion has been made that unsettled conditions in the Caddoan area at the end of early Caddoan times, around A.D. 1200, may have produced these movements. (See the review of this problem in Bell 1961b.)

Other major contributions to the Southern Plains village cultures were made by the Central Plains tradition, to the extent that some population movement from north to south may be indicated. Whether certain Southern Plains cultures had, in their turn, made earlier contributions to the Central Plains is, in view of the evidence, less likely. The presumed Caddoan element in Central Plains cultures seems to have followed another route than via any of the known Southern Plains complexes.

The early Caddoan cultures which are the most logical candidates to be ancestors of Southern Plains village cultures,

since they extend into the prairies bordering the Plains, are the Spiro and Sanders cultures of eastern Oklahoma and northeastern Texas (Suhm, Krieger, and Jelks 1954:176-184). These two related cultures were the western outliers of Mississippian culture in the south. Their dates are uncertain, current estimates ranging from about A.D. 600 to 1300, and it may well be that both complexes represent cultural sequences covering several centuries rather than being single cultural units. They have definite trait relationships with Southern Plains cultures. However, not enough is known yet to trace any cultural movements directly from either of these cultures to Southern Plains complexes. Future work will doubtless fill this gap.

The Southern Plains culture which seems closest to the Caddoan tradition is the Washita River culture of central Oklahoma (Sharrock 1961:26-32; Bell and Baerreis 1951:75-81; Pillaert 1963), which has been interpreted as a Caddoan culture becoming modified as it moved out on the Plains. Washita River sites, such as the McLemore site, are villages along the valleys, supported by agriculture and hunting. Only a little is known of the house form, which seems to be of the typical square Plains lodge pattern (which also is found in the Spiro culture), but is not earth-covered. The pottery and stone work show both Caddoan and Central Plains traits, but the abundant work in bone is solely that of a Plains culture. Three radiocarbon dates for the Washita River culture cover a time range of about A.D. 1150-1400 (Bell 1961:79).

Farther west is the closely related but more Plains-like Custer culture, whichappears to be a further development, or perhaps just a variant, of Washita River under more exposure to Plains traits (Bell and Baerreis 1951:81-83; Buck 1959: 28-30; Pillaert 1963:45). This culture, with its abundance of cord-marked pottery, reminds one in many respects of the Upper Republican culture.

Still farther west, in the valleys of the Canadian and North Canadian rivers in the Texas and Oklahoma panhandles, is a most interesting group of sites comprising the Panhandle culture (Suhm, Krieger, and Jelks 1954:66-73; Krieger 1946: 17-74; Watson 1950:47-67). This culture, as typified in the Alibates Ruin in Texas and the Stamper site in Oklahoma (Fig.

39), is closely related to Upper Republican and to the Custer and Washita River cultures, and was also in touch with the Pueblo cultures of New Mexico. The pottery is good Central Plains cord-marked ware, and the material inventory as a whole is that of a Plains culture. The houses, however, are different, and show the influence of the Pueblos: the lower parts of the walls were made of masonry and adobe, and in the Texas sites multiple-room structures were built. Numerous sherds of pottery traded from the Pueblo area permit a dating of A.D. 1300-1450. The Panhandle people were evidently Plains village farming Indians who found favorable agricultural land in these Southwestern Plains valleys and, having settled, adopted a number of house-building practices from the Pueblo Indians with whom they came in contact. Sites of this general nature are also found nearly to the foothills of the Rockies in northeastern New Mexico and southeastern Colorado (Wedel 1961:150-151). Apparently, around the beginning of the 15th century village agriculturists were to be found all across the southern Plains from the Caddoan area on the east to the Pueblo area on the west. By A.D. 1500, however, no more of these western Plains sites were occupied The area may have been abandoned by Panhandle-type peoples at the same time that the Upper Republicans were leaving the Central Plains, and very likely for the same reason, a prolonged and disastrous drought.

The southernmost prehistoric village cultures of the Plains were the Henrietta and Wylie cultures of north Texas. The Henrietta culture (Suhm, Krieger, and Jelks 1954:80-87; Krieger 1946:87-159) is in the upper valleys of the Red, Brazos, and Trinity rivers. In these villages, such as the Harrell site, the pottery is not Plains-like but is shell tempered and appears to be of distant Mississippian origin, deriving probably from Oklahoma rather than from the nearest Caddoan complex, the Sanders focus in eastern Texas. The house type is not known, but the tool inventory is characteristic of Plains villagers, as exemplified by bison scapula hoe blades, and there are also a few signs of Pueblo influence. Pueblo trade sherds indicate a dating of about A.D. 1400-1600, but the culture may have begun before A.D. 1400. Although diluted stylistically by non-Plains pottery, the Henrietta culture can be called the southernmost extension of Plains village culture.

The Wylie culture is a puzzling prehistoric complex in a small area east of Dallas (Suhm, Krieger, and Jelks 1954: 87-92), which seems to be a mixture of Henrietta elements from the west and Caddoan elements from the east. In many of the small village sites, such as Hogge Bridge, there is a large saucer-shaped basin as much as a hundred feet across and ten feet deep, the function of which is unknown. Little is known of house types, the sole example reported being small and oval, and the artifacts, including the pottery, make up a mélange of Caddoan and Henrietta styles, with a few types from nonsedentary groups to the south in central Texas. This culture seems to have been foreign to the main stream of Plains village farming tradition, and may represent a local nonagricultural group which became village farmers under the influence of their eastern and western neighbors.

All of the Southern Plains cultures just described had disappeared before the advent of Europeans on the scene. Because of the inadequate state of archeological studies, it has not been possible to trace any of them into the two historic complexes known in the area, the Great Bend culture of the Arkansas valley in Kansas (Wedel 1959:571-589) and the later Norteño culture of northern Texas and Oklahoma (Duffield and Jelks 1961:69-75). It is possible that the Great Bend culture, which was the "Quivira" visited by Coronado and represents the protohistoric Wichita, was a descendant in some way of the Custer and Washita River cultures (Wedel 1959:510; Pillaert 1963:46). The ancestry of the Norteño culture, which represents several different bands of 18th and 19th century Wichita, remains to be determined, but it may well have derived from the Henrietta culture, with later influences from Great Bend groups moving down from the north. If these suggestions, which are still in the realm of hypothesis, are correct, then the prehistoric Southern Plains Village Farmers must have been Caddoan speakers of the Wichita group.

Much remains to be learned about the prehistory of the southern Plains, as this survey has demonstrated. It is clear that, in broad outline, the development of a village farming culture adapted to the semiarid and subhumid southern

Plains was not unlike the history of native farming in the central Plains and on the Middle Missouri.

The Western Plains

The western Plains was a borderline area with respect to cultures both east and west, except in the 1700's and 1800's when it experienced the spectacular but short-lived cultural climax of the bison-hunting horsemen. But even before the coming of the horse this region was one of considerable activity because the herds of bison that roamed there always represented abundant, albeit often elusive, food on the hoof. Dating from the time of the village tribes, we find in the western Plains impermanent camp sites with sherds of pottery from such village complexes as the Keith and Upper Republican cultures (Irwin and Irwin 1957). It is generally assumed that these sites represent the camping places of hunting parties from the villages to the east. They could also, of course, be camps of nomadic western tribes who obtained the pottery from the villagers by trade.

To the archeologist concerned with the village cultures these western camping places are often of more than passing interest. Particularly favorable spots, as on buttes with good views for hunters, or in rock shelters, were used again and again over centuries and even millennia by groups of hunters. Such sites are likely to contain stratified records of cultural sequence which are difficult to get in village sites. For instance, Ash Hollow Cave in western Nebraska (Champe 1946) has provided one of the keys for determining the sequence of cultures more than a hundred miles to the east, because it was utilized by peoples who carried identifiable types of eastern Plains pottery. From evidence in sites like Signal Butte in westernmost Nebraska and Pictograph Cave near Billings, Montana, which have pottery in their upper levels, the range of influence of the village cultures and their relationships with western Plains groups is being determined (Wedel 1961:101-102, 256-259).

In short, agriculture could not be practiced in most of the area west of the 100th meridian during village times, but the bison hunting was good there, and for that reason the western Plains played a significant part in the life of the village Indians. The villagers received meat and hides

from there, either through the efforts of their own hunting parties or by trading with nomadic western tribes, or both. In return, their pottery made its way westward to the Rockies, serving as a marker for the archeologist of the importance the dry country to the west had for the horticulturists in the eastern river valleys.

Parenthetically -- because it is outside the time covered by this account -- it should be mentioned that one village farming culture appeared briefly on the western Plains at the end of the 17th century, after European influence began to be felt but before the use of horses had become inomrtant. This is the Dismal River culture, representing groups of Plains Apache, who subsisted primarily by hunting but some of whom lived in small settlements, raised corn, and made pottery (Gunnerson 1960). They seem to have done so as a result of contact with Plains village tribes and with the Pueblo peoples. How long their half-hearted village culture might have lasted cannot be surmised, since after barely a half century it was swept away by the Comanches, who, having acquired horses, moved out of the Rocky Mountains and conquered the southern part of the western Plains.

SUMMARY OF PLAINS

This history we have here can be summarized as follows (Fig. 45). Plains Woodland cultures represented a push westward of a predominantly hunting-gathering culture with some village life and with cord-marked, conical-based pottery, starting around the beginning of the Christian Era. Later, beginning perhaps before A.D. 1000 but not appearing significantly until after that date, true Plains village horticulture appeared as the result of Mississippian influences moving westward all along the forest border from Minnesota to Texas. There seem to have been three main avenues in this movement. In the north, Siouan-speaking peoples with a Late Woodland culture showing strong Mississippian influences, moved across Minnesota and Iowa into the Middle Missouri valley and founded the Middle Missouri tradition. They were ancestral Mandan and Hidatsa, and were followed much later, around A.D. 1500, by the Central Siouans -- Iowa, Oto,Omaha, and others -- some of whom were carriers of the Oneota culture. In the central Plains, Caddoan speakers who were ancestral Pawnee and Arikara came from the southeast and founded the Central Plains tradition, which spread south, west, and north. To the south, it met the third stream, ancestral Wichita peoples expanding west from the Caddoan area. The combination produced the Southern Plains village culture, which eventually became the historic Wichita. To the west, the Central Plains tradition expanded into semiarid southwestern Nebraska and its influence was felt all the way to the Rockies. Later, around A.D. 1450 or 1500, drought conditions forced the people to pull back to the Missouri River and some of them moved up the river as far north as central South Dakota. Doubtless the Caddoan advance would have continued northward but for the fact that the Siouan peoples of the Middle Missouri tradition were already well established there. The contact of the two groups produced the Coalescent tradition, which evolved into the historic cultures of the Caddoan and Siouan speaking village tribes, some of whom moved back into the central Plains.

Thus, when the Spaniards and French first appeared on the scene, powerful village tribes dominated the Great Plains from North Dakota to northern Texas. The western

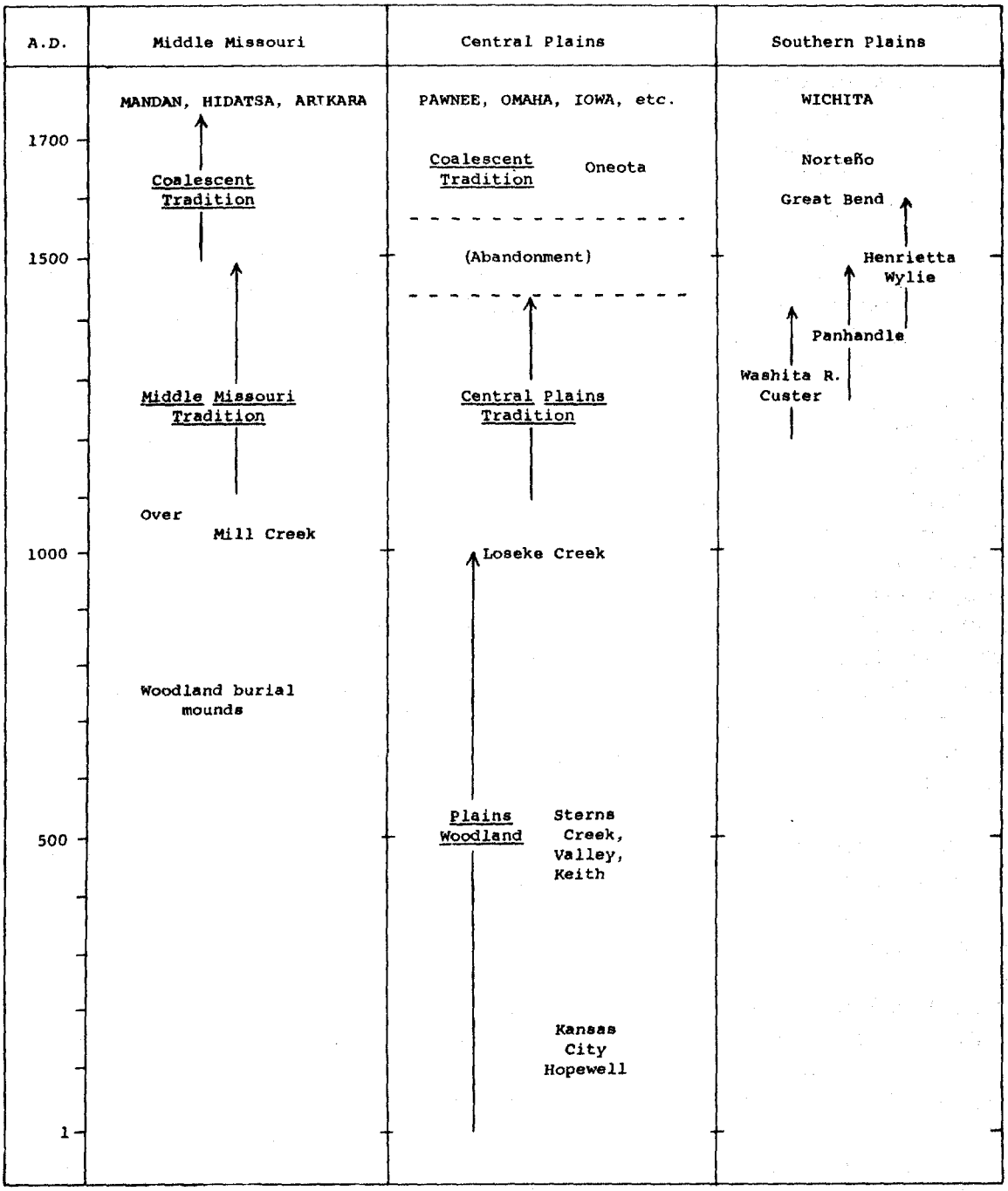


Figure 45. Plains cultures time and space relations.

Plains, where hunters roamed on foot, functioned most importantly as a source of bison meat and hides for the agriculturists of the river valleys farther east.

Between the beginning of European trade on the Plains and the start of white settlement, nearly two hundred years elapsed. In those two centuries a major explosion took place which radically transformed native life in the region. This explosion was, of course, the flowering of equestrian nomadism on the western Plains, a way of life so well adapted to the conditions of that area that it was in many ways more advantageous, economically and militarily, than the village horticulture of the eastern river valleys. The story of this cultural overturn follows in time the scope of the present account, but it needs to be pointed out that a map of the Plains tribes as they were distributed when the Whites were first becoming familiar with the area (around A.D. 1650-1700) would present an unfamiliar picture to most people. The important tribes on such a map would be the Mandan, Arikara, Pawnee, and Wichita, all of them village horticulturists. There would be no Comanche, who were then a Shoshoni group in the Rockies, and no Sioux or Cheyenne, who were raising crops in the Minnesota parklands and forests. The western Plains from South Dakota to Texas would be Apache country. In short, most of the significant developments leading to the generally known historic distribution of Plains tribes took place after A.D. 1650.

The Plains village tribes were at a climax of prosperity and complexity when the Europeans arrived, but they went into a decline when the use of the horse spread north from the Spanish settlements and enabled a flourishing and aggressive nomadic culture to develop on the western Plains, a culture which held the center of the stage for more than a century until it was destroyed in the Indian wars of the 1860's and 1870's. By that time the Plains village tribes, long since decimated by warfare and white man's diseases, were mere huddled remnants, but they still remembered the days of their greatness. Their culture, which had lasted nearly a thousand years, was no match for the new situation created by the coming of the white men.

THE EASTERN UNITED STATES

INTRODUCTION

Objectives

In this section an overview of the cultural development in the huge eastern division of the North American continent through approximately four thousand years is the aim. At the outset it must be stressed that this division is the largest of any covered in this study and also one of the largest commonly dealt with in archeology anywhere. Its size is useful in that it enables us to watch the development of the indigenous cultures over a broad range of time and space. However, within such a large area, there will have to be great simplification in terms of the quantity of cultural detail which is presently available in the archeology.

The term "division" is used since there will be set up a series of geographic terms of decreasing size with "division" used for the entire eastern United States; within that division, three superareas, and within these superareas, a number of areas, regions, and localities, the last three terms used as defined by Willey and Phillips (1958) (Fig. 46).

As just noted, the enormity of the area presents some problems. These difficulties can be seen against the background of the cultural diversity which was known throughout this division at the Historic Period. One can, for example, point to the very great cultural differences seen in the wild rice gathering tribes of the Upper Great Lakes area, to the elaborately class-structured society of the Natchez in the Lower Mississippi Valley, and to the much simpler cultures of the New England coast. However, one can sometimes speak in terms of an all-embracing culture of the eastern woodlands, or perhaps more accurately of certain of the areas such as the Southeast, where there was in the Historic period a uniformity of general culture level despite great diversity of linguistic background as well as diversities of historical background. Thus, we will attempt to show the basis for some of these diversities as well as some of

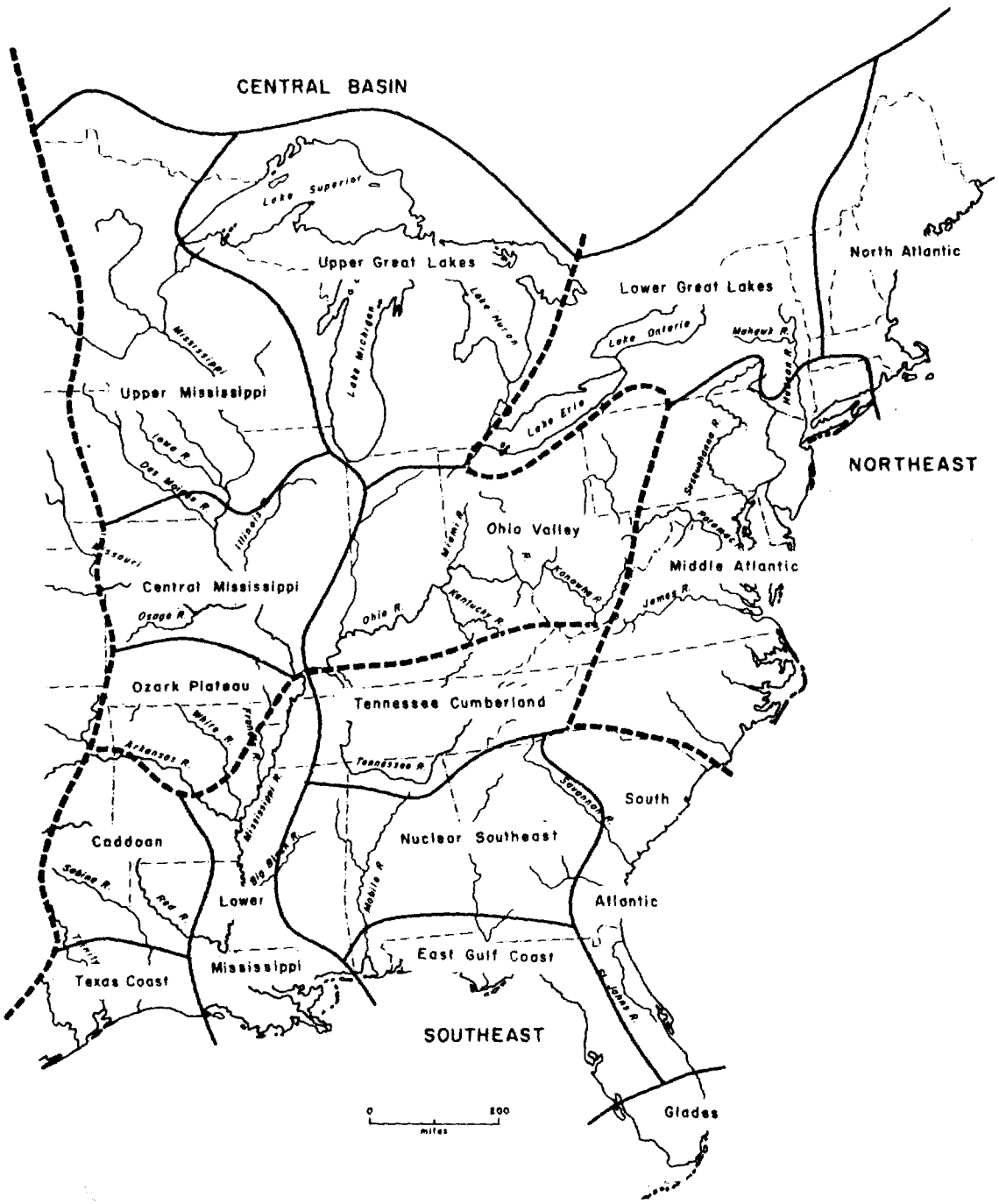


Figure 46. Southeastern culture subareas.

the homogeneity brought about by the spread of over-all cultural traditions at several periods during the time span considered in this chapter.

Besides the geographic terms just mentioned, it is useful to set up a series of terms dealing with the temporal dimension, namely, the three eras, Paleo-Indian, Meso-Indian, and Neo-Indian (Smith 1957). These are segments of time and will be used instead of the cultural stages of Willey and Phillips for this somewhat more detailed consideration of the prehistory of this huge division. These eras break down into numbered periods of time, for example, five periods are recognized within the Neo-Indian era. These simply numbered periods will be compared with terminology used by other workers in the field. A comparison of these chronological concepts will be found in Fig. 47.

The rationale for using simple numbered periods has been dealt with by Rouse and others for other areas of the New World. Certainly in the eastern United States at this moment there is much confusion of time with culture type, or even culture stage. This confusion can be seen in writings which tend to look for temporal significance within these terms, such as Early Mississippian, while using them as much broader concepts, and in fact often not making too clear which aspect of the term is being stressed. This five period breakdown is also in line with the somewhat simpler objectives as stated above in terms of sketching an over-all picture of development within this large spatial dimension.

Boundaries of the Eastern Division

Within the Eastern division there are three superareas: the Central Basin, the Southeast, and the Northeast (Fig. 46). The Central Basin is that made up by the great drainage pattern of the Mississippi Valley and its major tributaries, the Missouri and the Ohio. Within this superarea there are five areas: (1) the Central Mississippi, centering around the St. Louis locality and including the confluence of the Missouri and the Illinois rivers; (2) the Upper Mississippi, incorporating all of the Mississippi River itself and most of the states of Iowa, Wisconsin, and Minnesota; (3) the Upper Great Lakes, encompassing the shoreline areas bounding

ERA	PERIOD	TIME	CHARACTERIZATION OF PERIOD	GRIFFIN 1952	WILLEY and PHILLIPS 1958
NEO-INDIAN	V	PRESENT 1600	HISTORIC CONTACT	HISTORIC	FORMATIVE
	IV	1200 800	SOUTHERN CULT RISE OF MISSISSIPPIAN	LATE WOODLAND EARLY & LATE MISSISSIPPIAN	
	III	400	REGIONAL VARIATION	MIDDLE WOODLAND	
	II	0	HOPEWELL CLIMAX		
	I	1000	EARLY POTTERY	EARLY WOODLAND	ARCHAIC
MESO-INDIAN	III	2000	SHELL MOUND ARCHAIC	LATE ARCHAIC	
	II	3000 4000	REGIONAL VARIATION		
	I	5000	DALTON POINTS	EARLY ARCHAIC	
PALEO-INDIAN	V	6000	PARALLEL-FLAKED TRADITION	PALEO-INDIAN	LITHIC
	IV	7000	FOLSOM		
	III	8000	CLOVIS		
	II	9000	SANDIA (?)		
	I	10000	MAN'S ENTRY INTO THE NEW WORLD		

Figure 47. The cultural sequence in the East.

. . . . . .

the three westernmost Great Lakes - Superior, Michigan, and Huron - and most of the state of Michigan; (4) the Ohio Valley, including the adjacent states along the Ohio River Valley from its mouth to Western Pennsylvania; and finally, (5) the Ozark Plateau, a rather well-defined physiographic area including southern Missouri and northwestern Arkansas.

The Southeast superarea generally includes within it the Caddoan, but the latter is treated in the Plains section. Adjacent to the Caddoan area is the Texas Coast area, and,

to the east, the Lower Mississippi Valley area from its head at the mouth of the Ohio River to the Gulf of Mexico, including the Delta region of Louisiana. To the east of the Lower Mississippi area there is the Nuclear Southeast area, as it may be termed, including most of Alabama and Georgia and the eastern part of Mississippi. This area is that north and east of the Gulf Coastal Plain. To the north is the Tennessee-Cumberland area made up primarily of the state of Tennessee and includes the areas along the drainages of the two major rivers which give it its name -- the Tennessee in the south and the Cumberland in the north. The east Gulf Coast area extends from southeastern Louisiana, including the coastal areas of Alabama and Georgia and most of the western half of peninsular Florida, to the area around Tampa Bay at the southern end. The Glades area, a very distinct physiographic division, includes the southern tip of the Florida Peninsula. The South Atlantic area includes the rest of peninsular Florida and the Atlantic coast of Georgia, North Carolina, and South Carolina.

The Northeast superarea contains three areas: (1) the Lower Great Lakes, including the area bounding Lake Erie, Lake Ontario, the St. Lawrence River, and most of New York State, except Long Island; (2) the Middle Atlantic, including the coastal area and some of the interior south of New York State approximately to the South Carolina boundary, which includes most of North Carolina, Virginia, West Virginia, Delaware, southeastern Pennsylvania, and New Jersey; and (3) the North Atlantic area, including the familiar New England States, except Vermont, which has been put into the Lower Great Lakes area.

The northern boundary of the great Eastern North American division is the Canadian Subarctic, a huge area in itself extending from Newfoundland on the east to the interior of Alaska on the west end. On the west the boundary is no less distinct, with the Great Plains forming a very distinct line of demarcation.

The Archaic Transition

The Archaic cultures of the eastern United States prior to 2,000 B.C. have been covered in another volume.

These cultures, in what is termed the Meso-Indian era, are in early Archaic times, relatively homogenous as exemplified by the widespread appearance of certain projectile points such as the Dalton. In late Meso-Indian times we have increasing regional diversity as seen in the Savannah River phase in Georgia, the Green River phase in Kentucky, the Old Copper phase of Wisconsin and Michigan, and the Archaic phases of New York State. While these cultures do share many basic traits, both in terms of artifact forms and, to a lesser extent, economic patterns (such as shellfish used by the Green and Savannah rivers cultures) it is upon this regional diversity that the cultures of the Neo-Indian develop. In many cases, this change-over can be recognized by only slight additions to the preceding phases. Thus, there is no sharp break between the Meso- and Neo-Indian areas, yet it is certain that additions are made which serve to separate quite clearly these cultures in the details of archeology, if not on a broad cultural basis.

The most striking addition to these Archaic cultures is pottery. This early pottery is rather diverse in itself, as will be developed later. An important question is whether or not agriculture is also added at this time. Another is whether we have a noncontinuous distribution of these two traits, pottery and agriculture, often formerly thought to have run hand in hand. Certainly there are no remains known which definitely indicate agriculture in the sites bearing traces of the first ceramics in the whole area. Thus, although there may be some question about the basic validity of the "periodization," this addition of pottery to these Archaic cultures will be taken as a rather significant criterion for the development of culture history in this large geographic division.

GEOGRAPHIC BACKGROUND

Essential Diversity

The diversity of historic Indian cultures mentioned above is certainly matched by the diversity of the geographic provinces included within the huge eastern North America division (Fig. 1). Again, it is possible to talk in general terms about certain essential similarities as a number of other anthropologists have done. Although Kroeber (1939), Ford and Willey (1941), and Caldwell (1958) suggest that the eastern United States is quite a homogeneous physiographic area with some regional differentiation, the diversity should be stressed without getting into geographic determinism. This wide diversity of essential geography has played a marked role in the development of the culture histories. The Plains is, of course, the classic North American area in which the interplay of geography and culture has been stressed by many authors, most eloquently by Wedel.

When one looks at the full time range of North American prehistory, even at the early end in the Paleo-Indian era, one can see remarkable similarities of culture which may, in fact, represent some of the similarities in level of economic achievement. Certain artifact forms, such as Clovis points, spread from the eastern seaboard sites such as Bull Brook, Ipswich, Massachusetts, to those very near the Mexican border, such as the Naco and Lerner sites of southern Arizona. However, there are certainly considerable physiographic differentiations even during this Paleo-Indian era and during the Meso-Indian era as well. Quimby (1954) in his paper on "Culture and Natural Areas Before Kroeber," has shown very clearly the interrelations of culture and environment during these earlier eras.

With the inception of the Neo-Indian era and the advent of agriculture (nonmaize) following it shortly, one has a very good opportunity to consider the nature of the relationship between areas suitable for agriculture and cultures which developed it (See Figs. 2-5). At this point, one would only stress the very different physiographic areas within this large division and say that certain of the archeological

areas, such as the Ozark Plateau, seem to have been influenced throughout their culture history by the particular geographic conditions peculiar to them.

As mentioned above, with the introduction of agriculture into the East, presumably from the South at a time preceding the Christian Era, the question of land and growing conditions becomes of major interest. Much of the East is very favorable agricultural land both in terms of soils (Fig. 3) which are relatively easily tilled by primitive techniques available to the prehistoric agriculturalists, and in terms of weather conditions, including temperature and rainfall, which provide very suitable conditions over much of this division (Fig. 2). There is remarkable contrast of this area with those already considered in the preceding chapters. This is not a marginal agricultural area as is the Southwest and it was able to provide a relatively firm agricultural base for those groups which mastered the prerequisites for development of agriculture. Thus, Kroeber's (1939) view of the low level of agricultural development in the East is one which does not hold up too well in light of much more recent archeological evidence.

PERIOD I INNOVATIONS

The Introduction and Spread of "Early Pottery"

The earliest pottery now known in the southeastern United States is that found in Georgia and north Florida. Related materials are found as far north as northern Alabama and western Tennessee. This pottery is called "fiber-tempered" because of the nature of the paste which included small, fibrous materials. The best known materials are the so-called Orange wares from northern Florida and materials from the Savannah River area in Georgia. This fiber-tempered pottery is, in its earliest manifestation, plain surfaced, but later on, decorations of incision and punctuation are added. The stratigraphy of design elements has been worked out rather recently (Bullen 1962a).

Fiber-tempered pottery has been known for a long time in the eastern United States through the work of Jeffries Wyman in the 1860's in Florida where he found it in shell heaps along the St. John's River. Its general crudity and elemental forms made it a candidate for an early kind of ceramics, and this early position has been reaffirmed by Carbon 14 dating. The other evidence available for suggesting that this pottery is early is to be found in its association throughout many sites in the Southeast. The association is with materials which are, for all intents and purposes, those of the Archaic cultures which preceded it. In other words, there is little break in the sequence with the addition of pottery; in fact, it has been a matter of some argument as to whether the addition of ceramics to these generally Archaic cultures constitutes a sufficient change to warrant a new appellation to the culture.

There is another major area of early ceramics in eastern U. S. and that is the northeastern quadrangle including primarily the state of New York and closely adjacent sections. This early pottery is grit-tempered, often rather coarsely, and frequently has surfaces roughened by cord or fabric. This body of material is often referred to as being

in the Woodland ceramic tradition. In the Northeast, as was also the case in the Southeast, these ceramics are added to the basic Archaic cultures without other great indication of change. The New York wares, known as Vinette, are quite thick, and also are characterized as having roughened interior as well as exterior surfaces. The amount of this material is not great, especially outside of the heartland in New York. Some varieties have been found in Indiana, for example, but in rather small quantities.

Until the advent of Carbon 14, the relative age of ceramics in eastern United States was arrived at by guessed dates and was grossly underestimated, all materials being placed not earlier than A.D. 100-500. With the advent of Carbon 14, these dates, as well as those for all cultural complexes in the East, were pushed back a thousand or more years, so that the earliest ceramics in the East now date from approximately the second millennium B.C. The fiber-tempered wares of the Southeast are well-dated with series of determinations (Bullen 1962). The problem of usefully handling Carbon 14 dates with regard to culture history can be seen in some prospective with regard to the dating of early pottery, since a single carbon date on material from New York State suggested that this first pottery of the Woodland ceramic tradition might be as early as 2500 B.C. Because this date stood alone, many (Griffin, for example) were loath to accept it. More recent Carbon 14 dates have indicated that this date is quite out of line, and Ritchie (1962) has indicated that the reasonable date for this material is now within the first millennium B.C., perhaps around 800-900 B.C. The general picture is that the earliest ceramics in the East are the fiber-tempered wares of the Southeast, and that the grit-tempered, corded wares of the Northeast are of considerable age, but of a somewhat later date.

There is one further bit of evidence which is geographically intermediate between these two areas just considered. That is the "steatite-tempered" pottery centered around Pennsylvania and parts of Virginia. This ware, called Marcey Creek, is of particular interest in the problem of origin and development of early ceramics because of two aspects: first, in late Archaic phases of this region we find considerable use of steatite vessels, i.e., stone bowls made from

steatite; second, the steatite-tempered wares show forms based on these stone vessels. Thus, you have steatite added to clay as a tempering ingredient and the form being similar to that already known in the stone bowls. The steatite-tempered ware has not been dated by Carbon 14, although it is the first pottery in the sequence. Its absolute date is, therefore, not known.

Problem of Origin

The problem of the origin of pottery in North America as a whole is one which has been a matter of major concern to American archeologists. When the material that was generally considered to be the earliest -- the Woodland ceramics of the Northeast -- was under consideration, it was apparent that Asia was one place to look for its diffusion. This old hypothesis (McKern 1937) was fairly safe on two points: little or nothing was known of the distribution of this material in Canada and, the archeology of the Bering Strait and Siberia was equally unknown. The materials from northern Asia, which are most similar to Woodland ceramics, are much farther west. This distributional gap, however, did not stop the diffusionists who derived this material from Asia. In the modern scene, one can look at the problem again with considerable positive evidence. We now know more about Canadian, Alaskan, and Siberian archeology. Unfortunately, none of the ceramic material from these areas is particularly helpful in indicating the path of the Woodland ceramic tradition into the eastern United States. For example, the earliest known pottery in Alaska is dated considerably after the earliest known occurrence in the Northeast. Similarly, the earliest pottery in Canada, even close to the border around Lake Winnipeg, seems to indicate that this material was coming from New York State rather than from the other direction.

The most important new evidence for the solution of the origin of ceramics in the New World is in the South, namely in Middle and South America. Here ceramics are dated as early as 2500 B.C. and are presumably early enough to be looked upon as donors to eastern United States rather than the reverse. These ceramics are, however, not identical to the equivalent wares of the Northeast. There are some recent finds in Middle America (Coe 1961) where cord marked and fabric-impressed pottery and stamped pottery have been found,

apparently of considerable age, which might be ancestral to the material in eastern United States. A study of rocker stamping in the New World and related regions (Greengo 1960) using carbon dates seems to indicate an Asiatic origin for rocker stamping. However, this distribution is spotty again -- more recently Ridley has suggested that the derivation may be from Europe. This is a rather startling suggestion, but it is a fact that some of the ceramics of the first and second millennium B.C. in Finland and neighboring countries do look remarkably like early Woodland ceramics.

As was noted earlier, most of the recent data are concerned with the spread of ceramics which can be related to the Woodland tradition. Certainly, when looking at the problem from a continental rather than a local view, one can see that, while some of the southern connections may help explain the Woodland ceramics, they still are of no great usefulness in the solution of the fiber-tempered ware in the Southeast. This is especially true now with the establishment of the temporal priority of this material over that of the Woodland tradition. There is no early ceramic material known elsewhere in North America on this general time horizon which is comparable to fiber-tempered ware and which could serve as a source of diffusion of this kind of pottery. One is then forced to discuss such tenuous matters as stimulus diffusion, suggesting that the idea of pottery is diffused rather than the pottery itself. Again, even on chronological grounds, this argument is not too strong since the earliest pottery so far known in North America is not substantially older than that from Florida and Georgia. One must, therefore, leave the whole problem of the origin of fiber-tempered ware as one awaiting further solution.

Spread of Early Pottery Through the East

Within the Southeast, there are a number of ceramics which fill in the bottom of the sequences and which have been suggested as being quite early. The best known of these are the Deptford pottery from Georgia and Florida and the Tchefuncte pottery from Louisiana. Some of the designs on the Deptford pottery appear to have been developed from incised decorations on the preceding fiber-tempered ware. Deptford has been dated in the first millennium B.C. and has quite a wide distribution. It includes a number of

stamped designs and check stamping and linear stamping appear for the first time in the Southeast. This stamping tradition persists as a major ceramic technique for several thousand years in the South Appalachian area. The Tchefuncte pottery, the other major candidate in the Southeast for early ceramics, is the first major ceramic complex in the Lower Mississippi Valley, although some indication of fiber-tempering spreading into the Valley during the preceding period has been noted by finds at Poverty Point. The Tchefuncte ceramics are well-made and certainly do not look like rudimentary pottery. They are characterized by tetrapodal supports in many cases and designs include simple stamping, incising, and rocker stamping. Other early pottery in the Southeast includes the fabric-impressed wares of Tennessee and the Alexander series in Alabama.

The establishment of the Woodland ceramic tradition in New York State near 1000 B.C. has already been cited. This Vinette I pottery has been found in a number of New England states. It seems to develop into pottery of the Point Peninsula type which is widespread throughout the Northeast superarea and which apparently forms the ultimate basis for the development of Iroquoian ceramics.

Within the Central Basin the earliest ceramics so far known are from Ohio and Illinois. In Ohio, these are the Adena wares; in Illinois, the so-called Early Woodland pottery is known from complexes such as Black Sand and Morton. In the Central Basin there is no indication of any material with the antiquity of the early wares of the Northeast and Southeast. In fact, most of these ceramics can probably be dated around 500-800 B.C. at most. These Woodland ceramics have with them other traits which lead into the cultures which culminate in the Hopewellian climax around the time of Christ. However, these wares are quite scarce as were the early examples in the northwestern United States. This scarcity is probably attributable to lack of data rather than to actual absence of such material as a general substratum for the cultural developments which arise in this important area.

It is significant that in terms of distribution no early pottery is known from north of the Great Lakes. All the ceramics from Canada seem to be somewhat later than those

farther south. Similarly, west of the Central Basin toward the Plains there is little early pottery. This is equally true west of the Central Basin, out along the Missouri River, although there are some finds of Plains Woodland pottery which are not well dated (see preceding Plains section). Probably, this material does not have a date of earlier than a few hundred years B.C. West of the Lower Mississippi Valley materials similar to that of the Tchefuncte pottery around Lake Pontchartrain are not found in the Caddoan area. So the problem of the diffusion of early pottery throughout the eastern United States remains unsolved and it is difficult to back up either of the major diffusion routes discussed above -- that is, diffusion across Bering Strait, down through Canada, and into the States, or from Mexico across the Caddoan area into the Southeast proper. It certainly is a still unexplained fact that the earliest occurrences of ceramics now known from the United States are separated by areas which do not have any similar material.

This distribution of early pottery reveals the establishment of some basic ceramic traditions which are meaningful throughout the history of the areas. For example, with the Deptford wares we have the beginning of the South Appalachian Stamped tradition which is centered in Georgia and exists for thousands of years. In the Northeast, the Woodland ceramic tradition plays an important part in culture history of the eastern United States for a similar length of time. There are those who also would like to point to Tchefuncte pottery as being the oldest element in the Gulf tradition which culminates in the important cultures of the Florida Gulf Coast, Lower Mississippi Valley, and Caddoan.

Did Pottery Spread Without Agriculture?

One of the oldest generalizations in anthropology deriving from Old World data has been the suggestion that ceramics and agriculture go hand in hand. This notion has had to be revised in light of new data from the Near East where some early food producers precede ceramics and, in fact, the concept of a preceramic Neolithic, something of a contradiction in terms as formerly used, has come into some use in the Old World. Similar data from southwestern United States has been outlined in an earlier chapter. Very early corn is known from Bat Cave, and possibly also at several

other sites, but ceramics have been shown to follow this introduction of agricultural plants by more than a thousand years. Thus, the idea of the advent of agriculture causing a great and immediate increase in level of culture has not been sustained as a universal cultural law. Here in the East we may have the reverse of the situation found in the Southwest where agriculture preceded pottery. The dates discussed above for pottery in the eastern United States are many centuries earlier than the first definite indications of agriculture.

A recent hypothesis by Caldwell (1958) has suggested that this problem just raised -- pottery without agriculture -- is no problem at all. Caldwell has stressed the increasing efficiency of the aboriginal cultures during the late Archaic period, our Meso-Indian era, which culminated in a very efficient use of the natural resources, allowing for considerable cultural elaboration. He sees even the later cultures, climaxing around the time of Christ in Hopewell, as primarily nonagricultural. Caldwell's hypothesis has not been accepted by all workers. In fact it would seem to be answering the question of economic background from lack of evidence rather than from a positive point of view. Caldwell stresses, for example, the utilization of acorns in these early cultures; the facts are that very few such finds are known from early eastern cultures. While the theory of considerable cultural development based on utilizing acorns is a perfectly reasonable one, since we have the ethnographic example of such a culture as the Chumash on the California Coast who made very effective use of this staple, it would seem that postulation of a similar development in the East runs somewhat ahead of the evidence. It must be admitted that there is a positive dearth of evidence for use of agricultural plants in the Adena-Hopewell cultures of the Ohio Valley, but the number of village sites excavated so far is similarly small. Thus it is difficult to make a reasonable judgment on this latter segment of Caldwell's "Primary Forest Efficiency" hypothesis.

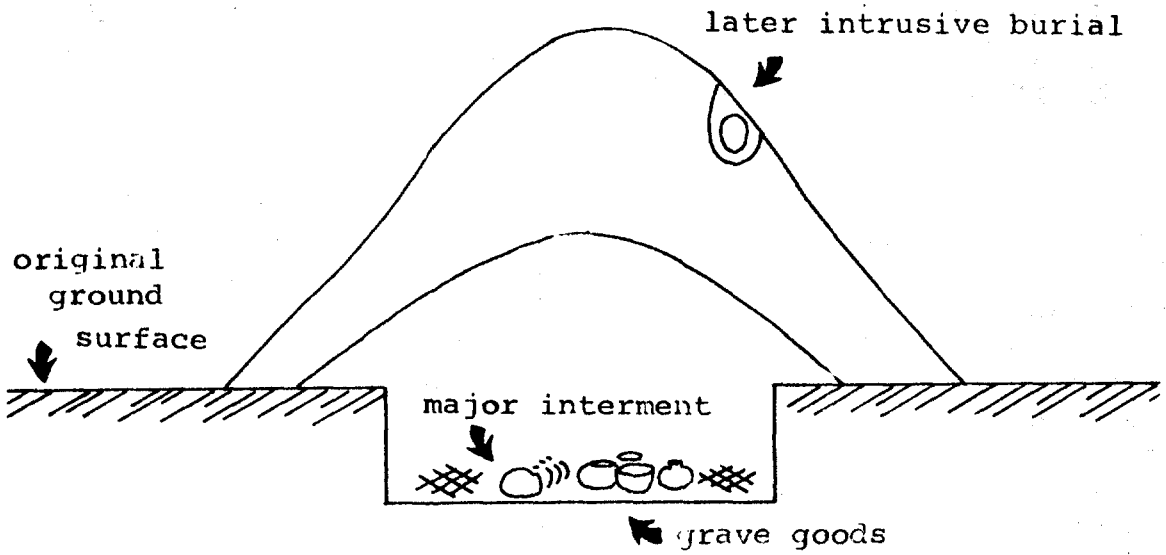
The high level of cultural development that can be found in certain of the Archaic cultures during the Meso-Indian era indicates considerable cultural specialization and time for other than utilitarian activities. One should not compare these cultures with some of the poorest cultures known ethnographically which were also on a hunting and

gathering level. On the contrary, from the archeological evidence one can interpret such developments as the Shell Mound Archaic cultures of the Tennessee River as being of considerable richness of cultural development. It is a rather firm cultural base upon which can be placed the later developments. However, this transition from the Archaic base was not made on acorns alone. Although the evidence is admittedly weak, new ingredients came into the East which included very possibly agricultural plants, that allowed for the elaboration that led to the climax of Hopewell cultures around the time of Christ. Another important ingredient in this complex which was grafted onto the general Archaic base in the East was that of the burial mounds.

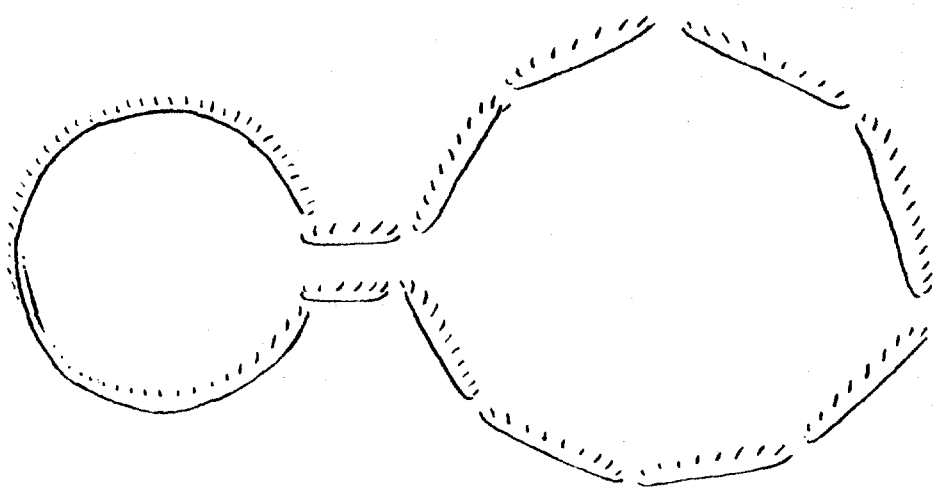
The Burial Mound Tradition

The burial mounds are a specialized form of mortuary practice. These mounds, normally of earth and of conical shape, are usually erected over a single major interment (Fig. 48). Often they have considerable goods incorporated with them. These mounds range in size from a few feet in height to as much as 70 feet high in the case of the Grave Creek Mound in West Virginia. They are wide spread over the East and apparently come into the area at the beginning of the Neo-Indian era. The problem of origin of this burial practice is again one of long-term interest in American archeology. Since earthen burial mounds of this general sort are known in Asia, this area was early pointed to as a source of diffusion of this trait. However, more recent thinking on this theory, as represented by Chard's discussion discloses little evidence supporting such an origin. The problem of distribution again indicates that as one goes north and west from the Upper Great Lakes area one quickly runs out of mounds in southern Manitoba (Chard: 1959). There are no more for thousands of miles even after reaching Bering Strait. It is rather hard to derive the trait from Asia on these grounds and the dating of the forms in the Old World causes further difficulty.

If it is true that Asia is a rather difficult source to utilize as a point for the diffusion of this form, Mexico must be considered. Some years ago, Spaulding (1952) suggested that the large burial mounds, and the ceremonialism connected with them in the Adena cultures of Ohio, might



IDEALIZED CROSS SECTION OF BURIAL MOUND



HOPEWELL CEREMONIAL EARTHWORKS, NEWARK, OHIO

Figure 48. Idealized cross section of a burial mound and a simplified plan of a portion of the Newark earthworks.

better be derived from the south than the north. With recent developments in studies of the Formative cultures of Middle America, this possibility seems somewhat strengthened, although positive evidence is still lacking.

In the face of these diffusionist theories for the origin of the Burial Mounds Tradition, Ritchie has proposed an indigenous development. The data used in this hypothesis comes from New York State which has some small crematories on sand hills which Ritchie feels may well be the source from which a ceremonial cult expanded. The expansion and elaboration of form and meaning ultimately culminated in the huge burial mounds of the Ohio Valley. The problem with this hypothesis is that, unfortunately, New York, from which Ritchie has developed this hypothesis, is really rather poor in burial mounds. If this area is indeed the center of origin of this widespread tradition, it makes a rather unusual distribution pattern.

The geographical distribution of burial mounds is shown in Figure 49. The trait is almost pan-eastern in its spread, excluding only portions of New England. A map showing density and elaboration in size and form of these burial mounds would show a major center in the Ohio Valley around Cincinnati and neighboring states of West Virginia and Kentucky, and, perhaps, another center of development in the Southeast proper.

Whereas there is a wide geographical distribution, there is a deep time penetration as well. The earliest forms apparently date around 1000 B.C. and they continue into the Historic period. It seems to be a fact that the rather simple practice of placing earthen mounds over burials has been a feature of eastern archeology for nearly three thousand years. This is, of course, a long tradition, but it is true that in certain marginal areas, such as in Wisconsin and Minnesota this practice lasted very late, even into the Historic period.

Thus, in the East, we recognize two major traditions, ceramics and burial mounds. The cultures or archeological complexes which take part in these traditions are, of course, very diverse when considered from other items. These cultures often have been referred to as Early Woodland. It appears that a good deal of the preceding culture base (Archaic) is maintained and perpetuated without much change,

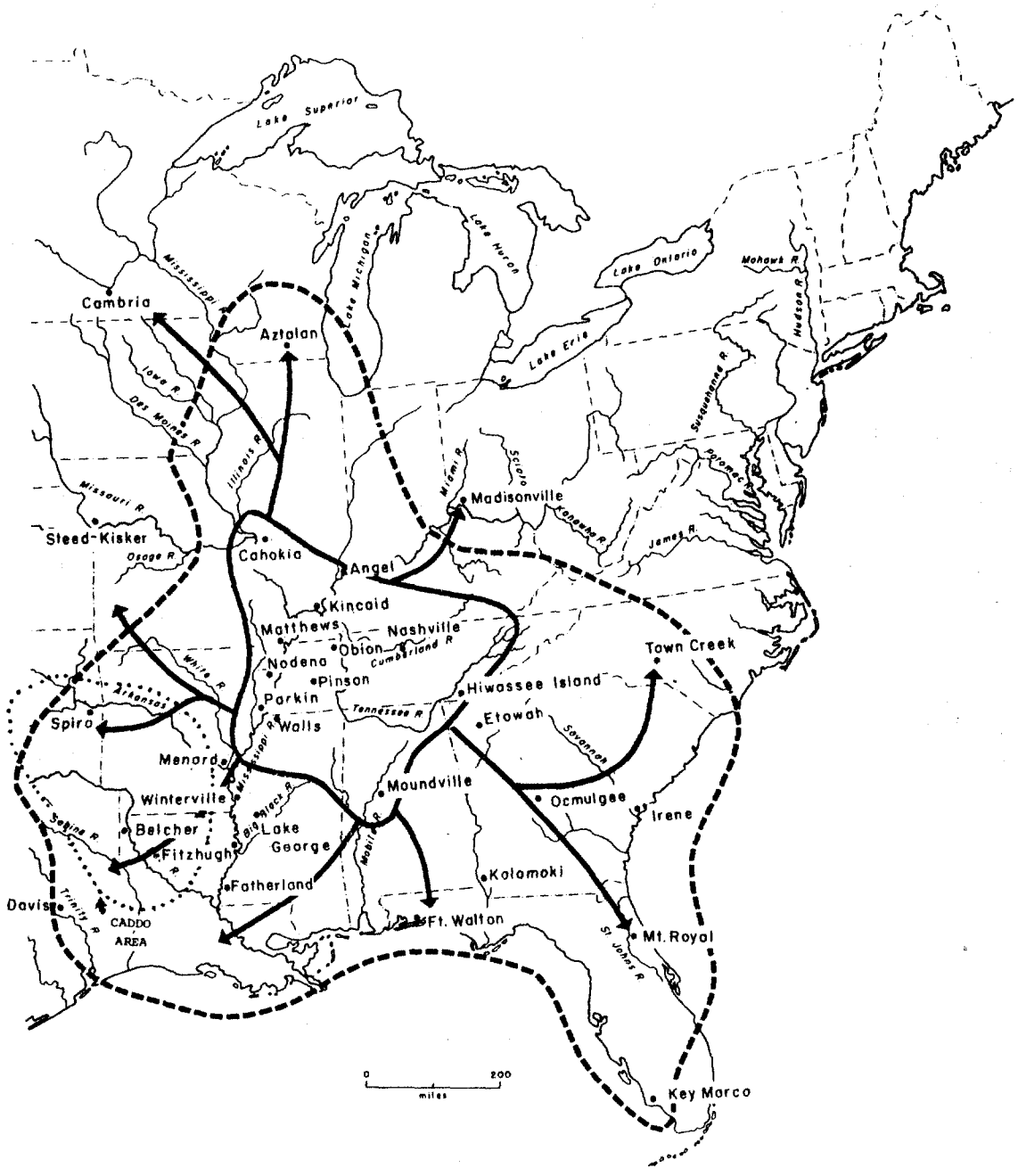


Figure 52. Distribution of the Temple Mound tradition and the extent of Mississippian influence.

despite the addition of these new and important traits -- ceramics and burial mounds. There are, however, significant regional-areal variations probably best illustrated by Adena culture.

The Adena culture has been very well analyzed and its distribution plotted (Webb and Snow 1945; Webb and Baby 1960). It is an example of a culture which utilizes both elements -- the Woodland ceramic tradition and the Burial Mound tradition. The principal sites are the type site near Chillicothe, on the Scioto River; the Serpent Mound, Adams Co., Ohio (Fig. 69); Miamisburg, Montgomery Co., Ohio; the Grave Creek Mound, Marshall Co., West Virginia; and the Wright Mound in Kentucky.

The outstanding features of Adena are the steep conical burial mounds with elaborate log tombs, "sacred circles" and larger earthworks, and circular houses with paired wall posts. Characteristic artifacts include expanded center bar-weights, tubular stone pipes (including the famous human effigy pipe from Adena), carved stone tablets, copper reel-shaped gorgets, bracelets and rings.

This culture is more elaborate than most at this general time level, but is of importance for its connections with the Hopewell culture that closely follows it in the Ohio area.

Period II

The second temporal period of the Neo-Indian era is characterized by the climax and spread of Hopewellian culture. This culture, first recognized in Ohio, is known to occur throughout the heart of eastern United States and to have had influences spreading to the very edges of the area under consideration. There are three basic ingredients of the culture: (1) the Woodland ceramic tradition, is characterized by grit-tempered, surface-roughened pottery, with vessel forms often of conoidal or rounded bases, which form the basic utilitarian ware; (2) the Burial Mound tradition, beginning around 750 B.C., reached its apogee in Hopewellian cultures, not so much as a culmination in size (some of the Adena mounds are the largest known) but as a culmination in the complexity of construction and the elaboration of mortuary items placed in these mounds; (3) in addition to these two manifestations of earlier cultures, the third ingredient is a variety of specialized influences.

These several special influences or possibly specific traits diffused into this area, and became integrated with the ceramic and burial mound traditions, and ultimately crystallized into this Hopewellian culture. One of the major points of interest with regard to Hopewell is, of course, the origin of these influences. Perhaps it is too early to locate the source in any one direction, but we tend to look now to Middle America. Some of these special traits seem to have come into the East at this time and to have combined with older pottery and mound building traditions, and to have evolved into the several Hopewellian phases.

The culture of the Ohio Hopewellian has been selected for detailed description since the materials are, perhaps, the best known, although most of the sites were excavated before the advent of modern archeological techniques and some of the data are meager on some counts as a result.

The "Big Six"Ohio Hopewell sites are: (1) the type site

at the Hopewell Farm, Ross Co. (Moorehead 1922; Shetrone 1926); (2) Mound City, Ross Co. (Mills 1922); (3) Seip, Ross Co. (Shetrone and Greenman 1931); (4) Harness, Ross Co. (Mills 1907); (5) Tremper, Scioto Co. (Mills 1916); and (6) Turner, Hamilton Co. (Willoughby 1922). These are not necessarily the largest sites but they are the best documented. Other important sites include Marietta, Newark, and Fort Ancient.

The general character of the sites is that they are primarily ceremonial centers with some village remains. The suspicion remains that archeologists have not got the whole picture here and that the concentration on excavation of the ceremonial areas has left us very short on knowledge of the everyday habits of this culture. The sites are located on river terraces. They have complex large-scale plans, with earthwork "walls" which vary from several feet to sixteen feet in height. These walls enclose as much as 100 acres (Figure 48). These earthworks often show quite a disregard for terrain, although the large enclosure at Hopewell does look defensive in that the walls are lower and the ditches absent at points possessing natural defenses. All the other major sites seem to be distinctly ceremonial, although there is a class of sites known as "hilltop fortifications" which may indeed have served this more utilitarian function.

At each of these major sites there is a large burial mound of complex structure which dominates the site. These mounds are often elliptical or oval in plan and the one at the Hopewell Farm was 500 by 80 feet and was 33 feet high. Smaller mounds at these sites are usually circular in plan and "conical" in outline (Figure 48).

Mound construction in general includes the following traits: a carefully prepared floor often with a layer of sand; posthole patterns; areas outlined with stone or gravel; a primary mound over burials and features; and a thin strata of sand, gravel, or colored earths between successive mantles. Features on, or in, the floor include basins or "altars," burial platforms, and log tombs -- often subfloor -- and pits. The basins are often filled with burials offerings, either whole or "killed," and bones of individuals apparently cremated elsewhere. The platforms and log tombs are quite elaborate and were subsequently covered by small primary mounds.

Burials include cremation, as indicated above, and inhumations, and the proportions of these vary sharply from site to site. The cremations were usually quite complete. There is no apparent correlation between type of burial and type of grave, so that social stratification can not be directly inferred from these data. There are a large number of double burials and trophy skulls are fairly common. Overall there seems to be a very strong mortuary orientation to the culture as we now know it.

The data available on houses suffer from the mound fixation of the early excavators, but a number of house sites are known from the Hopewell site with interior postholes, ill-defined fireplaces, but no wall posts. Numbers of scattered postholes have been noted on the floors of most of the mounds that have been excavated, probably representing pre-existing houses, a trait that is known in the preceding Adena culture. Midden deposits have also been noted on most sites, but they are thin and scattered with none indicating intensive occupation. Thus, extended village or hamlet type occupations with ceremonial centers are suggested.

The raw materials used in the manufacture of artifacts show a greater variety than is known in any other North American culture and include quartz crystal, mica, chlorite, and gold stone from the lower Alleghenies; copper, silver, and micaceous hematite from Lake Superior; obsidian and grizzly bear teeh from the Rocky Mountains; galena from Missouri or Illinois; graphite and meteoric iron from unknown sources; and marine shells, shark teeth, and tortoise shell from the Gulf or South Atlantic coast.

The number of artifacttypes known from Hopewell is so numerous that they defy complete enumeration in a summary such as this. The important marker types include chipped stone projectile points of a characteristic triangular blade with corner notches (Fig. 50), large obsidian blades of complex form, flake knives (often of Flint Ridge chalcedony) the commonest flint artifact in Hopewell, and large flint disks of which more than 8000 were found at a single site by Warren K. Moorehead. There is virtually no information on "rough" stone tools such as would be used in food preparation which leads again to the rhetorical question "Did these people ever eat?" Ground stone <u>tools</u> are not common but

ceremonial objects are, and include cones, plummets, gorgets and rings, and earspools. The curved-base platform pipe is a good horizon marker, and the effigy pipes are real works of art depicting animals and birds in very naturalistic poses.

In the category of bone and antler artifacts there is very little information on utilitarian forms. The most notable emphasis is placed on whole and cut animal jaws and on teeth and claws. Bear canines were especially important, frequently set with fresh water pearls, and often imitated in other materials, including bone, cannel coal, and shell. Engraved bone tubes, often human femurs, include some of the highest forms of Hopewell art in intricate patterns which must be "unrolled" from the artifact to be appreciated.

Shell beads occur in a vast number of types, and there are plain conch shell containers which "foreshadow" the elaborately decorated ones which characterize the latest artistic culmination in the Southeast. Fresh-water pearls are also present in innumerable quantities. Mica is used in a variety of ways, including sheet mica for paved areas and grave coverings and in elaborate cut-out ornaments which are both incised and painted. There may have been some utilitarian use of mica since it is found in house sites and refuse as well.

Ohio Hopewell is very rich in copper artifacts both implements and ornaments. Moorehead estimated that there were more than 5000 copper objects, about half of them earspools, from the Hopewell type site alone, and that estimate did not take into account the material excavated by others from the site. The diagnostic horizon marker is the bi-cymbal copper earspool which was made of either three or five

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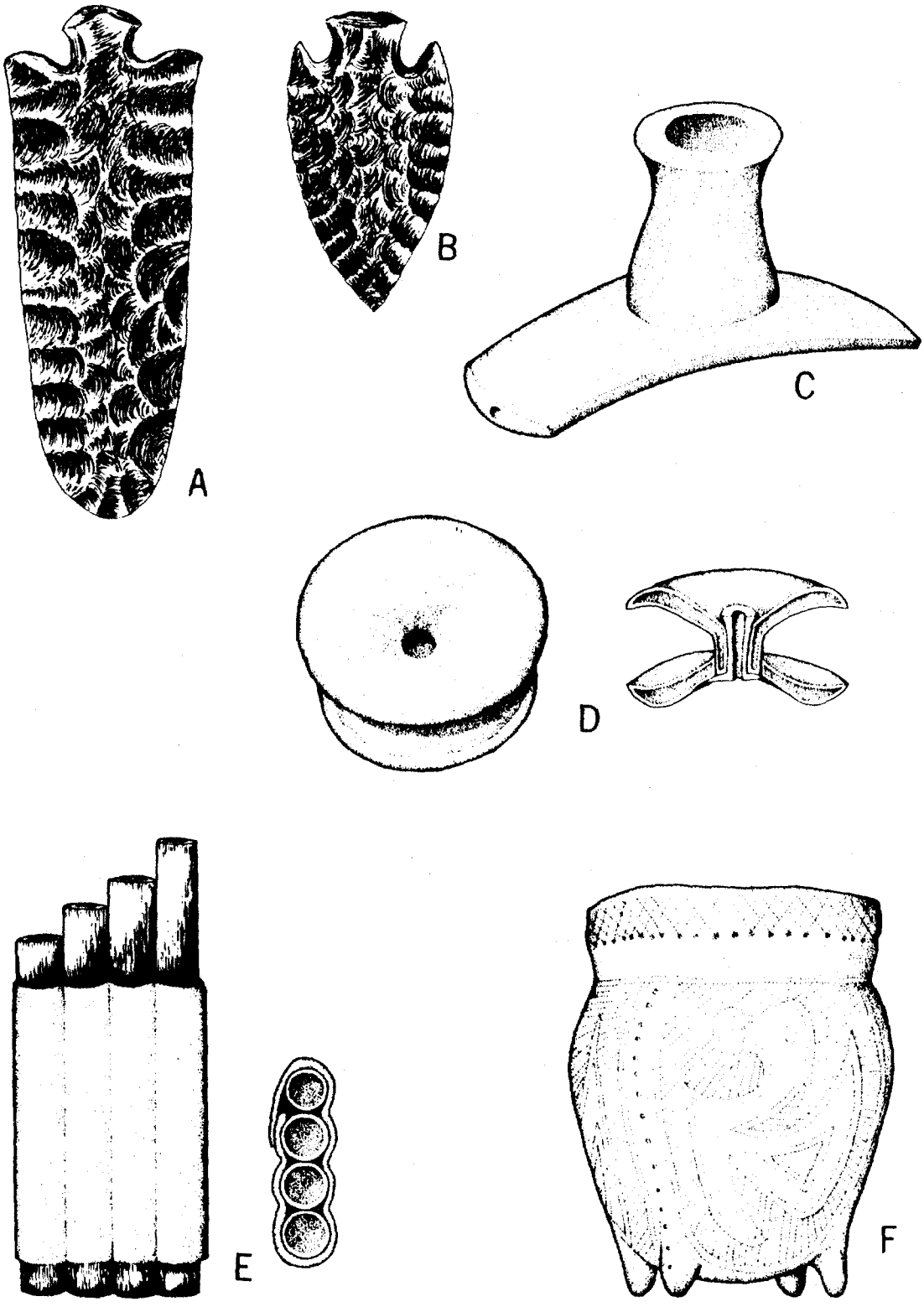
Figure 50. Characteristic Hopewell artifacts. A, knife probably for ceremonial use only, made from obsidian; B, typical corner-notched projectile point; C, curved base, stone platform pipe of typical shape with bowl about 2 to 3 inches high; D, earspools made from two-layer disks of copper riveted together, often lead, galena, or silver filled interior; E, conjoined tubes or Pan pipes, made of cane cylinders held together by a folded copper plate; F, Mound City site vessel with typical bird design on a cord-marked background (the very characteristic crosshatch rim has been added).


A
B
C
D
E
F

pieces of copper fitted together (Fig. 50). They are usually plain on the exterior surface but a few have repoussé designs, and are occasionally overlaid with silver or meteoric iron. All this metal working is done without substantial use of heat. Axes, adzes, breastplates, and cut-out design plates are other common artifacts made of copper. Very definitive copper artifacts are the so-called "conjoined tubes" which are undoubtedly Panpipes, in which the copper surrounded tubes of bone or reed from three to five in number (Fig. 50). A few of these Panpipes even have silver-plated "mouth-pieces." Meteoric iron, silver, and gold were used primarily as overlays on copper, although there are a few purely iron artifacts such as earspools.

The use of textiles is evidenced by specimens preserved by contact with copper. These fragments show a wide variety of weaves, mainly of bast fibers and some finer spun threads with decoration, in a few cases, by the resist-dye process.

Ceramics, the usual workhorse of the archeologist's analysis, are not too well known in the case of Ohio Hopewell, since pottery is seldom found with burials and there has been so little village site excavation. There does, however, seem to be a genuine dichotomy between utility and ceremonial wares in which the basic Woodland ceramic tradition provides the predominant village pottery and the fancy "Hopewell" wares are mainly found in the mounds. The ceremonial ware is characterized by a finer paste and greater general care in execution of specialized designs. This ware is decorated with zoned areas of roughened background in rectilinear and curvilinear patterns with the "bird design" the classic expression (Fig. 50). The vessels have crosshatched rims with hemiconical punctates just under the rim. The variations in background roughening include dentate and plain rocker stamping, punctations, ovoid stamping, and cord marking. The utilitarian ware is plain, cordmarked, and fabric impressed. Another important horizon marker, although admittedly rare, is the pottery figurine such as those from Turner which are very realistic in their portrayal of costume and hair styles.

Trade and the Dispersal of Hopewellian

One of the important characteristics of the Hopewellian culture as a whole is its wide trade relations which can be

noted from the variety and quantity of materials found. Trade items found in the major centers of the central area include such diverse items as copper, obsidian, grizzly bear teeth, and marine conch shell (Fig. 49). This trade is known not from a few items but from vast quantities of material. For example, there are literally hundreds of pounds of obsidian artifacts and waste flakes known from Ohio Hopewell sites. The great bulk of this material gives a strong impression of the nature of the trade relations which must have been attained to assure such large scale commerce.

Another important characteristic of the Hopewell culture is the extent of the distribution of the culture itself. Although its influences were not quite as far as the trade connections indicate, such as the Rocky Mountains, the culture did spread extensively throughout the eastern United States. Some of these lines of diffusion, for example, spread from a major center in the Illinois Valley, presumably up the Missouri River and into the Kansas City area (Fig. 49). The Renner site is an example of this westward movement. Southward in the Lower Mississippi Valley, the Marksville site and several related sites indicate close ties with cultures in the Ohio Valley. There are also some few sites which apparently are way-stations of the culture in its spread in this southern direction. In the Southeast proper, a good indication of the Hopewellian culture spread into Alabama is the McQuorquodale site; into southern Georgia is the Mandeville site, while others occur in Georgia and Florida. The relations with the Southeast can be noted in the Ohio Valley, since some of the complicated-stamp pottery so characteristic of the former region has been found in Indiana and Ohio (McMichael 1960). To the northeast, there is a similar but less extensive spread up the Ohio River to its headwaters in New York State, but there are no major penetrations beyond the Appalachians onto the eastern seaboard.

All these sites show some specific features and artifacts of the Hopewellian style and horizon markers such as the copper earspools, the platform pipes, the conjoined tubes, the bird design pots. Found in these widely spread local cultures, these are evidence of rather direct contact, if not of site-unit intrusion bringing these items into these diverse areas.

The complex nature of Hopewellian culture can best be

seen in the high level of art and technology which has come down to us through the archeological remains. In addition, there is ample evidence of craft specialization. A notable example is the rather complex metal-using techniques, which, although not true metallurgy, utilized copper, gold, silver, and even meteoric iron. The familiar copper earspools, so widely dispersed at this time by the Hopewellian diffusions mentioned above, are relatively complex items with considerable technical knowledge required in their manufacture (Fig. 50). They must have been produced by a group of highly trained individuals. There is a high level of development in stone sculpture, in carved bone, and in such diverse things as mica "cutouts." In ceramics we find an indication of specialization. There is a possibility that the characteristic "bird-design" vessels, a hall-mark of Hopewellian culture, may have been reserved as ceremonial objects, as the design does not appear on utilitarian ware.

One of the major unanswered questions about the Hopewell culture is its economic base. Caldwell (1958) has indicated that he feels that the evidence for agricultural plant remains is so small in Hopewell that one can look on this paucity of data as in indication of a lack of reliance on these products as an important aspect of the economic base. However, another fact must be taken into consideration. We have very few excavated Hopewellian villages. For every ten Hopewell mounds excavated there is just one Hopewell village site. In Illinois, for example, no more than half a dozen villages have been excavated adequately and reported on, and not that many from Ohio. Thus,much is known about Hopewellian elaborate ceremonialism and mortuary practices and art forms, but very little about how the culture ran itself. The factual evidence for agriculture in Hopewell is very small -- less than six examples -- but the general level of culture suggests that it was, indeed, based on agriculture.

In summary, Ohio Hopewell is a culture which has sites suggesting large size and stability of population that requires the postulation of agriculture as a main portion of the economy. Settlement was apparently of the hamlet-ceremonial center type. These centers were focuses for what must have verged on a "cult of the dead" when one considers the amount of dirt moved and the amount of wealth destroyed.

In social organization one can infer the following

developments: considerable social control as evidenced by the planning and carrying out of community enterprises; evidence of rank as seen in the elaboration of individual burials which is closely related to evidence of private wealth; evidence of craft specialization and art; trade with the possible beginning of a merchant class; and, perhaps, warfare as evidenced by the hilltop forts. All this adds up to a very different picture than that of the Archaic hunters and gatherers or even the early pottery users of Period I.

During the three or four hundred year period of the rise and climax of Hopewellian cultures in the centers just described, the basic cultural complexities in the Atlantic coast east of the Appalachians and north of Florida remained unchanged. Although the pottery-using cultures from Maine and even farther north reflect something of the Hopewellian ceramic tradition in rocker stamping, few if any, of the elaborate ceremonial items of Hopewellian culture penetrate into the coastal regions. From Maine to Minnesota one sees the same cultural continuities. In Wisconsin, and parts of Minnesota and Michigan, there are indications of Hopewellian influences such as burial mounds and some of the ceremonial traits. However, these cultures are only pale reflections of the important climax situated to the south.

The Plains serve as a western frontier across which strong Hopewellian influences did not pass, although, as we have noted, their trade relationships did spread as far as the Rockies. In only a few instances, as in the Kansas City area, is there any evidence of what one might term "real" Hopewellian culture getting that far west. In the Caddoan area, for example, the Hopewellian connections are very diluted.

On the whole, looking at Eastern prehistory, one can see the climax of Hopewellian cultures in the Ohio-Mississippi Valley. Yet the rest of the vast area remained on a lower level of cultural development, although reflecting in some few traits diffusion from this climax. This general picture can be contrasted with that of the later over-all spread of the Mississippian culture. The very characterization of Hopewellian culture as a climax leads to the conclusion that there must be an ultimate decline. This is true. There is a decline in the use of the elaborate ceremonial items and

a change in the ceramics from the fancy bird-design vessels which characterized the high water mark of the Hopewellian culture to surface-roughened utilitarian wares. There is definite cutting-back in elaboration of all forms of ceremonialism. The elaborate earthworks, which apparently were primarily ceremonial give way, according to some authors, during the last phases of culture in Ohio to a utilization of hilltop forts which thus suggests that defense problems were becoming paramount. There is ample evidence that this culture decline was widespread. The trade routes just mentioned ceased to function and importation of obsidian seems to have stopped completely.

In the Illinois and Ohio Valleys, there are cultures which might be termed "broken-down" Hopewell. This is a rather limited ceramic view of the situation but the sites are definitely not as elaborate as they had been. In the Lower Mississippi Valley this situation is not quite so clear. In fact, the culture following the Hopewellian intrusion at Marksville is one which is widespread and vigorous, judging from the number of sites and its geographic spread. However, the fact remains that the ceremonial complexes certainly declined. The cause for the decline has sometimes been sought in such terms as "cultural fatigue." This is a rather simplistic argument which imples that cultures reach a climax and then inevitably must wither. More recently, Griffin has suggested that the reason for Hopewell decline was not this at all, but can be found in the shift in climate which, according to his findings, may have resulted in a reduction in agricultural production, especially in maize, in the areas just south of the Great Lakes where the Hopewellian centers were located. This suggestion looks quite reasonable, but one must state that this climatic theory of culture is rather difficult to accept as a <u>single</u> cause. If such a climatic change did take place, it may have acted upon an already faltering culture.

<u>Period III</u>

This period, following the Hopewell climax and preceding the rise of the Mississippian cultures, is perhaps the least known segment of Eastern prehistory. Covering the centuries between approximately A.D. 300 and 700, there is a significant gap in our archeological information and it remains something of a mystery as to what was actually going on at this time.

Even if one subscribes to the rather deterministic view of culture decline based on climate deterioration, it is still surprising that we know so little about this segment of time.

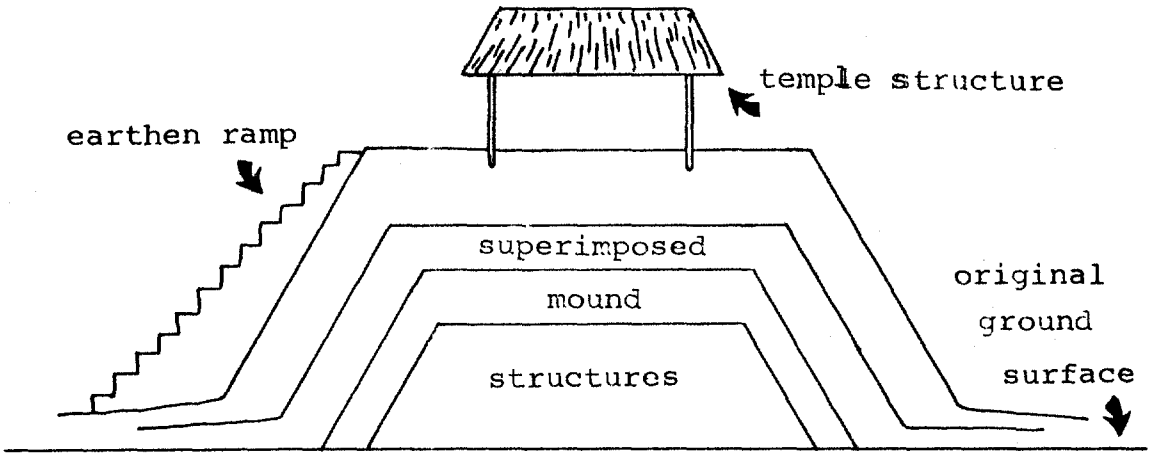
There is a resurgence at this time of what one might refer to as the "good gray cultures." These are, in the north, cultures described as generalized Hopewell without the fancy ceremonialism. The ceramic tradition continues basically Woodland, and there is evidence of a considerable amount of regional variation in these cultures. Some of these cultures continue the Burial Mound tradition without any of the elaboration found in the Hopewellian, and, on the whole, ceremonialism of these cultures is considerably reduced. Also reduced or absent is evidence of distant trade connections.

It is during this period, however, that the maximum spread of the Woodland ceramic tradition takes place. This can be seen in the spread of cord-marked pottery down the Mississippi River into Baytown culture and into parts of the Nuclear Southeast. The stage is thus set for the introduction of two new complexes, the Temple Mound tradition and the Mississippian culture. It is important to make clear that although one can chart rises and declines of levels of culture, we are not necessarily dealing with migrations or even major population changes. In some cases of Hopewellian expansion, the evidence points to what has been termed "site-unit intrusion," but most of the changes that take place are apparently the result of diffusion of ideas and traits rather than the movement of peoples.

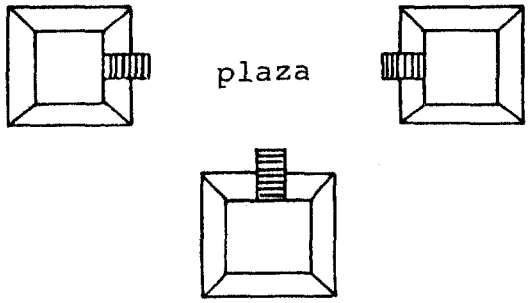
Period IV

The Temple Mound is a flat-topped pyramidal mound made of earth and serving as a substructure for buildings dedicated to religious purposes, or for use by heads of the towns. There is good evidence from ethnography in the Southeast that these mounds were often the location of a temple, hence the name. These mounds are often arranged about a plaza, that is, with two or three mounds surrounding an open area (Fig. 51). Here either ceremonial activities took place or an area was furnished in which ceremonial activities performed on the mounds could be observed by the inhabitants. Some sites have one or two mounds, but the Cahokia site, near St. Louis, has nearly one hundred. There are a number of major sites with fifteen or more flat-topped mounds including Moundville, in Alabama, and the Lake George site, in Mississippi. These temple mounds are characterized by the fact that they have been rebuilt a number of times. This successive rebuilding has been carried out by placing additional earth on the top and sides of the mound. In the cross section the archeologist sees a series of platforms, each larger than the one inside, arranged in something like a layer-cake formation (Fig. 51). Whether there was a cyclical nature to this rebuilding, coinciding with a ceremonial calendar, is not clear in the eastern North American data.

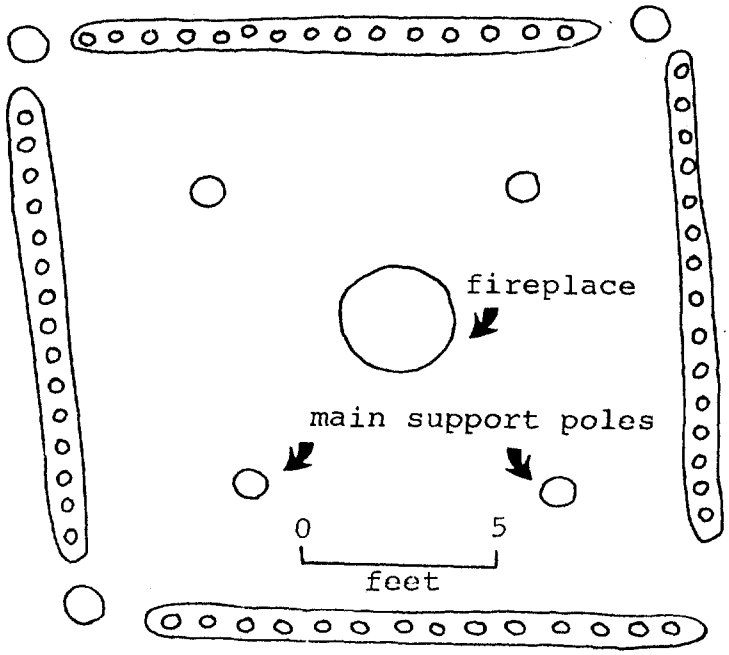
As with the burial mounds, the problem of the origin of this tradition is not resolved. However, in this case one need not look to Asia for a point of diffusion. Rather, it is quite evident that the place or origin of these mounds must be Middle Americ, where this pattern is established very early and is widespread. This tradition can be looked on as a diffused trait complex which includes both the flat-topped mounds and the plaza arrangement. Earthen mounds are not too common in Central America, as they are usually rock or rubble filled with elaborate exterior finishes. This latter trait apparently did not play an important role in eastern North America, for there are few data suggesting that using rubble fill ever existed. There are some early enigmatic reports that some mounds may have had prepared clay surfaces. Even



IDEALIZED CROSS SECTION OF TEMPLE MOUND



PLAN OF PLAZA ARRANGEMENT



IDEALIZED PLAN OF WALL-TRENCH HOUSE

Figure 51. Typical Mississippian mound and house types.

if the generalized point of origin is well established, we still have the problem of temporal placement of the earliest examples of this form in eastern North America. Here the information is unfortunately slim, reflecting the lack of good chronological control over the temporal limits of what is designated here as Period III. Although there is little question but that these temple mounds are post-Hopewellian, the exact date of their arrival is a matter of conjecture. It is estimated that they are probably in the eastern United States by A.D. 750, or earlier (Fig. 52).

If the time of origin of this mound form is somewhat obscure, the method of diffusion of this trait and its place of entry into the Southeast is even more of a mystery. As with the burial mounds, if the distribution of temple mounds in the East is mapped and plotted by numbers, one finds on looking toward Mexico, specifically to the Caddoan area in northeastern Texas, there is a very sharp dropoff in the number and size of mounds in the very area one would hope for the most remains. It is a fact that the largest mounds and the greatest concentration are no farther west than the Mississippi River and many of the major mounds are to the north and east, including the major sites of Cahokia, Moundville, and the Kolomoki site in southern Georgia. Because of the lack of supportive evidence in the Caddoan area, it has been suggested by some that the trait of the temple mounds may have spread up the Mississippi Valley (Ford and Willey 1949) or possibly they even had a Gulf Coast point of origin (Sears 1960).

If the spread came <u>up</u> the Mississippi Valley, the data are not clear as to when. These data are not too convincing for the argument of an early date, either. Georgia and the Florida Gulf Coast evidence suggests that the temple mound is very early in those regions. This does not mean accepting the very early Carbon 14 dates obtained at Kolomoki, dates with a range actually consigning temple mounds to a period prior to the time of Christ, although there is no question but that the mounds at Kolomoki are flat-topped, pyramidal substructures to temples. Even the more recent data at Mandeville, on the Chattahoochee River, where there is found a true platform structure with construction on top, are not wholly convincing. It has been suggested for some time that temple mounds may have occurred fairly early in the Florida

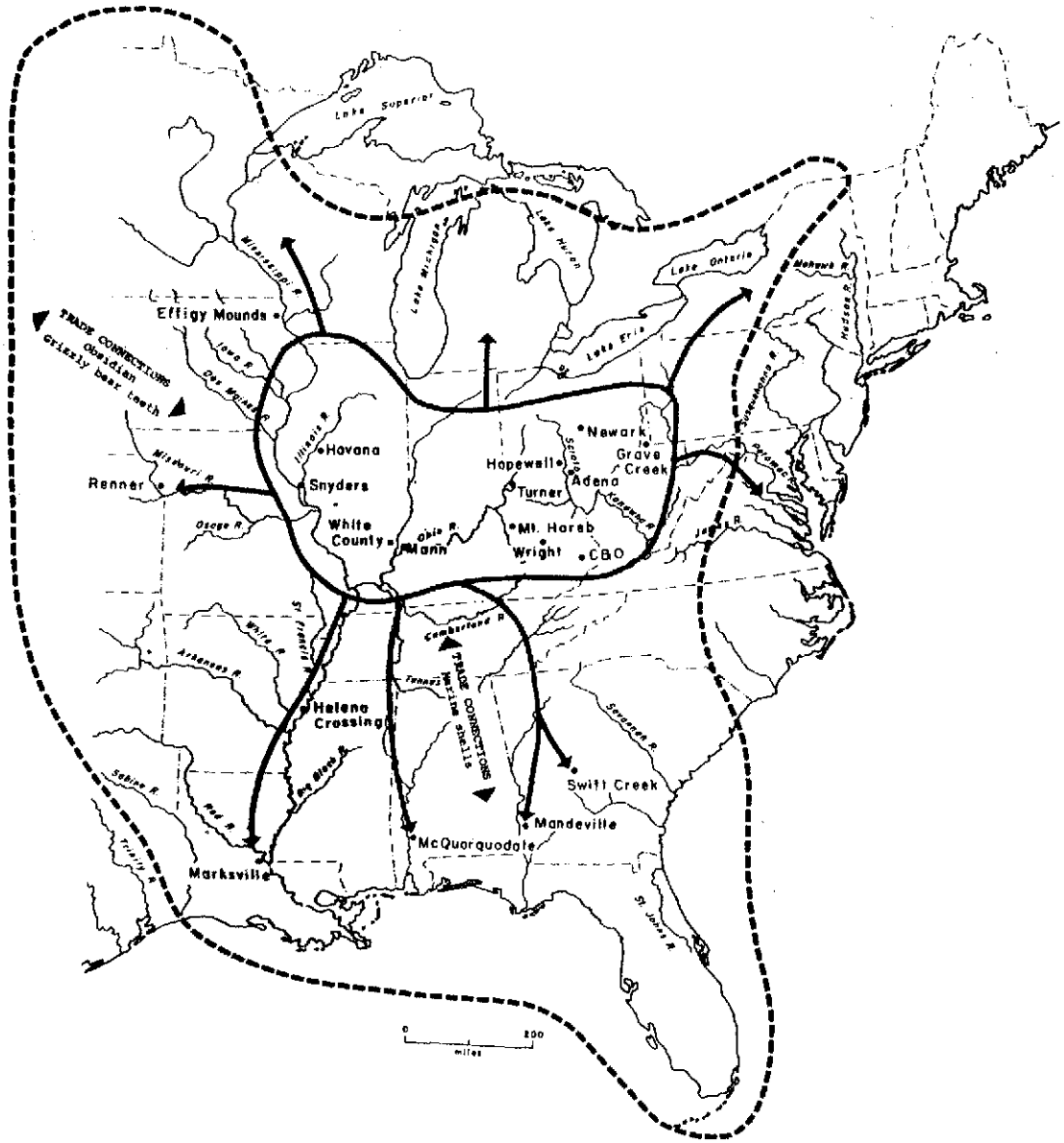


Figure 69. Distribution of the Burial Mound tradition and the extent of Hopewellian influence.

Gulf Coast area (Willey 1949). There, in the Weeden Island culture, ceremonial mounds were built and elaborate burial deposits made in them. Unfortunately, most of them were built of sand, and their exact original shape is practically impossible to determine at the present time. If they are, in fact, temple mounds, they date from a time prior to A.D. 750.

At this time two alternative hypotheses are quite tenable: (1) that the Temple Mound tradition came in via the Caddoan area with possible relatives in the Southwest or, (2) that the tradition came via the Gulf Coast either in the Florida-Georgia region or by the Lower Mississippi Valley.

THE MISSISSIPPIAN CULTURE

Although the term "Mississippian" culture, or more commonly, "Middle Mississippian" culture, is often used in a very broad manner to include cultural complexes which have very little in common except for the possession of such a trait complex as the Temple Mound tradition, the term is here used in a much more limited way. Others have used it in a generalized way to include most cultures in eastern United States in this general time period, and the term "Early" and "Late Mississippian" has been applied by Griffin (1946, 1952) for culture periods. Here Mississippian refers to a culture complex including specific traits. These traits are best exemplified by certain ceramic items -- the so-called standard Mississippi jar, a small globular-bodied vessel often with handles or lugs; the water bottle, a carafe neck or short-neck form; the rim effigy vessels, bowls with heads of animals, birds, humans; and, finally, a vessel form referred to as a "hooded bottle" which is found in a wide variety of effigy forms including vessels in the shape of gourds, birds (owls), and humans. Another major characteristic is that of shell-tempered pottery. One can note during this general period the spread of shell-tempering over very nearly three-quarters of the whole eastern area under consideration. This is not to suggest that Mississippi culture, as defined here, spread over this whole area, for it did not. But this particular tempering characteristic is very widespread, and a number of these ceramic traits were integrated into other local cultures (Fig. 53).

Other defining traits included the characteristic wall-trench, retangular house of wattle and daub construction with thatched roof (Fig. 51). The term "wall-trench" refers to the fact that a small trench is first excavated and wall posts then set into it, rather than having a series of individually dug postholes. These characteristic wall-trench houses are, however, not exclusively diagnostic of Mississippian culture. They too are found in a number of other culture complexes in the East during this time period, for example, in the Plaquemine culture of the Lower Mississippi Valley, and in some Caddo phases.

A third important aspect of Mississippian culture is

its ceremonialism. This complex includes the utilization of temple mounds and has often lead to an erroneous equation of the Temple Mound tradition and Mississippian culture. For example, there are many non-Mississippian cultures, such as Coles Creek in the Mississippi Valley and some Caddo, which do not have the ceramic traits just described. These same cultures may lack some of the architectural traits but they do have temple mounds. It has been said, "Temple mounds do not Mississippian make."

The other aspect of Mississippian ceremonialism can be found in what has been termed manifestations of early Southern Cult. This southeastern religious expression is recognized in a number of very specific ceremonial objects which are widespread in phases of the Mississippian culture. Included in this early cult are such traits as marine shell dippers, rather simple shell gorgets, use of repoussé copper objects, rather simple sun designs, and possibly the so-called "long-nosed god" (a small human mask with a long nose made of copper).

The place of origin of Mississippian culture has long been a point of argument in Eastern archeology. When areas which were terra incognita existed, these places were often suggested as possibilities for loci of origin. Despite increased archeological knowledge, we have not as yet solved this problem. In fact, we have mainly eliminated some of the areas which have formerly been suggested as points of origin, namely, the northern section of the Lower Mississippi Valley. Present thinking now centers on two major localities: Griffin and others have suggested that Mississippian culture had its origin at the great site of Cahokia near East St. Louis, Illinois; others would tend to see the origin in western Tennessee and Kentucky where some centers, such as Obion and Pinson, have often been suggested as possible manifestations of the early development of Mississippian culture.

The problem of temporal placement of this origin is equally difficult as with that of temple mounds themselves. It is a fact that, at present, although a great number of Carbon 14 dates are available for Cahokia, no dates prior to A.D. 900 are known from the site associated with materials that might be termed Mississippian. A dated sequence in the Lower Mississippi Valley with intrusive material from Cahokia

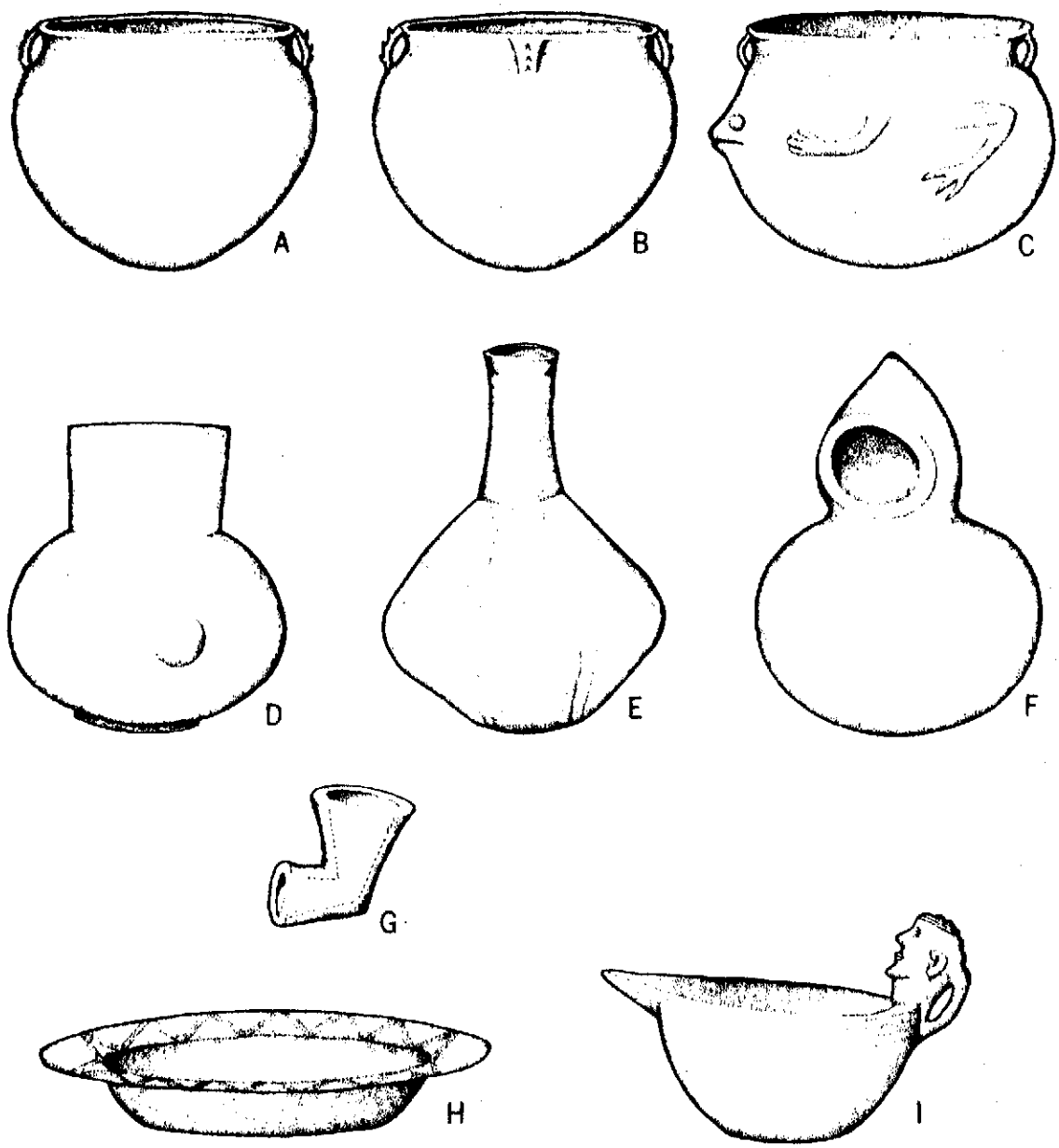


Figure 53. Mississippian ceramic traits. A and B, standard jars with strap handles; C, frog effigy jar; D, short-necked bottle; E, carafe-necked bottle with painted panels; F, typical "hooded" vessel; G, biconical pottery pipe; H, plate with incised chevron design on rim; I, rim-effigy jar with an inward-facing figure.

would place the time of contact between these phases at approximately A.D. 900-1000. Unfortunately, no Carbon 14 dates are presently available from the other generalized point of origin in western Tennessee and Kentucky. Therefore, again, a guess date is the only one available and one can speculate that a date of A.D. 700 to 800 would not be out of line. The distribution of Mississippian culture throughout eastern United States is greater in area in comparison with the spread of Hopewell, and it appears to be more pervasive (Fig. 52). There is everywhere considerable evidence for agriculture, and this fact alone may account for its greater success.

Characterization of Mississippian

The large site of Moundville, Hale County, Alabama (Moore 1905, 1907) situated on the banks of the Black Warrior River may be taken as a typical expression of the Mississippian culture in its climax state (Fig. 64). It is a large ceremonial center with a big plaza-type assemblage of twenty rectangular substructure mounds dominated by Mound B, fifty-seven feet high. The mounds, which are a major feature of the site, were all primarily used as substructures for buildings as far as is known at this time. Some burials were found in the summits of several of the mounds by one excavator, but this finding does not change the conclusion that these were "temple" mounds of the classic variety. Direct evidence for structures on top of the mounds is lacking from Moundville itself, but the closely related Bessemer site (DeJarnette and Wimberly, 1949) which was more completely excavated, provided confirmation of this trait in the Moundville culture. The arrangement of mounds around a single plaza is similarly lacking at Moundville, but in this case it seems very likely that there is more than one plaza, perhaps one being used at one time and another in a later stage of development of the site. A number of ramps leading down the face of the mounds is preserved and gives an indication of the areas used for ceremonial purposes. There is some unpublished evidence that some of the rectangular mounds were surrounded by a deep trench or moat on all sides except where the ramp is present.

Specific published data on Moundville architecturs is limited but there is widespread evidence of occupation in

almost all areas of the site. Rectangular wall-trench houses have been found and their number suggests that this was a ceremonial site with a considerable resident population. The usual wall construction was wattle and daub, evidence for which are fired "briquettes" from burned structures. Such daub fragments are a good Mississippian diagnostic trait. The houses range from about fourteen feet square up to as much as forty by sixty feet. The larger buildings were usually on mounds but without any special features that make them stand out as "temples." Some circular structures are also known from the Bessemer site, as are stockades, as well. Both of these forms can be inferred for Moundville also.

Burials were primarily extended in the flesh with some partial flexure such as bent knees. There are minor occurences of secondary "bundle" and mass reburials. Grave offerings are abundant with some burials, although most have some kind of grave goods, usually in the form of pottery vessels. There is good indication of rank by the differing treatment of some individuals. A few stone graves, a very characteristic feature in the Mississippian cultures of the Tennessee-Cumberland area, do occur; their scarcity is probably due to the lack of proper stone for the slab construction used to the north.

Chipped stone artifacts are remarkably rare and the scarcity of projectile points might be taken as some indication of a shift towards major dependence on agriculture, although bone and cane might also have been used for arrow points. The small trangular point is a Mississippian characteristic, but, like shell tempering, is spread well beyond the limits of the expansion of pure Mississippian culture. The chipped stone mace also is known from Moundville and is a part of the Southern Cult assemblage.

Ground stone artifacts actually seem to be more common than chipped. They include greenstone celts, a few with flared bits, the shouldered celt with perforation, and monolithic axes, the last being also part of the Southern Cult ceremonial complex. Small stone discoidals are a common and characteristic Mississippian trait. The general assumption is that these ground stones were used as "chunkee" stones. Historic references to the game, which was commonly played throughout the Southeast, indicate that these stone discs

were rolled on their edges and spears were thrown at them. A Moundville specialty was the stone palette most often in the form of a notched disc of fine-grained sandstone. These are frequently found with traces of red and white pigment; a few are known with elaborate engraved designs. Pipes also occur in ground stone in simple elbow form and in large effigy forms, both animals and human. Stone vessels are rare but there is one superb bird-effigy bowl which is a masterpiece of stone-working art.

In the categories of rough stone and bone there are the usual artifacts such as hammerstones, mortars, awls, and fishhooks, but nothing of diagnostic value. In shell, other than beads, there are a few engraved shell gorgets although their greatest frequency is to the north in the Tennessee-Cumberland area.

Moundville burials were fairly rich in copper but practically none was used for implements. In contract with the Hopewellian situation, few if any of the copper axes were anything but ceremonial. Instead they were made of sheets of copper so thin that they could not be used for any utilitarian purpose. The greatest use is in sheets of copper with repoussé designs. These are made in the form of gorgets, pendants, hair ornaments -- all with Southern Cult symbols. Copper is also used as an overlay on wood.

Moundville pottery is well known because of the practice of placing whole vessels in graves as mortuary offerings. The ware is universally shell-tempered but can be divided into two basic groups: the coarse utilitarian ware and the fine tempered and polished ware. There are bowls, jars, and bottles in the coarse ware. Simple incised and punctated designs are found on the "standard Mississippi jars." The finer ware has a smooth black finish like a slip and there is a wide range of shapes including plates, bowls, beakers, small jars, bottles, rim effigy bowls and a variety of effigy and eccentric forms including a step-sided square vessel. Beakers, plates, and bottles have incised designs which often are a scroll motif. Engraved decoration is found most often on bottles and includes symbolic figures connected with the Southern Cult. Some of the scroll motifs with small triangles along the edge are perhaps carried over into the Historic period on the beaded belts of the Choctaw. Painted pottery

of any kind, including redware, is extremely rare, and the negative and direct painted vessels known from Moundville could very likely be imports from the north and west where they are much more frequent.

Pottery pipes are of the very characteristic Mississippian elbow variety and are in the main rather crude and unattractive. The basic feature is the biconical effect of the two openings (Fig. 53). There is a rather large category of small pottery objects and this is, in itself, a general characteristic of Mississippian culture. Included are discs, often but not always made from sherds and seldom perforated; minature ladles and vessels, the latter often found with children's burials; trowels apparently used in the ceramic craft; pulley-type earspools; and small, solid figurines.

In all the artistic expressions from the site one can see what can be termed "the Moundville style." This style is caught up in the Southern Cult, but remains distinct. Thus one should be able to distinguish Moundville Engraved bottles wherever they are found.

Although we do not have as much information on economy as we could wish, the Moundville culture was definitely agricultural with corn the major staple. It is quite evident that hunting, gathering, and fishing play a minor role. Settlement is of the hamlet-ceremonial center pattern but there is more evidence of occupation in the center with the smaller mounds and structures upon them definitely residential. There was permanent housing with wattle and daub construction. Some building with specialized function can be inferred. Palisades are not extensively known for the Moundville culture, but they play an important part in most other Mississippian cultures, and suggest some sort of formalized warfare.

There is considerable evidence of social stratification, although admittedly here we rely heavily on ethnohistorical information from groups such as the Natchez. There seems to have been a religious basis for status and possibly political power as well. Incipient priesthood was probably present. The focus of this religion was not a cult of the dead nor worship of deified animal ancestors. Rather there were universal nature or cosmic deities symbolized by the four

world quarters, winds, sun, and rain. The rituals were probably concerned with agriculture and the seasonal round. The possibility of the religion transcending the small-scale political units will be discussed under the heading of the Southern Cult.

Thus, in this culture one can see something of a sharper break with the past than on the Neo-Indian era boundary where the older Archaic patterns hung on, or even at the time of the Hopewellian rise where the Woodland ceramic tradition was maintained. Many of the elements can be traced back even in the Mississippian culture, but a decidedly new context has come about. It seems impossible not to relate this change to what amounts to an agricultural revolution with the likelihood of a new type of maize and much more concentrated dependence on it. Even though the "level" of the Mississippian is not notably higher than Hopewell, there is a different organization of the culture with a different orientation. In a sense, Hopewell looks backward and is a climax of the old forest-hunting type culture, albeit with agriculture added. It is hard to see how it could have developed further, and as we have seen, it did not. The Mississippian culture, on the other hand, represents a socio-economic system that might have developed under the right conditions to a society on the Classic stage comparable to the Maya, Aztec, and the Inca. It, too, failed to attain such cultural height but for quite different reasons.

Radiation, Change, and Climax

There is evidence of a quite wide expansion of Mississippian culture, presumably prior to A.D. 1000. This spread seems to have taken the form of site-unit intrusions. We have a spread north of Cahokia to the site of Aztalan in Central Wisconsin where a large stockaded village apparently represents the migration of a population into a hostile area and the use of palisades to protect the village on the frontier. There is good evidence of a spread to the west, like that of Hopewell, up the Missouri to the Steed-Kisker site in the Kansas City area. There is a southern spread to Macon Plateau in Georgia where there is a classic example of site-unit intrusion (Wauchope 1956) with an early Mississippian culture evidently coming in as a new form, interrupting the sequence, and building a palisade for protection from

local people.

There is evidence, also, of spread down the Mississippi River from centers in southeast Missouri and northeast Arkansas, with trading to Plaquemine cultures of Louisiana and Mississippi. Finally, there was movement up the Ohio into parts of southern Ohio itself as well as southern Indiana, as seen in the Angel site.

After this early spread there came development and change in the culture. This maturation is especially evident in the areas where the site-unit intrusions took place outside the core area. For example, we have, according to Griffin, from the original site-unit intrusion at Aztalan, the development of the widespread Oneota culture. This culture is the ancestor of the historic Siouan groups of Minnesota, Wisconsin, and Iowa. A similar development and change in the culture occurred in the Macon Plateau area where an integration of the intruding Mississippi culture blends with the local South Appalachian ceramic tradition to be transformed into a new entity called Lamar.

Mississippian Ceremonialism

The climax of Mississippi ceremonialism has been named the Southern Cult. Although this term is open to some criticism in that there is little evidence to suggest that this religion was actually a cult in the usual sense of the word, the phrase is so widely used in the literature that it will be employed here too. The evidence for this Southern Cult is in the religious paraphernalia and symbols which are widely spread throughout much of the East. Three main cult centers have been excavated with quantities of material being discovered: (1) the Spiro site in eastern Oklahoma near Fort Smith, Arkansas; (2) the large temple mound site of Moundville near Tuscaloosa, Alabama; and (3) the Etowah site in north Georgia near Cartersville.

The major categories of artifacts which characterize the Southern Cult are engraved shell, repoussé copper, ground and chipped stone, and ceramic vessels. The engraved shell includes circular gorgets of marine shell with engraved and cut-out designs and conch shell dippers with engravings on the exterior. The repoussé copper forms are mainly large

plates, but others seem to be headdress ornaments, pendants, or smaller pieces probably sewn on garments. There are stone sculptures of humans and various exotic beasts, both in the form of statues or as large ceremonial pipes. Other ground stone artifacts include monolithic axes, elaborate circular palettes and perforated, shouldered or spatulate celts (Fig. 54). The chipped stone forms are large flint "daggers", long "swords," maces, "claws," and other exotic shapes. In ceramics there are a number of symbolic representations which appear most frequently engraved on bottles.

The major symbols found in shell, copper, and on pottery are the "hand and eye" design, eagles and anthropomorphic eagle-warriors, the bilobed arrow, skull and bones, and the plumed or horned serpent. Also used are the sun symbol, a cat figure with reptilian attributes, and the so-called "weeping-eye" design found on representations of humans, serpents and eagles. Spiders, rattle-snakes, and woodpeckers are all represented in naturalistic portrayals as are a variety of scenes of ritual activities, often utilizing mirror images of elaborately costumed practitioners.

The first archeological evidences of the Southern Cult begin in the middle of the nineteenth century when various of these elaborate works of primitive art, including stone sculpture, elaborate copper plates with repoussé designs in the form of eagles, large chipped and ground axes and knives were found at various sites in the Nuclear Southeast area. Moore's work at Moundville, and then Moorehead's work at Etowah in the early part of this century brought forth a quantity of new data which was so unusual that wide ranging comparisons to Mexico and other areas of high culture to the south were soon made.

In the 1930's the discovery of the extraordinarily rich site of Spiro posed new problems. Here were three "centers" -- Moundville, Etowah, and Spiro with identical art motifs and ceremonial paraphernalia in three radically different cultural matrices. To explain this situation, three publications by Phillips (1940), Ford and Willey (1941), and the definitive study by Waring and Holder (1945) stressed the following points: (1) similarities over a wide area; (2) rapid spread, late date, and a "cult" mechanism; and (3) possible Mexican origin. Krieger (1945) very sensibly

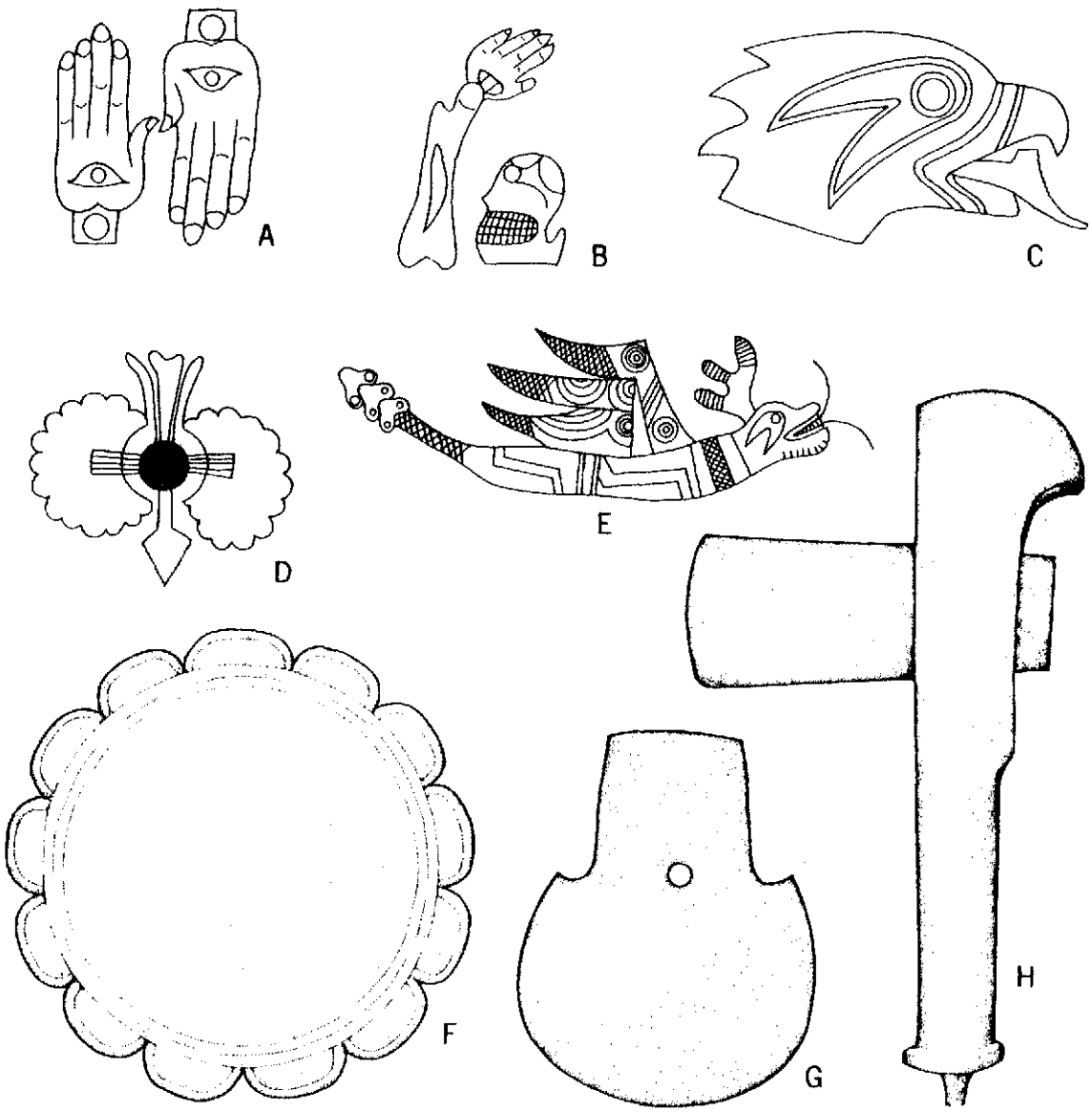


Figure 54. Southern Cult motifs in pottery and stone. A, the "hand and eye" design; B, skull and arm bones; C, eagle with "weeping" eye; D, bilobed arrow; E, feathered serpent; F, stone palette or plaque about 10 inches in diameter; G, perforated spud or spatulate celt; H, scepter or monolithic ceremonial axe.

pointed out that: (1) that similarities between centers had been overdone, and the problem oversimplified; (2) that "Mexican" or Maya origins had been overplayed and that actually the differences outweighed the similarities; (3) that a good many "cult" features could be derived from Hopewell -- at least the basic techniques were there, and there were even a good many specific parallels: and (4) that the late dating had been overdone. He suggested a climax of the development around A.D. 1450. Krieger recognized but did not make enough of the differences of thought patterns and styles between the Hopewell and the Mississippian. Also his dating was probably too conservative, although as a pre-Carbon 14 guess date, his was in the vanguard of those which extended the very foreshortened Eastern chronology in what now appears to be the right direction. However, even with an earlier date, the connections with Hopewell suggested by Krieger can not be too significant. Much of the technological knowledge required for the production of some of the Hopewell artifacts seems to have been lost in the interim between it and Mississippian. The working of copper is an example of this -- repoussé designs on copper plate are infrequent in Hopewell, but then are positively absent for 1000 years. There are presently no known intervening cultures which could be evoked as perpetuators of these technological systems.

One of the other important characteristics of this Southern Cult is the extensive spread of its symbolic representation which are specific symbols, not general ideas. For example, there is a copper plate from Spiro which is virtually identical to one known from Mt. Royal site in northern Florida. This virtual identity of some religious paraphernalia suggests that craft specialization existed and that certain of these materials were manufactured in a single place and dispersed from that single point of origin to other sites participating in this activity. It is true that this ceremonialism is primarily centered in cultures which can be termed Mississippian in the narrower sense as defined in this paper. Its occurrence in the Caddoan culture sequence at Spiro and related sites indicates that the religious symbols did diffuse well beyond the geographic spread of Mississippian culture itself.

Present data suggest that conditions were such at the time of "classic" Cult manifestations that for a certain

interval, probably or short duration, a sort of pan-Southeastern ceremonialism existed which found expression in a recognizable art style, based on carved shell, repoussé copper, and designs on engraved and negative painted pottery. The same cultural mechanisms effected the spread of these horizon markers. This does not imply a full cultural continuity for this style and these artifact forms are found in cultures which otherwise differ radically from one another. In fact, it has been suggested that this cult expansion indicates the diffusion of an agriculturally-oriented symbolic system, possibly coincidental with a new type of maize (L. H. Larson, personal communication).

While the spread of what might be termed Classic Cult items, including the copper plates and certain forms of shell gorgets, can be taken as relatively simultaneous or coeval events occurring about A.D. 1300, there is also evidence of a later spread of Mississippian culture throughout the East. This later spread often carried with it some of the symbolism of the Southern Cult, but not items of classic form but of later forms which can be traced down to historic times. For example, very possibly the Tucabatchee plates among the Creeks may well be Southern Cult copper plates which still had important magical properties in the 18th century.

There is evidence that in the late spread of Mississippian culture it moved down the Mississippi Valley and ultimately reached the latitude of Vicksburg about A.D. 1500. At the same time there was a spread of certain Mississippian traits in the Caddoan area. This diffusion is known mainly from ceramic trade vessels which show up in the Caddoan sequence. There was also a late movement of the Mississippian cultures from a center in Moundville toward the Gulf Coast. This latter mixed with the local cultures and from it developed the late prehistoric culture known as Fort Walton.

Coeval Cultures

While a cursory examination of the map (Fig. 52) showing the extent of Mississippian cultures tends to suggest that they were all pervasive in the East, there were a number of areas which were not assimilated by this diffusion. The Glades area of Florida is a rather separate physiographic area which remained until historic times as a hold out against

the Mississippi intrusions. In this area there is the remarkable Key Marco site from which come some of the most elaborate wooden artifacts known to American archeology. These artifacts, preserved only by being buried in mud, include polychrome painted wooden sculptures in the round, everyday implements of warfare, household items, wooden bowls, stools, and ceremonial items of elaborate wooden masks and idols. The lesson of Key Marco is, of course, that one must not underestimate a culture because of scarcity of normally preserved remains. It is certain that many eastern cultures had a highly-developed woodworking technology which, unfortunately, is most often lost to archeologists.

The Glades culture is a coeval development, then, with Mississippian. According to historic accounts, Glades culture is a rather advanced cultural complex with elaborate social and political structures which seem out of place in a nonagricultural economy. However, the richness of the environment allowed for considerable development, much as it did in the southern Californian coast and the Northwest Coast at Puget Sound.

The middle and north Atlantic areas were relatively untouched by this spread of Mississippian culture, as well. There was a penetration to the Atlantic coast, as seen in Florida in the St. John's River area and in cultures like Irene in Georgia. Well up into North Carolina these Mississippian traits can be recognized, but north of this penetration, the general conservatism of cultures was maintained. There, cultures continued much as they had before with a relatively slight use of agriculture and not very elaborate ceremonial developments. The Middle and North Atlantic areas' conservatism indicates that the Appalachian Mountains remained a formidable culture barrier throughout the last three major periods considered. As was noted, Hopewellian ceremonialism did not penetrate extensively into these areas and such was the case with Mississippian cultures as well.

The Upper and Lower Great Lakes areas also tend to remain on the cultural frontier with only minor intrusions of Mississippian influences into these areas. This is particularly true on the Ohio River. Although major Mississippian villages are known, such as the Angel Mound Site near

Evansville, Indiana, that is about the northernmost penetration of relatively pure Mississippian culture. An adulterated Mississippian culture, the Fort Ancient of southern Ohio and northern Kentucky, is seen as a mixture of Woodland ceramic tradition with Mississippi ceramic tradition and with some other characteristic Mississippian forms being adopted. It is interesting, therefore, that the Fort Ancient culture did not serve as a major point of diffusion toward the north where the resident cultures of New York, such as Owasco, remain very much in their own local tradition without any significant Mississippian admixture. This is true of the situation in Michigan as well, where local cultures persisted with only slight Mississippian influences.

To the west, the Ozark Bluff area remained throughout most of this time as something of a cultural isolate. The area maintained its "hill-billy" stage with only slight Mississippian influences when it was all but surrounded by the diffusion of traits out to the Plains in some of the historic Plains Siouan groups and into some of the Caddoan area. The only specific Mississippian influences in the Ozark Bluff area are the uses of handles, shell tempering, and possibly triangular and willow leaf projectile point types. Throughout the area, temple mounds are, for the most part, absent.

The important cultural sequence in the Caddoan area has been briefly reviewed in an earlier section of this volume, but it is important at this juncture to point out that although the Caddo culture does partake of the Temple Mound tradition, it is not a part of the Mississippian culture as herein defined (Fig. 52). It is, indeed, a vigorous regional culture with characteristic specialties such as fine engraved pottery and elaborate tomb burials. Some Mississippian artifacts are traded into the Caddo area, but it remains a separate cultural entity for some 1000 years. Hopewellian influences are also only tenuously felt in this area, which does <u>not</u> seem to have served as a way-station for Mexican diffusion as its geographical position would seem to indicate that it might.

The southernmost part of the Mississippi Valley likewise remains outside the sphere of direct Mississippian influences, and the culmination of the local sequence is seen

in the Natchez archeology known from the protohistoric and historic occupations at the Fatherland site. There the local resident culture is only very weakly influenced by Mississippian culture at any time. This can be seen in the minor use of shell as a tempering addition to pottery paste.

General Decline Prior to 1500

It can be stated that the prehistoric cultures of eastern United States reached a climax about A.D. 1300, and there was, apparently, as far as archeological evidence can be read at this time, a general decline prior to 1500 and the advent of white contact in the area. This is not to say that it was the same kind of decline that characterized the period following the Hopewell climax, but it was a decline nevertheless, certainly from the high level of ceremonial paraphernalia and the technology that went along with it. For the first time in the East, we can follow the simplification from classic forms of various symbols. For example, in the Southern Cult artifacts there is a sequence of depictions of the rattlesnake on shell gorgets which ultimately ends in very rudimentary representations which could not be recognized as a rattlesnake if the entire sequence were not known. This is suggested as an example of synchronistic decline, because it is a fact that in all the areas of high cultural development in the New World, including the Andes, Middle America, and the Southwest, something of an artistic peak was reached around A.D. 1300. By the time of Spanish contact the "good old golden days" were gone.

Period V: The Explorers and Their Heritage

With the advent of European civilization in the New World a largely different and accelerated picture of culture change and development was begun. The first explorers brought the culture of their civilization and both its benefits and evils were visited upon the American Indians. The history of these explorers, as seen primarily from their point of view, is discussed in other volumes of this study, but the impact of their arrival is reflected in the closing archeological scenes. For the eastern United States, the first important explorer was DeSoto who made his lengthy traverse across the Southeast between 1540 and 1542. It is of archeological interest that, despite his large force of men, a quantity of Spanish arms, a large herd of pigs, and numbers of horses, as yet, not a single bona fide DeSoto artifact has turned up in any site. In fact, the general concensus of Southeastern archeologists is that as yet not one segment of the Desoto path is really adequately worked out. No one has tied together the narratives of the expedition and the known archeology. Thus, although DeSoto made little apparent imprint on the cultures of the Southeast, the heritage of his expedition and those to follow was the destruction in terms of communicable diseases, probably the most important aspect of this whole period. The problem of the impact of these foreign cultures on the aboriginal cultures is not, of course, that simple, and some of the evidences for decline prior to the advent of the expeditions have already been presented.

One of the facts of the late period which is most striking is that much of the central part of the East, that is, the Central Basin and northern parts of the Lower Mississippi Valley, including part of the Ohio Valley, was unknown until very late in the 17th century. Of course, there was early contact in the late 16th and early 17th centuries in places such as Florida with missions established, and in the Southwest. However, when elaborate English settlements had been founded in Massachusetts and Virginia, and individuals were able to live a rather elegant life, the great middle

section of the country still remained virtually unknown. The Mississippi Valley was seen by DeSoto in 1542, but 125 years passed before Marquette and Joliet investigated part of the river in the 1670's. It is nearly the beginning of the 18th century before there are any well-established settlements in this section. Thus, we have nearly 150 years in which only sporadic contact went on.

As a result of these contacts and the beginning of dislocation of tribes there appears what can only be called a cultural collapse throughout much of the eastern United States. By 1750, many tribes had radically changed their basic economic patterns, and, presumably, had lost much of their elaborate social and political structure. Although this is a time of loss of such systems, it must be noted that this is also the period of rise of certain major political structures for which American Indians have been famed. Examples of these are the League of Iroquois Confederacy, and the Confederacy of the Cherokee, both of which seem quite likely to have had their origin in historic times and to have utilized to a certain extent aboriginal patterns. For the most part, however, they should be looked upon as reactions to white pressure and not wholly typical of the cultures and their political structures of the late prehistoric period.

Historic Tribes with Archeological Connections

While it is beyond the scope of this survey to discuss all the historic tribes in the East, it is useful to mention a few historic tribes which can be linked up with the past.

In the nuclear Southeast, there is a very close link between the prehistoric Creek and the later, ethnographically-known Creek in Georgia. After 1830 and their flight to Florida in amalgamation with certain other tribes, they persist there until today as the Seminole. It is interesting to note that there still is some surviving social and magical ritual in this tribe which comes down quite adulterated from early Creek practices. Recent developments in Seminole archeology have added much to our knowledge of 130 years of Seminole history.

Perhaps one of the most famous tribes in the eastern

United States is the Natchez. They are especially well-known for an elaborate social organization, apparently with a true class structure. Fortunately, we have French documentation between 1680 and 1729 that gives us some idea of the nature of this interesting culture. The Grand Village of the Natchez, archeologically known as the Fatherland site, was recently re-excavated, and it was amazing to see how well archeology and historical records coincided, even to details of placement of fireplaces in the temple structure. Unfortunately, the Natchez were almost completely dispersed by the French in 1729-30 so that we have no present-day population of this interesting group.

In the Upper Mississippi, an excellent example of the Oneota culture is its remnant surviving as the Winnebago tribe in eastern Wisconsin at Lake Winnebago. Historic sites of this tribe have been excavated and the prehistoric and historic can be brought together neatly. In the Upper Great Lakes area there are some good ties with the Algonquin tribes as Quimby (1961) has shown. In the adjacent region of the Lower Great Lakes, the Iroquois are certainly the best known tribe and here again the historic archeology is quite well known. The connection between history and archeology has been made at a number of identified sites. In the Middle area the best known tribes are the ones first met by the English settlers in Virginia and some archeology has been done on these groups, although they are not as well known as the others just mentioned (Miller 1957). In the Carolinas no sure identifications have been made between archeology and ethnological groups but attempts have been begun (Haag 1958). In the North Atlantic area there is not a great amount of material that can be readily identified as to tribe, although quite a few sites have been discovered that have European trade goods on them.

SUMMARY

This survey, by its very nature, has had to cover a huge region with a minimum of details from the local sequences which are available in many of the areas. Instead the focus has been on some of the major events which seem to have had widespread effects throughout the whole eastern division. In Figure 55 these events have been charted against the 3600 years of time covered by these themes in the three superareas: Southeast, Central Basin, and Northeast.

The major events are the introduction of pottery and the Burial Mound tradition; the Hopewell climax; the introduction of the Temple Mound tradition; and the rise of Mississipian culture and subsequent development of the Southern Cult. On the left hand side of the chart the sequence of the Red River area, as worked out by James A. Ford and others, has been inserted, running from Poverty Point to Natchez, since this sequence is one of the best known in the Southeast. This is an impressionistic arrangement that attempts to bring together some of the divergent threads of this complex picture, and as such it should not be considered a very precise instrument. It would be instructive to compare it with some of the similar charts that have been constructed for the East during the past twenty years (Ford and Willey 1941; Griffin 1946, 1952; Martin, Quimby, and Collier 1947; Caldwell 1958; and Willey 1960). The over-all picture presented here is not radically different, although the time scale has been expanded immensely and the slope of some of the lines has been reversed several times.

The advent and spread of both the "early pottery" and burial mounds can be fairly accurately delineated without answering, unfortunately, the important question of place of origin for both these significant traits. The flowering of the Hopewellian culture across the Central Basin in its several centers in Ohio and Illinois provides a real horizon which reaches to the limits of the East. Ohio Hopewell is soundly based on its Adena forebears, although there is the distinct possibility that to the south peoples with an Adena-like culture persisted during the time of the

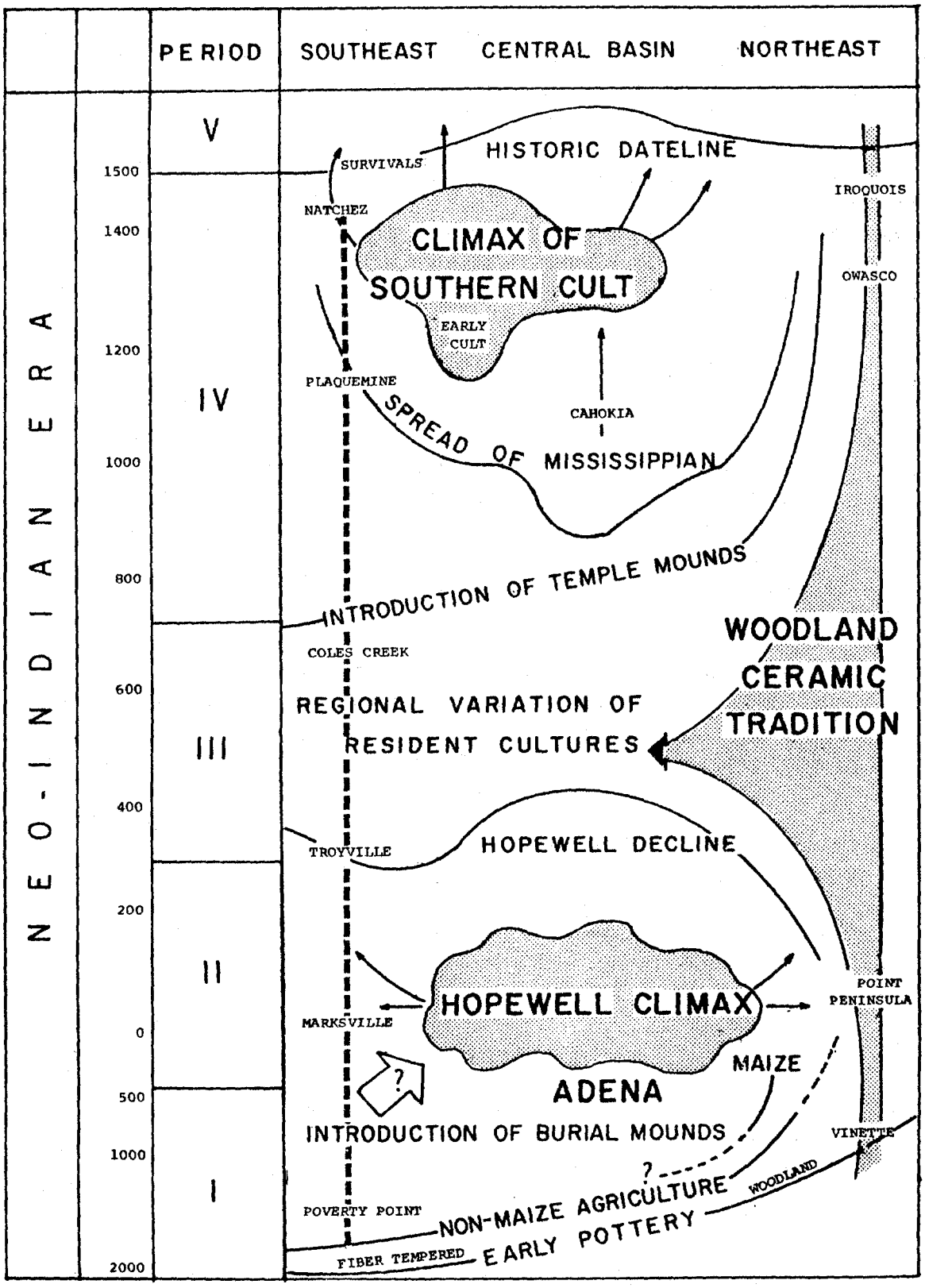


Figure 55. Recapitulation of eastern prehistory.

Hopewell climax north of the Ohio River. The same situation probably obtained in Illinois where some of the resident Woodland cultures also continued relatively untouched by events in the Illinois River Valley.

The problem of low cultural contour in Period III has been discussed above, but not satisfactorily explained. There is temptation to think in such terms as "cultural regression" or "swift decline," but this is probably over-reacting to lack of data. We are probably projecting these reactions into the rather simple cultures that did in fact carry on "all right" after the loss of the elaborate ceremonialism of the Hopewell climax.

The introduction of the Temple Mound tradition and the only slightly later rise of Mississippian culture again marks the end result of some new cultural stimuli without explaining the causal mechanisms involved. The ultimate origins may be in the centers of Nuclear America to the south as some have argued for Hopewell as well, but the lines of evidence remain dim.

Although Moundville is actually on the southern edge of the Mississippian nuclear area, it is both a fitting exemplar of the Mississippian culture and a major center of the Southern Cult. The culture represented by this large ceremonial center, with its many temple mounds, is another climax of eastern prehistory and, as such, offers a fair comparison to the Ohio Hopewell culture described in some detail above. The absolute level of the two cultures does not seem too different, granting that we know very little about the nonceremonial side of Hopewell. Trade, while important for both cultures, was not as well developed in Mississippian although its transdivision ties were almost as broad. Although the Mississippian culture placed considerable emphasis on mortuary procedures, there is not the preoccupation with death that one seems to find in Hopewell. This is not to say that religious practices were not important, for the amount of labor consumed in construction of the substructure mounds is direct evidence of the concern that the culture had for what must have been primarily religious activities.

Ethnographic evidence suggests that the Mississippian

culture may well have had larger political ties than the more parochial Hopewellian culture, notwithstanding the trade routes of Hopewell. There is evidence of a cultural apogee which does not last up to the Historic date-line. The cause for the decline does not in this case seem to have anything to do with climate although some students with a penchant for cyclical theories may certainly draw such inferences.

In looking at the late cultures of the East, several workers (Kroeber 1939; Caldwell 1962) have over-stressed the role of warfare and under-stressed the role of agriculture. They see an interrelationship between a low level of dependence on agriculture and the disruptive effects of intertribal warfare. In Kroeber's case one must recall the paucity of archeological data available at the time of writing. He was, perhaps, overly impressed with the rather simple or broken-down agricultural patterns which characterized the ethnographic present of 1750-1850 in much of the East. In contrast, there is a high level of economic development shown by settlement patterns known from many of the fertile river valleys in much of the division.

The cruel and excessive demands of warfare which Kroeber, and more recently, Caldwell, have called on as a cultural "leveler" throughout the East is an explanatory mechanism based likewise on rather late historic patterns. There is no widespread representation of warfare in the late prehistoric archeology, even granting the use of palisades in a number of Mississippian phases. The pan-eastern spread of the Southern Cult into very diverse cultures does not seem to have been the result of conquest, but rather of missionary zeal.

The connections across the Historic date-line are now just receiving the attention they deserve and the rise of Historic archeology as a respectable subfield of research bodes well for expansion of knowledge in the crucial area where prehistoric archeology meets the written word.

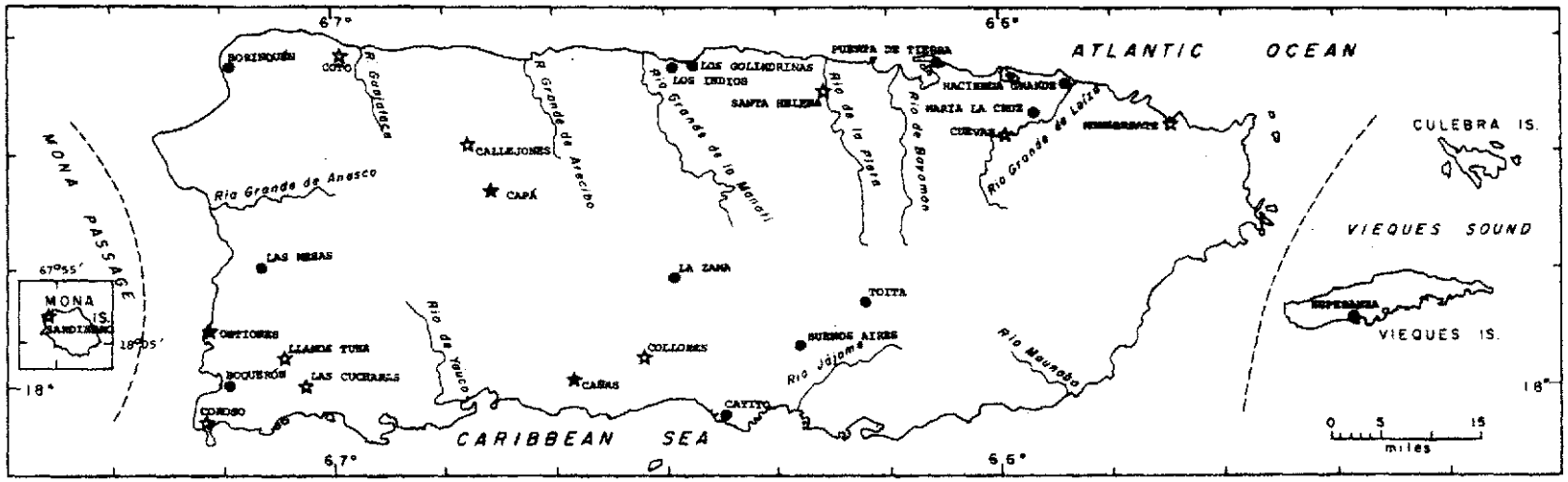


Figure 56. Index map for Puerto Rico. There are many sites on the island but those shown on the map are considered the most representative of the several cultural manifestations that have been found.

★denotes sites of exceptional value; ☆ denotes sites that were also considered in the analysis of the sites; ● denotes other sites worthy of mention.

mountains.

Puerto Rico is composed of both sedimentary and volcanic rocks. The sedimentary rocks are calcareous and thus the island is characterized by innumerable caverns. Those on the northern flanks of the mountains are quite large, in fact, and were suitable for aboriginal inhabitation. There are no large lakes throughout the island. Because of the calcareous rocks that underlie portions of the island, there is a great deal of underground drainage, thus the rivers sometimes are flowing underground for portions of their courses.

Whereas Puerto Rico and its immediate neighboring islands are about 3500 square miles in area, the Virgin Islands are not more than 200 square miles in total extent. The three major islands of this group -- St. Thomas, about forty miles east of Puerto Rico and 32 square miles in area, St. John, 20 square miles, and St. Croix, about 80 square miles -- are the only islands of significant size. These islands also are mostly tops of submerged mountains and few of them are more than 100 feet above sea level, although there is a peak of about 2000 feet on St. Thomas. A significant fact that rendered the Virgin Islands less attractive to aboriginal populations (as well as modern peoples) is that there is very little underground drainage as in Puerto Rico. These islands also receive a great deal less rainfall than the larger islands, hence, the modern inhabitants must attain some water by catchments and cisterns. Aboriginal peoples might have suffered from lack of water at times.

Although the Virgin Islands are essentially peaks or at least high hills surrounded by smaller segments of coastal plain, Puerto Rico does have extensive coastal plains. The northern coast, although quite broad, does not exceed the southern coastal plain's width very much; it is simply longer rather than broader. Inland from these coastal plains there is a relatively high, dissected plateau area with general elevations of between 1000 and 2000 feet. This tripartite breakdown of Puerto Rico into coastal plain, plateau, and mountains is reflected in the culture history of the different kinds of aboriginal populations.

If we may believe the reports of early European visitors, these islands must have been well-covered with dense tropical forest. In view of the relatively slight amount of rainfall in the Virgin Islands, it is probable that the vegetative coverage was not nearly so lush and luxuriant as that in Puerto Rico. The latter island had a great variety of plants in precontact times and, though certain shrubs and trees are not too common today, they probably were quite common in the past. Important were palm, cedar, ebony, calabash, white wood, lance wood, box wood, and log wood. The most important nonfood plant to the aboriginal economy was the bamboo.

In both Puerto Rico and the Virgin Islands the present-day vegetative cover probably does not represent even a small percentage of the native plants that were most common in aboriginal times. In the Virgin Islands particularly probably every growth of any size at all has long since been cut off for the manufacture of charcoal. This has been true in part in Puerto Rico but because of its much more heavy cover it has not been completely denuded in the 400 years that Europeans have been on the island. Actually, for even Puerto Rico, there has been such change that we can only conjecture as to the nature of the original cover. We probably can be certain that there has always been mangrove in the protected areas and extending into the estuaries as far as the water is fairly salty, but this whole area surely had attained its vegetative climax by the time of the entrance of the European.

Land animals were not of great importance to prehistoric inhabitants of these islands, particularly mammals. In fact, there were no significant mammals in the prehistory of these islands, although bats were numerous. Sea mammals undoubtedly were important, particularly the manatee, although the porpoise and dolphin may have entered into this picture to some degree. It may be that bird life was of some importance to the economy of these early peoples yet the avifauna of these islands is not remarkable. They do lie in a major north-south flyway for certain birds, but this could not have been of dependable importance to the aborigines. Nonetheless, there are some shore birds that are permanent residents of the islands and they may have been hunted. On the other hand, it is the invertebrate marine life that is of

coastal plain lies in a rain shadow. Nevertheless, the southern coastal plain is generally drier than the northern coastal plain.

The average daily temperature range for the coastal areas of Puerto Rico and the Virgin Islands is about 20 degrees Fahrenheit. In the mountainous interior of Puerto Rico the range may be as great as 30 degrees daily. The mean daily range, however, is only about five degrees Fahrenheit, which is actually about the difference in average temperature between the warmest and coldest month during the year. Hence, seasonal change is not as important in Puerto Rico and the Virgin Islands as is simply ascending a mountain side. Despite this fact though, the lowest temperatures ever recorded on the coast are below 60°F., and in the interior they fall not too infrequently below 50°F. It is highly improbable that freezing has occurred in these islands in the past several thousand years.

Temperature and rainfall records have been maintained in Puerto Rico for a number of years now that indicate that the average annual rainfall varies between a maximum of 136 inches and a minimum of 27 inches. For the island taken as a whole, approximately 70 inches of rainfall per year is averaged. Thus, there are portions of the island that have rainfall of tropical rainforest intensity and portions of the southern coast that have less than 20 inches per year and are semiarid.

Compared to this, the Virgin Islands have about 45 to 50 inches of rainfall per year. This might seem to be a considerable amount of rain were it not for the fact that the average annual temperature were so high. For Puerto Rico the average maximum temperature throughout the year is 95° F., which is about the same (one or two degrees less, perhaps) in the Virgin Islands. This means that the evaporation rate is rather high and thus the amount of rainfall is not really overabundant for adequate agricultural needs in modern times.

The general situation in Puerto Rico thus would be far more conducive to the evolution of primitive culture than the smaller Virgin Islands. Certainly the climatic situation was such that once agricultural techniques were

introduced from the mainland of South America, they could flourish very well and, in fact, the attainment of a more or less secure living eventually led to the acceptance of more advanced ideas that probably were derived from the Middle American mainland area.

Prehistory

There has been a great deal of archeology done in Puerto Rico when this island is compared with almost any of the other West Indies. Of course, Cuba has about twelve times greater area, and Haiti has at least nine times as much, yet there probably is a better understanding had at the present time of Puerto Rican prehistory than of the other two islands. One explanation for this is the fact that Puerto Rico has been an island possession of the United States for a number of years and thus has attracted American archeologists in greater number. Nonetheless, the first work that was reasonably systematic in its approach was that of Fewkes (1907). It might be expected that work done at that early time had certain shortcomings and it was thus not until the launching of the Yale University Anthropological program in 1934 that extensive work was undertaken. Froelich Rainey (1940) was one of the first archeologists to undertake work under this aegis. He was followed by Irving Rouse who has continued to be the most active worker in Antillean archeology and is the recognized authority today. Most of the following material of the prehistory of Puerto Rico is an attempt to condense and to paraphrase some of his writings. More recently, Ricardo Alegría has been identified with Puerto Rican research.

Meanwhile, in the Virgin Islands, there had been some work by Hatt, a Danish archeologist (Hatt 1924) whose work was not added to until recent years when Ripley Bullen and Fred Sleight did some work for the National Park Service in St. Thomas and St. John. In St. Croix, Gary Vescelius has done the most recent work. In a 1951 survey, Vescelius located 60 sites, but the report of findings has not been published.

Although there have been numerous other workers in the field, these names are the important ones and they do indicate how well has been the coverage of the archeological material

in these islands.

In a number of publications Rouse has formulated the Caribbean archeological history into a series of four periods (Rouse 1948; Rouse and Cruxent 1963; Cruxent and Rouse 1958). These may be rapidly summarized more or less as follows (see accompanying chart):

Period I is the time of the first entrance of man into the Caribbean area and no island of the West Indian chain, large or small, has thus far revealed the presence of people of this time. On the South American coast this period is characterized by nonagricultural, hunting and gathering folk who depended almost exclusively upon the resources of the seashore. Inland dwellings were dependent upon gathering.

It is in Period II that the migration of people brought representatives to the Great Antilles. The probability is now strongly supported that this movement into the Antilles was entirely from a South American source. However, the first peoples arriving in the Greater Antilles did not filter through the Lesser Antilles to reach this goal. It seems much more probable that the smaller islands may have been by-passed and bigger islands, such as Jamaica, Puerto Rico, and Cuba occupied first. These early people were still dependent mostly on the sea and brought no agricultural practices with them nor are they distinguished by the manufacture of pottery. As may be seen in the accompanying chart, there are sites representative of Period II in both Puerto Rico and the Virgin Islands. Although agriculture was developed during Period I in the mainland area of Venezuela, it did not penetrate into the Greater Antilles until the last part of Period II. This change to a food-producing economy brought about two major differences in this period as can be seen when the latter part is compared to the first. There certainly is a dispersion of these peoples with a greater penetration to the interior and, secondly, there probably is an increase in population with greater sedentary existence. Of course, the outstanding change which is archeologically discernible is the introduction of pottery in the latter part of Period II.

The hallmark of the earliest pottery brought into Puerto Rico is a style which includes a number of types that

VARIOUS DESIGNATIONS OF CULTURAL DIVISIONS					SITES	
STEWARD	LOVÉN	ROUSE		DATES	PUERTO RICO	VIRGINS
CIRCUM-CARIBBEAN	TAINO	ESPERANZA-CAPÁ	IV	A.D.1200 (1210-1270)	LOS INDIOS CAPÁ ESPERANZA LLANOS TUNA CAYITO	LATE MAGENS BAY LATE SALT RIVER BOTANY BAY
TROPICAL FOREST	IGNERI	OSTIONES-SANTA ELENA	IIIB	A.D.600 (710-1050)	SANTA ELENA COLLORES OSTIONES LATE MONTSERRATE LATE CAÑAS	EARLY MAGENS BAY EARLY SALT RIVER TURTLE POINT
		CUEVAS	IIIA	A.D.400 (510-590))	EARLY MONTSERRATE EARLY CAÑAS CUEVAS LAS CUCHARAS	CRUZ BAY LONGFORD LATE CORAL BAY
		HACIENDA GRANDE	IIB	A.D.100 (120-370)	HACIENDA GRANDE	EARLY CORAL BAY
MARGINAL	CIBONEY	MARIA LA CRUZ	IIA	A.D. 1 (30-40)	CUEVA MARIA LA CRUZ COROSO	KRUM BAY

In these cultural comparisons, the dates are tentative but those in parentheses are recent radiocarbon dates (Rouse,Alegría, and Stuiver n.d.)

are white paint on a red background. This white-on-red may be traced to its ancestral home in northern Venezuela and probably indicates the movement of new peoples rather than the simple diffusion of new traits. However, there is little basis for believing that some of the white-on-red pottery was actually manufactured in Venezuela and imported into Puerto Rico. During this late Period II times virtually all of the Lesser Antilles, as well as the Greater Antilles, were occupied by successive migrations from the south, but the movement was probably quite slow.

The material which is called Period IIa or Maria la Cruz would properly be called Archaic and it is appropriate to recall that there in Puerto Rico, as in the interior of North America, out of the Archaic background agriculture began.

One of the remarkable, though understandable, features of Puerto Rican prehistory is that the first pottery introduced was very well made and most artistically decorated. In fact, when compared with later styles, the pottery of this period is perhaps among the finest made in the entire Caribbean area. The pottery of this phase may be said to be highlighted by this white-on-red painting, but in addition, there were graceful, large, shallow bowls with very broadlined incising. Some of this incising even appears to be a deep groove impressed in the pottery so that it protrudes a bit on the opposite side of the vessel. Also associated with this is very fine-lined, cross-hatch engraving which certainly extends throughout the West Indies as a marker for early pottery.

This particular kind of pottery association was the basis on which developed several later styles, and, late in Period III, there was a great deal of somewhat localized variation developed. The most favorite spot for settlement continued to be along the seashore and there is every reason for believing that a relatively simple life was led by these peoples. There really is not much to suggest that there is any kind of cultural efflorescence or a sudden spurt in material wealth for there are not many artifacts to be seen on these sites. There are still a few stone adzes and plain, ungrooved celts, but nothing much beyond that which might be construed as elaborate stone or shell work. Actually, it is

perhaps best to look upon Period IIIb as a transitional stage in which these localized developments gained their full form by the close of the period.

In the latter part of Period III there is a new phase characterized by a rather marked degree of simplification in the pottery, that is, the white-on-red pottery disappears completely, but a number of adornos or lugs, often with human or animal heads being modeled onto the rim of the vessel, make their appearance.

There is also a change in the distribution of these Puerto Rican peoples in the latter part of Period III and a great many of the earlier-type manifestations appear inland now with their principal villages located along the larger streams. Even though they were not navigable, they were a source of fresh water and agricultural practices could be carried on to a better degree in the foothills of the interior than near the seacoast.

A characteristic feature of the later Caribbean archeological phases is the zemi which is a representation, presumably, of spirits or deities. These are often poorly made figurines, of stone and sometimes of pottery or clay, but there is a somewhat recognizable resemblance about them despite their crudity of manufacture. It is quite probable that these objects have some relation to an awakening ceremonial life or to the introduction of an enrichment to this life. Also appearing for the first time during this latter part of period III are structures called ball courts which are areas, plaza-like, marked off by an outline of stone slabs generally standing on edge. These areas, similar to Middle American prototypes, are considered to be dedicated to ceremonial activities. Whether they are solely found in village areas or whether they are somewhat isolated in occurrence is not completely known. However, it is in the later Period IV that we find the greatest development of the ball courts. Period IV culture culminated in the population known as the Taino which was the Arawak manifestation present in Puerto Rico when Columbus visited the West Indies for the first time.

There is a strong suggestion, of course, that the ball court and perhaps some of the other more complex traits were

derived from Mesoamerica. The pottery seems a little bit on the flamboyant side with heads and applied ornaments decorating rims, although the pottery that distinguishes the earlier period was far superior in workmanship. Another outstanding characteristic of the pottery of this late period was the profusion of incised designs. This was not a revival of the broad-lined incising but rather deep narrow incising.

There are also a number of new artifacts that make their appearance in this latter phase, such as the stone celts. These have now lost their somewhat rectangular thin shape and have become more tear-drop shape with a thickening of the middle portion. Another outstanding trait of this period is the appearance of a great many shell artifacts. Adzes are typically manufactured from large pieces of conch. Shell artifacts and fragments are in some sites so numerous as to give the site a somewhat whitish appearance.

Throughout the entire Caribbean area, a common evidence of prehistoric man is the presence of petroglyphs. Petroglyphs in Puerto Rico are equated in time with the last two periods, probably making their appearance in the later part of Period III and becoming most commonly associated with Period IV cultures. In fact, one of the more significant occurrences of the petroglyph in Puerto Rico is as an inscribed figure on some of the upright slabs used to demarcate ball courts. Petroglyphs are also reported from the Virgin Islands, and it is not surprising that they have been discovered throughout all of the Lesser Antilles and much of the mainland of South America (Fig. 57).

The Early Cultures

Presently there is no suggestion that Period I man ever entered the Greater Antilles. Here, too, it should not be a surprise if evidences of this age eventually made their appearance. But in view of the dates for the earliest big-game hunting manifestations of the neighboring mainland it is quite probable that it took a long time for the cultural equipment to be enough for man to be a venturesome seagoing native. Thus, the earliest things found in Puerto Rico and in the Virgin Islands belong temporally in the first half of what Rouse (1952) has called Period II. This still is a somewhat meagre cultural representation and does not imply

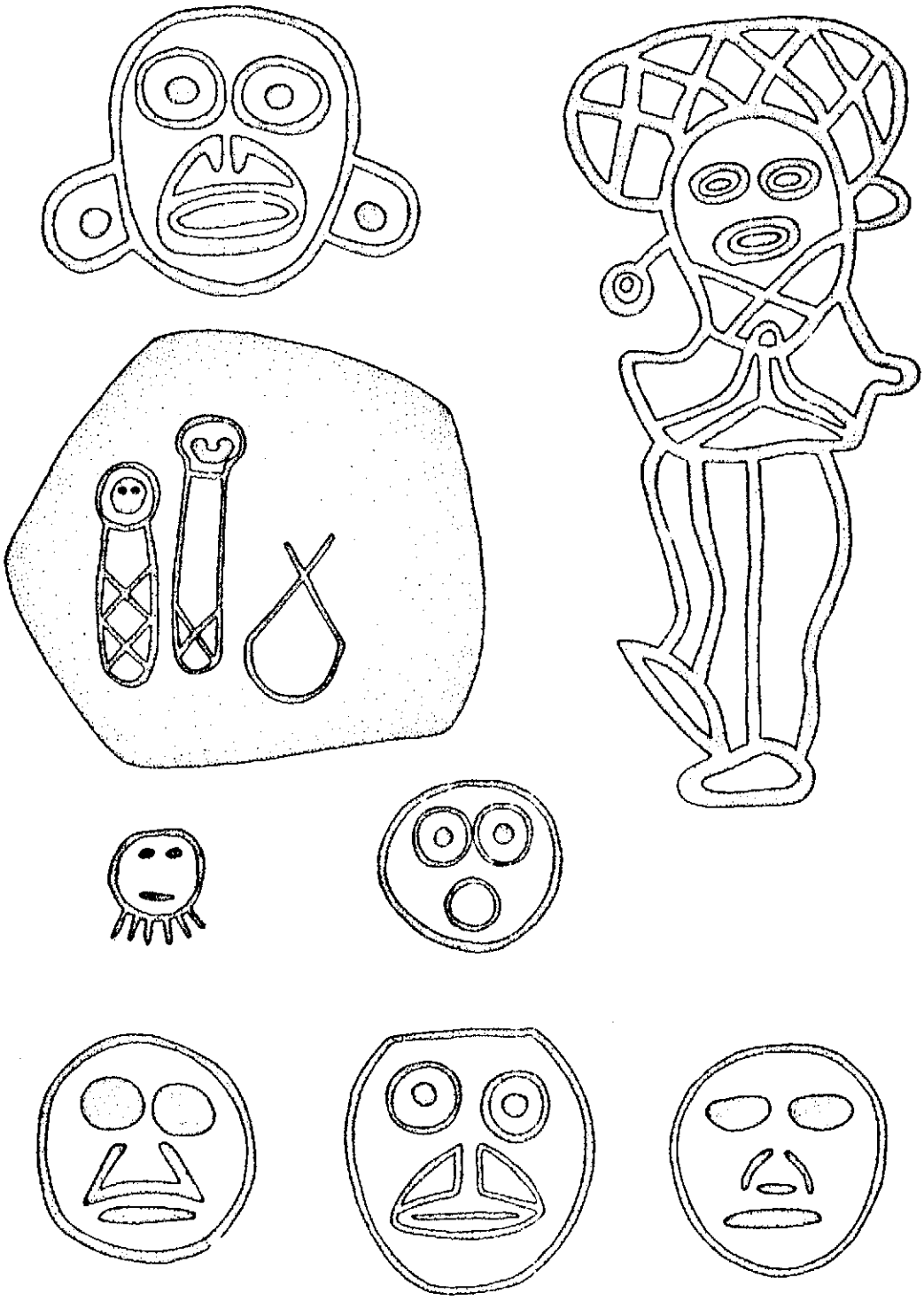


Figure 57. Petroglyphs from several sites in Puerto Rico. The two upper and the lower left figures after Frassetto, Petroglyphs in Puerto Rico; remainder from Rouse, Porto Rican Prehistory.

a widespread, large population occupying the islands. On the contrary, there are only a few sites that are clearly in the provenience of this Period II beginnings. As indicated above in the description of Period II, this lower part or beginnings, Period IIa, is entirely preceramic. Period IIa is properly designated Puerto Rican Archaic (Alegría and others 1955) and it bears considerable resemblance, despite the very meagre inventory of artifacts found, to other archeological occurrences in the islands of Cuba and Hispaniola.

Until very recently, the only material known from Puerto Rico that possibly looked as though it may belong in the Archaic or Ciboney tradition was a few very small shell heaps that Rouse had discovered near Coroso on the west coast of Puerto Rico (Rouse 1952:379). Rouse actually obtained so little material from them that he only tentatively placed this manifestation in the preceramic category. The stone artifacts described from these sites appear to have been implements that may have served to break open conchs. Several had battered edges and one of the objects was a rather battered pebble hammerstone. There is very little beyond these few rather nondescript artifacts to justify labeling this a culture or style.

Recently, there has been found additional materials not identical with Rouse's Coroso phase but still in the same general vein of cultural development. This has been designated the Maria la Cruz phase. It represents an addition of some new items to this Archaic or Ciboney category (Alegría, Nicholson, and Willey 1955:114). Again, the stone artifacts are hammerstones or battered choppers. The latter seem to represent somewhat unique artifacts in that the primary scraping or rubbing done is with their narrow edge. This material not only expands the list of items that have now been found (it includes two burials to date) but it enables a comparison with the material found by Hatt on St. Thomas, at Krum Bay (Hatt 1924). At least a portion of the material from Krum Bay is pecked and ground stones (unlike those from Puerto Rico) but a few other faint similarities suggest that the same time level is involved.

To call this material Archaic is certainly not to imply that it is in any way similar to Archaic materials from the eastern United States. It is far more like some of the ruder

Desert Culture material from the western United States. Nevertheless, what puts it in the Archaic category is the absence of any evidence of agricultural pursuits as well as the absence of any pottery manufacture.

The second part of Period II is marked by the introduction of pottery. It is also referred to as the time of the introduction of the Igneri (Lovén 1935), a migration of new peoples into the Puerto Rican and Virgin Island area. This took place approximately at or shortly after the beginning of the Christian Era and follows by several centuries the actual introduction of this new cultural type in the mainland area of South America. The presence of some of the earliest aspects of pottery in the whole Caribbean area in Puerto Rico has been demonstrated recently by Alegría and his associates (Rouse and Cruxent 1963). Its presence had been suspected and later forms of early pottery had already been identified in Puerto Rico by Rouse. This pottery corresponds to the style referred to as Saladoid elsewhere in the Caribbean. It is primarily characterized by the presence of broad-lined incising, fine-lined crosshatching in zones and modeled incised adornos. These decorations are often on the lips of flared rimmed pots. Lugs on the rims of vessels are modeled into ears, animal shapes, handles, etc. Perhaps outstanding in this category are various curvilinear designs of white paint on a red background, often very well executed with fine, sharp lines (in some instances actually outlined in a buff paint). It certainly cannot be considered of widespread occurrence in Puerto Rico but it does represent the initial appearance of Arawak peoples bearing this kind of pottery plus agricultural pursuits.

Now there is some evidence that the earliest Arawak invasion left its impression on the islands of the whole chain of the Lesser Antilles. It is known from the Virgin Islands, from Guadaloupe, and several smaller islands.

Transitional Cultures

Out of this IIb period there slowly evolved a new pottery style which has been given the name Cuevas that has a very widespread occurrence in Puerto Rico. This particular kind of pottery is characterized by very well manufactured pottery as compared to later types, but it does not possess the

profusion of designs that are the distinguishing feature of the earlier occurrences. White-on-red pottery with the addition of black paint is commonplace. Quite a number of sites represent the occurrence of this style, and some of them have been dug by several different archeologists over the years. In Puerto Rico, one of the first sites was at Cañas, excavated by Rainey in 1934. Later, Rouse excavated at the type site of Cuevas, and subsequently, a number of sites have been identified with this particular style in Puerto Rico. The Cuevas phase is represented in the Virgin Islands by several of the sites excavated by Hatt, that is, at Coral and Cruz bays in St. John and at Longford in St. Croix. Fortunately, these sites have been restudied recently as mentioned above by Bullen and his report will probably further clarify the relationships between the Virgin Islands and Puerto Rico.

The Cuevas style appears to have gradually deteriorated in both quality of manufacture and decorative techniques and culminated in a subsequent phase called the Ostiones. There are quite a number of sites that represent this manifestation in Puerto Rico. These sites may be related on the basis of the red-painted bowl that is, in the later stages of Ostiones, gradually replaced by the introduction of incising, both inside the lip of the vessels as well as on the outer slope or bevel of the rim. These lines of incising often end in curlicues with a dot, although there are several treatments of the incising. New vessel shapes and different tempers are also innovations. In the earlier stages of Ostiones, there are examples of painted pottery but by the close of the period only a variety of red-slipped bowl is still present.

A pottery mode that disappeared almost completely from Puerto Rico at the end of the Hacienda Grande phase was broad-lined incising and the reappearance of it in this late Ostiones phase would indicate that there were continuing contacts with outlying portions of the Caribbean, presumably with the Lesser Antilles. As is inevitably true areas of marginal occupation frequently become isolated from the main centers of cultural diffusion and often maintain older forms for much greater periods of time than do the actively evolving centers, hence the reintroduction of broad-lined incising is interpreted as a Puerto Rican renewal of some contacts with the outlying areas.

It must also be recognized that the Ostiones is a period characteristic of local variation as Rouse has mentioned on several occasions. Thus in the eastern portion of Puerto Rico there is a development of a newer pottery style or at least a different pottery style whereas the Ostiones continues to the end of this Period III almost without any distinguishable changes in the western part. The eastern style Rouse originally called Santa Elena and he recognized that the Santa Elena differed from the Ostiones in more marked deterioration of both pottery manufacture and decoration. The sherds are almost invariably poorer in firing and result in much softer finished products than was characteristic of Ostiones. It is actually this portion of the Period III that is best represented in the Virgin Islands where the bulk of the pottery which was recovered at Magens Bay and at Salt River sites resembles the Santa Elena material. In Puerto Rico itself, the Santa Elena site best represents this kind of remains although there are other sites as indicated in the accompanying chart.

Late Cultures

In the horizon called Period IV by Rouse there would appear to be the introduction of new material of a much more impressive sort than distinguishes some of the earlier periods. It is almost certain that there was an introduction of new pottery types from the Dominican Republic and perhaps from Haiti. In general these Period IV pottery types continue the trend in pottery deterioration insofar as manufacture is concerned. Certainly the poorest pottery of the entire Puerto Rican prehistory is to be found in this Period IV. However, there are other more spectacular things suggested above that have been introduced at this time, namely the ball courts and perhaps more advanced agriculture. Whether this included maize or not is still unestablished but in all probability it did enter along with the ball court from the west.

The Esperanza pottery style is best represented at the type site on Vieques Island (Fig. 56). Now strap handles are no longer to be found on pots and lugs are the only protrusions of the rims, except heads as below. Such painted decorations as occur usually are an over-all treatment in red or the confinement of a red band about the lip or the

neck of the vessel. Incising is far cruder than any of the preceding periods and the appliqued objects are again not very well made. Perhaps the most commonplace figure on the rim is a bat head.

In western Puerto Rico the contemporary style is called Capá. Capá is a style characterized by the same features of very poorly-made pottery but a more elaborate decoration. Rouse found one of the outstanding characteristics of the Capá style to be the everted rim (Rouse 1952:351).

As indicated above, throughout the entire evolutionary sequence from early Cuevas styles on to Period IV there is very little addition to the stone artifactual material. Yet there is, perhaps, a somewhat greater concentration on the use of shell in the Esperanza and Capá styles. Nonetheless, the peoples in the interior sites used far less shell than those along the coast as might be readily expected.

The ball courts which are identified with this period are often identified on the basis of the pottery if nothing else, yet they often have petroglyphs associated with them. The suggestion of rather large-scale construction indicates a concern with other than just agricultural pursuits. There are several sites in Puerto Rico that have ball courts associated with them. Perhaps the largest of these sites is located at Llanos Tuna. Although the ball court at Callejones is reported to have had several of the demarcating stones inscribed with some kind of figure, these presumably had all been carried away before Rouse had an opportunity to study them.

Period IV material, particularly that from the eastern end of Puerto Rico -- the Esperanza style, is comparable to the latter material at the Magens Bay-Salt River sites in the Virgin Islands. It is again conceivable that the Virgin Islands constitute a culturally retarded area as compared to the mainland of Puerto Rico. However, there is some highly doubtful evidence that the ball court arrived in the Virgin Islands, if the line of stones, one with an incised figure at Salt River, St. Croix, may be taken as evidence of a court (Hatt 1924:Fig. 12).

It is into this kind of cultural setting that the

European moved upon arrival in the New World. The ethnographic term Taino has been associated with this Period IV cultural manifestation, but it is to be view as a time of cultural change and stimulus rather than a time of new migrations. The Taino are still Arawak. It seems clearly indicated that, despite Carib raiding into Puerto Rico by 1490 or so, there is nothing to suggest that any permanent establishments had reached the Puerto Rico mainland. For the Virgin Islands we have some debated historical evidence for Carib settlement. Although not permanent residents, Caribs controlled the Vieques Island, east of the Puerto Rican mainland and were raiding Puerto Rico to such a degree that the Arawak Indians appealed to Columbus for help. There certainly is evidence that there were Taino (Arawak) captives of the Caribs in some of the Lesser Antilles at the time of the arrival of Columbus. Thus we would conclude that no part of the prehistory of Puerto Rico is to be identified with the Carib.

Summary

The prehistory of Puerto Rico and the Virgin Islands is fairly closely related, although there are regional variations of rather distinguishable sorts, particularly after the occupation of these islands for some considerable time. The first occupation probably began about the beinning of the Christian Era and, after a few centuries of more-or-less uniform cultural growth, there began somewhat localized developments. From about A.D. 400 on it may be seen that the cultural manifestations are not entirely the same throughout the islands. Eastern Puerto Rico and the Virgin Islands are, of course, much more alike in their cultural evolution than either the eastern end or the Virgin Islands is like the western portion of Puerto Rico.

Whereas the earliest manifestations are almost entirely confined to the coastal regions, the later sites are well distributed throughout the whole geographic range, namely, coast, plateau, and interior.

Another feature of the prehistory of this area is that there seems to have been maintained, if not real close, some at least regular contacts with the surrounding areas, thus during the period of local variations there would seem to

be ideas, if not actual artifacts, introduced from the Lesser Antilles and subsequently from the Central American mainland. Despite this introduction of new ideas, in so far as pottery styles are concerned, there certainly is a history of gradual deterioration from the time of the introduction of pottery to the advant of the Europeans in the late fifteenth century. It is a debatable subject, but one very lucidly ventilated by Rouse, as to whether the Carib invasions contributed to this late decline of culture in Puerto Rico. It certainly must be considered one of the major factors.

SUMMARY OF THEMES II AND III

The American World

A far greater understanding and appreciation of what transpired in the American prehistoric period may be had if one is acquainted with the geographical variety present in the United States today, as well as the vicissitudes through which the area has gone in the past. Although we eschew any label of geographic determinism, it is an inevitable fact that everywhere in the world, man adjusts to the best of his cultural ability to a variety of environmental settings. What is an even more compelling fact is that there are situations in which a lower cultural status has greater survival value than some more advanced techniques. This is actually what accounts for the persistence of the Desert Culture into historic times in the western United States, and it also explains the return to hunting economies by people who tried farming for a while without realizing as much security or success as they had under the collecting habit.

It is often enticing to conceive of the prehistory of man as neatly separated into stages that are demarcated by rather abrupt cultural changes, but nothing could be further removed from what actually transpired. It is not likely that peoples at any time are aware that they are moving into new cultural stages or that their culture is differentiating so rapidly that it will eventually be looked upon as a revolutionary change. The prehistoric inhabitants of the United States were no exception to this situation and the changes which took place through the several tens of thousands of years that man has been here were changes that were infinitesimally small and whose increments would probably go unnoticed at the time.

At the time of the introduction of farming in the United States, everywhere man was in some stage of a collecting or hunting economy. Although we can make generalizations and detect similarities among cultures, there still was great diversity. We have seen that on the Pacific coast and in the interior of the Basin and Range country as well as on the

eastern coast of the United States there were all kinds of cultural manifestations that fall in this economic category. Thus, when farming was introduced, it was at the expense of an established order, and not, probably, as some great emancipation from the drudgery of hunting and collecting. It has been said that agriculture surely must have gained a foothold during times of crisis, when the actual subsistence system was threatened by climatic change, and thus, agriculture was not an enticing new thing, but rather, a move of desperation and hunger.

Although it may be profitable to some to debate the locus of origin of agriculture in the New World, it is not of much consequence in so far as the final result. Sufficient it is to say, that the adoption of agriculture did transform culture in the New World. Of one fact we may be quite certain, namely, that agriculture was not invented in the area now the United States. However, it is easily possible that there were certain local plants extensively used, such as sunflower seed in the eastern United States, long before maize was introduced. In fact, it is important to bear in mind that the transition from dependence upon gathering wild foods to dependence upon domesticated foods was a tremendously long, drawn-out affair and neither dramatic and revolutionary nor rationally conceived by men.

The transition from some kind of collecting to farming was by no means a uniform process wherever it was introduced. Here the geographic factor is ever apparent. In some localities the situation was such that the transition to agriculture was ameliorated and encouraged by the soil and and climatic conditions. In other instances, particularly in the Southwest, the rigors of the local climate had to be overcome by extreme adjustments, such as irrigation, for the maintenance of any kind of reasonably dependable agriculture. Thus it may be seen that the climatic factors are not deterministic of the form of the minor early adjustment, but they are deterministic in the requirement of some kind of adjustment. What transpired in the United States parallels what has unfolded in other parts of the world where agriculture developed. The peoples did not immediately seek out lands which were most ideally suited to agriculture by modern standards, but rather attempted to adjust their living to whatever the immediate environment might offer. In the

southwestern Asiatic area, agriculture was undoubtedly introduced in hill land and only subsequently moved into the Mesopotamian lowlands.

Although it might be argued that the American Indian did not thoroughly exploit the possibilities of agricultural economy in pre-European times, it is an established fact that the production of maize by American Indians in the eastern part of the United States was not exceeded by modern farmers until the latter part of the nineteenth century. It is certain that the American Indian did utilize agriculture to the fullest of his cultural ability. In a few areas it may be thought of as having reached a climax, particularly in the desert of the Southwest, where advanced irrigational techniques were introduced. It must be realized that this stands in contrast to the situation in the far-more-favorable humid east, where agriculture did make tremendous strides, but never successfully displaced hunting and gathering as major subsistence activities.

The Great Innovations

It has been discerned now that there were a number of new things brought into the prehistory of the United States that aided the transformation of the culture from a collecting economy to that oriented toward agriculture. From the archeologist's standpoint the most tangible, as well as spectacular, of these introduced items was pottery. Pottery lends itself to the polemic of independent origin versus diffusion. It would seem from our present evidence that pottery did diffuse, at least in part, from an Asiatic source into northern North America, and, subsequently, into eastern United States and the Plains area, and yet, a large portion of the pottery complement of this period of prehistory came from southern sources. In a few instances we seem to have some rather clear-cut evidence also that pottery was manufactured as a result of the introduction of the idea, only subsequently being followed by more concrete evidence as to how to make pottery properly.

Whereas we formerly thought that pottery and agriculture were virtually inseparable innovations, it is quite obvious that agriculture was introduced nearly two thousand years earlier than pottery in the southwestern part of the United

States where the evidence is very clear-cut, and certainly more than a thousand years separate the introduction of the two in the eastern United States. Beyond the separation of pottery into the two traditions suggested above, it is difficult to make further generalizations. The northern tradition pottery type is generally granular tempered, whereas the southern material is most often crushed shell tempered.

Throughout Archaic manifestations found in the United States, one encounters a great variety of means of disposal of the dead. In many instances there is no discernible method of disposal of the dead. In other words, not enough skeletal material has been found to suggest a manner of disposal of the dead. In some of the earliest eastern Archaic sites it would appear a great deal of attention was given to proper placement of burials, generally within the midden itself. However, there is no gradual development of a burial cult or a concern with construction of tombs as manifest by the later Adena and Hopewell cultures of the eastern United States; there appears a rather sudden, dramatic change with a fully developed tradition of such burial practices. We can see that the elaborate preparation in tombs and in mounds represents only a select few people from the population, and that this is not carried over in a diluted form to the rest of the population. Also, with the introduction of Mississippian culture in the eastern United States , there is still -- if our historical accounts may be taken as the source -- a concern with the elaborate preparation of the dead. The disposal of the mass of the population was in some manner as yet unknown.

Despite the proximity of Mexico and the chance of aborigines learning something of the death cults and other preoccupations with the dead, the southwestern part of the United States is notably free of this concern in its prehistoric picture.

Perhaps one of the most interesting changes that has been traced for the area of the United States is that of architecture. At the historic contact time there were many different kinds of shelters and other buildings in use. All of these may be grouped rather handily. Some are undoubtedly derivatives of the ancient Northern Hemisphere pit house. Others are perhaps modifications of this house in its

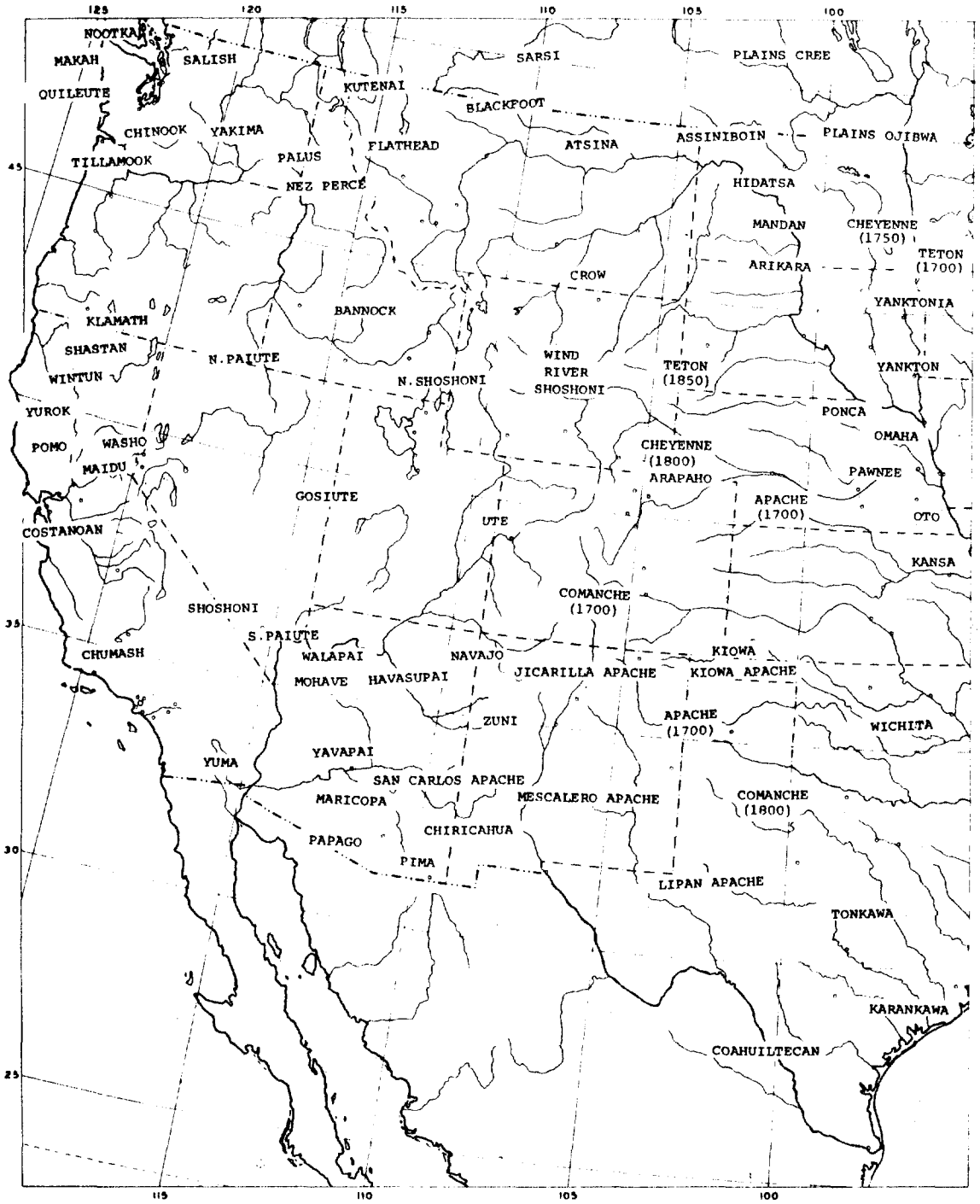


Figure 58A. Distribution of ethnographic survivors in the Far West, Southwest, and Plains. In some instances, dates in parentheses indicate the movement of the tribes during the Historic contact period.

Figure 58B. Distribution of ethnographic survivors in the East.

surface reflection, that is, they were circular, relatively impermanent kinds of structures. Finally, rectangular houses appear in the East and Southwest that had some southern origin. In the extreme southeastern part of the United States the pile house with thatched roof is surely an introduction from South America, whereas the wattle-and-daub construction characteristic of Mississippi Culture in the South is probably of Mexican origin.

As a concomitant of the rapid changes in architectural styles, we may also detect certain sociopolitical implications from the arrangement of the houses and village areas. Perhaps our knowledge of the transformation of political structures is best recovered from archeological remains in the southwest. In the eastern part of the United States, of course, the introduction of the stockade suggests a whole sociological reorientation for many of the native people. We may conclude that tribal society in the area now the United States never quite completely gave way to a more advanced sociopolitical structure. Nowhere is there much evidence of the development of the true state with accompanying urban development other than the most incipient stage in the Southwest.

Certainly, one of the more spectacular changes that took place is the ultimate development of several cultivated plants in the area which still survive to this day. It is true that the cultigens that are economically important in the United States today are of Indian origin in the large part, yet virtually none of these was domesticated in the area now the United States. All of these were introduced from South America or Middle America. It is possible, as has been indicated earlier, that some varieties of beans might have been first domesticated in the United States, but this is not a very likely prospect.

The Contact Scene

The aboriginal world of the Western Hemisphere that was encountered by the first Europeans varied tremendously as the archeological account would indicate (Fig. 58). The Arawak and Caribs first met in the Caribbean area were living different lives from even their eastern Atlantic shore neighbors in the United States. The very fact of living on

islands in the Caribbean, however, did not greatly condition their cultural mode, for most of these peoples were carrying on a type of subsistence which had developed in the South American mainland.

In the coastal area of the eastern United States, Algonkian speaking peoples blanketed the shore all the way from New England to Cape Hatteras. South of the Cape Hatteras area the aboriginal peoples were undoubtedly in a certain stage of rapid movement and transition at about the time of the first historic contacts. Undoubtedly, Siouan speakers were being pushed off of the coastal region of Georgia and South Carolina and moving steadily inlandward. Perhaps the people responsible for this pinch were Muskogean speakers who, by the middle of the seventeenth century, had firmly established themselves in the area. There is no doubt but that the whole Great Lakes area and subsequently the Plains underwent tremendous change as the Indian tribes were displaced or were compressed somewhat against one another by the western expansion of the Americans. It must be remembered that three and one-half centuries transpired between the times of the discovery of the continents of the New World by Columbus and the final expression of any Indian resistance to white occupation in the west.

In the Southwest, of course, the historic contact there came early, but some elements of the Indian cultures managed to escape any acculturation from western civilization. By the same token, in the Far West the assimilation of Indian cultures went forward quite rapidly once the California coastal region had been taken over by the Spaniards and, subsequently , by Americans. It is on the note of obliteration that the prehistory of the United States draws to a close.

PART II

THE EVALUATION OF REPRESENTATIVE SITES

The preceding narrative of the prehistoric evolution of native cultures in the United States is based on concrete archeological evidence. Thousands of sites have been excavated in this great area, but certain sites are outstanding in their revelation of information. It is these sites that are looked upon as the sources, the wellsprings, from which we reconstruct the past. Some sites have been totally destroyed, but their revealed information lives on, to be used and reused by each new generation of scholarly archeologists. It is with the ever present danger of destruction in mind that some of the following sites are recommended as being worthy of preservation.

It is an unfortunate fact that much of our national heritage in archeological and historical sites is being destroyed by the advance of our technological growth. Though we may recognize the threat of destruction should not be a basis upon which a site's value is judged, such is inevitably the case. The principal criterion for including a site in the list of those of exceptional value is its contribution to illuminating certain aspects of Themes II and III.

Establishing the integrity of archeological sites of exceptional value is not a problem. Sites may sometimes be misconstrued as to temporal position but rarely would the cultural position be in doubt unless our evaluation was based on limited excavational data. In most of the following cases of sites of exceptional value, there has been enough excavation to enable a firm conclusion about content.

Part II is organized in the following manner: (1) sites of exceptional value are described in geographical order; (2) other important sites which were critically examined but rejected for one reason or another as not of exceptional value; (3) sites already on National Park Service administered lands that pertain to Themes II and III; and (4) sites that are worthy of notation as pertaining to the themes.

SITES OF EXCEPTIONAL VALUE

FAR WEST

Washington

Wakemap Mound, The Dalles

Location: On the north shore of the Dalles Reservoir, Klickitat County, Washington.

Owner: Corps of Engineers, U S. Army.

Significance

This village and midden of stratified deposits were excavated by the University of Washington under contract with the National Park Service from 1953-1958. This site has contributed an archeological sequence for the past 5,000 years. This was by far the richest fishing station in the Plateau within the historic period and was one of the largest Indian villages mentioned by Lewis and Clark in their journals. It was the major trading center along the Columbia River where the Indians of the Plateau met and traded with the coastal and tidewater Indians and thus contained a rich admixture of both cultures. Some of the finest art objects of the west have been collected from this site.

Reference: Cressman 1960.

California

Big and Little Petroglyph Canyons

Location: Renegade Canyon in China Lake Naval Ordinance Test Station, Inyo County, California.

Owner: China Lake Naval Ordnance Test Station, China Lake, California.

Significance

This section of the China Lake Naval Ordnance Test

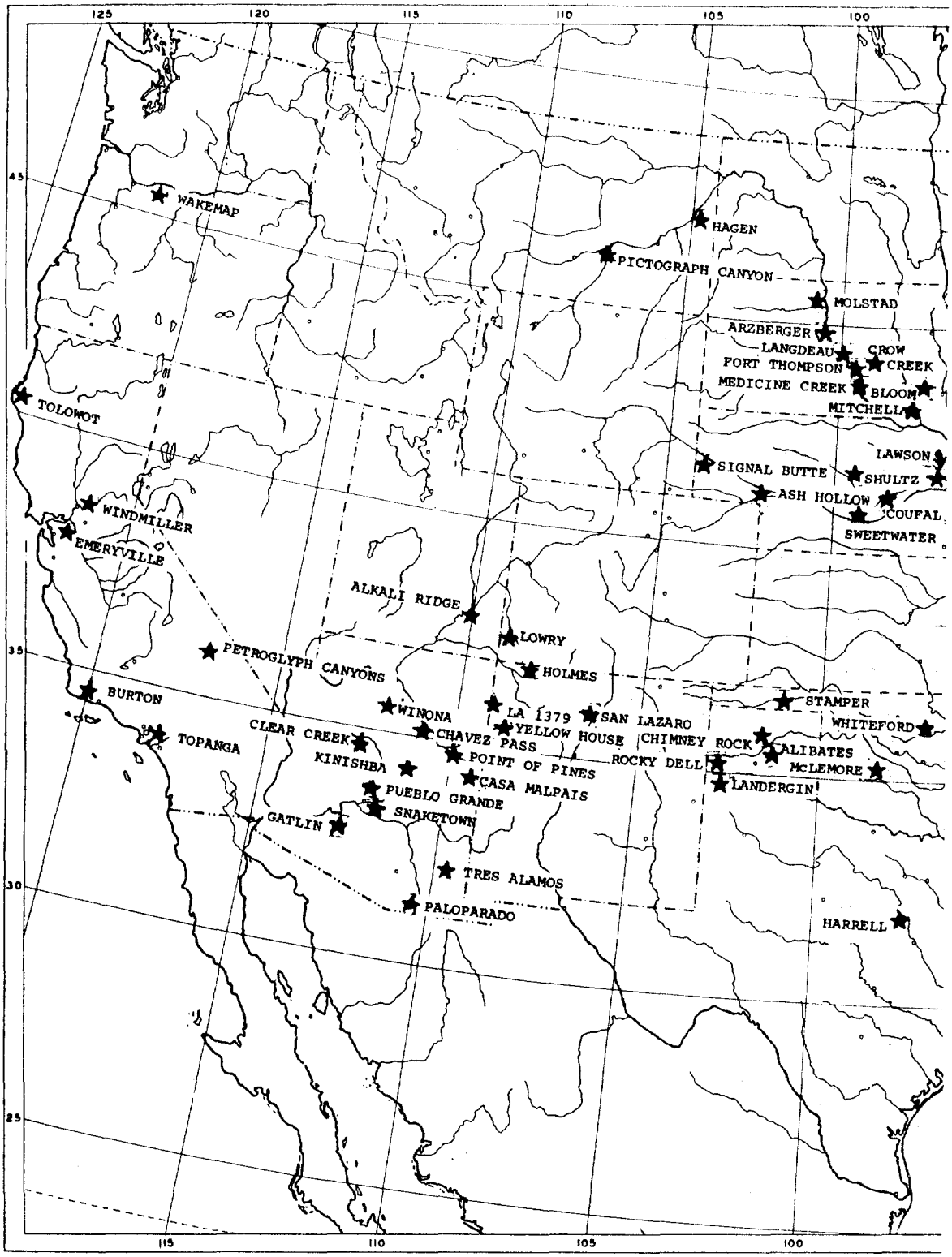


Figure 59A. Distribution of sites of exceptional value in the Far West, Southwest, and Plains.

Figure 59B. Distribution of sites of exceptional value in the East.

Station contains probably the most spectacular petroglyph area in the entire western United States. Twenty thousand plus petroglyphs of a most varied and most complex nature are located in these canyons. The method depicting the petroglyphs indicates that we have evidence here of a long time span, and at least two cultural phases represented. These factors are indicated by the range in weathering, by the fact that some symbols overlap others, and by the depiction of atlatls as well as bows and arrows.

Lying deep within the Coso Range, these petroglyphs are absolutely fantastic in quantity and are in an excellent state of preservation. An amazingly varied array of geometric and naturalistic petroglyphs appear on the walls of these canyons, which have cut down into the basalt lava flows. Included among the zoomorphic forms are mountain lions, deer and mountain sheep. Anthropomorphic forms include men hunting with bows and arrows, and a long row of burdened figures. Some of these figures are shown with dance costumes and paraphernalia. There are also life-sized mountain sheep and tall conventionalized human figures.

Burton Mound

Location: In a residential circle between Natoma Avenue and Mason Street, City of Santa Barbara, Santa Barbara, California.

Owner: Residential apartment house.

Significance

The Burton Mound (SBA-28) is the type locality of D. B. Rogers' Oak Grove Culture and the first recognition of more than one culture in the Far West.

Reference: Rogers 1929.

Emeryville Shellmound

Location: Alameda County, North bank of Temescal Creek at entrance to San Francisco Bay.

Owner: C. K. Williams Co., 4650 Shellmound Avenue, Emeryville, California.

Significance

The Emeryville shellmound was probably one of the

largest of such sites on the Pacific Coast of California. Since it was largely intact as late as 1907, it offered good possibilities of investigation, and these were carried out carefully, for the time. by Dr. Uhle, one of the best known contemporary archeologists. Even when the site was finally destroyed in 1924, Schenck (1926) was on the spot, and recovered a great deal of valuable supplementary data which could be used later in placing the site in its cultural and temporal contexts in the Central California coastal region.

The site is the type site for the Emeryville Facies, thus is the prime representative of Phase I of the Late Horizon in the Alameda province of the Central California archeological region. It also illustrates the earlier facies of the Middle Horizon in the region. Thus it shows a long span of occupation dating from the time of the earliest known remains on San Francisco Bay to abandonment at some time before the coming of Europeans to San Francisco.

References: Uhle 1907; Schenck 1926.

Gunther Island Site 67 - Tolowot

Location: At northeast end of Gunther Island, Humboldt Bay, California - opposite town of Eureka.

Owner: Gunther Island in 1961 was being purchased by the city of Eureka for commercial uses. At that time the city owned 9/10 of the island. The city might build a bridge over north end over the site to connect up with village of Samoa. The site of the massacre is on the northeast end of the island - a shed is in the area. Only way to get to the island at the present time is by boat.

Significance

Tolowot (a Wiyot Indian name) is a tremendous shell mound 14 feet deep and 400 x 600 feet in diameter on private and city land. The site was excavated by the University of California and it proved to be of great depth and very rich. Zoomorphic clubs called "slave killers" by the collectors have been found here. The Wiyot village of Tolowot was located on top of the prehistoric site. It contained nine houses in 1850, and six houses in 1860 (at the time of the massacre). Eleven house pits were uncovered by Loud along with many burials and partial cremations. Ethidotl is another Wiyot Indian village located in the center of the island.

The importance of this site is that it typifies the late prehistoric period for this coastal region of the state. It is one of the few archeological sites professionally excavated for which published data are available.

References: Loud 1918; Bennyhoff 1950.

Topanga Canyon - The Tank Site

Location: Los Angeles, California.

Owner: In court litigation.

Significance

The Topanga culture of southern California is best represented by two sites, LAn-1 (Tank Site) and LAn-2, near Los Angeles. The former appears to be one of the oldest habitation sites in California and is believed by some archeologists to be as old as the Folsom complex and older than Cochise. Features at the Tank site which indicate an early age for the Topanga culture are: a highly indurated soil; crude, often heavily patinated core and percussion flaked implements; extended burials; and the great predominance of manos and milling stones over mortars and pestles. The Paleolithic-like choppers, scrapers, and hammerstones from the Topanga sites are most similar to those from reputedly ancient San Dieguito, La Jolla, and Mohave cultures of San Diego County, California. Recently three San Diego coastal sites, which appear to be typologically later than Topanga, were dated by radiocarbon assay at 7,000 years B.P. Although additional evidence supports a considerable antiquity for Topanga, absolute dates obtained directly from the LAn-1 and LAn-2 sites are needed to establish the chronological position of this early culture.

This excellently stratified site is in the basement complex for the entire southern California food gathering and milling complex.

References: Treganza and Malamud 1950: 129-170; Treganza and Bierman 1958: 45-86.

Windmiller Site

Location: NW1/4 of Sec. 15 of T6N/R6E MDB and M.

Owner: Windmiller family, Elk Grove, California.

Significance

The site is unique in that it remains the only site, which has been excavated and a report published, and which contains in strata all three known cultural horizons of central California. Therefore, it serves as the type site for the basic definition of the cultural sequence in prehistoric central California.

References: Lillard, Heizer, Fenenga 1939.

SOUTHWEST

Arizona

Winona

Location: Sections 11 and 14, T21N/R9E, Gila-Salt meridian, Coconino County, Arizona.

Owner: Coconino National Forest, U. S. Department of Agriculture.

Significance

This site has yielded considerable detail on cultural developments in the Flagstaff area that immediately followed the eruption of Sunset Crater in A.D. 1066. The story is complex, but demonstrates the coming together of three groups, the indigenous Sinagua who lived in the area prior to the eruption, the Hohokam who came north from the Verde Valley, and another group that brought in traits from the east after the eruption.

Between A.D. 1070 and 1130, which represents a little over two generations, the material remains indicate a tremendous change took place. Pit houses changed to surface masonry structures, ceramics developed along new lines, and crafts reflected new techniques and forms. New ideas injected into the area by immigrants from neighboring regions were responsible for the rapid change in the local culture, which gradually blended to form a new pattern of life that marked these people as distinct from others in the Southwest by A.D 1130.

This site was excavated by John C. McGregor of the Museum of Northern Arizona in 1936-1939, but its total extent is about 125 acres (Fig. 60).

Reference: McGregor 1941a; Reed 1939a.

Tres Alamos

Location: NE 1/4, Section 5, T16S/R20E, Gila-Salt meridian, Cochise County, Arizona.

Owner: Department of Interior and Patented Land, Mr. Jo Getzwiller, administrator.

Significance

This 23-acre site on the east bank of the San Pedro River, occupied from A.D. 700 to 1450, exhibits a material culture that represents a blend between the Hohokam and Mogollon cultures, whose main foci lie respectively to the west and east of the Tres Alamos site. House types and ceramic techniques, and styles of both cultures appear together in the same time horizons, but crafts, stone work, and the presence of a ball court suggest that the Hohokam element was dominant throughout the several periods of occupation.

Strong influences from northern Mexico also played a part in the development at Tres Alamos. Pottery designs are shared with the Chalchuities culture of the Durango area as is the north-south ball court and its associated stone "paddles." The reel-shaped stones and biconical type spindle whorls also indicate contacts with groups in Mexico, and perhaps the compound walls as well (Fig. 60).

The late structures at the Tres Alamos site are three compounds. Of two excavated, one contained caliche-walled rooms partly around the compound and the other had similar rooms plus three jacal structures just outside the compound wall with vestibule type entryways projecting through the wall. The large ball court, oriented north-south, lies to the southeast of the two excavated compounds, and represents a time period just prior to the construction of the compounds. The earliest jacal houses occur at random between and near the compounds and to the south of the ball court.

This site was excavated by Carr Tuthill of the Amerind Foundation in 1940-42.

Reference: Tuthill 1947.

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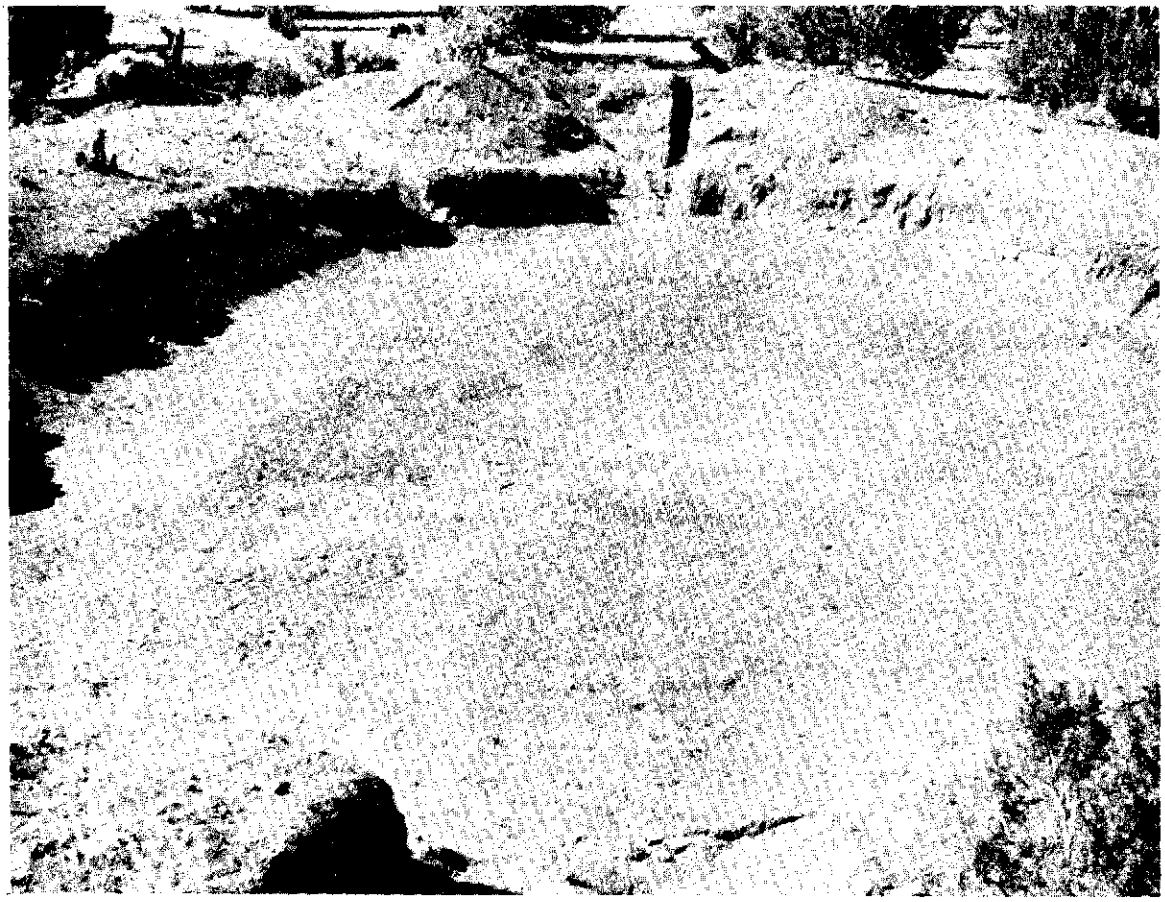
Figure 60. Upper: Ball court at Winona site after excavation. Photo courtesy Museum of Northern Arizona. Lower: Tres Alamos, corner of compound wall and associated structures during excavation. Photo courtesy Amerind Foundation, Dragoon, Arizona.



Snaketown

Location: Three miles down river (west from Gila Butte on north side of Gila River.

Owner: Pima Indian Reservation, Bureau of Indian Affairs

Significance

Excavations at Snaketown by Gila Pueblo in 1934-35 revealed that the Hohokam of southern Arizona were strongly influenced by the more highly developed cultures of Mexico, particularly between A.D. 500 or 600 and 1150 and later. Not only did these excavations definitely establish the Hohokam as one of the main culture groups of the Southwest, but also demonstrated the chronological development that took place.

Influences from and contacts with people from Mexico introduced a number of elements into the lives of the people of the Southwest. Intercommunity ceremonial structures (ball courts), new village settlement pattern, new crafts and techniques, new house types, trash disposal on mounds, and other items, several of which imply civil and religious controls had been established. These introductions lifted the Hohokam into a new pattern of living which contrasted sharply with the scattered rancherias of the early Indian farmers of this region. Some of these new ideas spread north and east to the Anasazi and Mogollon cultures of Arizona, where they were adapted to the local culture. In the earlier phases of this new development in southern Arizona several villages had a common ball court at one village where they periodically gathered for ceremonial and trading purposes. As time went on and each village increased in size, each village constructed its own ball court, and no longer was dependent on other towns for its ceremonial observances and trading fairs. At this stage, though each village was culturally similar to that of its neighbors, towns no longer were politically connected for the purpose of constructing intercommunity structures. The extensive irrigation canal system and the large urban developments or "city states" of the late prehistoric period mark the highest achievement of Hohokam labor. Snaketown is approximately 300 acres in extent.

References: Gladwin, Haury, Sayles, and Gladwin 1937; Reed 1939.

Paloparado Ruin

Location: Baca Float No. 3, unsurveyed land, Santa Cruz County.

Owner: Baca Float Ranches, Inc., Nogales, Arizona.

Significance

The Paloparado Ruin exhibits several periods of occupation, the last of which is pertinent to this theme. Influenced by the Mogollon culture to the east and the Hohokam to the west during its eralier development, the culture of the final phase of occupation represents a blend of ideas derived from these two groups, local ideas, plus additions brought about by contacts with Indians in northern Mexico and eastcentral Arizona after about A.D.1250.

The late village contains several compound areas all of which are within the confines of a village wall. Each compound unit had its own entry, plaza area, work and burial areas, and jacal houses with mud framed entryways. Aside from details of construction, the house was similar to that of the preceding period. The main changes introduced were extended burial, compound living areas, new pottery types, and a few new types of implements and ornaments, all of which seem to have appeared in the middle Gila and its major tributaries at about the same time. The people at the Paloparado site, however, did not erect massive caliche-walled compounds or structures such as occur on the San Pedro River and middle Gila during the same period of time. One compound, however, had a thick wall of rock with an outer facing of puddled caliche, and contained two rooms with puddled caliche walls. This unit may have been occupied at the time of Spanish entry into the Southwest in 1540, and is one of the rare examples in southern Arizona where possible continuity between prehistoric and historic cultures might be demonstrated to date.

This site was excavated in 1953-54 by Charles DiPeso of the Amerind Foundation. Its total acreage is nearly 20.

Reference: DiPeso 1956.

Pueblo Grande Ruin City Park

Location: Washington Avenue, Phoenix, Arizona.

Owner: City of Phoenix.

Significance

Pueblo Grande, partly excavated in the 1930's and early 1940's, is one of 28 large sites in the Phoenix area, of

which only a few have survived farming and real estate de-developments. The above-ground structures, with the exception of the ball court, represent the final phase of occupation, which came to a close about A.D. 1450.

The major feature is a large platform mound, standing some 20 feet above the desert floor, on and around which were the jacal and caliche-walled houses of the large village. These latter structures have been leveled or built over by modern developments that have encroached on the area from all sides but the south. On the south side, across the existing irrigation canal, is the "Park of Four Waters" where four prehistoric canals are still visible. Approximately 20 acres are involved.

Prior to A.D. 1150, the Hohokam culture, heavily influenced by contacts with Mexico, had reached its peak. A variety of crafts, intricate shell and stone carving, quantities of tools and ornaments, beautifully decorated pottery, ball courts, and canals have survived to illustrate the complexity of the material culture of the time, and serve also to indicate the presence of community projects, both economic and religious. With the influx of another people from central Arizona around A.D. 1150, the culture gradually changed. Ornate items were not as common as before, new pottery types were made, and much of the communal labor was expended on the construction of large platform mounds which later were enclosed by high compound walls. Each large village had in effect become a "city state." The culture of each was similar, but politically each probably was separate. The Pimas today are generally considered as the descendants of these people.

References: Schroeder 1940; Judd 1931.

Casa Malpais

Location: NE1/4, Section 20, T9N/R29E, 2 miles north of Springerville, Apache County, Arizona.

Owner: B. J. Colter, Springerville, Arizona.

Significance

Casa Malpais, about 10 acres in size, unexcavated ruin, is an interesting example of communal efforts at a pueblo site. The Indians selected a fallen lava cliff for their home. Before building the pueblo, they filled large and numerous crevices with small rocks, making a smooth area on which to

build. Below and to one side of the pueblo they cleared off six areas, placing the rock along the outer edge of the terraces, thus creating farm areas. On some of these, small field houses of one to two rooms were erected. To the west of the pueblo these people built a large ceremonial structure, the walls of which stand about 10 feet above the floor. Behind the pueblo is a deep crevice across which a path has been built that joins a stairway that goes up the cliff on the north side of the site to the pueblo. Walls were built up around the edge of the site where access from below was possible. Jumbled masses of rock and numerous crevices acted as deterents along other possible approaches to the pueblo. Considerable labor was expended by the inhabitants of the site, and it appears that some of their efforts were aimed toward defense.

This is one of three sites known in the general region that was occupied after A.D. 1300, and all three sites are on locations which could be defended with little alteration. The reason for selecting such sites may have been due to a need for defense against other pueblo people or intruders, perhaps Athapascans. On the other hand, many sites of late Pueblo III and early Pueblo IV times, roughly 1200's and 1300's, exhibit a new village pattern - an enclosed village with a central plaza incorporating a ceremonial structure, or a village enclosed by a wall, perhaps representing new architectural forms.

Reference: Danson and Molde 1950.

Chavez Pass Ruin

Location: Sections 12 and 13, T16N/R11E, Coconino County, Arizona.

Owner: Coconino National Forest, Department of Agriculture.

Significance

Chavez Pass Ruin is one of three known northern Sinagua sites occupied into the 1400's and may represent a portion of the population that abandoned the Flagstaff area during the great drought of the late 1200's. A few rooms and some burials were excavated by Fewkes in 1896, and material recovered since indicates an occupation span from about A.D. 1150 to 1400. This site is mentioned in several legends of the Hopis, which people the Sinagua may have eventually joined.

Built on a mesa point, the pueblo contains two house

groups built around courts and exhibits over 150 ground floor rooms. Nearby is a ball court which may represent an earlier occupation in the immediate area. The masonry walls of unshaped basalt rock, some of which stand 10 feet high, have collapsed for the most part, and the burial grounds have been badly vandalized over the years, but the pueblo offers a good potential for information covering the great drought period of the late 1200's. A good spring exists below the ruin on the south. About 50 acres are covered by the site.

Kinnikinick and Grapevine pueblos in the near vicinity are the two other sites of the same category and are situated near pine trees, indicating datable timbers in the ruins may be expected. To the southeast of Chavez Pass Ruin is a smaller, yet large, pueblo that appears to have been built with the object of defense in mind. Associated material suggests that this site is somewhat earlier than that of Chavez Pass, yet overlaps the earlier construction of the latter. Grapevine Ruin is of particular importance because of its short period of occupation, little vandalism, and surrounding wall, a feature lacking at the other sites. Kinnikinick and Chavez Pass Ruins appear to have survived through the drought and should be expected to produce important data relating to the little known drought period of the late 1200's.

References: Colton 1946; Connor 1943; Reed 1939b.

Clear Creek

Location: SE 1/4 NW 1/4 and NE 1/4 SW 1/4 of Section 11, T13N/R5E, Yavapai County, Arizona.

Owner: Coconino National Forest, Department of Agriculture.

Significance

Clear Creek Ruin, one of the largest in the Verde Valley, is located on top of a ridge on the north side of Clear Creek about 3 miles above its mouth. The largest house block of some 50 ground-floor rooms, visible from the valley floor below, stands at least one story high and was built of limestone rock. Trash mounds and burial areas lie to the west as well as a small group of rooms and a depression suggestive of a kiva. The extreme west point of the ridge is closed in by a wall of rocks about 140 feet long. Directly below the large ruin in the cliff walls are a number of cave rooms dug out of the soft limestone rock by the Indians, in front of which is the prehistoric trail to the ruin on top.

Pottery associated with the site indicates that it was

inhabited from the late 1100's into the 1300's, probably reaching a peak in the late 1200's. Small structures at the lower edge of the ridge, but above the farmlands, may represent farm field houses.

Directly across the river on private land are the remains of an earlier settlement that was occupied by the Hohokam who were in the valley prior to the arrival of the Sinagua who built Clear Creek Ruin. The Hohokam site contains a ball court, trash mounds, irrigation ditches, and farm plots now badly disturbed by cattle ranging in the area. It is not known whether the Hohokam joined the Sinagua at the Clear Creek site, since no excavation has been undertaken in the latter ruin, which offers the best potential in resolving problems relating to the transition from the Hohokam development into that of the Sinagua.

Reference: Reed 1939c.

Point of Pines

Location: Around the Apache settlement of Point of Pines, Arizona.

Owner: San Carlos Apache Reservation, Bureau of Indian Affairs.

Significance

The region of Point of Pines contains a considerable number of ruins, representing a long time period, which the University of Arizona investigated between 1946 and 1960. Pueblos representative of this theme have been excavated by the University; full reports on all have not yet appeared.

Several years were spent on the excavation of a large pueblo of about 800 rooms which attained its size by periodic accretions during the 1200's and 1300's. Within this large structure is a block of some 70 rooms that differs architecturally from other contemporary buildings, and much of which is burned. Associated artifacts, particularly the pottery, represent foreign material, some of which was manufactured with local clays but with techniques of painting and shape similar to that of the foreign material. Squash and corn from this block of rooms also is similar to types recovered in the Kayenta region, the same locale from which the foreign pottery was derived. Tree ring evidence indicates a dating in the 1280's for the rooms containing this material that is not native to the area, and these dates suggest that a foreign group from the Kayenta area, which

at this time was suffering from a lengthy drought, abandoned their home in the north and moved as a small population unit south into the Point of Pines country.

Other features associated with other pueblos in this area, such as large ceremonial structures, walls enclosing building areas, and walk-in wells, are indicative of community projects undertaken by these people. The pueblos replaced pit house dwellings in this area and had attained considerable size prior to the arrival of the immigrants from the Kayenta area, such as Turkey Creek Village which was abandoned about A.D. 1250.

Reference: Haury 1958.

Kinishba

Location: NE 1/4 Section 19, T5N/R22E, Gila County Arizona.

Owner: Fort Apache Reservation, Bureau of Indian Affairs.

Significance

Kinishba, a large pueblo consisting of two large and seven small masonry structures, was partially excavated by the University of Arizona between 1931 and 1939 under the direction of Dr. Byron Cummings (Fig. 61). The site is split by a deep arroyo and is situated on the upper end of a large grass covered valley.

First described in 1892 by Adolph Bandelier, this site of 400 to 500 ground floor rooms may have housed 1000 Indians at its peak of occupation, sometime between the late 1200's and early 1300's. The culture of the inhabitants represents that of the climax period in the White Mountain area, a blend of Mogollon and Anasazi ancestry.

The large building on the east, excavated by the University, contains two courtyards, one of which was roofed during the late period of occupation and converted into a ceremonial chamber measuring 63 x 51 feet. Entry from the south was through a covered passageway. This large, rectangular pueblo, which stood two to three stories high, was completely enclosed by its outside walls except for a few entryways. This architectural plan, enclosing courtyards, is typical of this mountain region during the late 1200's and early 1300's, and it may represent a ceremonial or sociological rather than a defensive need.

The people depended primarily on agriculture for their

Figure 61. Kinishba Pueblo, Arizona. Note the covered passageway in the center. Some of the upper stories have been restored. National Park Service photograph.

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subsistence, but supplemented their diet with wild foods and game. A variety of red, corrugated, and decorated pottery was manufactured for storage, table, and ceremonial use. Ornaments, tools, and weaving material were produced in quantity and variety, and shell and macaw bones attest to trade with other people to the south. By about A.D. 1400, this pueblo, like all others on the west side of the continental divide with the exception of the Hopi villages, was abandoned for reasons unknown.

Reference: Cummings 1940.

Gatlin

Location: SE 1/4 of Section 18, T5S/R4W, Maricopa County, Arizona.

Owner: Gila River Ranch, Inc., Gila Bend, and State of Arizona.

Significance

Excavated by the University of Arizona between November

1958 and February 1959, the platform mound at the Gatlin site proved to be a ceremonial structure in the Hohokam area of southern Arizona (Fig. 62). During January and February 1960, additional excavations were undertaken in other features associated at the site. Nothing similar to this important ceremonial mound has been reported since in southern Arizona.

This mound, which underwent six period of construction and modification, the adjacent cremation area and ball court, the assumed labor force required to build the structure, and unusual post hold alignments on the structure suggest ceremonial functions were connected with the complex. The mound itself is thought to reflect a northern extension of the pyramid idea of Mexico into the Hohokam area. All material associated, including that from nearby trash mounds and ball court, indicate that occupation of the site was restricted to the Sacaton Phase, about A.D. 900-1150.

The trash mounds, ball court, and surfaces of mounds, which were backfilled, are still visible at the site.

Reference: Wasley 1960.

Colorado

Lowry Pueblo

Location: NW 1/4 of Section 2, T38N/R19W, New Mexico Principal Meridian.

Owner:

Significance

Lowry Pueblo, located about 45 miles northwest of Cortez, Colorado, is a masonry pueblo of about 50 rooms that was occupied during the late 1000's and early 1100's. It represents the northernmost influence of southern ideas which involved community projects, such as the great kiva situated to the southeast of the pueblo proper.

The pueblo originally was a small unit of a few rooms like many others in the vicinity, but differed in having a great kiva (large ceremonial structure) associated (Fig. 63). This feature, a southern trait, is present at only a few sites in the general region, suggesting that each site acted as a ceremonial center for a scattered population unit. Like other pueblos farther south, Lowry Pueblo increased in size due to periodic population accretions from other small

Figure 62. The Gatlin Mound, Arizona. Photograph courtesy of the National Park Service.

. . . . . .

pueblo units which began to concentrate in the villages with the great kivas.

Construction of the earliest unit exhibits a grade of masonry walls that differs from later additions, and associated pottery has close affinities to that of the Chaco Canyon country. As the pueblo increased in size, masonry work changed. Individual stones were dressed on the outer face and less mortar was used; however, there seemed to be less stress on coursing the stones. This increased attention to laborious details suggests that a sizable labor pool was available for work of this type and other community projects.

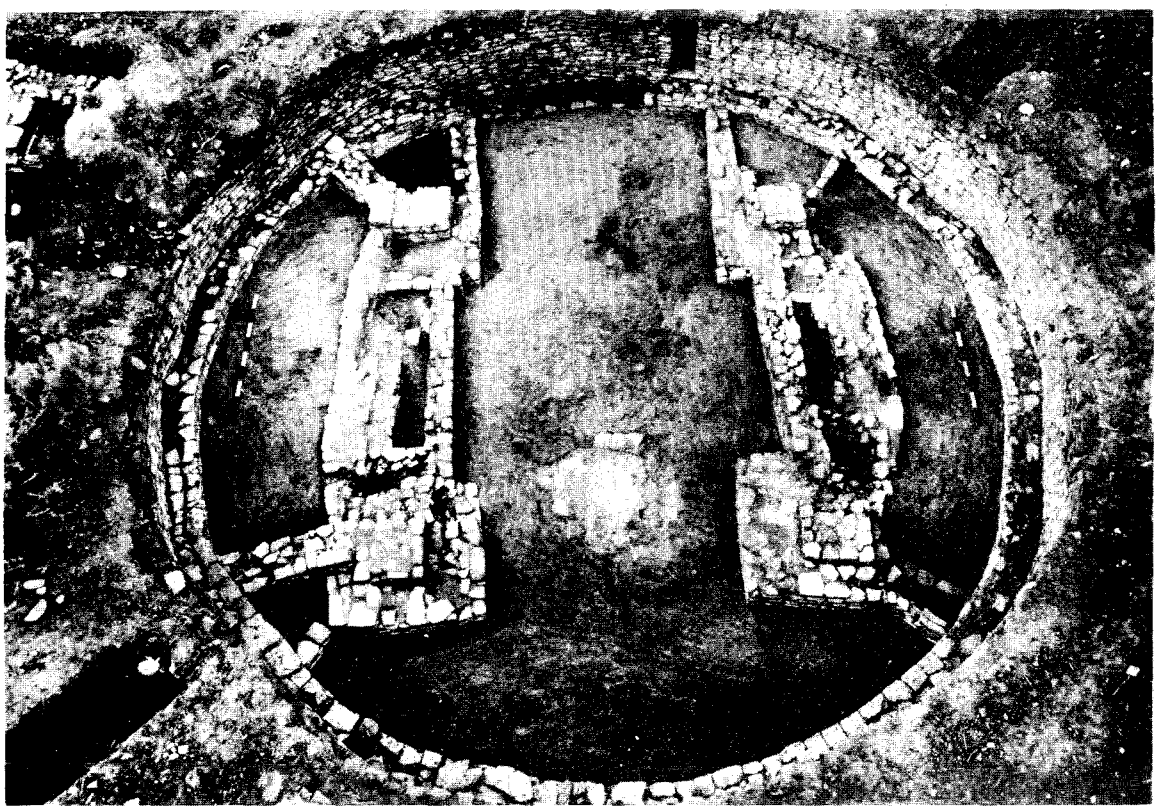

Figure 63. The Great Kiva at Lowry Ruin, Colorado. Chicago Museum of Natural History photograph.

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This site was excavated by Dr. Paul S. Martin of the Chicago Natural History Museum in 1930-34.

Reference: Martin 1936.

New Mexico

Holmes' Site

Location: East side of LaPlata River, across from La Plata, San Juan County, New Mexico.

Owner: Elmer R. Truby, Box 583, Farmington, New Mexico

Significance

This site has been known since the late 1800's and has been of interest to all who have visited it because of the great number and variety of features represented. Small to

large pueblos, some linear in form and others square to E-shaped, towers on points of the mesa overlooking the river to the west, kiva depressions, and a large kiva are strung from north to south along the mesa.

No excavations have been undertaken at the site. Ceramic evidence indicates occupation ranged from the late 900's into the early 1100's at least. Most of the structures, built of cobblestone masonry, probably were used prior to A.D. 1050, but the presence of towers and dressed masonry in other buildings indicate use after this date. Most of the structures have collapsed into mounds, but one pueblo still stands to some height above the mesa floor, judging from interior walls exposed by vandals in one mound overgrown with vegetation.

A considerable amount of pot hunting has occurred over the years which has impaired scientific investigation from producing reliable information. It is still rated as a site of considerable importance that should be investigated.

Reference: Holmes 1879.

San Lazaro

Location: SW 1/4 SW 1/4 of Section 7, T13N/R9E, Santa Fe County, New Mexico.

Owner: Santa Fe National Forest, Department of Agriculture.

Significance

San Lazaro contains two pueblos, one of which was occupied during late prehistoric times and the other in early historic times. The former is located on the west bank of the Arroyo del Chorro and the latter on the east bank. Together they represent the largest ruin in the Galisteo Basin totaling about 1950 ground-floor rooms, 488 of which are in the historic site. The earlier pueblo is made up of irregular blocks of rooms and plazas, and the later, a planned unit, consists of four house blocks arranged around a central plaza with openings on the northwestern and southwestern corners, more or less typical of the village plan of early historic pueblos along the Rio Grande. San Lazro embraces about 25 acres.

Northeast of the historic pueblo is a reservoir, the dam of which is about 125 feet long and 20 feet through at the bottom. This supplemented the water supply from a spring

near the pueblo and natural rock tanks nearby. To the southeast are a group of petroglyphs on rocks. The general lack of building stone in the vicinity probably is the reason for both rock and mud-walled rooms occurring in the earlier pueblo. Rock from this site was robbed when the later pueblo was constructed, as mud-walled rooms appear to be lacking in it. A mission church lies just east of the late pueblo. The late pueblo was abandoned soon after the 1680's, and the inhabitants from here, after a short stay in the Santa Cruz area, fled west to the Hopi villages in Arizona and founded the still existing pueblo of Hano.

Tests were made at San Lazaro in the early 1900's by N. C. Nelson of the American Museum of Natural History.

References: Nelson 1914; Reed 1940.

Heshotatluptsina (Yellow House)

Location: Just below junction of Pescado and Nutria Creeks, McKinley County, New Mexico.

Owner: Zuni Reservation, Bureau of Indian Affairs.

Significance

Yellow House, about 8 acres in extent, is a large late prehistoric site consisting of mounds of rock and debris standing on a low ridge. Because of its accessible location near the road it has suffered some vandalism. This and other sites of the same age are large, the local population having been swelled by additions from the White Mountains to the southwest. These newcomers who previously had influenced the development of glaze-decorated pottery at Zuni, probably introduced square kivas and other features at the time of their coming.

Little is known about the prehistory of this site, but it is judged to date from the 1300's into the mid-1400's. Aside from a few articles dealing with items and information relating generally to the archeology of the Zuni area, no detail has been published on the Zuni ruins of this period. Yellow House offers a good potential for future investigations.

Reference: Reed 1940a.

LA 1379, Laboratory of Anthropology

Location: SW 1/4 of Section 10, T13N/R20W, McKinley County,

New Mexico.

Owner: State of New Mexico.

Significance

This is a large site, about 280 x 375 feet, within the proposed Manuelito National Monument area. The ruin extends from the valley floor, up a steep talus slope, and onto a mesa top overlooking Manuelito Wash below. Portions of walls of the masonry ruin stand over 8 feet high, but in certain of the mounded areas, 3 or possibly 4 stories may be represented. Plaza areas and kivas are evident in the rubble, and the number of rooms is estimated to be about 1500.

This large site undoubtedly grew by accretion over a number of years, the earliest major development probably beginning about A.D. 1150 and occupation continuing until about A.D. 1400 or slightly later. Ceramic evidence indicates trade relationships with surrounding groups and a derivation of local types out of earlier occupation in the immediate area.

The pueblo itself has not suffered too much vandalism, but the refuse mounds have been badly torn up by pot-hunters. The site, however, still offers a good potential for future investigations. Up and down this valley are other sites occupied from A.D. 700's into the 1300's, as well as earlier Basketmaker III pit house areas.

Reference: Reed 1938, 1944.

Utah

Alkali Ridge

Location: Parts of Sections 11, 14, and 23, T36S/R23E; Section 31, T36S/R24E; and Sections 6, 7, and 16, T37S/R24E, San Juan County, Utah.

Owner: Bureau of Land Management, U.S. Department of Interior.

Significance

Excavations undertaken in 13 sites along Alkali Mesa by the Peabody Museum of American Archaeology and Ethnology, Harvard University, closed the gap in the known development of the Anasazi culture along the San Juan drainage by defining

the period known as Pueblo II, roughly 900-1100. In addition, the local development from the late 700's into the 1200's was shown to be a continual growth that was influenced by ideas of neighboring people.

Site 13, which contained the earliest remains found in the area, is a large group of connected units, each of which is made up of a long arc of continuous pole and mud rooms, and storerooms facing on an open plaza in which are subterranean ceremonial type lodges. This site differs from those of the same time period in other regions of the Southwest in its architecture, ceramics, and village plan. It seems to have been the home area out of which the Anasazi kiva developed.

By Pueblo II times, the village plan and ceramic style had changed. The people abandoned their large villages and separated into small groups, living in small masonry pueblos with a kiva or two in front of their homes. During Pueblo III times (ca. A.D. 1100-1300), the small masonry pueblos continued to be used, but some of them increased in size through periodic additions of small groups. These larger sites may represent trade or ceremonial centers.

The work carried on at these sites from 1931 through 1933 did much to advance knowledge concerning the development of this now famous prehistoric culture. Site 13 and others have been spoiled by a juniper cabling project undertaken by the Bureau of Land Management and the State Fish and Game Service.

It is difficult to be near exact about the area covered by the several sites of Alkali Ridge but at least 4,500 acres are involved.

Reference: Brew 1946.

THE PLAINS

Iowa

Phipps site, 13CK1

Location: Cherokee County, northwestern Iowa; 3 miles north of main intersection in city of Cherokee (on U.S. Highway 59) and 1/4 mile west. S 1/2, SW 1/4, Section 10, T92N, R40W.

Owner: Mrs. John Phipps, Cherokee, Iowa.

Significance

This is the type site of the Mill Creek culture, which represents Late Woodland-Mississippian peoples who were de-developing (or acquiring) Plains agricultural patterns, late in the first millennium or early in the second millennium A.D. Presumably these people were expanding westward and were among the ancestors of the later Middle Missouri tribes. A number of Mill Creek culture sites are to be found in northwestern Iowa but only two are large, and of these two only the Phipps site has been the subject of recent archeological attention.

This is an unusual village site in that the house floors are found on and in a very large midden, about an acre in extent and nine feet deep, which was lived on as it accumulated, much in the manner of a Near Eastern tell. The midden is at the edge of a field and most of it has been under cultivation for some seventy-five years, so that the southern and western portions slope gradually into the field. The north and east parts are not cultivated and drop off sharply to a bench above the Mill Creek bottoms; some erosion of these sides has taken place during floods. The site is pleasantly situated in a green-tree-studded valley, readily accessible to U. S. Highway 59 which is a quarter mile to the east.

Sporadic pot-hunting has done little damage to the site. In 1952-54 the Northwest Chapter of the Iowa Archaeological Society and the Sanford Museum of Cherokee made preliminary tests, and in 1955-56 the Sanford Museum and the State University of Iowa carried on intensive excavations, all of which affected only a small part of the site. The Sanford Museum and the University of Wisconsin plan to do further excavation. When the results of all this work have been published, the site will probably become famous in the archeological profession as a key to the understanding of the development of Plains village horticulture.

References: Fugle 1962; Ives 1962.

Wittrock site, 13OB4

Location: Three miles east of the northeast corner of the town of Sutherland, O'Brien County, northwestern Iowa. W 1/2, NW 1/4, Section 11, T94N, R39W.

Owner: State of Iowa

Significance

The Wittrock site is a small Mill Creek Culture village which is unique among Mill Creek sites, and possibly among village sites in Iowa, in being essentially undisturbed by cultivation or relic-hunting. Slightly over an acre in size, it is covered with native prairie vegetation. Surface evidences include seventeen circular house depressions in a roughly square enclosure surrounded by a fortification ditch. This was a village of Late Woodland-Mississippian peoples, probably about A.D 1000, whose culture seems to have represented a transition from eastern forest agriculture to Plains horticultural patterns.

The State of Iowa purchased the site, including access from the north, in 1936 or 1937, but has never developed it. Current access is through the adjacent Wittrock property. On some road maps the site appears as "Indian Village State Park."

In 1963 this and other Mill Creek Culture sites were tested by an archeological field party of the University of Wisconsin and the Sanford Museum of Cherokee, Iowa.

Kansas

Whiteford site; 14SA1; "Indian Burial Pit"

Location: North bank of the Smoky Hill River, approximately four miles east of Salina, Saline County, Kansas, off old U.S. Highway 40.

Owner: Price Brothers Farm; Lloyd W. Price, 409 Morrison, Saline, Kansas.

Significance

The "Indian Burial Pit" is a prehistoric cemetery in which some 146 skeletons of the Smoky Hill culture have been uncovered and left *in situ*, protected by a building, for commercial purposes. Originally developed by G. L Whiteford, it is now owned and operated by the Price Brothers. Nearby is a village site in which Whiteford excavated one house and part of another in the 1930's. The remaining houses, probably more than 15 in number, remain undisturbed except by cultivation.

Unlike many such commercial enterprises, this one

appears to have been developed, and to be maintained, with integrity. The entrance fee is modest. The owners make a fetish of the fact that everything is exactly as it was found, and an attempt is being made to keep the bones from deteriorating from exposure. The enterprise appears to be successful commercially, and the site is widely known. A permanent roadside historical marker concerning the site has been placed beside old U S. Highway 40 by the State Historical Society and the State Highway Commission, a marker that could appropriately be revised and moved to the new highway.

In view of the fact that Kansas archeology is still little known, this site provides an unusually fortunate record of the early Plains village period -- the Central Plains tradition -- in the state. It would be an important site even if the archeology of the state were far advanced. When the compiler of this report visited there, the custodian remarked that he hoped some public agency would eventually take over the place in order that its integrity might be preserved. If this remark is to be taken seriously, this site presents an extraordinarily felicitous, and probably a unique, opportunity to investigate, preserve, and present evidence of one of the major phases of prehistoric village agriculture on the Plains. The archeologists who have been consulted regarding possible sites to recommend under Theme III in Kansas have stressed the appropriateness of this site above any other in the state.

Reference: Wedel 1959: 512-523.

Montana

Pictograph Cave

Location: Seven miles above the mouth of Bitter Creek, a southern tributary entering the Yellowstone River near Billings, Yellowstone County, Montana.

Owner: State of Montana.

Significance

Pictograph Cave is a large rock shelter which contained stratified deposits reflecting occupation beginning with early hunters and gatherers and coming up to the Indians of historic times. The walls have striking pictographs. With Signal Butte, this was one of the key sites in setting up the sequence of prehistoric events on the northwestern Plains.

It was partially excavated before World War II, and the remaining deposits were destroyed by relic-hunters during the War. Preliminary publication of the scientific finds in 1952, and full publication in 1958, have made the site a major reference point in the study of northern Plains archeology. The upper deposits provide information on the activities and relationships of the distant Plains village tribes among the peoples of the northwestern Plains.

The site is a state monument, but despite some earlier development it is now essentially undeveloped. The once magnificent pictographs are in poor condition but could be restored.

This site has previously been recommended for Theme I. It is also significant for Theme III, because of the relationships between the more recent occupations and the Plains village cultures to the east, and for Theme VIII because of evidences of trade with the whites in the top zone.

Reference: Mulloy 1958.

Hagen

Location: Left bank of Yellowstone River, five miles southeast of Glendive, Dawson County, Montana.

Owner: Hagen family, Glendive, Montana

Significance

The Hagen site is a late prehistoric outpost of the Coalescent tradition, several hundred miles upstream from the nearest clusters of villages in North Dakota. Partial excavation of the site in 1938 by the Montana Archeological Survey revealed a midden area covering more than ten acres, in which were many cache pits, one small circular house, and a low mound containing fragments of human skeletal material. Bison scapula hoes and the general semisedentary nature of the occupation points strongly to the practice of horticulture. Abundant pottery fragments show that these people were at the same culture as the Mandan and Hidatsa around A.D. 1600. Because of its location in the Crow Indian country, this site probably dates from the times spoken of in Crow and Hidatsa traditions, when the sedentary village Hidatsa tribe was splitting up. One group became the nomadic Crow. The site is thought to represent either the Crow shortly after the split, before they had become fully nomadic, or the Hidatsa who were temporarily this far west. The site is

unique among village sites in its remote location in the Northwestern Plains, and reflects the relationships and changes that were going on in late prehistoric times between the village and nomadic tribes. It could bear further excavation in the light of the great increase in knowledge that has taken place since the original work.

Reference: Mulloy, 1942.

Nebraska

Signal Butte, 25SF1

Location: Scotts Bluff County, Nebraska, 21 miles west-southwest of Scottsbluff and about five miles west-southwest of Roubidou Pass.

Owner: Privately owned by John M. Ewing family in Gering, Nebraska.

Significance

In 1935, when Wm. Duncan Strong published a preliminary report of his excavations on Signal Butte, this site became one of the best known archeological localities west of the Mississippi. Signal Butte is a small but picturesque butte standing out from the Wildcat Hills at the southern edge of the North Platte valley. On top of the butte is a stratified site with three occupation zones, the lower two containing campsites of pre-pottery hunters and gatherers, and the top zone having been used by hunting parties who had Upper Republican and, later, Dismal River pottery. Situated at the meeting ground of the Central and Northwestern Plains, Signal Butte has been one of the major keys in setting up the over-all sequence of cultural stages in those two areas. In combination with Ash Hollow Cave and Walker Gilmore, it provided the basic sequential evidence for establishing the order of events among the pre-village and village cultures of the Central Plains.

Strong's work in 1932 destroyed about half the site. Subsequent swarms of relic-hunters destroyed nearly all the rest. Sporadic pot-hunting has continued over the years, despite diligent efforts by the land owners to protect their cattle by keeping the gates locked. From 1948 to the mid-1950's minor archeological work by Bliss, Champe, Forbis, and others explored a number of spots where the lower zones were undisturbed. A few such spots may well still remain. A complete statement by Forbis on the archeology of the butte

is awaiting publication.

The top of the butte is not difficult of access, and commands a fine view of the North Platte valley. It is a picturesque, fascinating spot. It is only about 15 miles from Scotts Bluff National Monument, and regular tours from the Monument have often included the butte in the itinerary. If, as has often been suggested by archeologists and local people, the butte were to be taken under public ownership as a historic site, provisions for protection from vandalism would have to be made.

This site has already been recommended under Theme I. It is recommended here because of its importance to Themes II and III. Because of the Dismal River occupation, it is also relevant to Theme VIII.

References: Strong 1935: 224-239; Champe 1946:58-60; Bliss 1950.

Ash Hollow Cave, 25GD1

Location: On the east side of Ash Hollow near its mouth, south side of North Platte River valley; about 2 miles southeast of Lewellen, Garden County, Nebraska. On north line of Section 3, T15N, R42W.

Owner: W. L. Keller, Lewellen, Nebraska. Plans are in process for purchase of this site by the State of Nebraska.

Significance

Ash Hollow Cave is a rock shelter which was completely excavated by the Nebraska State Historical Society in 1939. It had been used as a camping place by prehistoric hunting parties. It contained a stratigraphic sequence of cultures ranging from Plains Archaic times, perhaps as early as 2000 B.C., through Plains Woodland and Upper Republican to the protohistoric Dismal River culture. Because of this long archeological record, the careful nature of the excavation, and the meticulous reporting of the site in a now famous, scholarly monograph, this is one of the key sites in establishing the sequence of events in Central Plains prehistory and is well known to all students of Plains archeology.

Ash Hollow, the small canyon in which the shelter is located, is a famous landmark on the Oregon Trail, being mentioned in journals of western travelers as early as that

of Robert Stuart in 1813. Wagon trains were let down into the North Platte valley by a windlass at a steep place in the Hollow where the wheel tracks can still be seen today. At the mouth of the Canyon is Ash Hollow cemetery, containing the graves of many Forty-niners. A half-mile to the east can still be seen the site of Fort Grattan, a short-lived post established in 1855 by General Harney after the massacre of more than 130 Brule Dakota at the Battle of Blue Water, nine miles to the northwest.

No archeological deposits remain in Ash Hollow Cave, but it remains one of the more important sites in the history of Plains archeology, located in an area with many memories of the Oregon Trail and the early Indian troubles.

Reference: Champe 1946.

Sweetwater, 25BF1, 25SM4

Location: On the southern boundary of Sherman County, Nebraska, one-half mile north of the village of Sweetwater, SW 1/4, Section 35, T13N, R15W, and NW 1/4 Section 2, T12N, R15W.

Owner: Unknown.

Significance

The Sweetwater site, which was partially excavated by Wedel for the University of Nebraska in 1931 and later reported by Champe, serves as the principal surviving type site of the Upper Republican culture, nearly all of the others having been inundated by reservoirs. It covers ten or more acres on a terrace thirty feet above Muddy Creek, a tributary of the South Loup River. A railroad and highway cut through the southwestern corner. Most of the site is in cultivation, and much of it remains uninvestigated. This was a horticultural earth-lodge village, occupied some time within the interval A.D. 1200-1450. The Upper Republican culture is one of the best known and most studied complexes in the Central Plains, and the Sweetwater site was a primary site in its identification.

Reference: Champe 1936.

Coufal; Coufal Ridge, 25HW6

Location: On Davis Creek in Howard County, Nebraska.

Owner: Unknown.

Significance

The Coufal site is a major village of the Central Plains tradition. It represents a culture intermediate between the Upper Republican and Nebraska cultures, and as such serves to round out the picture presented by sites of those two cultures. Excavations there by the Nebraska State Historical Society in 1939 represent the most comprehensive investigation of any site of the Central Plains tradition; 22 houses were excavated and more than 17,000 specimens were collected. A radiocarbon date of A.D. 1138 has been obtained on a charcoal sample. The results of the work await publication, but when they appear, the Coufal site will represent one of the chief sources of information on this period in Nebraska prehistory. The site is now a cultivated field on a ridge extending into Davis Creek valley. There are no surface evidences of the prehistoric occupation.

Leary site, 25RH1

Location: In the southeastern corner of the state of Nebraska, in Richardson County, four miles southeast of Rulo and 1 1/2 miles south of the Missouri River; bounded on the north by the Great Nemaha River, on the west by Roy's Creek, and on the south approximately by the Kansas State Line. SE 1/4 Section 33, T1N, R18E.

Owner: Kelly family, White Cloud, Kansas

Significance

The Leary site is a large prehistoric village and burial area of the Oneota culture, a late precontact and protohistoric complex representing incursions of Siouan peoples across the Missouri River into the Plains. It dates from the period A.D. 1500-1600. Covering over 100 acres, it has long attracted attention, beginning with a mention by Lewis and Clark in 1804. The first archeological visits were paid by Sterns in 1912-14. Blackman dug there in 1926, and Hill conducted more extensive work in 1935. Most of the site, though, remains untouched. This is the only Oneota village site west of the Missouri that does not contain any evidence of white contact. One of the largest village sites in the Central Plains, it still contains a wealth of information about life in this area shortly before the coming of the

whites. It is now in cultivated fields, with some trash mounds visible.

Reference: Hill and Wedel 1936.

W. H. Schultz site; Vy-1; 25 Vy1.

Location: Six miles west and three-fourths mile north of North Loup, Valley County, Nebraska, on the left (north) bank of Mira Creek.

Owner: Privately owned; in 1940, W. H. Schultz.

Significance

The Schultz site is the only excavated site, and hence the type site, of the Valley focus, an early Plains Woodland complex dating from the middle part of the first millennium A.D. This was a small semisedentary village of people who apparently subsisted by hunting and gathering, without agriculture. The work at this site first made it possible to delineate the nature of this way of life on the Great Plains, and it stands as the chief surviving site which has produced important information on the subject.

The site covers about one acre, now in a cultivated field. Part of this area was excavated by the Nebraska State Historical Society in 1939, but some of the site remains undisturbed except by sheet erosion. Some cultural debris shows on the surface, but otherwise there are no visible evidences. Nearby is an Upper Republican site, so that two of the main periods of Central Plains village life are represented in this one spot.

In the entire Plains region, this is the only occupation site of the earliest villagers (early Plains Woodland) that is of such a nature as to be worthy or recommendation.

Reference: Hill and Kivett 1940: 138-193.

Walker Gilmore; Sterns Creek; 25CC28

Location: NE 1/4, NE 1/4, Section 28, T11N, R14E; on Sterns Creek near Murray, Cass County, eastern Nebraska, about one-half mile west of the Missouri River.

Owner: Unknown.

Significance

Walker Gilmore, also known as the Sterns Creek site, is recognized as one of the most important and interesting sites in the entire Great Plains area, since it was here that evidences of Plains Woodland culture were first recognized, and since this is also one of three key stratified sites (the other two being Ash Hollow Cave and Signal Butte) which permitted the outlining of the main sequence of cultural stages in the Central Plains. It has long held the attention of Plains archeologists, having been investigated by Sterns in 1915, Strong in 1930, Champe and Hill in 1946, and Fenenga in 1956, the last being the major (as yet unpublished) investigation.

This is the type site, and still the only excavated site, of the Sterns Creek focus, a Plains Woodland complex that is manifested here in a buried occupation zone showing in the walls of the deeply incised gully of Sterns Creek. In the field just north of the gully is a later occupation, a Nebraska Culture settlement. There are evidences of an earlier Woodland culture deeper in the gully wall than the Sterns Creek occupation, and of a still earlier pre-Woodland occupation in an older stream fill.

The site is pleasantly located in the rolling wooded country of the Missouri River bluffs, and constitutes a veritable outdoor museum of Central Plains cultural sequence. There is more for the interested person to see and do here than at most Central Plains sites; and for the archeologist, the site will probably reward continued research for years to come. However, there is a possibility that the recent construction of a small dam may result in burial of the cultural exposures by silt.

References: Strong 1935: 175-198; Champe 1946: 66-75.

Fontenelle Forest, 25DO6

Location: In Fontenelle Forest Reserve, Douglas County, Nebraska, on the west bank of the Missouri River about five miles southeast of Omaha and a similar distance northeast of Bellevue.

Owner: Fontenelle Forest Association, Omaha, Nebraska

Significance

The Fontenelle Forest site is a representative site of

the Nebraska Culture, about A.D. 1200, and is unusual among Central Plains Tradition sites in that it is relatively undisturbed so that some of the original earth lodge depressions are still visible. It was a village of agricultural Indians whose way of life showed the influence of Mississippian cultures to the southeast. The site is now in native timber in a public preserve, and is protected. It constitutes an ideal spot for recognition as a type site of the Nebraska Culture, representing one of the formative groups who were converting eastern forest influences to fit a Plains way of life.

Lawson, 25PT12

Location: On south bank of Loseke Creek, Platte County, Nebraska, five and one-half miles south of Creston, NE 1/4, SW 1/4, Section 9, T16N, R1#.

Owner: Mrs. L. Lawson, Genoa, Nebraska.

Significance

The Lawson site is the type site of the Loseke Creek focus, the only late Plains Woodland complex yet defined in the Central Plains. It was partially excavated in 1941 by the Nebraska State Historical Society and a detailed report by Kivett has since been published. This site was a village with many storage pits. There was evidence of agriculture, in the form of a few kernels of corn. The occupants were Plains Woodland people who were just beginning to feel the indirect effects of Mississippian developments in the East. The site represents a stage anticipating the appearance of true Plains village agricultural life.

In the study of Plains archeology the definition of the Loseke Creek focus was an important step, and the Lawson site is thus a significant spot to Plains archeologists. Some of the site survives in a cultivated field on a terrace next to Loseke Creek. Its protection would make possible a re-study after a few decades when much more is known about the problems to be solved in the study of the development of Plains village life.

Reference: Kivett 1952.

Oklahoma

Stamper site

Location: Two and one-half miles south of Optima,

Texas County, Oklahoma, on the south bank of the North Canadian River.

Owner: Stamper (1951)

Significance

The Stamper site is the only excavated site of the Optima Focus, which is the North Canadian River branch of the Panhandle culture. It is on a broad low terrace overlooking the river valley which is about one mile wide at this point. The surface of the site, which is in range land, shows numerous low ridges and knolls which are the remains of single-room structures of which the lower walls were of upright caliche slabs and adobe. Eighteen such structures were originally indicated, of which seven were excavated by the University of Oklahoma in 1933 and 1934.

The culture of the people who lived here, some time in the interval A.D. 1300-1450, was based on agriculture and hunting, and was closely related to the Custer and Washita River foci to the east and the Upper Republican culture to the north. Pueblo influences are evident in the architecture. This site represents a time when village culture extended across the southern Plains from the Caddoan area in the eastern forests to the Pueblo area of New Mexico. Because it is the only site so far investigated, as well as reported, representing this part of the Panhandle culture, it is one of the best known and most important sites in the Southern Plains.

Reference: Watson 1950.

McLemore site, Wa-5

Location: NE 1/4, SE 1/4, Section 25, T10N, R14W. Eastern edge of Washita County, Oklahoma, four miles west of Eakly, on the north side of Cobb Creek (also called Pond Creek), within a deep horseshoe bend of the Creek.

Owner: Henry and Dallas McLemore.

Significance

The McLemore site is the best known and most carefully excavated site of the Washita River Focus, a Plains village agricultural complex of central Oklahoma dating from around A.D. 1300. It covers about five acres of pasture land (which is sometimes under cultivation), bordered on three sides by the tree-lined course of Cobb Creek. Cultural

debris is scattered over the surface of the site, which was partially excavated in 1961 by the University of Oklahoma. Much of the site remains unexcavated and its appearance is little affected. One square house, many storage and refuse pits, and the burials of fifty-two individuals were found in the 1961 work. The site was a small agricultural village and burial ground of the Washita River Focus.

The information from this site has done much to establish the basic unity of the Washita River and Custer Foci. Relationships with the Caddoan area to the east and with Plains Village cultures to the north, south, and west were demonstrated in the analysis of the material. Of the Washita River and Custer Focus sites now known, this one has provided the most information on the activities and relationships of the prehistoric Wichita-speaking peoples. Because of this, it can be considered a key site to the study of Southern Plains prehistory.

Reference: Pillaert 1963.

South Dakota

Fort Thompson Mounds, 39BF10, 39BF234 (Old Quarry Mounds, 39BF235 (Presbyterian Church Mounds).

Location: Left (northeast) edge of the Missouri River valley at the head of the Fort Randall Reservoir, in the vicinity of Fort Thompson. Adjacent portions of Sections 3, 4, and 10, T106N, R71W, (39BF10); NW 1/4 Section 30, T107N, R71W (39BF234 and 39BF235). Buffalo County, South Dakota.

Owner: Private and tribal lands, Crow Creek Indian Reservation.

Significance

Above and below Fort Thompson, along the edges of the upper terrace above the Missouri River valley, there are a great many low mounds. Excavations in certain of them by the Missouri Basin Project, Smithsonian Institution, indicate that they are burial mounds dating from Plains Woodland times, ca. A.D. 800. Some of them also have been used more recently, in some cases by the Yanktonai Sioux who have occupied this area since being expelled from Minnesota in the 1860's. Additional significance is given the sites by the fact that in deeper strata under many of the mounds there are evidences of occupation by prepottery people

dating from much more remote times.

The sites listed above represent a minimum sample of these mounds that should be protected, since these mounds are the sole evidences known of Plains Woodland cultures, the first pottery-using people in the area. One mound in the Old Quarry group was excavated in 1960, but otherwise they are not excavated. They are close to the highway that skirts the upper end of the Fort Randall Reservoir, and with the increased use of this area for recreation, if attention is called to them, they will almost surely be plundered and destroyed by relic-hunters. Therefore, the task of protection creates certain problems, because if not done properly, it could lead to the destruction of the very mounds which were intended to be preserved.

References: Neuman 1960, 1961.

Arzberger

Location: Hughes County, South Dakota, seven and one-half miles east-southeast of Pierre. SW 1/4 Section 10, T110N, R78W.

Owner: Formerly Mr. Arzberger and Mr. Holts; now unknown.

Significance

The huge Arzberger village site, one of the great prehistoric monuments on the North American continent, was a fortified village on top of a low mesa 1/2 mile north of the Missouri River. Forty-four circular house rings in the site occupied an area of more than 40 acres, surrounded by a ditched fortification 1 1/2 miles in circumference, with 24 bastions spaced at intervals of 50 to 100 yards. Four houses were excavated and the fortification was tested by Columbia University in 1938 and 1939. The site is the northernmost outpost of the Central Plains tradition, possibly representing the ancestral Arikara at the time (ca. A.D. 1500) when they were differentiating from the parent Pawnee. The site thus has combined spectacular appearance with a key position in interpreting a time of great change in Plains village prehistory.

In 1955 the South Dakota State Highway Department began using the site as a source for highway material. The National Park Service corresponded with the Governor of South Dakota on the matter, and received assurances that the site would not be further damaged by actions of the Highway

Department, and that the policy of the state was to protect antiquities wherever possible. In the 1960's, however, the Highway Department resumed its work. The south and southeast portions of the site and a part of the center have now been destroyed. About one half of the site still remains preservable. Action to preserve the site should be taken on the federal level, since the state government seems not to be concerned about the loss of one of its major antiquities.

Reference: Spaulding 1956.

Sherman Park sites

Location: In Sherman Park on the Big Sioux River, Sioux Falls, South Dakota.

Owner: City of Sioux Falls.

Significance

Sherman Park includes within its boundaries a series of sites representing a number of Plains village complexes ranging from Plains Woodland to Oneota. Road construction work has damaged some of the Woodland mounds in past years, and one mound was excavated in October, 1962, by the W. H. Over Museum of the University of South Dakota. The sites in this park constitute an unusual record of a long span of eastern Plains prehistory, and are worthy of preservation. Mr. George Rogers, Director of the Pettigrew Museum, Sioux Falls, has maps, written descriptions, and artifacts pertaining to the sites in the park.

Bloom site

Location: On the James River in Hanson County, South Dakota, just north of the highway bridge east of Bloom, near Ethan. SW 1/4, NE 1/4, Section 18, T101N, R58W.

Owner: Privately owned, name unknown.

Significance

The Bloom site is a classic example, and the best preserved example known, of a fortified Over Focus site, dating probably from ca. A.D 1000. It lies on a terrace projecting into the James River valley. A fortification ditch across the projection protects the site, in which some twenty-five lodge depressions are visible. In the fields to

the north and west are some fifty burial mounds, some of them from 150 to 200 feet in diameter and from three to ten or more feet in height. It is not known whether they represent the same occupation as the village. This site is like the Mitchell site, which is about twenty miles away, but the Bloom site is in a far better state of preservation. When last visited by W. R Hurt of the University of South Dakota Museum in 1952, the land owner was extremely cooperative and anxious to see the site preserved. As representative of the Over Focus, the Bloom site may well have been the home of a group of anceestral Mandans as they moved from the eastern prairies toward the Missouri River valley.

Reference: Hurt 1951: 72.

Langdeau, 39LM209

Location: Right (east) bank of Missouri River, just north of the neck of the Big Bend. NE 1/4, SW 1/4, SE 1/4, SW 1/4, Section 21, T108N, R73W.

Owner: Lower Brule Indians; whether tribal or individual ownership is unknown.

Significance

The Langdeau site is a village site, the type site for an as yet unnamed complex within the Middle Missouri tradition. Out of a probably twelve houses in the villages, four have been excavated by the Missouri Basin Project, Smithsonian Institution. The houses are long and rectangular, with distinctive benches at the front of the structure, and there was probably a roof overhang forming a porch. The site will be above the pool of the Big Bend Reservoir, which it overlooks, and will be readily accessible from the proposed Big Bend Scenic Drive. As a distinctive site it should be protected from looters.

Medicine Creek site, 39LM2, 39LM222

Location: Adjacent parts of Sections 3 and 4, T107N, R74W. Right (east) bank of Medicine Creek just above its mouth, south bank of Missouri River (Big Bend Reservoir), Lyman County, South Dakota.

Owner: Corps of Engineers, U. S Army

Significance

This site includes the remains of several prehistoric villages representing occupation during two different periods, in Middle Missouri tradition times and later in Coalescent tradition times. Portions of the locality will be above the water of the Big Bend reservoir and can be reached from the proposed Medicine Creek road. Many house depressions, and remains of a fortification, are visible. Some excavation has been done, but more is needed, since the pressure of the reservoir salvage schedule prevented fully adequate work at this site. The locality should be preserved for subsequent investigation, as it appears to be a key site in working out many of the relationships which are still obscure between several of the complexes of the Middle Missouri and Coalescent traditions.

Molstad Village, 39DW234

Location: Right (west) bank of Missouri River Valley (Oahe Reservoir) about eighteen miles airline below Mobridge, near northern edge of Dewey County, South Dakota. W 1/4, NE 1/4, Section 7, T17N, R31E.

Owner: Corps of Engineers, U. S. Army.

Significance

Molstad Village is a tiny fortified village site containing five circular house rings enclosed by a ditch with a bastion. It was extensively excavated by the Missouri Basin Project, Smithsonian Institution, in 1962, but could be restored to its original condition without difficulty. It appears to represent the important period of transition when Central Plains elements, as signified by the cirular houses, were moving up the Missouri and combining with Middle Missouri traits, such as bastioned fortifications, to form the Coalescent tradition which was the basis for the way of life practiced by the Mandan, Arikara, and Hidatsa when the white man arrived. Molstad Village is, in effect, a pocket version of a fortified prehistoric village. In its small size it is not at all typical, but would make an interesting and easily understood outdoor exhibition. The site overlooks Oahe Reservoir and will be at the water's edge, so that erosion may ultimately destroy it. Minor riprap work would insure its preservation.

Crow Creek, 39BF11

Location: East bank of Fort Randall Reservoir between Crow Creek and Wolf Creek, 15 miles north of Chamberlain; in Buffalo County, South Dakota.

Significance

Crow Creek is one of the few large prehistoric village sites on the Missouri River in South Dakota that is not being inundated by a reservoir. It was partially excavated in 1954-55 by the Nebraska State Historical Society - National Park Service. Located at the top of a loess bluff against which the waters of the Fort Randall Reservoir have risen, it extends over two terrace surfaces and is surrounded on the uphill side by an impressive bastioned fortification ditch. Two separate occupations are represented, one related to the Over Focus, early in the Middle Missouri tradition, and the other related to the Campbell focus, affiliated with the Arzberger site and the Central Plains. The work at the site has been important in gaining an understanding of the relations between events on the Middle Missouri and in the Central Plains during the time of Plains village life.

The site is interesting to walk over, especially because of the striking fortification ditch, and a state marker on the near-by highway draws the attention of the passer-by to its presence. It has been generally assumed that slumping will gradually destroy it, but if so it will be a slow process since none had taken place by 1961. In the meantime it should be protected from plunderers. If it survives for several decades it will be a logical place for further excavation in the light of the much greater knowledge of Plains archeology that will be at hand then.

Mitchell site

Location: On the Municipal Golf Course of the city of Mitchell, Davison County, South Dakota. Center NE 1/4 Section 9, T103N, R60W.

Owner: City of Mitchell, South Dakota.

Significance

The Mitchell site is a primary site for the identification of the Over Focus, a complex which appears to represent a developmental stage in the formation of the Middle Missouri tradition of the Plains Village pattern. The date is still

uncertain, but is probably around A.D. 1000. The Over Focus represents a Late Woodland-Mississippian cultural movement from the east to the Missouri Valley with some amalgamation with the already present Loseke Creek focus. There is a strong liklihood that these people were the ancestral Mandan making their first move into the Plains area.

The site covers an area of about three acres on the first terrace above the bed of Firesteel Creek (now Lake Mitchell). On the north and east sides the site borders on the lake, where some wave erosion has taken place. On the south and west there were originally two fortification trenches about 90 feet apart. Within the site area are more than forty house depressions. About 500 feet to the southwest is a row of five burial mounds; it is not known whether they relate to the same occupation as the village or not. Meleen excavated two houses and two burial mounds for the University of South Dakota Museum in 1938.

The site is entirely within the Municipal Golf Course of the City of Mitchell, and is covered by bluegrass and putting greens. It is being preserved intact.

Reference: Meleen 1938.

Texas

Harrell site, 41YN1

Location: One mile north of South Bend, Young County, Texas, on the south bank of the Brazos River, on the east side of the mouth of the Clear Fork.

Owner: M. D. Harrell, South Bend, Texas (1946).

Significance

The Harrell site is the type site, and the only excavated site, of the Henrietta Focus, the southernmost Plains Village agricultural complex. Excavations were conducted in a portion of the site by the University of Texas in 1938-39, permitting definition of the Henrietta Focus. The site occupies more than six acres on a terrace overlooking both the Brazos and the Clear Fork. Both streams are cutting laterally into the site.

The main occupation, that of the Henrietta Focus, resembles in many ways the village cultures of central and western Oklahoma, and is currently felt to represent one of the groups ancestral to the historic Wichita tribes, such as

the Taovayas and Tawakoni. There are evidences that there were contacts both with the Caddoan peoples to the east and the Pueblo peoples to the west, that the local agricultural practices may have had a northern origin, and that the local people may have descended from an earlier local nonagricultural group. Thus, this is a key site in the study of the development of Southern Plains village life. The date is not certain, but seems to be some time in the interval A.D. 1300-1600.

References: Krieger 1946: 87-120; Suhm, Krieger, and Jelks 1954: 80-87.

Chimney Rock Ruins

Location: In Potter County in the Texas Panhandle, north of the Canadian River on the west side of Corral Creek.

Owner: Lee Bivins Ranch, address Bivins Building, Amarillo, Texas.

Significance

This is one of the larger and richer of the many Panhandle Culture ruins, consisting of numerous rooms on a talus slope around the base of a small butte, with petroglyphs on the butte and a near-by mesa. A W.P.A.-Panhandle-Plains Museum expedition began excavation of this important ruin in 1941 but the work was stopped by World War II and has never been resumed. There has been considerable looting of the site by relic-hunters in recent years, which can be expected to continue if steps for protection of the site are not taken. The site was occupied by Plains agricultural village Indians, around A.D 1300-1450, whose houses were built on the Pueblo plan. Their occupation of the High Plains constitutes one of the more fascinating episodes in the history of Plains village culture. Looting of Panhandle culture sites by pot-hunters has been going on for more than fifty years, and steps need to be taken to protect a few representative ones such as this one.

Rocky Dell

Location: In Oldham County in the Texas Panhandle, about six miles west-northwest of Adrian, on Agua Piedra (Grapevine) Creek.

Owner: Ivy Ranch, Grapevine, Texas.

Significance

Rocky Dell includes a Panhandle Culture camp, rock shelters, mortar holes, and an overhanging cliff with numerous paintings and carvings. It is beautifully located, with spring water available. This site is of particular interest because it not only contains a Panhandle culture site that has been little damaged, but also has some of the best pictographs and petroglyphs to be found in this part of the country. Some of them show contact with white men. The site was noted by the War Department Railroad Survey of 1853-54, at which time it was still being used by Indians. It is one of the few definitely identifiable stops on the Santa Fe Trail across the Texas Panhandle. The pictographs are suffering from age, but have not yet been damaged appreciably by vandals. Because of its significance to a wide span of Indian history including the time of the villagers, and because of its attractiveness, it is worthy of recognition and protection.

References: Mason 1929: 327-335; Jackson 1938: 308-312.

Landergin Mesa

Location: In Oldham County in the Texas Panhandle, south of the Canadian River on the east side of East Alamosa Creek.

Owner: Mansfield Ranch, Vega, Texas

Significance

This is a Panhandle culture ruin consisting of a series of structures crowded together on top of a steep-sided mesa. It is one of the largest, best stratified, least damaged, and most spectacularly located ruins of the Panhandle culture. It is an apartment-type of structure with rooms stacked up several yards high and spilling off the edges of the mesa. It was occupied about A.D. 1300-1450 by a Plains village agricultural group who were using architectural customs borrowed from the Pueblo Indians to the west. There has been relatively little disturbance of this site, either by pot-hunters or archeologists -- a most exceptional circumstance. Since most Panhandle culture sites have been, and are being, extensively damaged by pot-hunting, the protection of a representative and little-damaged site like this one is essential.

Alibates Ruin and Quarry

Location: Potter County, in the Texas Panhandle, south of Canadian River, on east side of Alibates Creek.

Owner: Bivins Ranch, address 215 East Third, Amarillo, Texas. The Canadian River Municipal Water Authority plans to buy this land for use as a recreation area associated with the Sanford Reservoir. There is also a bill currently (May, 1963) in a Senate Committee of the U. S Congress to make this site a National monument.

Significance

The Alibates Ruin is one of the largest villages of the Panhandle culture, and probably the richest source of information about it. It includes many dwelling structures ranging from isolated houses to a multi-roomed pueblo, showing a long development of the Panhandle culture and a mixing of Plains and Pueblo elements. It was occupied by a group of agricultural Plains Indians of about A.D. 1300-1450 whose culture was closely related to the contemporary village cultures of the Southern and Central Plains. Pueblo influence is evident in the multi-roomed structures. A few rooms were excavated by J. Alden Mason for the University of Pennsylvania Museum in 1929, and some work has been done for the Panhandle-Plains Museum.

The near-by Alibates Quarry constitutes the chief source of a distinctive pseudo-dolomite (Alibates Flint or Amarillo Flint) which was traded widely from at least 12,000 years ago to recent times, as a material for flint tools. Artifacts of this material are found for many hundreds of miles in every direction. This is one of the most famous aboriginal flint quarries in North America.

References: Mason 1929: 328-333; Shaeffer 1958.

EAST

Alabama

Moundville

Location: Left bank Black Warrior River, just west of the A.G.S. Railroad, bisected by the Hale-Tuscaloosa county line; one mile west of town of Moundville (Fig. 64).

Owner: Alabama Museum of Natural History.

Figure 64. Mound B, Moundville, Alabama. This is the largest (height, 57 feet) of the group of 29 mounds.

. . . . . .

Significance

This is the type site of the Moundville phase; other components include the Bessemer site. Moundville is a very well preserved major ceremonial temple mound site with some twenty mounds now extant. It has a fine little museum which displays both artifacts from the site and two burial areas in situ.

This site is one of the three major Southern Cult centers and as such has produced a great quantity of very elaborate ceremonial material much of which is well illustrated by C. B. Moore in his two volumes on the site. The excavations by its present owners (the State of Alabama) during the 1930's when it was developed as a State Park have not been extensively reported, although important work was done over much of the central part of the site in excavations under the present park roadway. A portion of this excavated material and Moore's material which is at the Heye Foundation in New York is presently being worked by a Harvard graduate student in a Ph.D. thesis.

The site is also a major representative of Mississippian culture in the southern portion of its distribution. It acted as the center for a southerly diffusion of this culture

toward the Gulf Coast. The site is primarily late in time - dating approximately from A.D. 1000-1500, but there are some earlier occupations (evidently of minor importance) which cover nearly the whole time sequence in the area.

References: Jones and DeJarnette n.d.; Moore 1905, 1907.

Arkansas

Nodena

Location: NW 1/4 SW 1/4 Section 1, T11N, R11E, Mississippi County.

Owner: Heirs of the Hampson family, Wilson, Arkansas

Significance

This is the type site of the Nodena phase, an important late Mississippian culture component. The site is not in exceptional condition at the present time, as it has been farmed for over 100 years, as have most of these northeast Arkansas sites. Its importance lies in the excavations which were carried out here by the University of Arkansas and the University of Alabama during the 1930's. The late owner, James K. Hampson, also carried out extensive excavations at the site, and his material is now preserved in a small museum near the site.

The site produced in excess of 1500 burials, and a number of pottery vessels (probably more than 2000). It was, therefore, a rich site, but its mounds and village areas were important, too, and Hampson excavated them also.

The major mound is still extant, although plowed down considerably. Although a great amount of excavation has been carried out at this site, it is extremely likely that important material is still in the ground as certain portions of the site were not available for excavation during the 1930's.

Reference: Dellinger and Dickinson 1940.

Parkin

Location: NW 1/4 NW 1/4 Section 34, T8N, R5E, Cross County.

Owner: Northern Ohio Cooperage and Lumber Co., Parkin, Arkansas.

Significance

This is the type site of the Parkin phase, a late Mississippian culture component, in northeast Arkansas, centering on the St. Francis River. It is an extremely rich site of the type called "St. Francis" which is characterized by concentrated midden areas of considerable depth. There is a well preserved temple mound overlooking the banks of the river.

Like most northeast Arkansas sites of this period, the site has been extensively "pot-hunted" for the whole vessels which invariably accompany all burials. However, few if any of these large sites have really been completely ruined by these activities, for the quantity of material still exceeds the capabilities of those who seek the pots. Thus this site should still be considered as having some real archeological potential in the ground. Also, the pot-hunting activities have concentrated solely on burials and all other material has been left alone.

Reference: Moore 1910.

Florida

Crystal River

Location: On north side of Crystal River, about 4.5 miles from mouth, Citrus County.

Owner: Mr. & Mrs. Robert J. Knight, Safety Harbor, Florida.

Significance

This is an important site because of the complex of mounds that is found there and also for the very unusual material that has been found there. It is certainly one of the most important sites in the State of Florida, and has recently been re-investigated by the Florida State Museum.

A fair portion of the site is in good shape, although modern housing developments are encroaching on it. The recent work by the Florida State Museum was done in an attempt to get more data on this fascinating site before any more damage was done.

This site has archeological connections with sites far to the north and some of the pottery on the site is unique for this time level and area. The occupation on the site

apparently runs from around the time of Christ until well into the first millennium A. D.

References: Willey 1944, 1948; Moore 1903, 1907a.

Georgia

Etowah

Location: About three miles southwest of Cartersville, on north (right) bank of Etowah River, Bartow County.

Owner: Georgia Historical Commission.

Significance

This site is one of the three major Southern Cult centers in the East, and has produced a vast quantity of elaborate ceremonial material. The site is excellently preserved as a park by the Georgia Historical Commission, and their small museum tells the story of the site very well.

First major excavations at the site by Moorehead provided a good indication of the richness of the ceremonial trappings to be found in some of the graves in Mound C. However, the modern work at the site by the Historical Commission was able to preserve and take out of the ground many items such as a wooden mask which probably could not have been saved at the time of the earlier work.

The three mounds are in good shape; Mound C was completely excavated but has been restored to nearly its original size and shape; Mounds A and B are grass-covered and retain much of their original shape.

This site is important as an expression of the eastern expansion of Mississippian culture in the period around A.D 1350.

References: Kelly 1954; Kelly and Larson 1957; Moorehead 1932.

Kolomoki

Location: Kolomoki Mounds State Park, Little Kolomoki Creek, Early County.

Owner: State of Georgia, Parks Commission.

Significance

Preserved in a State Park, this impressive site contains the largest mound group in the Gulf Coast area, and has yielded much elaborate pottery, some of which is displayed in a small on-site museum.

The site is the type site for the Kolomoki culture, which seems to be a local variant of the Weeden Island culture. Extensive excavations have been carried out at the site and provided a rich amount of detail on burial practices. The custom of placing large deposits of elaborate pottery as burial offerings has provided the museum with the fine collection of pottery mentioned above.

The site covers a fair time span from approximately A.D. 600-1400, the later part of the sequence known from a minor Lamar occupation on the site. This site is important as a major ceremonial center utilizing the Temple Mound tradition, but not partaking of the Mississippian culture. It is an important component of the Gulf tradition.

Reference: Sears 1956.

Indiana

Angel Mounds

Location: In Sections 5 and 6, T7S, R9W, Vanderburgh County. 87° 27' 30" W, 37° 56' 30" N.

Owner: Indiana Historical Society, State of Indiana.

Significance

This impressive temple mound site is one of the top ten sites of this kind in the East. The magnitude of the mounds is exceeded only by the tremendous quantity of scientifically excavated data that this site has produced.

Excavated for nearly two decades by Glenn Black, this site has been the scene of a number of archeological innovations and experiments including soil and vegetation analysis and resistivity tests with a proton magnetometer.

The mounds are enclosed by a large palisade with regularly spaced bastions, a portion of which has been excavated. The site has produced, quite literally, more than two million catalogued specimens, but this quantity should

not suggest that the site is "dug out" or depleted since it was intensely occupied and is still producing new materials.

The archeological significance is seen in the fact that it is the easternmost major outpost of Mississippian culture on the Ohio River. It admirably represents the spread of this culture during the period A.D. 1000-1500.

The site is well preserved and has a beautiful and pleasant location and appearance as a park, at the present time.

References: Black 1944; Lilly 1937.

Illinois

Cahokia

Location: Sections 34-36, Madison County, and Sections 1 and 2, St. Clair County, east of East St. Louis.

Owner: Part (144 acres) State of Illinois; remainder, various owners.

Significance

One of the major sites in North America, this large temple mound site is dominated by Monks Mound, nearly 100 feet high. The central portion of the site is preserved by the State Park, but, unfortunately, a great many of the out-lying mounds have been destroyed in recent building and highway work. At one time the site had nearly 100 mounds. The approximate size is probably more than three square miles.

The village area is exceedingly rich and salvage excavation during the past few years has brought to light a wealth of information on architecture and village planning.

This site is often thought of as a fountainhead of Mississippian culture, and influences from this major center can be traced to the north and west. The site itself ranks as one of the outstanding monuments of American Indian culture, and its present condition is a sad commentary on the lack of understanding that is sometimes shown toward historic monuments of this importance.

References: Bushnell 1904; Grimm n.d.; Moorehead 1928; Titterington 1938.

Kincaid

Location: Section 26, T16S, R6#, Massac County and Pope County.

Owner: Metropolis City National Bank, Metropolis (last record).

Significance

This site is one of the major temple mound sites in southern Illinois, and as such was chosen for intensive archeological research by the University of Chicago in the 1930's. These excavations set up the Kincaid phase based on this type material.

The site is in moderately good condition at the present time. Its importance lies in its position as the latest member of the sequence set up in this area, and because of its location on the Ohio River as a trade station up the river to sites such as Angel. It also received influences from the Cahokia area, and the important center of Mississippian culture across the river in southeast Missouri.

Reference: Cole 1951.

Louisiana

Poverty Point

Location: W 1/2 Section 13, E 1/4 Section 14, T19N, R10E, West Carroll Parish

Owners: Mr. Randolph Marston, Shreveport.

Significance

This is undoubtedly one of the most important sites in North America. Its huge mound and circular earthworks are dated around 1000 B.C. and as such represent a construction of earth rarely equaled on this continent at any time period.

The richness of the site in artifactual remains is also extraordinary, with the midden deposits in the circular embankments literally spewing forth fragments of baked clay balls and stone work. The private collections from the site also attest to the height of skill and craftsmanship of the Poverty Point culture in work in red jasper and hematite.

The level of culture attained by this culture is something of an anomaly, especially since the economic basis is not known, although agriculture has been inferred.

The site is in good condition generally, although the circular embankments are plowed down in most places, except where they have been in woods. The mound is in good shape. With the nearby Jackson site, most of the cultural sequence of the region is available in one locality.

Reference: Ford and Webb 1956.

Marksville

Location: Northeast one mile from town of Marksville on bluffs overlooking Old River, Avoyelles Parish.

Owner: State of Louisiana, Parks and Recreation Commission.

Significance

This is the type site for the Marksville culture and the discovery of Hopewellian-like material at this site in the 1930's led to the recognition that this culture was widely spread over the East.

The site is in good condition with most of the mounds restored to their original condition. The surrounding earthwork is in good shape as well. There is a good on-site museum which interprets the site for the public.

This site is still the best example of the connections of Ohio Hopewell with that in the south, and, with the other sites in the locality, (Greenhouse, Av25) form the basis for what has been called the best known sequence in Southeastern United States.

Reference: Setzler 1933.

Mississippi

Holly Bluff (Lake George)

Location: Section 11, T11N, R5W, Yazoo County.

Owners: L. Phillips and C. Perry, Holly Bluff.

Significance

This impressive mound site has been damaged by farming and by building placed on the mounds, but some twenty mounds still remain, and the encircling wall and ditch are in quite good condition.

This site is the type site for the Lake George phase, but also has components which cover almost the entire culture history of the locality since there is a Poverty Point site adjacent to it. The major occupations are Coles Creek, Plaquemine and Lake George.

Excavations were carried out in 1958-60 by the Peabody Museum of Harvard University and a report on this work is in preparation.

The site is important in that it is on the southern margin of the Mississippian cultural advance down the Mississippi and on the northern edge of that of Coles Creek and Plaquemine.

Reference: Phillips, Ford, Griffin 1951.

North Carolina

Town Creek

Location: 4.5 miles southeast of Mount Gilead, on right bank Little River, 79° 56' 08"W, 35° 11' 00" N.

Owner: State of North Carolina.

Significance

This important temple mound site has been preserved by the State of North Carolina, and parts of the aboriginal construction has been recreated, including the palisade and a temple on top of the mound. There is a new on-site museum to interpret the extensive remains that have been excavated from this site during work carried out there for the past twenty years.

This site represents a movement of people into this part of North Carolina with a Mississippian-influenced culture in late prehistoric times. It is also about the northernmost temple mound on the East Coast.

Tennessee

Pinson Mounds

Location: North bank of South Fork Forked Deer River, Madison County; apprcximately one mile southwest of Five Points; 88° 40' 42" W, 35° 30' 00" N.

Owners: Messrs. Sauls, Cochran, Williams, State of Tennessee, et al.

Significance

The Pinson Mounds site consists of several mounds--probably more than 30--including four large pyramidal structures, at least two major conical mounds, an effigy mounds, thousands of yards of earthworks, and other features. It was enclosed, in part, by a palisade. It has been estimated to encompass a minimum of 1000 acres.

The site is of major importance as one of the few large temple mound sites with an earthworks. Also, the fact that it is located on a minor interior drainage system is considered to be significant; all other sites of this magnitude are located on either the Mississippi-Ohio drainage or some major southeastern stream.

The Pinson site is of further importance in its location because it is near the often-posited center of the origin of the Mississippian culture in western Kentucky-Tennessee. Thus, it may have played a leading role in the rise of this important southeastern culture. The possible association here of Mississippian wall-trench houses and temple mounds with pottery of the Woodland ceramic tradition is also of major archeological interest since it is almost an unique situation for sites of this magnitude. This association has been questioned, but definitive information is not yet available.

The site is quite well preserved and preliminary work at the site shows a considerable time span of occupation from Hopewellian times until well into Mississippian. There is here as well, the possibility of gaining important data on earthworks and architecture at a very low cost in time and labor.

References: Fischer and McNutt 1962; Morse and Polhemus 1963; Nuckolls 1958.

West Virginia

Grave Creek Mound

Location: Tomlinson and Ninth Street intersection, Moundsville, Marshall County.

Owner: State of West Virginia

Significance

This mound is one of the largest in the Eastern United States and is representative of the Burial Mound tradition and the Adena culture. Few of the Adena sites remain intact today. Thus, although this mound has been extensively excavated, with work at the site going back over 100 years, its preservation is significant.

The mound probably dates around 500 B.C. and the Poverty Point and Motley Mounds of Louisiana are the only ones that are of comparable height at this general time range.

Reference: Norono 1962; Townsend 1962.

Wisconsin

Aztalan

Location: Sections 17, 20, and 21, T7N, R14E, Jefferson County, west bank Crawfish River.

Owner: State of Wisconsin.

Significance

This large temple mound site is on the northern edge of the distribution of these mounds and the site represents a "site-unit" intrusion from the south, probably from a Cahokia homeland.

The site is well preserved as a state park and extensive excavations have been carried out to help in the interpretation of the remains.

The site has a number of components and some of the material found on the surface covers a long time range. The major occupation probably dates around 1200-1300 A.D.

Reference: Barrett 1933.

PUERTO RICO

Capá

Location: In Barrio Caguana, Utuado Municipality, between highway No. 17 and Rio Tanamá.

Owner: Commonwealth of Puerto Rico.

Significance

This is a site with great time span that has been excavated in part by several archeologists. Mason, Aitkin, Rainey, and Rouse have made various tests there. Most recently, Alegría, of the University of Puerto Rico, has purchased the site and conducted the first extensive tests there. The site is destined to become an archeolocigal monument of the Commonwealth of Puerto Rico.

The size of the site is very great -- at least 1000 feet in diameter. Its outstanding feature is a large central plaza surrounded by seven ball courts. Stone paved walks bound the plaza on two sides. Also, there are more megaliths (slabs with petroglyphic faces and designs on them) than at any other site in Puerto Rico.

In addition to the more spectacular features, house sites and a dance ground are present. The midden is sufficiently deep that stratigraphic studies are possible. Very little of the site has been completely excavated.

The pottery from this site is the basis for establishing the distinctive Capá style.

It may be pertinent that some students of Puerto Rican history consider this site the ceremonial center for Chief Guarionex's people.

Reference: Rouse 1952: 474-478.

Ostiones

Location: On tip of land called Ostiones Point, about four miles west of village of Cabo Rojo, Barrio Miradero, west end of Puerto Rico.

Owner: Unknown.

Significance

This site is considered to be the most widely-known shell heap in Puerto Rico. It has been test-pitted by Samuel K. Lothrop, Herbert J. Spinden, Theodoor de Booy, and several other notable archeologists. It has most recently (1962) been visited for a second time by Rouse.

The site is not large, being nearly 300 feet in diameter, with greatest midden depth about five feet. It is definitely a village rather than a camp site and has several house mounds still visible.

Ostiones artifacts, especially pottery (sherd) collections are quite extensive in several museums in America. These collections have been the basis for establishing Ostiones as a cultural style or phase with recognized relations throughout the Greater Antilles and beyond.

Not a lot of the site remains undug, but sufficient is there to warrant preservation for future study.

Another reason for recognition of this site is that its settlement pattern and plan is like that described by Columbus when he landed in Puerto Rico, but the archeological content does not support a historic contact date according to Rouse.

Reference: Rouse 1952: 393-397.

Cañas

Location: East bank of Cañas River, just above the fork with Pastillas River in Municipality of Ponce.

Owner: Unknown.

Significance

This is the site at which Cuevas style pottery was first recognized. It has had rather close attention by archeologists for decades, but only a small portion has been excavated.

The size of the site is not greatly impressive, but it covers several acres. A part, perhaps 300 x 200 feet has nearly eight feet of accumulated midden. The midden is stratified with a representation of Cuevas and Ostiones styles. Also there is evidence that "horizontal"

stratigraphy is present, i.e., one portion of the site was occupied before another.

This site is easily accessible; it is near Ponce and has an ideal location for preserving as a park or monument.

Reference: Rouse 1952: 522-528.

VIRGIN ISLANDS

St. John

Coral Bay

Location: At the head of Coral Harbor and about 1000 feet west of small community of Coral Bay. 18° 21' 03" N, 64° 43' 00" W.

Owner: Mr. Will Marsh, Carolina Estate, St. John Island.

Significance

The site has been known for several decades as an important archeological site. Hatt excavated here in 1923 and it has been shown to have a relatively long time span. It is of undetermined size because much is in pasture, but it has been estimated to encompass at least five acres. Its ecological setting suggests an ideal location for aboriginal occupation. The only griddles from this part of the Antilles were found here. The site represents the Virgin Island equivalent of the Cuevas culture of Puerto Rico.

References: Bullen 1962; Hatt 1924; Sleight 1962.

St. Thomas

Magens Bay

Location: At head of Magens Bay, northeast end of beach, about one mile north of Charlotte Amalie.

Significance

This site has been several times investigated, and it continues to be one of the best sites for revealing the transition from Ostiones culture to the last just-prehistoric cultures in the West Indies. Burials and other

cultural data have come from the site in such quantity as to render stratigraphic analyses possible. Recent test excavations there by Bullen enable us to utilize most of the past information in a new interpretation. This site may well serve this function in the future as re-interpretations become desirable.

References: de Booy 1917, 1919; Bullen 1962; Hatt 1924; Krieger 1938.

OTHER SITES CONSIDERED

FAR WEST

Arroyo Sequit, Los Angeles County, California.

This site is an excellent example of late Canolino or Chumash culture. It is a large site upon a shelf along the beach. The site was excavated by the Heye Foundation in New York. The famous figurines from here are part in New York and part at the Los Angeles County Museum. There has been considerable doubt expressed about these figurines by the profession.

Blue Tent Creek Site, Tehama County, California.

The importance of this site lies in the fact that it has yielded a series of burials and grave lots which have defined the late culture horizon for the upper Sacramento Valley. Trade relationships between the Northwest coast of California and the upper Sacramento Valley have been demonstrated through the excavation of this site.

Borax Lake Site, California.

The Borax Lake site provides the earliest known cultural occupation in the North Coast Ranges of California. It is distinctive because of the Borax Lake Fluted Points recovered there.

The site has been extensively trenched by professional archeologists but additional site deposit exists which would certainly yield additional data. A portion of the site is in orchard, therefore, much of the site is extant.

Brooks Island Sites, Contra Costa County, California.

The biggest of the Bay's lesser isles is Brooks Island, four times the size of Alcatraz, yet unknown to most Bay area residents. It has little claim to distinction, however, being simply a barren hill rising one hundred fifty feet out of the Bay, 3/4 mile west of Richmond. It has at various times been

the site of a sheep pasture, a quarry, an orchard, a piggery, and a shrimp camp. There are actually four sites on the island, two of which are of major importance. Site CCO-290 is a deep shell midden with house pits of the Late Middle Horizon. Part of this site extended into the Bay at one time. Site CCO-291 is covered with California buckeye. This site has been previously excavated or potted, but is still worthy of excavation. David Frederickson has excavated at site CCO-290 with the permission of the landowner and the artifacts have been deposited at University of California. N. C. Nelson tested the site in 1910 and went 12 feet below sea level. These are the only good sites remaining on the east side of the Bay.

Buena Vista Site II (4-Ker-40), California.

Excavations at this site have established the prehistoric cultural sequence for the southern San Joaquin Valley, and have thus allowed cultural and temporal comparisons with the south coastal region of California and central California.

Digawethatkil - Site Hum-23, Humboldt County, California.

This Wiyot village was abandoned before 1850, but underneath the historic Wiyot village is the largest shell mound in the Humboldt Bay area. Loud recorded it in 1918. It is one of the three most important shell mounds of Humboldt Bay. (See Gunther Island).

Ellis Landing, Contra Costa County, Richmond, California.

This was one of the larger of the San Francisco Bay shell middens which was examined by N. C. Nelson, E. W. Gifford, etc. It had a total depth of some 32 feet of which 18 feet were under the present San Francisco Bay level. The latter evidence was used to demonstrate that San Francisco Bay had submerged some 18 feet in the last 3000 years. Though poorly excavated this site contributed much to the early understanding of the prehistory of San Francisco archeology.

Estero Site, Marin County, California.

This is a culturally stratified site which in its upper levels contained a 16th century European contact material of

Chinese porcelain and iron spikes which have been attributed to the wreck of Cermeno's Manila galleon. Though the site was totally excavated the cultural material remains were quite poor.

Fernandez Mound, also known as Rodeo Creek Shell Mound, Contra Costa County, California.

In several respects the Fernandez mound is unusual. First of all, it is a typical shell mound accumulation although it is situated approximately four and one-half miles from the nearest existing source of shellfish. Secondly, the site reflects the most intensive occupation of Phase II of the Late Central California Horizon archeological culture known in the region of San Francisco Bay south of Marin and Napa Counties. Also, the mound presumably presents a nearly continuous aboriginal occupation from the earliest defined archeological culture known in the region through the early historic period.

Three main archeological components may be distinguished on the basis of burials and their accompanying artifacts. The components are: A, Phase II, Late Horizon, Fernandez Facies; B, Phase I, Late Horizon, Emeryville Facies; C, Middle Horizon, Ellis Landing Facies. The site was virtually destroyed in 1958.

Greenbrae, Mrn-76; Nelson site 76, Marin County, California.

A shell mound 17 feet deep with cultural stratified components of the Late and Middle Horizons. Excavated in 1909 by N. C. Nelson (U.C.).

As analyzed by Beardsley, the upper four feet of midden, and four burials, represent the Emeryville facies (Phase I) of the Late Horizon, while the remaining 13 feet of midden and one burial represent the Ellis Landing facies of the Middle Horizon.

Howells Point, Colusa County, California.

A large mound 16 feet deep with culturally stratified components of the Late and Middle Horizons. Excavated in 1935 by W. R. Wedel when a student at University of California.

Historic River Patwin occupation of the village of Palo is represented by three burials. The Middle Horizon is represented by six feet of midden; though no burials were found it is probable that two components are present.

Karlo Site (4-Las-7), California.

This site is important because it has provided a number of grave lots which contain shell beads obtained in trade from central California. These beads date from the end of the Early Horizon or the beginning of the Middle Horizon, thus roughly 4000 years ago. The Karlo Site, therefore, provides the best known link between central Californian and western Great Basin cultures.

McClure Site, Marin County, California.

This site is the type site for the McClure Facies (Middle Horizon) of the Coastal Province of the Littoral Zone of central California. Its importance lies in the fact that it demonstrates cultural relationships between the San Francisco Bay area and the southern coastal portion of the North Coast Ranges region of California.

Mendocino Complex, Mendocino County, California.

This site, excavated by Dr. C. Meighan, is important because, with the exception of the work done by Treganza, Weymouth, and Smith in Round Valley, little was known about the prehistory of Yuki Indians. The excavation of Men-500 was significant enough to permit the defining of a so-called Mendocino Complex for this general region of northern California. The site was typified by a series of unusual "rock cairn" structures.

Mescalitan Island, Santa Barbara County, California.

This island contained three contact sites and a hunting people site. One-third of the island has been destroyed by bulldozing into the swamp and thus it is no longer an island. Although an excellent site from an archeological point of view, it offers nothing for interpretation. The island has now been taken over as the site of University of California of Santa Barbara and its buildings cover the site.

Miller, Colusa County, California.

The Miller Mound is site Col-1 in the UCAS records. This 90 yards diameter and 13 feet deep burial mound is very important in being one of the oldest sites in the Central Valley. It was excavated in the summer of 1936 and 1937 by R. F. Heizer of the University of California.

Napa - 57, Napa County, California.

Napa - 57 is the type site for the Wooden Valley Complex as described on the basis of a collection made by Mr. D. T. Davis of Napa. This complex represents the protohistoric period. It is typified by loose ashy midden deposits on or near stream courses. The dead were frequently cremated and placed under inverted bowl mortars. Frequently recovered objects include shell and stone beads, stone pipes, various bone objects and Haliotis shell ornaments. These traits indicate that the complex may be directly equated with the Late Horizon Phase II occupation in the Sacramento-San Joaquin Valleys.

Newark (Patterson Mound, Ala-328), Alameda County, California.

The Newark mounds consist of four village sites Ala-326; 327; 328; 329. Only two of these villages have been excavated (Ala-328 and 329) first by W. Wedel in 1935 and currently by San Francisco State College (Ala-328) and Stanford University (Ala-329).

The largest and most intensively excavated site has been (Ala-328) where field training has been carried on by San Francisco State College every fall semester since 1949 (15 seasons). The site is typically of Middle Horizon in the lower levels and represents an early phase of Late Horizon in the upper few feet. The deposit has a maximum depth of about 14 feet. The lower component B has a radiocarbon date of about 400 B.C. Artifacts from this site now number over 3000 specimens, 430 human burials, and about 100,000 bird, fish, and mammal bones.

Owens Valley Petroglyphs, Mono County, California.

The Red Canyon, Chidago Canyon and Chalfant Valley

petroglyphs are a group located just north of Bishop in the upper Owens Valley (Fig. 65). Originally these fine petroglyphs were set aside by Executive Order No. 5182 of August 29, 1929, by President Herbert Hoover. The order withdrew five small parcels of land in California and two small parcels of land in Nevada for a proposed Owens Valley Petroglyphs National Monument. The Bishop Chamber of Commerce has set up a small brochure on these sites and has marked the sites with signs for visitor tours.

Painted-Cave, Santa Barbara County, California.

The sandstone cave is 15 feet wide, eight feet high and twelve feet deep. A heavy iron grill with locked gates closes off the cave from the public. The pictographs are well preserved with brilliant colors; probably the best preserved in the state due to their being in a cave and protected from vandalism. The design elements of circles, stars, and other geometric patterns are in red, black, white, cream, grays, blues, and yellows. The cave is small, accessible, and easy to take care of. It overlooks a chaparral and oak canyon and opens to the north. Indian campsites with pottery surround the area. The elaborate pictographs are probably protohistoric Chumash.

Painted Rock of the Carrizo Plain, San Luis Obispo County, California.

The horseshoe shaped rock is a dome of gray granite rising out of the Carrizo Plain, 140 feet high, 1000 feet in diameter. The interior is naturally scooped out into a chamber 120 feet high. The walls contained red, white, and black painted pictures of humans, turtles, snakes, lizards, insects, wheels, etc. At one time this rock had the most beautiful collection of Indian paintings in the state and should have been preserved. Unfortunately, through tourism, the site has been gradually destroyed, so that there is nothing left today. Names have been painted and carved over the entire rock and the pictographs destroyed by souvenir hunters. This is a perfect case of absolute and thorough vandalism.

Placer 5, Placer County, California.

Placer 5 is type site for the Martis Complex of the

central Sierra Nevada region of California. This complex is the earliest known cultural manifestation so far described in this section of California. The complex is characterized almost entirely by a lithic industry and heavy use of basalt for the chipped stone artifacts. Cultural and temporal relationship can be traced to central California, west central Nevada and northeastern California. Placement in time is estimated to extend from 1500 B. C. to A.D. 500.

Prisoner's Harbor Shell Mound, Santa Cruz Island, California.

The island contains many shell mound villages, of which some have been vandalized, but the remainder are in excellent condition. Leon de Cessac made an archeological collection in 1878 including Santa Cruz Island. This collection is now in the Musee de L'Homme, Paris. Sites extend from very early to the recent contact Indian phase.

Sandhill, Colusa County, California.

A small mound 3.5 feet deep with components of the Late and Middle Horizons, it was excavated in 1938 by R. F. Heizer and F. Fenenga. All collections are now in the University of California Museum of Anthropology and incomplete notes are filed in the University of California Archaeological Research Facility.

The two components of the Late Horizon represent Phase I (14 burials are early Phase I; 4 burials are middle Phase I). A Late Middle Horizon component has been reported by amateurs but is not represented in the controlled excavations.

San Joaquin River Mounds, San Joaquin County, California.

A series of mounds in the vicinity of Stockton excavated around the turn of the century by two groups of amateurs led by J. A. Barr and H. C. Meredith. Barr catalogued specimens

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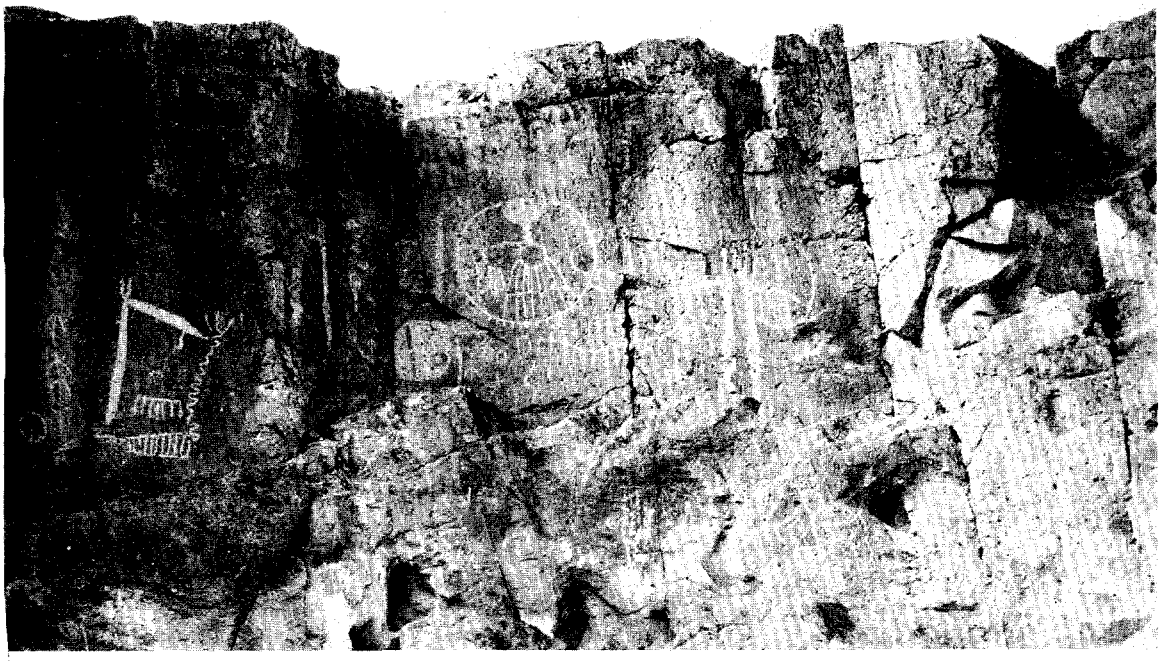
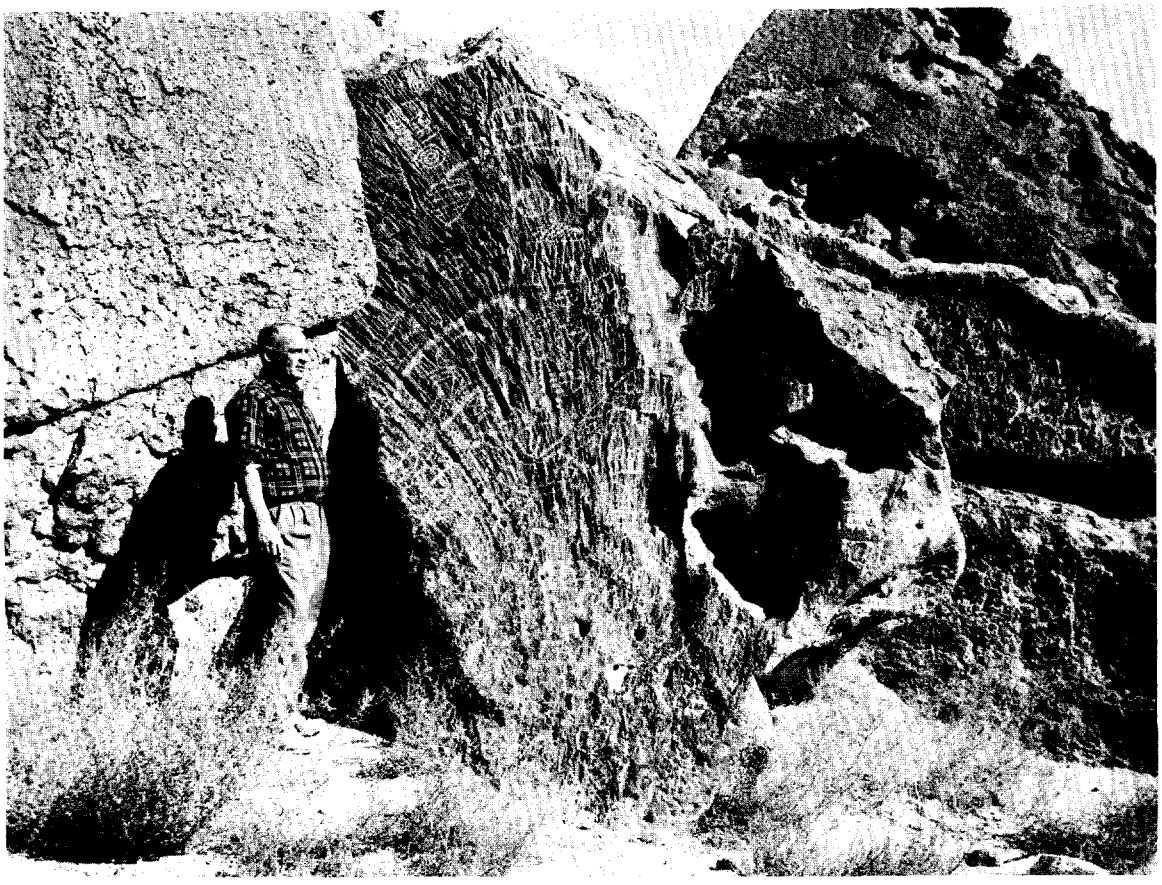
Figure 65. Owens Valley Petroglyphs. Upper photograph: Chalfant Canyon petroglyphs. Lower: Chicago Canyon (Julian Stewart site No. 37). Photos courtesy of Paul J. F. Schumacher National Park Service.





by site and frequently by grave lot with depth; his collection is now in the University of California Museum of Anthropology. The less well documented collection of Meredith is now in the Museum of the American Indian, Heye Foundation, New York City.

San Nicholas Island, Channel Islands, California.

This island contains many sites covering several time periods. Considerable work has been done here and bibliography is quite extensive. The 1959 excavations included six different sites, with a total of 33 burials exposed. It is possible to compare San Nicholas Island traits with those from the Early and Late Canalino periods of the Santa Barbara coastal region, ranging from 1000 B.C. to A.D. 1000.

San Pablo; Batha; Kimball; Contra Costa County, California.

A problematical site described by early visitors as 1.5 miles in diameter, and over 20 feet high. No evidence for such a large site has ever been found. Nelson suggests that the observers may have assumed that three large but distinct mounds were actually one site. Only small collections were salvaged from these sites during their partial destruction; these are now in the University of California Museum of Anthropology.

San Raphael Site (Dominican), Marin County, California.

This is one of the last surviving shell mounds in the San Raphael region, the rest having all been destroyed through modern housing projects. This site was tested by Treganza in about 1957 for the California State Division of Beaches and Parks. The site is large and deep and may well contain stratified data.

Santa Rosa Island, Channel Islands, California.

Santa Rosa Island archeology was very thoroughly discussed under Theme I - Prehistoric Hunters and Gatherers - and recommended as a site of Exceptional Value. This island contains sites from Early Man-Dune Dwellers possibly associated with dwarf mammoth, through all the stages of southern California coastal cultures and through the contact period.

Sausalito Shell Mound, Marin County, California.

This was a large and important site, more or less typical of San Francisco Bay shell mounds.

Scripps Estates Site, San Diego County, California.

A La Jolla site which dated about 3500 B.C. A thorough and scientific report that contains much important climatic, biological, and physiographic data as well as archeological material has been published. It concerns excavations in a large shell midden near La Jolla, occupied about 7500 to 5000 years ago and then abandoned, probably owing to the diminution of shellfish, the principal food. The La Jolla culture, which extended for some distance up and down the coast, was a simple one that succeeded the San Dieguito hunting culture. The La Jollans did little hunting but in addition to shellfish, they gathered seeds, which they ground with metates and mullers. The culture changed little during its 2500 years. The artifacts are simple; projectile points are few.

Seventeen flexed burials, most of them without any ornaments or grave goods were found during 1958-59, but it is estimated that the midden must have contained a hundred burials.

Shasta (Wintu Pumping Plant), Shasta County, California.

This site is to be destroyed with the construction of the Wintu Pumping plant, and therefore it was excavated by San Francisco State College in cooperation with the National Park Service. The site was significant in that the portion excavated was just precontact and provided data on the terminal Indian occupation of the Redding area just prior to the arrival of the first Europeans. Data and artifacts were obtained from a series of 70 pit burials.

Slick Rock Village, Tulare County, California.

This site was first excavated by the University of California. It has now completely disappeared under the water of the Terminus Reservoir.

This site was part of a complex of sites along the Kaweah River dating back several thousand years, up to the

present. Extensive burials and colorful pictographs were also in this area, how completely inundated by a reservoir.

Tommy Tucker Cave, Lassen County, California.

This site excavated by F. Riddell and F. Fenenga was significant in that it produced certain connecting relationships between California, the Great Basin, and the broader western United States. Although the Honey Lake region was within the Pleistocene Lahontan system the cultural remains could not be attributed to any specific early period other than some aspects of Lovelock Cave, Nevada.

Tom's Point, Marin County, California.

This site was named after Thomas Wood, a one time sailor who lived there with his Indian wife and her relatives at least through 1864.

The environmental situation of this site is identical to that of the McClure site (Mrn-266) since it lies directly across Tomales Bay. Greater degree of exposure and fluctuation of water supply from the marsh inland from the site are the only very different circumstances. The cultural material known from this site cannot be correlated with stratigraphy, since the exact location within the site is unknown.

Important is that these sites represent a center of aboriginal manufacture of clam disc beads, an important trade item for the Pomo and Coast Miwok Indians.

Tranquillity Site, Fresno County, California.

Considered by some to be of considerable antiquity is the Tranquillity Site west of Fresno. Remains of extinct fauna were found in seeming association with human burials and artifacts. Whether the association is valid, or not, the human remains are reasonably old.

Kawumkan Springs Midden, Klamath County, Oregon.

The midden is judged to date from at least 7500 years ago to 2000 years ago during which time there was a shift

from a generalized food hunting and gathering economy toward a specialized fishing and gathering economy. At the termination of midden building, pit houses appear which may be interpreted as permanent houses associated with a generalized economy. These houses are the oldest found in the region, yet.

Netarts Sand Spit Site, Ti-1, Tillamook County, Oregon.

This is a village site consisting of several multiple family, plank houses dating from after A.D. 1400. The economy was that of hunting, fishing, and gathering. Both land mammals and sea mammals were exploited for food along with birds. Fish and shellfish were important to the economy. Gathering of plentiful roots, nuts, seed, and berries is presumed.

The earliest occupants of the site are thought to have been pre-Tillamook Salishan speaking peoples who became isolated from other Salishan peoples to the north by the Chinooks. The Tillamooks of the historical period are seen as direct descendants of Salishan people living in the area around A.D. 1670. Cultural change from Salish to Tillamook indicates cultural loss.

The lowest occupation of the site dating A.D. 1400 was located 0.29 feet below the highest tide of 1958 indicating the occupation of the site took place when the sea level was lower.

Wildcat Canyon, 35 GM 9, Gilliam County, Oregon.

The Wildcat Canyon Site located along the Columbia River at the mouth of Wildcat Canyon is an open site where there is easy access to the uplands, freshwater springs, good fishing conditions, nearby mussel bearing shoals and expansive camping or living areas.

The site has been occupied at least 6000 years with indications of permanent dwellings dating from before A.D. 200. The site has produced at this date a semisubterranean house with stone lined walls. A multiple family dwelling which apparently had horizontal plank walls dates around A.D. 600. At about the same time there are ceremonial dog burials.

Bone tools are found with uncommon frequency and include

many varieties of composite harpoons, some of which are decorated. Other decorations and sculpture are found in both stone and unfired clay.

Because it possesses characteristics which are similar to Lower Columbia River and Coastal sites (which are presently considered earlier) this site could represent part of the early development of the Lower Columbia and Northwest Coast cultures.

It has been possible to date the deposit by the radio carbon method, with a minimal time range of occupation appearing to extend from about 1300 B.C. to A.D. 300.

Five Mile Rapids Site, near The Dalles, Oregon.

Listed by the author as a site of Exceptional Value in Theme I, Prehistoric Hunters and Gatherers. Located on the Oregon side of the Columbia River, it is an extremely important site, excavated by the University of Oregon from 1953-1958. This site has contributed an uninterrupted archeological sequence for the past 9500 years. Of great interest is the fact that at the lower levels of the deposits literally thousands of fish bones were discovered in the midden. This indicates that as early as 9000 years ago, at least, man was taking great quantities of salmon from the Columbia River.

Marmes Rockshelter, near Washtucna, Franklin County, Washington.

This site has provided an excellent cultural sequence for the lower Snake River from Altithermal times to the present (Fig. 66). In addition, three burials were discovered in the deposits that predate Mt. Mazama eruption; also, seven, and possibly eight, burials were found that date from the period of 4-6000 years ago. This site will not be completely covered by the Lower Monumental Dam and will be in the proposed recreation area at the mouth of the Palouse River.

Lind Coulee, Grant County, Washington.

Listed by the author as a site of Exceptional Value in Theme I - Prehistoric Hunters and Gatherers.

The Lind Coulee site has the greatest antiquity of any archeological site yet located in Washington (radiocarbon date of about 6800 B.C.). It is a site with deeply buried cultural horizon that provided evidence of the presence of bison hunters in the Northwest between 6000 and 7000 B.C. Projectile points were unlike those used in hunting bison in the Plains.

A variety of stone and bone artifacts, discovered in association with the mineralized bones of a variety of early post-Pleistocene animals was recovered from the site. The excavations of the site, plus the detailed studies of the geology and paleontology of the area, present virtually all that is known about the early post-glacial period of central Washington.

Cattle Point, San Juan Island, Island County, Washington.

This island was reviewed in Theme XIII, Political and Military Affairs 1830-1860 and was designated as eligible for a Registered National Historical Landmark. Excavations of the Indian site indicate the gradual adjustment of a land oriented hunting culture to a maritime environment and the gradual development of a full maritime economic orientation. Unfortunately, no radiocarbon dates are available for the San Juan Island excavations, but the earliest phase, quite likely at about 2500 years ago, represents a Puget Sound interior orientation rather than the full maritime coastal orientation.

The Weiss Rock Shelter, Idaho County, Idaho.

Of several large rock shelters in the immediate locality, this was the only one yielding a complete stratigraphic section dating back more than 8000 years. Occupation of the site began approximately 7500 years ago and continued to ca. A.D 1400. There is a high degree of cultural continuity at the site and this may lead directly into the culture of the Nez Percé.

Wilson Butte Cave, Jerome County, Idaho.

Wilson Butte Cave is a true cavern, containing water deposited and wind blown fill with approximately 10,000 years

of prehistoric occupation (Fig. 66). The cave is a thick blister on the side of a volcanic butte and was excavated in 1959 and 1960 by a joint Idaho State College Museum-Peabody Museum of Harvard University expedition. Earliest settlement was by Plainsmen. Subsequent occupation represents the Desert culture. It is important, among other things, because of cultural and microfaunal sequences. It was the first published stratigraphic excavation in Idaho.

Veratic and Bison Caves, Clark County, Idaho.

The caves are adjacent rock shelters on the eastern flank of the Birch Creek Valley, containing rich archeological deposits excavated in 1960 and 1961 by the Idaho State College Museum. The two sites provide natural and cultural stratigraphy for a time span of about 10,000 years. The last 7000 years of occupation appear to represent a cultural continuum leading directly to the modern Northern Shoshoni. Veratic and Bison Caves together provide a composite picture of culture and environment in eastern Idaho during the span reported.

Danger Cave, Wendover, Utah.

Listed by the author as a site of Exceptional Value in Theme I - Prehistoric Hunters and Gatherers.

Danger Cave is the most important of the Great Basin finds that have led to the formulation of the "Desert Culture" concept. It showed that the Basin type of culture was old and subject to little change over long periods of time. The data indicate that the Desert Culture it contained thrived in an entirely different environment from that of the Paleo-Indian hunters, with which it was contemporaneous. It provided evidence that weaving techniques were in use prior to 7000 B.C. Some of the artifacts indicate that there were connections with California and the western Basin.

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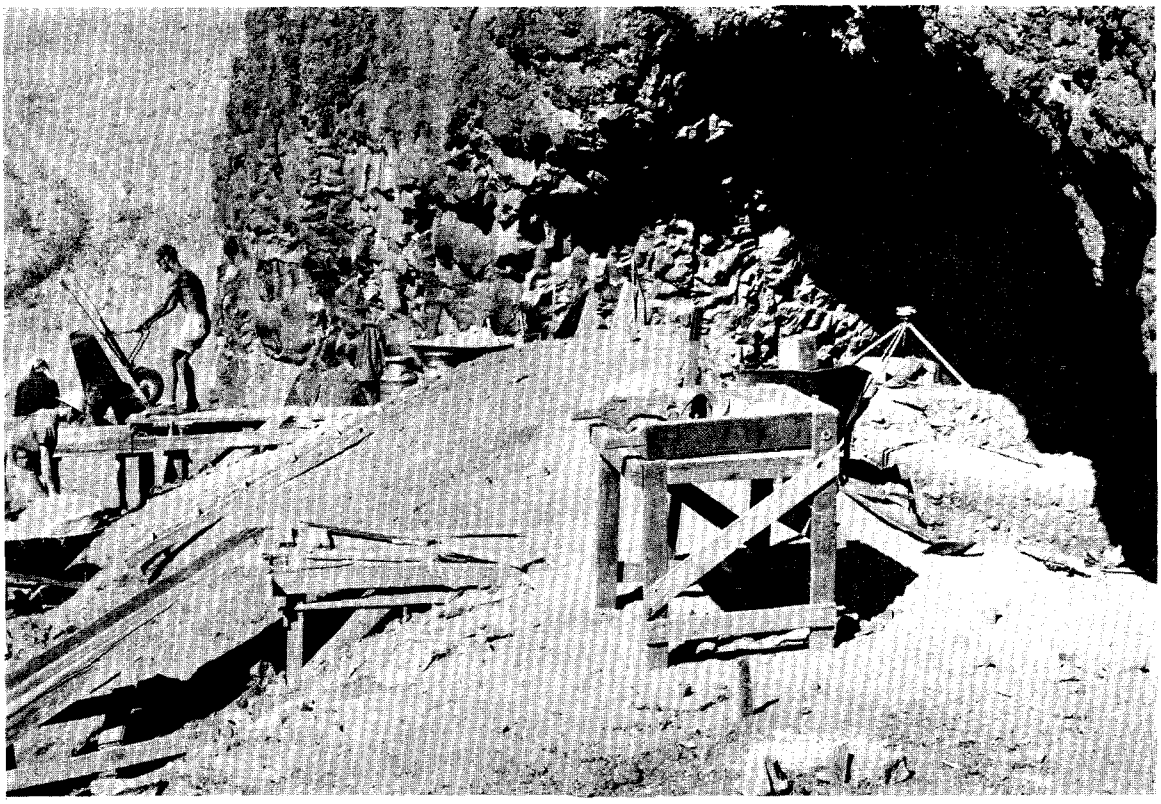
Figure 66. Plateau area sites. Upper: Marmes Rock Shelter, excavations summer 1962. Washington State University photograph. Lower: Wilson Butte Cave excavation. Idaho State College photograph.



Though no extinct mammals were represented in the material recovered from this large deep cave, the tremendous yield of cultural items in stratigraphic position produced one of the best cross sections of long term human development in the Great Basin.

The site was excavated by the University of Utah between 1949 and 1951. Five horizons were recognized and the following dates were obtained -- zone 1, about 9000 B.C., zone 2, about 7 to 8000 B.C., zone 3, no dates obtained, zone 4, about 2000 B.C., and zone 5, about A.D. 20 to 2900 B.C.

Lovelock Cave, Churchill County, Nevada.

Lovelock Cave is a prominent limestone dome which appears to protrude through the sediments of Humboldt Lake in western Nevada. Humboldt Lake is an almost dry remnant of the great Lake Lahontan system. Ancient erosional forces apparently removed half of the dome facing Humboldt Lake, and excavated the hollow (about 40 feet deep, 160 feet wide, and up to 20 feet high) which today is called Lovelock Cave.

At the present time the cave is more than 300 feet above and about 2 miles to the southeast of the shoreline of Humboldt Lake. While there is no evidence to indicate that man's occupation of Lovelock Cave coincided with an appreciably higher level of Humboldt Lake than that seen today, it is clear that the influence of Humboldt Lake or the Humboldt River was strongly felt by the occupants of the cave. Archeologically, therefore, Lovelock Cave, because of its dry deposit, presents a remarkably full inventory of artifacts representing adaptation to both desert and riverine or lacustrine environment. The occupation deposit exhibits some stratification (it is one of the first archeological sites in the western United States where stratified deposits were noted and recorded).

Both the general appearance of Lovelock Cave and the artifacts recovered there from are spectacular, compared with the great majority of the poor remains and inauspicious aboriginal sites found in the vast stretches of the Great Basin.

THE SOUTHWEST

San Simon, Arizona.

San Simon Creek Valley in southern Arizona contains a great number of small unit house structures. In fact, much of the San Pedro and Santa Cruz drainage is dotted with these Mogollon house sites. The area is generally important since there are manifestations of Desert Culture here as well (Fig. 12). The later sites are usually quite rich in ceramic remains.

The sites, scattered throughout the whole area, are collectively important, but it would be difficult to conceive of preserving any in monument status.

Whitewater District, Arizona.

In eastern Arizona, south of Allentown, there are many Basketmaker and early Pueblo sites. In some of the larger ruins, excavated in the 1930's by Bureau of American Ethnology personnel, the transitional stages between Basketmaker and Developmental Pueblo and between Developmental and Great Pueblo are clearly delineated. Two large pueblos are the culminating architecture of the main population center. The pit houses and kivas have been investigated but the pueblos have not. The site was abandoned during Pueblo III times.

Although this is a good concentration of known archeological remains that have been studied in part, the site had best be considered a reserve area. Its importance is its wealth of interrelationships among the early Anasazi living there.

White Dog Cave, Arizona.

A beautiful geologic example, as well as a most productive archeological midden. It is of difficult access. The cave mouth is semicircular, about 120 feet wide at base and 125 feet high. Only a portion of the cave was occupied because of large fallen boulders but the horizontal depth of the cave was over 100 feet.

White Dog Cave is archeologically very important because

of the rich finds of Basketmaker burials in cists. What with several well preserved mummies, the cave has yielded a great amount of data on early Anasazi. Despite this wealth of materials, the cave is not likely to have been a permanent dwelling.

It is now virtually completely excavated.

Durango, Colorado.

In the Animas River Valley the important remains found are Modified Basketmaker. Because sites of this ancient culture are not as well preserved or culturally as rich as Pueblo sites, the several here are significant. The sites are principally pit houses in the open valley terrace, but there are several occupied rock shelters in the area. Even pictographs are notable. Because much of this material has been excavated and excellent reports are available, these sites, despite their importance were not considered of highly significant value.

La Plata District, Colorado and New Mexico.

The upper La Plata River of the San Juan region was thickly populated from Basketmaker through Pueblo III times. Numerous sites have been excavated, more than forty during the course of one man's (Earl H. Morris) study. None of these sites were spectacularly large pueblos, but they were of great importance as casting light on the problem of early Anasazi development.

Pecos Pueblo, New Mexico.

A ridge top pueblo, actually two major buildings, that was entirely surrounded by a rock wall has been thoroughly investigated by Harvard University. It was undoubtedly one of the important early excavations that revealed much information on the relationships between Anasazi and Plains cultures. Pecos also is an important site because it was occupied as late as 1838. A Spanish mission was established there in the 17th century, and the remains of the church and monastery add to the interest of the site. Hence, Pecos is important as a Late Theme III and Historic contact site.

Swarts Ruin, New Mexico.

A Mimbres Valley site consisting of two major structures of contiguous rooms covering a considerable time span. It is probably the best studied Mimbres site.

THE PLAINS

Village sites in the vicinity of Bismarck, North Dakota.

The State of North Dakota has set aside a number of prehistoric and historic sites as public areas where the sites are protected. Examples are Huff, Double Ditch, Menoken, and Molander. The North Dakota record in this respect sets a precedent which could well be followed elsewhere in the Plains.

Village sites on the Missouri Mainstem, North and South Dakota.

Most of the important known prehistoric village sites in North and South Dakota have been, or will soon be, destroyed or damaged by the great Mainstem reservoirs: Fort Randall, Big Bend, Oahe, and Garrison. Examples are Sully, Thomas Riggs, Potts Village, Buffalo Pasture, Dodd, and Swanson; and there are many others. A very few important sites at the edges of the reservoirs will be only partially flooded, or can be protected from wave action, or will not be eroded away for many years; in these cases, as at Medicine Creek, Molstad Village, and Crow Creek, they have been recommended as sites of exceptional value. The Talking Crow site, at the head of Fort Randall reservoir, will survive but it has been much disturbed by highway construction. The Antelope Creek site (39ST55), on the west bank of the Oahe Reservoir, is a promising site on the basis of surface evidences, but its archeological importance is not yet assured and its status with respect to the reservoir level is uncertain; it will certainly at least be cut by wave action.

Lynch site, Nebraska.

This site, on Ponca Creek in Boyd County, near Lynch, was excavated by the University of Nebraska in 1936 and again in the 1960's. A heavy loess overburden caused unfounded speculations

of considerable antiquity which gained wide attention in the 1930's. This is a village site attributable to the Central Plains Tradition, with a later occupation showing Oneota influence.

Lawson Mound site, Nebraska (25KX8).

Lawson Mound, in Knox County, is a Plains Woodland burial site excavated by the University of Nebraska. Its current condition is not known.

Burkett site, Nebraska.

Near Genoa in Nance County, Burkett is one of the largest and most prolific sites in the Central Plains. It is a Coalescent Tradition site which has European trade goods, but there is a possibility that the occupation extends back before European contact. The site was occupied by ancestral Pawnee. The available information indicates that Burkett is primarily a contact period site, and it is therefore not felt to be appropriate to Theme III.

Oneota sites.

The Oneota Culture straddles the line between prehistoric and historic, and is thus relevant to both Themes III and VIII. Most of the Plains Oneota sites have European trade material and are therefore appropriate to Theme VIII: Stanton in Stanton County, Nebraska; Blood Run in Lyon County, northwestern Iowa; and Fanning in Doniphan County, northeastern Kansas. The Ashland site in Saunders County, Nebraska, lacks trade material but is otherwise suited to be an early 18th century Oto village. Only the Leary site among the important trans-Missouri Oneota sites is well beyond the reach of history and is therefore recommended under Theme III as a site of exceptional value.

Sites in Kansas.

In Kansas most of the known important village sites either are being affected by reservoir construction or fall in the period of European contact, whichin this case goes back to the time of Coronado in 1541. The lack of sites available for recommendation under Theme III is caused in no small measure

by the fact that there has been little archeological activity in Kansas until recent years, and current work is largely restricted to reservoir salvage.

Pottorff, Kansas (14LA1).

In northwestern Lane County on Salt Creek, this is a stratified site in which a Plains Woodland occupation is overlain by an Upper Republican occupation. There is also evidence of an earlier occupation. The site was investigated by Wedel in 1939 and reported more recently (Wedel 1959: 381-413) with a recommendation for further work. Champe (1946: 60-61) utilized the stratigraphic information in setting up his over-all chronology for the Central Plains.

Griffing, Kansas (14RY21).

This site is near Manhattan. It was a village of the Smoky Hill Culture, Central Plains Tradition. It was investigated by Wedel in 1937 (Wedel 1959: 178-187).

Minneapolis, Kansas (14OT5).

Near Minneapolis on the Solomon River in Ottawa County is a village of the Smoky Hill culture, Central Plains Tradition. Wedel investigated it in 1934.

Panhandle Culture sites, Texas.

There are numerous Panhandle Culture sites of importance in addition to those recommended as being of exceptional value. The Wolf Creek Ruins were the site of the pioneer archeological work in the region. The Antelope Creek Ruins is the type site of the Antelope Creek Focus. The Saddleback Mesa Ruin is large and spectacular, but is now thoroughly churned by relic-hunters since it is a prominent landmark next to a major highway. Most Panhandle Culture sites have been the objects of intensive looting for more than forty years.

Wylie Focus sites, Texas.

No Wylie Focus sites can be recommended as being of exceptional value because all significant sites of this focus either have been destroyed by the Lavon Reservoir (as in the

case of Hogge Bridge) or are soon to be inundated when the level of Lavon Reservoir is raised.

THE EAST

Bessemer, Alabama.

The best known component of the Moundville phase, which contributed much data on architecture and mound use. Although not rich in artifacts, it is of importance for the site use information it has provided.

McQuorquodale Mound, Alabama.

The best-known site showing Hopewellian influences penetrating into Alabama. Its excavation was important in charting the spread of this culture into the Southeast.

Crenshaw Site, Arkansas.

An important site showing Coles Creek-like material in western Arkansas, the most westerly occurrence. There were rich burial offerings in the tombs.

Haley Place, Arkansas.

The type site of the Haley focus (phase) which produced a good deal of the fine Caddoan pottery now known as Haley Engraved. This is apparently an early site in the Gibson Aspect of the Caddoan sequence.

Menard, Arkansas.

A site on the bluffs of the Arkansas River, very probably associated with the late prehistoric and early Historic Quapaw occupation of the locality, as well as the location of the early French trading locality known as Arkansas Post.

A rich archeological locality on many time levels going back to perhaps as early as A.D. 500.

Rose Mound, Arkansas.

An outstanding component of the Parkin Phase: a classic

example of the "St. Francis" type of village site. Very rich in late Mississippian burials, but also has an important "early" Mississippian component, located stratigraphically early in the excavations carried out there.

Green Mound, Florida.

A large shell midden near Daytona Beach. It is an important site because of its considerable depth and stratigraphic record. The St. Johns period is based on findings here. Much of the site has now been removed for road metal.

Key Marco, Florida.

One of the outstanding sites in North America in terms of the perishable material that was fortuitously preserved in the muck. This material including wooden sculpture is some of the finest aboriginal art so far discovered in America.

The site itself has an impressive location on the Key and is of significance in showing the level of culture attained by non-agricultural peoples.

Weeden Island, Florida.

The type site of the Weeden Island culture which is widespread along the East Gulf Coast. Possibly one of the early phases to have Temple mounds in the Southeast. Noted for the elaborately incised and punctated pottery to which it has given its name: Weeden Island Punctate and Incised.

Deptford Site, Georgia

The type site of the Deptford pottery complex, and early pottery assemblage which is found in Florida and Georgia. Probably dated in the period around 500 B.C. This site has important stratigraphic information bearing on this early pottery horizon. Most of the site is now under a Savannah housing project, but a portion remains on the edge of some industrial developments.

Irene Mound, Georgia.

The type site of the Irene complex, a late prehistoric

phase related to the Lamar culture. Excavations provided good data on mound use and burial customs. The site has been more or less completely removed.

Bilbo, Georgia.

In the eastern edge of the city of Savannah, a shell heap is found in the marsh. The site is now submerged in marsh with 2.5 feet above ground level and 5.0 feet below. The bottom 2.0 feet of the midden are now below sea level.

Bilbo is an Archaic culture site of great importance because of its stratigraphic record. It and the Stallings Island site near Augusta are Theme I sites and do not represent the remains of Early Farmers.

Stalling's Island Mound, Georgia.

This important site is the type site for the Shell-mound Archaic culture which bears its name, and is also an important locality of fiber-tempered pottery also named for the site. Very little of the midden remains after two extensive excavations and construction of a dam. Stallings Island is an inland counterpart of the Bilbo Site near Savannah. It is an Archaic tradition site of Theme I interest.

Mandeville, Clay County, Georgia.

An important multicomponent site with early pottery of Deptford variety overlain by Swift Creek, and with a final occupation of a late Mississippian type known from the Rood site. There are good evidences of Hopewellian influences here as at many Swift Creek sites, and there is also the occurrence of what appears to be a very early pyramidal structure.

Swift Creek Site, Bibb County, Georgia.

The type site for the Swift Creek culture which is noted for its pleasing complicated stamped pottery and its connections with the Hopewellian cultures to the north. In the south it blends with the Santa Rosa culture of the Florida Gulf Coast.

Crable Site, Kerton Township, Illinois.

A site with late Mississippian and Oneota connections which has produced a lote of important data for the sequence in the Illinois valley.

Dickson Mounds, Fulton County, Illinois.

A late Mississippian site which has been partially excavated for display to the public. Typical extended burials with grave goods are exhibited.

Knight Mound Group, Calhoun County, Illinois.

An important Illinois Hopewell site which has produced a series of clay figurines of great artistic merit, comparable to those from the Turner Mound in Ohio.

Snyders Site (C-8), Calhoun County, Illinois.

An important Illinois Hopewell site which is particularly significant because of the sequence of ceramics within the Hopewell culture that it has produced. Also of importance because it has produced data on village life rather than mound ceremonialism.

Mann Site (Po^V2), Posey County, Indiana.

A site with elaborate Hopewellian artifacts which is significant for showing relationships between Ohio and Illinois Hopewell, and between northern Hopewell and the south.

Murphy Site (Po^V1), Posey County, Indiana.

A site near the Wabash River which has a ceramic complex which has strong ties to the Lower Mississippi Valley. A very significant link in the connections between that area and sites farther up the Ohio such as the Angel Mound.

Fox Farm site, Mason County, Kentucky.

An important component of the Fort Ancient Aspect in Kentucky. This is a rich site, which has provided important data on the way of life of the people. It has been excavated

in part in the first decade of this century, but only surface collecting has been done since. It represents one of the typical Fort Ancient villages.

Mt. Horeb Earthworks (Fa-1) Fayette County, Kentucky.

This site is a circular earthworks like many in Ohio and Indiana. It is now preserved by the Archeological Society of Kentucky. It has been excavated completely and restored. About one half mile to the east is a large, earthworks enclosed village, the Peter Village site, and nearby is the Fisher Mound. This collection of sites constitutes the largest assemblage of Adena manifestation in Kentucky. It probably represents one of the best possibilities for an Adena culture monument but it was not included in the list of sites of exceptional value because much of the site is already in a park.

Belcher Mound Site, Caddo Parish, Louisiana.

This important stratified site is the type site for the Belcher Focus and has yielded a wide range of materials including rather elaborate burial offerings from submound tombs. The site shows connections with a late form of the Southern Cult, and apparently part of the site dates from around A.D. 1350.

Gahagan Mound, Red River Parish, Louisiana.

An important series of burial tombs have been excavated from this site which produced a rich variety of artifacts including copper masks of the "long-nosed god." The site probably dates around A.D 1000 and shows connections over a wide area in the Southeast, including Florida.

Greenhouse Site, Avoyelles Parish, Louisiana.

This temple mound site is near the famous Marksville site and provides the Red River sequence with the stratigraphic evidence for post-Marksville occupations. Troyville, Coles Creek and a minor Plaquemine component have been recognized in the excavations.

Ellsworth Falls Shell Heaps, Hancock County, Maine.

These shell heaps have demonstrated a long sequence of occupations for coastal Maine. Four subdivisions have been recognized in the 4 feet of stratigraphy, and named as follows:

1. (lowest) Kelley Phase: Characteristic are heavy chipped tools. Large scrapers, pebble hammerstones and grooved pebbles are found; knives probably consisted of large flakes or spalls.
2. Early Boreal Archaic (ca. 2000 B.C.): In this phase are adzes, gouges, slate points, plummets, whetstones, and stone rods. Stone implements were presumably chipped by direct percussion flaking. Red ochre covered burials probably belong to this phase.
3. Late Boreal Archaic (Carbon 14 dated at 1400 B.C.): Described as a refinement and improvement of Early Boreal Archaic processes. Material culture included plummets, large chipped knives, straight-stemmed projectile points, and stone atlatl weights. Near the end of this phase heavy, grit-tempered Vinette I-like pottery made its appearance.
4. Asticou phase: A generally 'mixed'zone; believed to represent a Late Boreal Archaic type of occupation as modified by a greater use of pottery and possibly simple horticulture. Chipped stone implements decrease in size, relative to the lower zones, and deep side-notched points made their appearance. Techniques and styles of pottery decorations are referable to those found on Point Peninsula and Owasco types in New York.

This sequence of phases provides a frame of reference to which the shorter-period shell heaps and cemeteries elsewhere can be compared and given at least a preliminary chronological placement. It is properly a Theme I context but gives a presentation of the Archaic substrata for Theme II.

Cambria Site, Blue Earth County, Minnesota.

A very northerly component of the Mississippian-derived culture which spread out of Aztalan in Wisconsin, probably in the period after A.D 1200-1300. It is important in showing

the kind of cultural mixing that went on at this northern edge of the area where the Woodland ceramic tradition generally holds sway.

Fatherland Plantation Site, Adams County, Mississippi.

This is the Grand Village of the Natchez and the best documented Historic contact site in the Lower Mississippi Valley. Recent excavations have shown a late prehistoric occupation lasting up until French contact. This is the type site for the Natchezan culture. Much of the site is under recent alluvium, but a modern subdivision is encroaching on the site.

Jaketown Site, Humphreys County, Mississippi.

This is an important stratified site which gave good evidence for the temporal priority of the Poverty Point culture. Another important component at the site is the rare early pottery termed the Tchula complex which is closely related to the Tchefuncte pottery of the Lake Pontchartrain region. There is a late Mississippian component with temple mounds as well. It may be considered a good Theme III site.

Walls Site, Desoto County, Mississippi.

Principally a late Mississippian site, the type site of the Walls phase, it also has an earlier component of the Baytown culture. It is a rich cemetery site from which a large collection of whole vessels now at the University of Mississippi was obtained.

Renner Site (23Pl-1), Platte County, Missouri.

An important site showing the western spread of Hopewellian culture to the edge of the Plains. This site may also have acted as a way-station for the Hopewellian trade routes to the Rocky Mountains.

Steed-Kisker Site, Platte County, Missouri.

This site represents the westernmost expansion of Cahokia-derived Mississippian, probably in the period

post A.D 1100.

Utz Site, Saline County, Missouri.

The type site for the Historic Missouri Indians, which shows an Oneota-like culture persisting into the Historic period mixed with white contact goods. Properly belongs in another theme study.

Abbott Farm, Mercer County, New Jersey.

A stratified site which has components of most of the major cultures in the New Jersey sequence as now known. Although important as a site with Archaic stage material, the later part of the sequence is well represented too. It has been extensively excavated over the last century.

Bell-Philhower Site, Sussex County, New Jersey.

One of the few excavated sites in the Middle Atlantic area; it has components with pottery ultimately derived from the Woodland ceramic tradition.

Koens-Crispin Site, Burlington County, New Jersey.

An important stratified site which was one of the first in the East to show the early position of Archaic materials in their proper preceramic context. The later material is important for the ceramic sequence in this area.

Bates Site, Chenango County, New York.

The Bates village was a palisaded 'upper middle' Owasco settlement, the first prehistoric site in New York to be completely excavated. Though small, it has provided the clearest picture to date of Owasco settlement patterns. Excavation was accomplished in 1957 and 1958, under the supervision of Dr. William A. Ritchie.

The oval palisade was constructed of small posts or saplings, with an opening at the south side. A corridor or 'street' extended down either interior side of the stockade, while a row of houses ran lengthwise down the center of the enclosure from end to end. These houses were circular, about

23 feet in diameter, and presumably of the eastern Algonkian 'wigwam' type. A second oval arrangement of post molds closely invested the dwelling area.

More than 100 hearths and storage pits were found, the latter more numerous and occurring chiefly in the eastern portion of the enclosure. The pits contained carbonized corn, acorns, chestnuts, and butternuts, along with animal bones, pottery, and other artifacts and debris. One burial was recovered.

A radiocarbon date of A.D. [illegible] years was obtained from a hearth sample collected in 1957.

Vinette Site, Onandago County, New York.

The type site for the Vinette pottery, the earliest pottery known from Northeastern United States, dated at around 1000 B. C.

Fort Ancient, Warren County, Ohio.

A dual component site, with a Hopewellian earthwork and a component of the much later Fort Ancient culture to which it has given its name. The Fort proper is a great earth embankment surrounding an area on a hilltop. The Fort Ancient culture component below the "fort" at the foot of the hill is called the Anderson site. The area is now a state park.

Madisonville Site (33Ha36) Hamilton County, Ohio.

An important late site in the Ohio sequence which has material of the Fort Ancient culture mixed with historic white artifacts. Extensively excavated, it is a rich site of this widespread late culture.

Newark Works, Licking County, Ohio.

One of the few of the once extensive Hopewellian earthworks that is still preserved from the ravages of modern culture. Its earthworks are outstanding for the precision of layout and the magnitude of the plan.

Fort Hill, Highland County, Ohio.

Fort Hill is now a State Memorial Park. Recent excavations in and around the earthworks have sought evidence of a Hopewell village occupation. A circular post mold pattern, 174 feet in diameter has been discovered and numerous other wall patterns have been found including outward sloping post molds as in Kentucky Adena sites.

Seip Group, Ross County, Ohio.

Part of this once great site is still preserved. It was one of the major Hopewell sites in Ohio which provided the data for the definition of this important culture. The major parts of the site consist of several large mounds and a complex earthworks. The largest mound is oval in shape, 150 feet long and 32 feet high. The earthworks, consisting of a large circle nearly 2000 feet in diameter in which the large mound is centered, plus one smaller circle and a 1000 foot square, is in part preserved. In this immediate area, Ross County, there is the greatest concentration of Hopewell mounds and earthworks.

Sheep Rock Shelter (36Hu-1), Huntingdon County, Pennsylvania.

This dry rock shelter was located and tested by members of the Society for Pennsylvania Archaeology in 1958. They recognized the importance of their findings and unselfishly requested professional guidance; as a result, excavations are now being conducted there by the Pennsylvania State Museum and Pennsylvania State University.

The importance of this shelter derives from the perishable products found in the upper level and the long and clear stratigraphic succession of occupations here. The stratigraphy, as is known so far, is as follows:

1. Dry midden level (uppermost) - Susquehannock occupation. Abundant remains of corncobs, corn kernels, cornstalks and husks, beans, bean hulls, pumpkin, squash and sunflower seeds, squash rinds, cordage, leather, woven fabric, potsherds, animal bone, and ashes.
2. Shenk's Ferry component, destroyed by the Susque-

hannocks.
3. Clempson's Island level; related to Owasco manifestations of the upper Susquehanna River, with evidence of contacts with the Monongahela culture bearers.
4. An unidentified Middle Woodland occupation.
5. An Early Woodland occupation attested to by the presence of Vinette I sherds.

These five manifestations are confined to the upper 3.5 feet of the deposits; below them are found:

6. A 'Susquehanna Transitional' component, with steatite sherds.
7. Many feet of debris left by a series of Archaic occupations.

Only progress and preliminary reports have been published to date; excavations are expected to continue and the bulk of the analysis of materials is yet to come. A depth of 22 feet was reached in one section during the 1961 field season, with no indication that the bottom of the shelter had yet been found.

Obion Site (16Hy14), Henry County, Tennessee.

This important site has often been suggested as one of a small group in western Tennessee and Kentucky that must be considered as a possible locus for the beginning of Mississippian culture. The site has been excavated and a Ph.D. thesis is now being written on these excavations which took place many years ago.

Marcey Creek Site, Arlington County, Virginia.

The type site for the earliest pottery in the Middle Atlantic area.

PUERTO RICO

Sardinero, Mona Island.

An extensive village midden with a rock shelter. Historic material indicates a late date for the site.

Coroso, Cabo Rojo.

In the extreme southwestern corner of Puerto Rico. A small site less than one hundred feet in diameter, but important because it has revealed Archaic materials. Now in U. S. Naval base, probably difficult to locate.

Las Cucharas, Lajas.

Large village site that has not been intensively dug. Has both Ostiones and Cuevas styles of pottery represented. It thus covers a long time span, possibly two thousand years.

Llanos Tuna, Cabo Rojo.

Because it includes a rather large ball court, the site was considered for recommendation as a site of exceptional value. It has been extensively cultivated for many generations. Mostly an Ostiones culture site.

Coto, Isabela.

In the northwest, a mile or more inland, Coto is a large site where several excavations have been made. Considered to have proper location, etc., to be the village of Chief Mabodomaca. Burials have been found. Represents possible transitional stage between Cuevas and Ostiones styles.

Cuevas, Trujillo.

Several miles inland on Loiza River, Burials and much archeological remains have been found here. It is the type site for the Cuevas style. Because it has been in cane cultivation for many years, and is cut through by a railroad, the site was not seriously considered as one to recommend for preservation.

Monserrate, Luquillo.

Another site that has been extensively excavated, most recently by Rouse in 1962. There is a suggestion that it has never been cultivated. Burials, house mounds, and general midden refuse arehere. It is important because of the fact it is a stratified site with Ostiones and Cuevas styles present.

Santa Elena, Toa Baja.

Considered for recommendation to preserve because it is a relatively unmixed (culturally) site of late prehistoric times. It is about five acres in extent and only one major archeological test has been conducted there.

Callejones, Lares.

A large ball court on a rather extensive site. Unique in that the ball court is rhomboid in shape rather than rectangular. Ostiones and Capá styles are well represented here.

Collores, Juana Diaz.

A village midden with house mounds and extensive debris. Large collections are known from the site and its general importance is that a long time span is represented.

VIRGIN ISLANDS

St. John

Chocolate Hole.

A sherd collection has been made in an area favorably located for occupation.

Cruz Bay.

Another protected area with the likelihood that a much larger site once existed here than is presently discernible. Most of the area in which midden has been found is now a modern town, and the school playgrounds cover much of it.

St. Thomas

Botany Bay.

A shell midden that has been test-pitted more than once. Considered second largest site on the island, Located near extreme west end, it is now a house site.

Krum Bay.

This site was not large but it was investigated by Hatt in 1923 and more recently by Bullen and Sleight. Because of these studies and more road construction, little remains now. Bullen (1960) considers the preceramic component to be the only one now known east of Puerto Rico.

St. Croix

Salt River.

The largest and best known site on the island is located on the west side of Salt River at the tip of land near the river mouth. This extensive midden has been excavated in part by Hatt, de Booy, various Danish visitors and, more recently, by American archeologists. It has a cultural content similar to Magens Bay.

Longford.

This site is an inland site, about one mile from the south shore and just in the foothills. This site was discovered by Hatt and equated by him and later archeologists with the Coral Bay (St. John) culture.

AREAS IN THE NATIONAL PARK SERVICE

RELATING TO THE THEMES

FAR WEST

THEME II

Ozette Village, Olympic National Park, Washington.

Largest and deepest shell midden on Washington Coast. Not excavated as yet. Should provide information on the cultural development of Northwest Coast maritime cultures; also the relationship between the Wakashan Ozette and Makah and Chemakuan, Quileute and Hoh. The site is almost totally undisturbed. Nothing remains above the ground of the old village. A very good archeological site -- from historic on back. It should be preserved in the park. Park adjoins reservation on all sides.

Hospital Rock, Sequoia National Park, California.

This site contains a large number of lovely pictographs. The midden was excavated in 1960 and 143 burials were located.

Big Meadow Site, (4-MPR-3), Yosemite National Park, California.

This is the largest concentration of bedrock mortars site in California, containing 417 bedrock mortars. The entire Park area contains hundreds of archeological sites from large villages and cemeteries to high mountain camp sites.

Sites in Death Valley National Monument, California.

This area has revealed over 1000 sites dating back as far as 7000 years ago to the present living remnant of Shoshoneans. The sites show a great variety and also indicate a slight intrusion of Southwestern Anasazi either through trading expeditions or possible miners. This area is a prime example of the Great Basin cultural development.

Joshua Tree National Monument Sites, California.

The entire Monument is covered with excellent archeological sites -- campsites, bed rock mortars, spectacular caches, pictographs, etc. dating from 2000 B.C. to present. This is the center of the Pinto Basin complex discussed in Theme I.

SOUTHWEST

THEME III

Aztec Ruins, New Mexico.

Aztec has been pronounced an architecturally perfect example of a Chaco pueblo. The entire artifact assemblage from Aztec represents a typical Mesa Verde example. The tremendous kiva, now restored, is a spectacular archeological feature but the 500 and more rooms make the site one of the Southwest's largest. Another interesting aspect of this pueblo is the enclosed plaza.

Aztec is an example of an early Great Pueblo site, but it is also important in having evidence of relations with other Anasazi regions. It was probably built in the 12th century and abandoned by early Pueblo III times.

Bandelier, New Mexico.

Named for the great pioneer southwestern scholar, this site has an unusual near circular pueblo, Tyuonyi. The pueblo, consisting of about 250 ground level rooms is in an open valley. It is estimated that 400 rooms were used. It is defensive in orientation, with no windows in first floor walls, and no gateway (Fig. 67). There are three kivas in the central plaza.

Another feature of the Bandelier Monument is the several caves dug into the rock cliff and closed by a facing comprised of three-story high coursed masonry dwellings. A significant cultural trait of these Anasazi of the 16th century was their pottery ornamented with glazed decorations. Bandelier is undoubtedly one of the more important Anasazi culture exhibits.

Chaco Canyon, New Mexico.

Pueblo Bonito is the largest prehistoric structure in the whole National Parks and Monuments System. Its cultural significance has been propounded in the narrative portion of this study. This large, D-shaped collection of 800 rooms in a multistoried structure is one of the best studied in the Southwest (Figs. 18 and 67). 32 kivas are present at Pueblo Bonito suggesting a rather large Pueblo population was served at this community dwelling -- 1200 persons has been one estimate. Actually, 18 large ruins are to be found in Chaco Canyon, and because of this concentration of archeological wealth, Chaco has been one of the important Southwest subareas that influenced many sites in the vicinity. Chettro Kettle, a huge community kiva, is in Chaco.

Although Chaco was at its impressive heights in the 10th to 12th centuries, it began earlier than A.D. 700.

The Chaco Canyon sites exemplify one of the Great Pueblo areas when Anasazi culture was at its apogee.

Gila Cliff Dwellings, New Mexico.

A remote monument preserving five cliff dwellings. These are constructed in caverns that permitted closure of the mouths by masonry. Little excavation has been done but two mummies have been removed from one of the caves.

Grand Canyon National Park, Arizona.

Although primarily a geologic exhibit, Grand Canyon contains more than 300 known archeological sites and probably as many are hidden in deep valley recesses. Probably best known in the area is the Tusayun Ruin on the south rim. Its archeological study has served as the basis for numerous pottery types.

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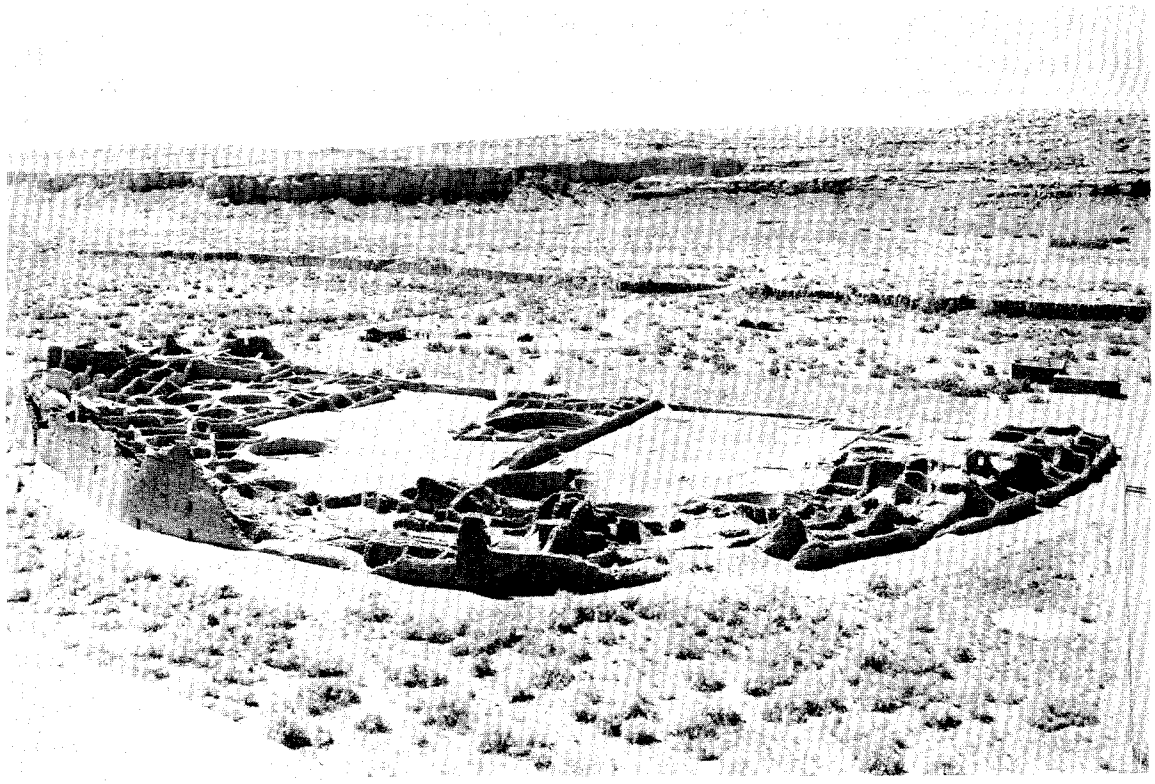
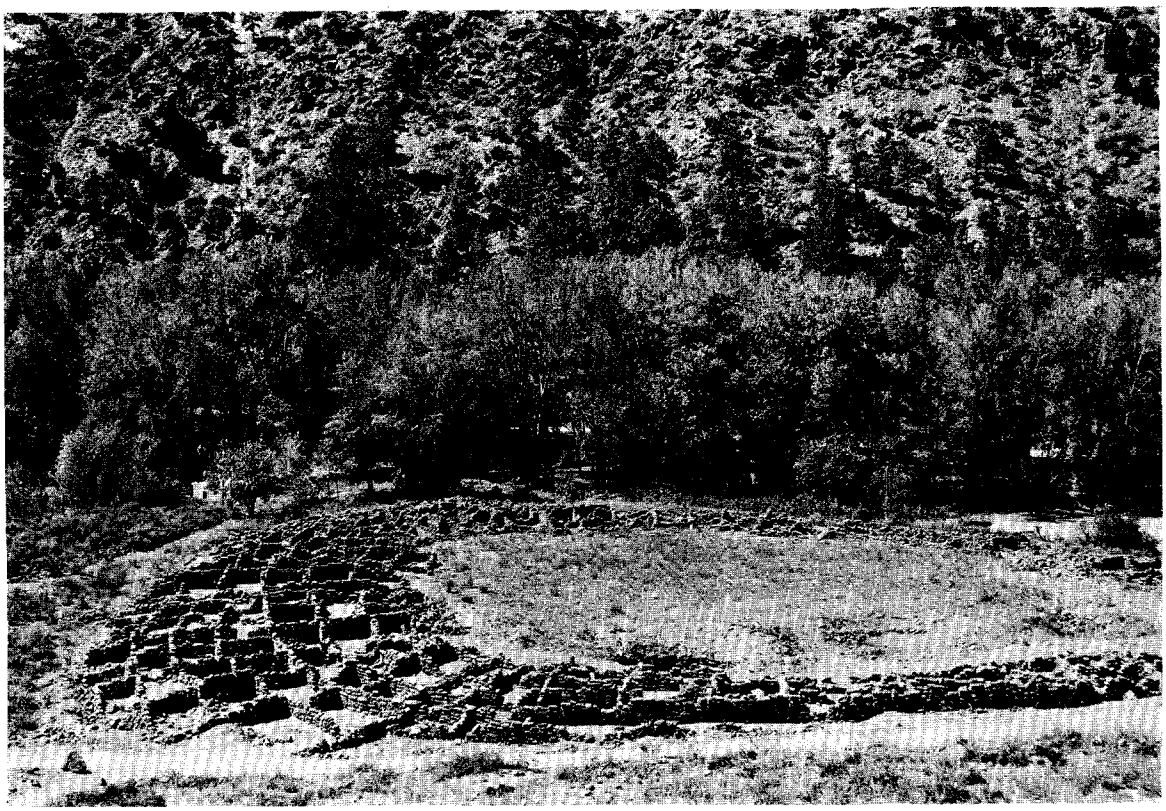
Figure 67. Great Pueblo period sites in the National Park Service monuments. Upper: Pueblo Bonito. Lower: Tyuonyi Pueblo, Bandelier National Monument. National Park Service photographs.





Petrified Forest National Monument, Arizona.

In this area many sites attest the presence of Basketmaker and Pueblo occupation. Puerco River Ruin is a two-story high pueblo of more than 100 rooms. Like some neighboring sites, the plaza area is completely surrounded by dwelling construction.

Tonto National Monument, Arizona.

Two small cliff dwellings of the 14th century that exemplify the invasion of the Salt River Valley by the Anasazi. There are other sites on the property than the main exhibit and an excellent account of the period is available from the remains, which are not of the usual excellent Anasazi construction. The remains are regarded as Pueblo IV, 14th century. Best small pueblo representation of the Salado.

Casa Grande, Arizona.

The only surviving example of a "packed earth" Anasazi structure. Represents an intrusion of Pueblo people into the Hohokam of Gila River Valley. It is remarkable that so much of it still stands. The multistoried structure dominates an area of great building activity both in dwellings and in irrigation canals. The "compound" was constructed in the 13th and 14th centuries but the Hohokam remains extend through time back to the beginning of the Christian Era.

The preservation of Casa Grande has been an early example of National Park Service foresight, since nothing similar to the site has been found nor is likely to be found.

Canyon de Chelly, Arizona.

An area of numerous cliff dwellings, literally hundreds of individual sites, is archeologically a significant 12th and 13th centuries Pueblo III area. Much greater time is indicated in the several Basketmaker pit houses found here. Several notable specific sites are Mummy Cave (A.D. 300), Canyon del Muerto, and White House (?18th century). Navajo Indians now occupy this great canyon.

Montezuma Castle, Arizona.

A distinguishing feature of this small cliff dwelling is that it is not readily accessible and, hence, preserves in near perfect shape its appearance when abandoned. It is one of the few Verde Valley 13th century Pueblo structures.

Navajo National Monument, Arizona.

Three major archeological ruins distinguish this area, namely, Keet Siel, Betatakin, and Inscription House. It would be difficult to imagine a more magnificent setting than the cliff dwelling Keet Siel. It is a large structure of about 160 rooms dating to Pueblo III times in the 12th century (Fig. 68).

Betatakin, a cliff dwelling of more than 100 rooms is also a typical Pueblo III structure dating from the 13th century. It was abandoned at the end of that century.

Inscription House, about thirty miles to the northwest of these two cliff dwellings, is notable for its date of 1661 carved on a wall.

Navajo National Monument documents the Great Pueblo period. Basketmaker remains are present, but it is the great community manifestation of Anasazi culture that is exemplified best here.

Tuzigoot, Arizona.

This National Monument is somewhat unique in having been built on a hilltop rather than on a mesa or in a cliff shelter. It has about 110 rooms stretching over a 500 foot-long area with a large rectangular central room. It dates from the 11th century, but was most important in the 13th and 14th centuries. Defensive ideas include no ground level doors.

Numerous burials have been found here and because the site was largely covered by wind blown sand, a rather complete story has been obtained.

Walnut Canyon, Arizona.

Not far from Flagstaff, Walnut Canyon Monument is an important site because it revealed the information that lead to an understanding of population shifts after the eruption of Sunset Crater in 1066. Walnut Caynon pueblo was already of some size in the 10th century, but it was in the 11th and 12th that it grew to importance.

Wupatki National Monument, Arizona.

Wupatki is another pueblo, not far from Walnut Canyon that profited ultimately from Sunset Crater eruption. It has a history parallel to Walnut Canyon in that it did not reach any size until after the 10th century.

Wupatki is a reservoir for Anasazi information with nearly 800 sites known within its bounds.

Mesa Verde, Colorado.

The tremendous array of sites in the Mesa Verde National Park may best be reduced to a tangible example in Cliff Palace. The importance of this single cliff dwelling of a great many rooms has been indicated in the narrative section of this study. Cliff Palace is the epitome of Pueblo III or Great Pueblo period culture (Fig. 68).

Whereas the kivas and rooms of Cliff Palace are typical, the square towers there are unusual. Their exact purpose is still not known.

Although Casa Grande National Monument was the first archeological site preserved, Mesa Verde is the only National Park preserved because of its historical significance alone, but new features are constantly being revealed such as the recent finds of a water catchment system. Mesa Verde probably spans the millennium from A.D. 300 to 1300.

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Figure 68. Great Pueblo period sites. Upper: Cliff Palace the largest ruin in Mesa Verde National Park. Lower: Keet Siel, a site in the Kayenta district. Photographs courtesy of the National Park Service.

Hovenweep, Arizona.

Consisting of six major dwelling clusters, Hovenweep is a 12-13th century series of Pueblo structures. Perhaps the most distinctive traits of the sites are architectural. Outstanding and distinctive are the great square towers. Associated with them are other structures which appear to be defensive which take advantage of natural rock formation to render the rooms more unassailable.

The largest building in Hovenweep has walls 60 feet long and about 20 feet high.

Hovenweep is an important northern periphery Anasazi site.

Yucca House, Colorado.

A small pueblo in Montezuma County, west of Mesa Verde. Although known since a visit of W. H. Holmes, it has not been excavated. (Note the Holmes site, in Juan County, recommended in the narrative as being of exceptional value.) The site consists of two large rubble and earth mounds, the larger probably representing the ruins of a three- or four-storied building. Also there are depressions suggesting kivas associated with the pueblo. The date of occupation is estimated to be 11th to 14th centuries.

Yucca House is designated as a "reserve" area and will be excavated in the future.

THE EAST

Natchez Trace Parkway, Mississippi.

An impressive site, the Emerald or Selsertown Mound, is now maintained by the National Park Service as part of the Natchez Trace Parkway. The site is in good condition having been restored to much of its original appearance. It is located about one-half mile west of the Trace near Washington, Mississippi.

The site produced a number of fine artifacts during excavations carried out there nearly 100 years ago. The more recent work allowed the archeologists to date the site in

the Plaquemine period, probably around A.D. 1000-1300.

Large temple mounds are a hall-mark of the Plaquemine culture and this is a very impressive example. The location on the edge of the bluffs adds to the impressiveness of the view from the mounds. The large mound is surmounted by two small mounds, one at the extreme western end of the large structure, and one at the eastern end.

Northeastward along the Trace, not far from Houston, Chickasaw County, Mississippi are the Bynum Mounds. These mounds (four major ones) are significant representatives of the Burial Mound tradition in the eastern United States. The mounds have been excavated by careful scientific methods and a comprehensive analysis of their contents has been made.

Near Tupelo, Lee County, Mississippi, the Chickasaw Old Fields has been intensively studied by National Park Service personnel. This site undoubtedly is one of the most important Historic contact sites in the South.

Mound City Group National Monument, Ohio.

This important site is the only one of the major Ohio Hopewell sites still in anything like its original condition, the rest having been destroyed by modern construction or poor excavations.

Its preservation, therefore, is of major significance to the presentation of the Hopewell story to the public. About 57 acres of archeological remains, mostly conical mounds and associated earthworks. The largest structure is a 4-foot high earth embankment surrounding an area of 13 acres, including 24 mounds, presumed to be burial mounds. None of the mounds is large, the highest being 17 feet.

Excavations were conducted here as early as 1846, but much remains undisturbed. The site constitutes one of the finest examples of a Hopewell ceremonial center.

Ocmulgee National Monument, Georgia.

This site is significant as one of the major temple mound sites in central Georgia, and as the type locale of the

Macon Plateau culture, an intrusive northern culture of the Mississippian tradition.

As recent excavations in the bottom lands have shown, this area has been occupied for some 7000 years at least, and the further importance is the tie-in at the other end of the time scale where one gets evidence of Historic period occupation.

The site has been preserved by the National Park Service which maintains an excellent small museum and visitors' center. Excavations in Mound C, the Earth Lodge, and the village area have provided considerable amounts of data for the interpretation of the site to the public. A restored circular ceremonial earth lodge with a dais of eagle-shape is a unique feature.

Two and one half miles south of the Monument proper a detached area preserves the type site of the Lamar culture, an important late prehistoric manifestation which influenced much of the Southeast, in the period A.D 1350-1500. This continues into Historic contacts with tribes such as the Creeks.

The Ocmulgee Monument sites are among some of the most important in the whole United States, particularly in that a great time span is represented in one locality.

Effigy Mounds National Monument, Iowa.

The site consists of a series of mounds, in an area nearly two square miles in extent. The mounds are in various forms -- conical, linear, compound, and zoömorphic. Some of the bird-like mounds are 140 feet long and 70 feet wide and perhaps three feet high.

The site represents a very distinctive manifestation, but the cultural phase of which the Effigy Mounds group is a part is extensively represented in southern Wisconsin and areas adjacent to northeastern Iowa. The mounds are both ceremonial and burial in function and are a Middle Woodland or Late Hopewellian cultural feature. Because of the low contour of these mounds, they are easily destroyed by plowing or construction of highways, etc. It is fortunate that this unique prehistoric activity has been preserved.

Isle Royale National Park, Michigan.

One of the most interesting and ancient cultures in the Central Basin is the Old Copper Culture. On Isle Royale some excellent examples of prehistoric mining of copper have been found.

ST. JOHN ISLAND

Turtle Point, Caneel Bay Plantation.

On an elevated terrace, 10 to 30 feet above tide, is an extensive village area considered one of the largest in the island. There is good rain catchment possibilities now and they must have obtained in former centuries. The surface collections from the site are sufficient to judge the site to belong to the Ostiones culture type dating from, perhaps, the tenth century A.D.

There is no evidence of gross disturbance of the midden and its surveyor, Sleight, considered it to be an excellent excavation prospect, but most of the site has been "bulldozed" to level it for a large house and paved driveway.

Reference: Bullen 1962; Sleight 1962.

Salomon Bay.

Only a few remains suggest a camp site.

Durloe Bay.

Only archeological materials revealed through construction work but proper search has not been possible because this is a resort area.

Trunk Bay.

A minor site with a few surface sherds indicating temporary residence.

Cinnamon Bay.

A large beach area with gently rising land was occupied probably over a considerable span of time. The archeological remains from here have greatly supported sequences elsewhere.

Francis Bay.

This site may prove to be the best preserved aboriginal remains on St. John. It is in a position sheltered from north winds and it is about 15 to 20 feet above tide. Adequate collections have been obtained from surface and test pit studies. The site was probably first established in early Ostiones culture phase.

SITES ALSO NOTED

FAR WEST

Black Canyon Petroglyphs, San Bernardino County, California.

These petroglyphs are in a basalt formation. Inscription Canyon is located in an arroyo 200 yards long and 10 to 50 yards wide at north end of Black Canyon. Walls are 20 feet high. There are about 250 petroglyphs--five human figures and ten mountain sheep. Two cultures are present.

Bullion Mountains Site, San Bernardino County, California.

A prehistoric quarry site which W. E. Schenck recommended in 1934 because of promise and lack of work in the area.

Coachella Fish Traps, Riverside County, California.

These rock inclosures along the upper terrace of the old Blake Sea line on the east side of the Santa Rosa Mountains are an unusual feature. Also many petroglyphs.

Corn Springs Pictographs, Riverside County, California.

A pictograph and camp site located by Schenck in 1934.

Coso Hot Springs and Coso Quarry, Inyo County, California.

Petroglyphs and an enormous obsidian quarry. Some early projectile point types -- fluted, Pinto, and Lake Mohave.

Cayote Hole Canyon and Spring Petroglyphs, San Bernardino County, California.

Located just outside the Joshua Tree National Monument, this petroglyph and pictograph site is very extensive.

Crystal Caverns, San Bernardino County, California.

Cuyamaca Ranch State Park Sites, San Diego County, California.

146 sites surveyed in 1961 by D. L. True.

Elk Canyon, Nelson Site 6, Marin County, California.

Notable for two feet sterile alluvial overburden.

Green Valley, San Diego County, California.

Greenwater Canyon, Inyo County, California.

Hicks Site-SAC-60, Sacramento County, California.

Village mound excavated in 1934 by the Sacramento Junior College. An important key site in the Valley history.

Horse Canyon Picture Caves, Kern County, California.

Joe Mound-SAC-31, Sacramento County, California.

Excavated by Sacramento Junior College in 1934. Good stratigraphy and a long sequence indicated. Now destroyed.

Johnson Mound-SAC-6, Sacramento California.

Keeler Petroglyphs, Inyo County, California.

King Brown No.1, Sacramento County, California.

Partly excavated by R. Heizer in 1934 and completed by B. Arnold and R.Reeves in 1956.

Kingsley Cave, Tehama County, California.

Knights Landing Mound, Yolo County, California.

A burial mound and village one of the largest in area.

Lead Mountains Pictographs, San Bernardino County, California.

Malaga Cove Site, Los Angeles County, California

Malibu Creek, Los Angeles County, California.

Marre Ranch, Santa Barbara County, California.

Moaning Cave, Calaveras County, California.

Mendoza, Marin County, California.

Unstratified, 3 feet deep, on Drakes Bay. Whale bone artifacts, burials, including cremations. An early phase site for this area.

Mispu, Santa Barbara County, California.

Mono Lake, Mono County, California.

Old Woman Mountains Petroglyphs, San Bernardino County, Calif.

Palo Verde Ford, Imperial County, California.

Piute Springs and Canyon, San Bernardino County, California.

Rocky Hill Pictographs, Tulare County, California.

Surprise Springs, San Bernardino County, California.

A desert water hole surrounded by innumerable surface camp sites. An excellent type locality of prehistoric life.

Topock Rock Maze Site, San Bernardino County, California.

The maze consists of ridges of gravel and earth forming a triangle. Part of the maze has eroded away. It is judged to be a place for funeral rites, although it is now considered to be of historic white origin.

Other California Sites:

Saline Valley Petroglyphs, Inyo County.
San Miguel Island.
Santa Catalina Island
Shasta 47, Shasta County.
Sherwood Cave, Los Angeles County.
Thomas Site, Marin County.
Three Rivers Pictographs.
Tule Indian Reservation Pictographs, Tulare County.
Von Lobensels Mound, Sacramento County.
White Frenchman Dam and Reservoir, Plumas County.
Woods Mountains Petroglyphs, San Bernardino County.

Indian Post Office, Rock Cairns, Lolo National Forest, Idaho County, Idaho.

Legendary site where messages were left. Historic associations of the site with the Nez Percé War of 1877 and with the Lewis and Clark Expedition are suspect.

Nampa Petroglyphs, Canyon County, Idaho.

Although once quite extensive, these are now so badly vandalized that they are nearly destroyed.

Other Nevada Sites:

Arrowhead Canyon Petroglyphs.
Humboldt Lakebed Site.
Las Vegas Area Petroglyphs.
Lost City Group or Pueblo Grande.
Paiute Cave.
Pyramid Lake Caves.
Stillwater Wildlife Area.
Stuart Rock Shelter.

Other Oregon Sites:

Banker Trail Picture Rock.
Boulder Petroglyphs.
Celilo Falls.
Coos Bay - South.
Fanning Mound.
Long Lake Petroglyphs
Miller Mound, Harrisburg.
Nehalem.
Picture Gorge and Dayville Pictographs.
Sauvies Island.
Shedd Mounds.
Upper Site, Schwenn.

Sheep Island Site, Washington.

Rabbit Island, 45-BN-15, Benton County, Washington.

Excavated by the University of Washington in 1951. Now under water in the McNary Reservoir.

Pot Holes Site, Grant County, Washington.

Upper Rock Shelter.

Wanapum Pictographs, Vantage, Kittitas County, Washington.

Some of these pictographs have been removed and placed in an exhibit as Ginko State Park.

Toleak Point, Olympic Ocean Strip, Jefferson County, Wash.

Puget Sound Site, mouth of Skagit River, Skagit County, Wash.

Penn Cove, Whidbey Island, Puget Sound, Island County, Wash.

The midden on the beach is partly destroyed but above it on the bluff is a small fortification.

Palouse Village, mouth of Palouse River, Franklin County, Washington.

This is the largest site on the Lower Snake River and it will be excavated before it is inundated by the Lower Monumental Dam Reservoir.

Page Petroglyphs, Franklin County, Washington.

Minard Site, Oyehut, Copalis Beach, Grays Harbor County, Washington.

A test excavation here by Daugherty indicates a site of tremendous potential with many burials and artifacts.

Clarence Scammon Site, Vantage, Kittitas County, Washington.

A group of caves investigated by the University of Washington prior to inundation by the Wanapum Dam Reservoir.

Indian Arrastra, near Blewett, Chelan County, Washington.

Koethe Site, Salmon Creek, Cowlitz County, Washington.

La Push, Quillayute Indian Reservation, Olympic Ocean Strip, Washington.

SOUTHWEST

Tularosa Cave, Tularosa Canyon, New Mexico.

Excavated by the Chicago Museum of Natural History.

Cordova Cave, San Francisco River, New Mexico.

Turkey Foot Ridge, Pine Lawn Valley, New Mexico.

Oak Springs Site, Pine Lawn Valley, New Mexico.

This typical Mogollon village had a small building of several contiguous rooms that is illustrated in restoration in Figure 25 of this report.

SU Site, west of Reserve, New Mexico.

A cluster of Mogollon pit houses at which the Chicago Museum of Natural History personnel worked three seasons.

Mogollon Village, New Mexico.

Foote Canyon Pueblo, New Mexico.

Tusayan Ruin, Arizona.

A U-shaped series of contiguous rooms with a kiva in one corner plus an isolated kiva in a refuse mound. Pueblo III.

EAST

Pecan Point, Mississippi County, Arkansas.

Nacoochee Mound, White County, Georgia.

Dickison Mounds, Peoria County, Illinois.

Havana Site, Mason County, Illinois.

An important center of the Illinois Hopewell.

Kamp Mounds and Village, Calhoun County, Illinois.

Sugar Camp Hill (Crab Orchard) Site, Williamson County, Ill.

Anderson Mounds, Anderson County, Indiana.

Fudge Mound, Randolph County, Indiana.

New Castle Earthworks, Henry County, Indiana.

Nowlin Mound, Dearborn County, Indiana.

One of the first major excavations to show the westward spread of the Adena culture.

Yankeetown, W^V1, Warrick County, Indiana.

Kullbom Site, 13 M1-10, Mills County, Iowa.

Lane-Hartley Village, 13 Am 53, Allamakee County, Iowa.

Phipps Site, 13 Ck 21, Cherokee County, Iowa.

C & O Mounds, Johnson County, Kentucky.

Indicative of the southeastern spread of Adena culture.

Jonathan Creek Village, Marshall County, Kentucky.

A great palisaded village of late Mississippian culture.

Old Fort Earthworks, Greenup County, Kentucky.

A rectangular earthworks directly across the Ohio River from some major Hopewell earthworks. One sherd of Havana stamped (Illinois River) Hopewell pottery was found here.

Robbins Mounds, Boone County, Kentucky.

Wright Mounds and Village, Mm 6 & 7, Montgomery County, Ky.

Crooks Site, La 3, LaSalle Parish, Louisiana.

Accokeek Creek Site, Prince George's County, Maryland.

Although some time span indicated, more a historic site.

Sandy Hill, 18 Do 30, Cambridge, Maryland.

Probably indicates the easternmost spread of Adena culture.

Shepard Site, Montgomery County, Maryland.

Converse Mound Group, Kent County, Michigan.

Silvernale Site, Goodhue County, Minnesota.

Canandaigua Site, Ontario County, New York.

Castle Creek Site, Broome County, New York.

Peachtree Mound and Village, Cherokee County, North Carolina.

Adena Mound, Ross County, Ohio.

The type site of the Adena culture.

Cowan Creek Mound, Clinto County, Ohio.

18 burials were recovered in the excavation of this site by the Ohio State Museum in 1949. Most of these were in log tombs. The most important information gleaned from this site was the evidence of agricultural activities. Nuts (hickory), Chenopodium (Goosefoot), and Pumpkin (probably Cucurbita pepo) were found here and dated at about 600 B.C. The site is considered to be a Late Adena manifestation.

Baum Site, Ross County, Ohio.

Dominion Land Company Site, Franklin County, Ohio.

Fair Harbor Village Site, Lake County, Ohio.

Feurt Village Site, Scioto County, Ohio.

Harness Site, Ross County, Ohio.

Hopewell Mound Group, Ross County, Ohio.

This remarkable group of mounds was first excavated for material for the World's Fair. The type site for Hopewell.

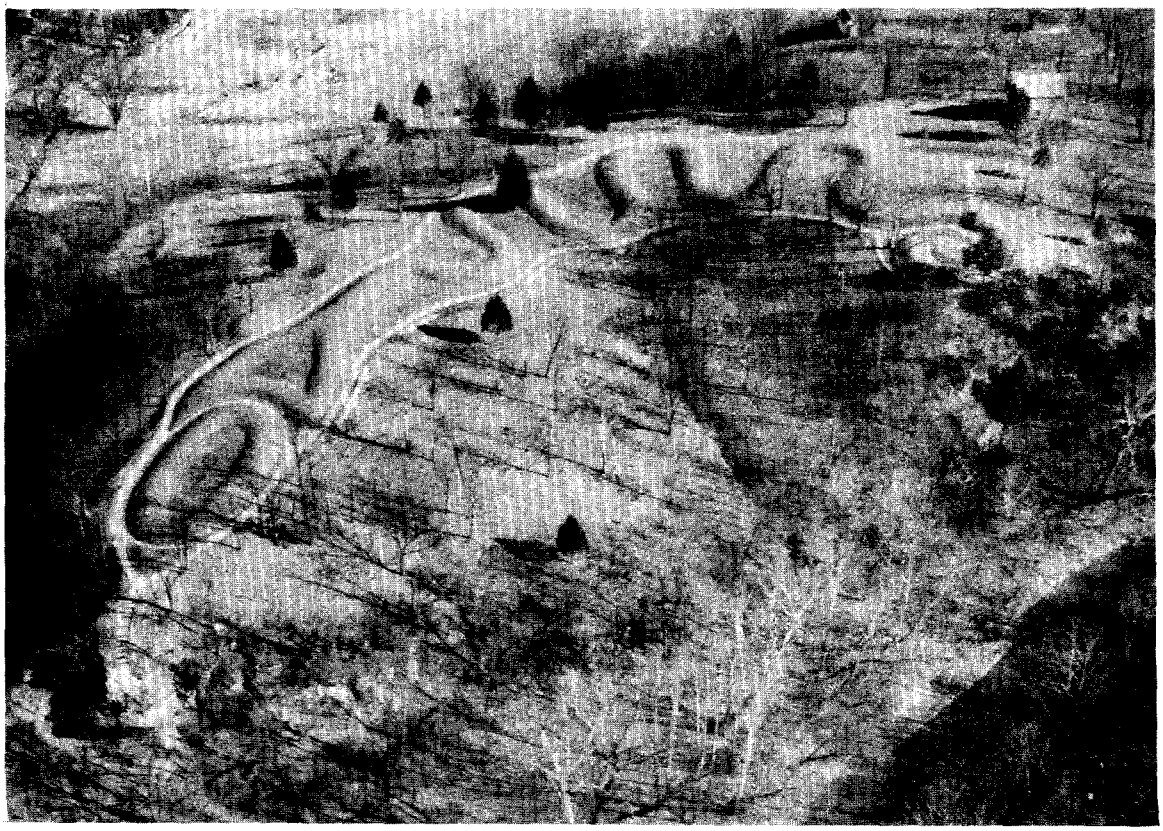

Figure 69. Serpent Mound. Photo by Col. Dache M. Reeves.

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Serpent Mound, Adams County, Ohio.

This magnificient structure has been widely known for more than a century. It is an isolated structure surely of ceremonial significance to its builders who have been now determined to be Adena people. The entire length, including curves and bends is about 1300 feet; the width at the base of the embankment is about 15 to 20 feet. The oval structure is 160 feet long by 80 feet wide.

Turner Site, 33 Ha 41, Hamilton County, Ohio.

Turpin Site, 33 Ha 19, Hamilton County, Ohio.

Wright Group, Franklin County, Ohio.

Hanna Site, Somerset County, Pennsylvania.

This early Monongahela phase village site was completely excavated in the winter of 1935-36 as a part of a WPA archeological project headed by Edgar E. Augustine of Addison, Pa. Fourteen such late prehistoric village were excavated but reports on these are not very revealing. The Hanna site is the best of these reported upon sites. The site contained 23 roughly circular houses arranged in an irregular circle about 220 feet in diameter. Although 12 of the 14 other sites were protected by palisades, none was apparent here. Storage pits were inside and around the houses but no burials were found. The pottery was grit tempered and either plain or cord marked.

Dallas Site, Hamilton County, Tennessee.

Hiwassee Island, Meigs County, Tennessee.

Mouse Creek Site, McMinn County, Tennessee.

Keyser Farm Site, Page County, Virginia.

Patawomeke, Stafford County, Virginia.

Beech Bottom Mound, Wheeling, West Virginia.

Cresap Mound, Marshall County, West Virginia.

Mount Carbon Village, 46 Fa 7, Fayette County, West Virginia.

Natrium Mound, 46 Mr 2, Marshall County, West Virginia.

Kratz Creek Mound Group, Marquette County, Wisconsin.

Neale Mound Group, Marquette County, Wisconsin.

Nitschke Mound Groups, Dodge County, Wisconsin.

Raisbeck Mound Group, Grant County, Wisconsin.

Shrake Mounds and Trowbridge Mounds, Trempealeau County, Wisconsin.

PUERTO RICO

Las Mesas, Mayagüez.

Los Indios, Manatí.

Puerto de Tierra, San Juan.

Now in an army base and virtually inaccessible.

Las Golondrinas, Manatí.

La Zama, Jayuya.

Another ball court. The petroglyph illustrated in the middle of Figure 57 of this report came from here.

Toita, Cidra.

A ball court associated with a large shell heap.

Buenos Aires, Coamo.

Esperanza, Vieques Island.

Cayito, Santa Isabel.

Hacienda Grande, Loiza.

When all excavation data from this site have been analyzed, it will probably prove to be one of the important early manifestations of the island.

Cueva Maria la Cruz, Loiza.

A recently discovered cave with Archaic materials.

Borinquen, Aguadilla.

Boqueron, Cabo Rojo.

Two shell heaps upon which the modern village is built.

APPENDIX

CRITERIA FOR THE SELECTION OF SITES

The National Park Service has adopted the following criteria for selection of sites of exceptional value.

1. Structures or sites in which the broad cultural, political, economic, military, or social history of the Nation is best exemplified, and from which the visitor may grasp the larger patterns of our American heritage. Such sites are naturally the points or bases from which the broad aspects of prehistoric and historic American life can best be presented.

2. Structures or sites associated importantly with the lives of outstanding historic personages.

3. Structures or sites associated with important events which are symbolic of some great ideal or idea of the American people.

4. Structures which embody the distinguishing characteristics of an architectural type-specimen, exceptionally valuable for a study of a period style or method of construction; or a notable work of a master builder, designer, or architect whose individual genius reflected his age.

5. Archeological sites which have produced information of major scientific importance by revealing new cultures, or by shedding light upon periods of occupation over large areas of the United States. Such sites are those which have produced, or which may reasonably be expected to produce, data which have affected theories, concepts, and ideas to a major degree.

6. All historical and archeological sites and structures in order to meet the standards of exceptional importance should have integrity; that is, there should not be doubts as to whether it is the original site or building, original material or workmanship, and original location. Intangible elements of feeling and association, although difficult to describe, may also be factors in weighing the integrity of a site or structure.

7. Structures or sites of recent historical importance relating to events or persons within 50 years will not, as a rule, be eligible for consideration.

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