The National Survey of Historic Sites and Buildings

THEME I
PREHISTORIC HUNTERS AND GATHERERS
1960

United States Department of the Interior
Fred A. Seaton, Secretary

National Park Service
Conrad L. Wirth, Director
PREFACE

The National Survey of Historic Sites and Buildings is a resumption of the Historic Sites Survey begun in 1937, under the authority of the Historic Sites Act of 1935. During World War II, and the emergency following, it was necessary to suspend these studies. The Survey has now been resumed as 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 is evaluated in terms of the Criteria for Classification listed on page 15 of this report.

When completed, the Survey will make recommendations to the Director of the National Park Service and the Secretary of the Interior as to the sites of "exceptional value." This will assist the National Park Service in preparing the National Recreation Plan, including sites which may be administered by the National Park Service to fill gaps in the historical and archeological representation within the National Park System. It will also recommend and encourage programs of historical and archeological preservation being carried out by state and local agencies.
Each theme study prepared in the course of the Survey consists of two parts: a brief analysis of the theme itself, and a discussion of the sites and buildings considered in connection with the study. The archeologists who assisted with this report made personal visits to the more important sites in 1953 and 1959.

The bulk of this study is the result of research by Dr. H. M. Wormington, Curator of Archaeology at the Denver Museum of Natural History. Dr. Wormington prepared the analytical narrative which is Part One of the study, and the descriptions of the sites considered to have "exceptional value" in this theme under contract with the National Park Service. Field assistance in preparing the inventory of sites was given by Mr. John W. Griffin, Region One Office; Mr. Paul L. Beaubien, Region Two Office; Mr. Albert Schroeder, Region Three Office; Mr. Paul Schumacher, Region Four Office; and Dr. John L. Cotter, Region Five Office of the National Park Service. Overall coordination of the study, final editing, and assembly of the report was the work of Dr. Wilfred D. Logan, Staff Archeologist of the National Survey of Historic Sites and Buildings in the Washington Office of the National Park Service.

After completion, the study was presented to the Consulting Committee for the National Survey of Historic Sites and Buildings. The Committee consists of Dr. Waldo G. Leland, Director Emeritus of the American Council of Learned Societies; Dr. S. K. Stevens, Executive Director of the Pennsylvania
Historical and Museum Commission; Dr. Louis B. Wright, Director of the Folger Shakespeare Library; Mr. Earl E. Reed, Chairman Emeritus of the Committee on the Preservation of Historic Buildings, American Institute of Architects; Dr. Richard E. Howland, President of the National Trust for Historic Preservation in the United States; Mr. Eric Gugler, Member of the Board of Directors of the American Scenic and Historic Preservation Society; Dr. J. O. Brew, Director of the Peabody Museum of Archaeology and Ethnology, Harvard University; and Mr. Frederick Johnson, Curator, the Robert S. Peabody Foundation for Archaeology, Phillips Academy.

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 Historian, Branch of History, and of Daniel B. Beard, Chief, Division of Interpretation of the National Park Service.

Conrad L. Wirth
Director
ACKNOWLEDGEMENTS

The National Survey of Historic Sites and Buildings profits from the experience and knowledge of a great number of people and institutions. The Survey staff makes an effort to solicit the opinion of as many of the most qualified persons possible both in gathering the raw data, and in making final selections of the most significant sites. In addition to the efforts of Dr. E. M. Worthington in preparing the original manuscript, appreciation is expressed to the Denver Museum of Natural History for allowing the use of data contained in the manuscripts prepared for publication by the Museum by Dr. Worthington—"An Introduction to the Archaeology of Alberta, Canada," "Evidence from some Palaeolithic Sites in Siberia Pertaining to the Peopling of the New World," and "Supplement I, Ancient Man in North America."

In addition, appreciation is expressed to the following for data, photographs, or other forms of assistance with the preparation of this paper.

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I

PREHISTORIC HUNTERS AND GATHERERS

Introduction

During the hundreds of thousands of years that man was developing in the Old World, the New World was uninhabited. In the Western Hemisphere evolutionary processes produced no higher type of primate than the American monkey, which is not in the human line of development. Only during the latter part of the Pleistocene Period (sometimes called the Great Ice Age) did migrants from Asia enter America by way of Bering Strait. Here Asia and North America are separated by only a 56-mile expanse of sea broken by two islands. This was the only route available until watercraft adequate for transoceanic travel, or travel through very difficult waterways, had been invented. Evidence for an Asiatic origin of America's native population is provided by the appearance of the American Indians, for they show very close similarities to Asiatics of the Mongoloid race.

No one can say with certainty when the first migrants arrived. It seems probable, however, that they came at a time when there was a land bridge between Asia and North America. If the first Americans were hunters of grazing animals, it is reasonable to assume that they came at a time when the animals
on which they depended were able to move from one continent to
the other. If they were gatherers, dependent to a great extent
on plant foods, it would also be necessary to postulate the
existence of a land connection. Only hunters of marine life,
with some form of watercraft, could be expected to cross during
a period when there was no bridge.

During glaciations, when vast amounts of sea water were
withdrawn to feed the ice sheets that covered great portions of
the land, and ocean floors rose to some extent, shallow areas
of oceans became land surfaces. The floor of the Bering Sea lies
only 120 feet below sea level, and it is estimated that during the
last glaciation the land bridge between Asia and America may have
been some thousand miles wide north to south (Hopkins, 1959).

One might expect that, during a time when there was major
 glaciation over much of the North American continent, such a
land bridge and Alaska would provide a most inhospitable environ-
ment for men and animals. Due to low precipitation, however,
glaciers were very limited in extent in this area. In Alaska they
formed largely in the mountains, and the land bridge is thought
to have been essentially ice-free. In the nonmountainous sections
of Alaska, paleontologists have found animal remains that provide
evidence of the presence of ample food for hunters. Movement out
of Alaska, however, could have been accomplished only during an
interglacial period when the major ice sheets had retreated and
there were ice-free corridors leading into Canada and the United
States.
To say that man may have crossed into the New World during a period of glaciation does not give us a date for his coming, for there were several periods of glaciation. Even to provide guess dates we must assess evidence from both the Old World and the New. However, it is difficult to make the necessary comparisons until the evidence from America, which is of primary concern here, has been discussed; therefore, these matters will be considered in a later section. It will suffice to state here that there is general agreement that man has been in America for more than 10,000 years (8,000 B.C.), and most archeologists would agree that a date in excess of 20,000 years (18,000 B.C.) is not unreasonable. Some would accept dates of even greater age.

In various parts of the United States, evidence of the presence of early man has been found; but when we attempt to describe the life of these ancient hunters and food gatherers, the inadequacy of our knowledge becomes immediately apparent. In general, we know what they ate, and we know the implements they used in obtaining and, to some extent, preparing their food. Even here, there are difficulties. Most of the earliest sites found to date have been "kill" sites rather than occupation sites, so we do not know as much as we should like to know about other tools associated with projectile points.

We may also be making mistakes in identification. Uniface scrapers that taper to a base from a broad edge, often called snub-nosed end scrapers, which were very widely used, have been generally thought to represent hide-working tools. However,
Norman Tindale (personal communication) has pointed out that these are identical with tools used by the Australian Aborigines as adzes in woodworking. Rather nondescript flakes chipped on one or more edges, usually referred to as side scrapers, are very like implements used as saws by the Australians. If the American specimens were used in the same way, which seems possible, there must have been a great many artifacts of wood which have been lost to us. Undoubtedly certain tools were used in the butchering of animals and the preparation of hides. Perhaps bifacially flaked specimens other than projectile points, specimens made from blades with sharp cutting edges, and possibly some implements of bone which have not been preserved, served this purpose.

The chipped implements which are most likely to be correctly identified as to function, and which have the greatest diagnostic value, are projectile points. Various early types are recognized, but they have some traits in common. Many were bifacially flaked and were more or less lanceolate in outline. In most cases basal edges were ground, presumably to prevent the cutting of the sinews with which they were hafted. Other tools may also have been hafted in this way, but some, perhaps, were not. Tindale, in looking through a collection of Folsom tools, pointed out that it appeared unlikely that some of those with multiple worked edges would have been satisfactorily used in a permanent haft. He suggested that perhaps a technique like that of the Australian Aborigines may have been employed. They insert stone tools in balls of gum or resin which can be softened when it becomes desirable to change the position of the tool.
Animal bones found in sites can tell us what some of the early people ate. Grinding tools found in some sites indicate a dependence on vegetal foods such as seeds and tubers, but there are innumerable questions about their life ways for which we have no answers. We can make speculations that may be called "informed guesses," but they are still not factual answers.

There are many questions we should like to have answered about the earliest hunters and gatherers. A few of these will be considered below. For example:

How did they look? Only one partial human skeleton has been found which has been generally accepted as representing a very early inhabitant of the area now comprising the United States. This is the individual which, although a female, has become known as Midland Man (Wendorf, Krieger, Albritton, and Stewart, 1955). We know that the skull was extremely long in relation to its breadth and that the teeth were badly worn; that is about all. With so fragmentary a specimen it is difficult to assign it to any particular physical variety; but according to Stewart, some details suggest correlations with the Otamid variety as defined by Neumayr (1952).

This variety is believed to be one of the earliest in America, and one which originally had a very wide distribution but was later forced into refuge areas. Virtually nothing is known of the physical anthropology of early Siberian peoples, but the Otamid skulls do resemble the late Paleolithic skulls from the Upper Cave at Choukoutien in China. More skeletal
remains have been obtained in Archaic Stage sites in the eastern United States. Some are of the Otamid variety, but many are of the Iswanid variety which was also dolichocephalic but not quite as markedly so. None of the early people appear to have been very tall or robust.

What did they wear? With the climate what it was during the Pleistocene and the early Recent periods, it seems certain that some form of body covering was essential. Animal skins probably provided the chief material used even for those who utilized primarily small game and plant foods. Fur cloth, produced by wrapping cords with strips of fur, then tying these in parallel rows, may have a very long history. Radiocarbon dates from a western cave site, where normally perishable materials were preserved, show that sandals were worn at least 9,000 years ago (7,000 B.C.). Some twined basketry was also being made then, and it is possible that twining techniques were used in producing some articles of clothing. Twined breech clouts have been found in two Archaic graves. Some Archaic people wore many ornaments. Finds of rubbed pieces of pigment suggest that color was used in decorating bodies or possessions.

What sort of shelter did they have? No remains of house structures have been found in early sites. This is hardly surprising, for hunters and gatherers must move from one area to another, and they are not likely to build permanent habitations. Climatic conditions, however, must have necessitated the use of some shelter. Caves were utilized in some instances. Animal
hides would have provided material for the construction of skin
tents, and these may have been used; but hides are heavy, and
transportation without the aid of animals, except perhaps dogs,
would have been difficult. It seems probable that brush shelters,
such as were used by later groups in the Great Basin, may have
provided one solution. Where suitable bark was available, it may
have been utilized.

What did they eat? Primarily meat, fish, and vegetables.
The earliest hunters in the Plains depended chiefly on elephants.
Later peoples utilized mostly bison. In other areas more small
game was used, and there was a greater dependence on plant foods.
In the eastern United States, shellfish and fish contributed
a great deal to the diet of some early people.

How did they hunt? It is difficult to see how primitive
hunters, armed only with dart throwers or spears, were able to
kill huge elephants; but there is overwhelming evidence that they
did so. Many of the finds indicate that females and immature
individuals were the most common prey, but killing even these
would present formidable problems. The geology of some sites
indicates the presence of marshy and swampy deposits, and in some
cases it seems probable that the animals were mired in the mud
and unable to move rapidly. The presence in some sites of large
rocks, which must have been introduced by human agency, suggests
the possibility that they may have been thrown at the animals in
an effort to drive them to a spot that would facilitate their
capture. African pygmies who succeed in hunting elephants with
spears use a surround technique and penetrate the animal's body from below.

Even the taking of bison with simple weapons seems a remarkable feat, but Mulloy (1958) has recently summarized some of the techniques which may have facilitated the hunting of these animals. Although buffalo are herd animals, early observers noted that they often stood around in small groups and could be approached easily (Dodge, 1877). In some cases they may have been driven into swamps or snowdrifts where their movements would be impeded; in others they may have been driven over cliffs or confined in stockades, as was so frequently the case in historic times.

Large quantities of meat would be obtained in such mass killings, and doubtless techniques of preservation, such as drying, were developed; but prior to the introduction of the horse in the 16th century, it must have been impossible to carry reserve supplies of meat on any very long trek.

What was their social organization? We do know that it is impossible for simple hunters and gatherers to come together in large groups for any length of time except in rare areas where food is exceptionally abundant. Although the scantiness of artifacts in Early Man sites provides confirmation for the presence of only small groups in the early period, any hypothesis regarding settlement pattern must rest on what is known of hunting and gathering groups within historic times. When subsistence depends primarily on hunting and gathering, which make it necessary to move from place to place at different seasons of the year, the
chief social unit is usually a band consisting of a number of families who camp together. Under such an economy, the band usually consists of less than 50 people and may be comprised of as few as two or three nuclear families (father, mother, and children). These may sometimes combine to form an extended family consisting of two or more generations of nuclear families linked by a parent-child relationship. On a low cultural level, where life is on a migratory basis, families may live with the father's relatives at some times and with the mother's at others (biloclal residence). When the man's role in the economy is of particular importance, residence tends to be patrilocal, that is, with the father's group (Murdock 1949).

Nomadic life on this simple level does not lend itself to the development of social stratification. Doubtless, though, particularly skilled hunters achieved a certain status, and individual qualities of leadership or shamanistic skills may have led to positions of some dominance for certain men. At times bands may have joined together in the pursuit of herds of animals such as bison, and some leadership and organization would have been essential.

What was their religion? It seems safe to assume that there was some belief in supernatural forces, but there can have been no evolved theology or organized priesthood. Sympathetic magic, concerned with animal fertility and success in the hunt, was probably important, and there were probably shamans.
BIG GAME HUNTERS OF THE PLAINS AND THE SOUTHWEST

Conjectures aside, most of our knowledge of the big game hunters pertains to their projectile points. The first samples associated with bones of extinct animals were found in sites in New Mexico and Colorado. There were no exact dates for these sites, but the association with a Pleistocene fauna indicated considerable age. Later finds indicated that elephants were being hunted in the West more than 10,000 years ago (8,000 B.C.), and that extinct forms of bison were being hunted in the Plains until some 7,000 years ago (5,000 B.C.). In this area the dependence on bison, not extinct species but the modern form of buffalo, continued into historic times.

In Sandia Cave in Las Huertas Canyon, New Mexico, reported upon by Hibben (1941), were five stratified layers. The uppermost was of recent origin, but below it lay a crust of calcium carbonate that sealed off the lower levels. Beneath this crust lay a level containing artifacts of the Folsom Complex which, on the basis of geological and radiocarbon dates, must be at least 10,000 years old (8,000 B.C.). Below this horizon, and separating it from the one beneath, lay a sterile deposit of finely laminated yellow ochre which had been deposited by water. In the layer below the sterile ochre were found bones of extinct animals including mammoth, mastodon, bison, horse, and camel, associated with projectile points of a distinctive type. These artifacts were characterized by an inset on one side which produced a single shoulder. Some were rounded in outline, others were more nearly parallel-sided. Bases were straight or rounded. The average
length was about three inches. Associated with them were fairly large snub-nosed end scrapers and flakes chipped along one or more edges.

Geological studies by Kirk Bryan (1941) led him to the conclusion that the yellow ochre layer correlated with the last major substage of the Wisconsin glaciation. This substage has since been dated by the radiocarbon method at about 10,700 B. P. (8,700 B. C.). The layer containing the single-shouldered points, now known as Sandia points, must be still older since it lay below the ochre.

In 1954 another site containing Sandia points and mammoth remains was found near Lucy, New Mexico (Roosa, 1956). Associated with the points were three biface implements and a knife with a tang above a constricted neck. Of particular interest was the fact that some of the points had concave bases and were fluted, that is to say, they had long flakes removed from either face producing a hollow-ground effect.

This is important, because fluting is also characteristic of Clovis and Folsom points. Clovis points have been found in a number of sites in association with mammoth. They have been found in one site underlying a Folsom horizon, which would indicate an age in excess of 10,000 years (8,000 B. C.). Clovis points are lanceolate, with parallel or slightly convex sides and concave bases. Most specimens are 3 to 4 inches long, but some are as much as 5 1/2 inches long. Flutes, often produced by the removal of multiple flakes, normally extend about half the length of the point.
Clovis points were first found in situ near Dent, Colorado (Figgins, 1933). They lay in unmistakable association with the bones of one of the twelve mammoths represented in the site. Later discoveries in Texas (Sellards, 1938, 1952; Ray and Bryan, 1938) provided additional evidence of the association of Clovis points with mammoth.

The area which has produced the most information about Clovis points is a section between Clovis and Portales, New Mexico, where there are the remains of many ancient lakes (Howard, 1935 a and b; Cotter, 1937 a, 1938; Sellards, 1952). At the principal locality, known as Blackwater No. 1, seven strata were recognized, three of which contained evidence of human occupation. The lowest artifact-bearing level, which contained mammoth bones, produced Clovis points and two smaller points which had thinned bases but could not be called fluted. Associated with them were stone scrapers, retouched and unretouched flakes, a hammerstone, and tapering cylindrical bone shafts with a bevelled end. The latter may have been foreshafts to which projectile points were attached, or they themselves may have served as projectile points. It has been suggested that the name Llano be assigned to this complex (Sellards, 1952).

Further confirmation of the fact that mammoth had been hunted by the ancient people who produced Clovis fluted points was provided by two discoveries in southern Arizona not far from the Mexican border (Haury, 1953, 1959). Faunal remains from these sites indicate that the early people also hunted other animals which are now extinct.
Sandia points, Types I and II; Clovis point; Folsom point; Midland point. From H. M. Wormington, "Ancient Man in North America," courtesy Denver Museum of Natural History.
At the Naco Site, discovered in 1951, were found bones of a Columbian mammoth unmistakably associated with eight Clovis points (Haury, 1953). Later finds suggest that bison were also hunted here (Lance, 1959). One point which rested against the atlas vertebra of the mammoth may have caused the death of the animal by severing the spinal cord. Some of the points were considerably smaller than any previously found with mammoth.

Another discovery, made in 1955, some twelve miles from the Naco Site, provided still more information (Haury, 1959). At the Lehner Site, near Hereford, Arizona, were found not only thirteen projectile points, but also eight tools believed to have been used in butchering, and charcoal from two fires. The artifacts were associated with the bones of horse, bison, and tapir, as well as those of nine Columbian mammoths. All of the projectile points were fluted except three small specimens made of quartz crystal, a material which does not lend itself to fluting.

Of particular interest was the presence of other tools, for so little is known about the implements used by the Llano people. Five of the eight specimens have been identified by Haury as scrapers. All were unifacially flaked. Two were pointed and keeled. Pointed and keeled scrapers are found in preceramic sites in the western United States, and pointed though unkeeled forms have been found associated with fluted points in the eastern United States. Three were primary flakes chipped along one edge; and one fragment apparently falls into this category. Another
LEHNER SITE, Arizona. Here, Clovis projectile points were found in association with bones of the mammoth, tapir, extinct bison, and probably the horse. Photo courtesy University of Arizona.
primary flake with a thin sharp edge was classified as a knife. The remaining specimen was a river cobble with one flat edge from which a few flakes had been removed to produce a tool which could have been used as a chopper.

The presence of small flecks of charcoal at Naco, and charcoal from the two hearths at Lehner, encouraged the hope that it would be possible to establish the exact chronological position of these sites, thought to have been of approximately the same age, through the radiocarbon dating method. Unfortunately, there proved to be discrepancies. A Carbon 14 date from Naco indicates an age of some 9,000 years (7,000 B.C.), and those obtained from three laboratories for the Lehner charcoal indicate a date of from 11,000 to 12,000 B.P. (9,000 to 10,000 B.C.). Paleontological evidence provides no definition of exact age, but Lance (1959) regards a date of about 11,000 B.P. (9,000 B.C.) as reasonable. These dates are at variance with the geological evidence which, according to Antevs (1959), indicates that the sites should be dated at 13,000 or more years ago (11,000 B.C.). It seems possible that the Naco Carbon 14 date is too recent. For a single rough date, in round number, for the elephant hunters of the West, one might estimate something of the general magnitude of 12,000 B.P. (10,000 B.C.). It is impossible to say, however, what the beginning and terminal dates may be for the Llano Complex.

A date in excess of 37,000 years ago (35,000 B.C.) was obtained from a sample taken from a hearth found near Lewisville, Texas, which contained a Clovis point (Krieger, 1957). This
cannot possibly be the correct date for the artifact, and it is thought to have been deliberately introduced, although not by those responsible for the excavation.

The successors of the Llano people in the Plains were hunters who also used fluted points, but they were preeminently hunters of bison. These are the Folsom people, so named because their existence was first established at a site near the town of that name in New Mexico (Figgins, 1957). This was the site where, in 1926, the first clear association of artifacts and bones of extinct animals was found in a deposit thought to be of Pleistocene age.

At the type station only projectile points were found. This type is more specialized than the Clovis, is characterized by finer workmanship, and is usually smaller and lighter, with an average length of about 2 inches. The bases are concave and usually have earlike projections. Fluting was achieved by the removal of single channel flakes that extend most of the length of the point, usually on both faces but sometimes only on one. True Folsom points, which are largely confined to the High Plains, appear to represent a somewhat localized specialization derived from Clovis fluted points.

Much of our information about the Folsom hunters has come from the Lindenmeier Site in Colorado (Roberts, 1935, 1936). Bone remains indicate that although the primary dependence was on bison of an extinct species there was some hunting of camel, antelope, wolf, fox, and rabbit. Of the greatest importance was the fact that this was a habitation site where other tools
LINDEMIEIER SITE, Colorado. The cross-sectional cut in the trench wall clearly shows the dark band of soil typifying the Folsom horizon. Photo courtesy Smithsonian Institution, Washington, D. C.
were left, not just the weapon tips that often characterize kill sites.

Artifacts classified as scrapers constituted a third of the finds. The most common were side scrapers--flakes with one or more worked edges. Some, which have a concave cutting edge, have been called spokeshaves. There were also many "snub-nosed" scrapers, plano-convex implements with one thick rounded end which was carefully chipped. A few scrapers were made from very small cores. Cutting implements were represented by bifacially flaked specimens, some of which were fluted and some crude blades. The term "blade" is used in a technical sense to designate a flake of a specialized type--one which is narrow, essentially parallel-sided, and with an outer face formed by two or more strokes going in the same direction. Some of the thin channel flakes removed in the fluting process may also have been used as knives.

Among the bifacially flaked implements were a few choppers and some large leaf-shaped objects. Some of the most interesting specimens found were those which have been called "gravers" although they do not resemble the European form of graver or burin. These are small thin flakes with minute carefully worked points projecting from an edge. Some, having a broader point which is markedly bevelled, have been called chisel gravers. Bone discs and a soapstone disc found at the site have short grooves around the edges that could have been produced by such implements.

Geological evidence indicates an age of more than 10,000
years (8,000 B. C.), and samples from a site near Lubbock, Texas, provided dates of 9,883 \pm 350 (7,928 B. C.) (Libby, 1955) and 9,300 \pm 200 (7,345 B. C.) years ago (Krieger, Ed. 1956). Additional dates for this complex are badly needed, for even if these dates are correct, we still do not know when Folsom points were first made nor how long they continued to be made.

William Mulloy has done a preliminary investigation of a Folsom site near Laramie, Wyoming, which may be of exceptional importance. The degree of importance cannot be determined, however, until more intensive excavations have been undertaken, and it would be unwise to publicize the location of this potentially very valuable site and place it at the mercy of local pot hunters. According to George Agogino (personal communication) there is evidence that, at the Agate Basin site in eastern Wyoming, a Folsom level lies some distance below the one that produced lanceolate points which have been given the site name (Roberts, 1943). This site also requires further investigation.

One very important site, which yielded Folsoms as well as other types of points, is the Scharbauer Site near Midland, Texas (Wendorf, Krieger, Albrighton, and Stewart, 1955; Wendorf and Krieger, 1959). This is the site which produced the human calvarium discussed on page 5. There were five major sand deposits separated by disconformities. The lowest, Unit 1, was white, No. 2 was gray, No. 3 red, No. 4 light brown, and No. 5 tan. The oldest stratum, the white sand, produced a horse bone, apparently cut by man, and some flakes. The human bones and the basal
fragment of a point, which resembled a Clovis but was unfluted, were associated with the gray sand which contained the bones of Pleistocene animals. Unfluted points which resemble classic Folsoms as regards shape, now called Midland points, and fluted Folsom points were found on the surface of the red sand. There are inconsistencies in the radiocarbon dates obtained from samples from this site, and the exact age of the skeletal remains and the artifacts is not known; but it is certain that there is a considerable degree of antiquity.

During the period from about 7,000 to 9,000 years ago (5,000 to 7,000 B.C.) the Plains were occupied by other hunters of now extinct bison. They made a variety of generally lanceolate points characterized by very fine parallel flaking. Most of these, like the earlier types, exhibited basal grinding. At first these were all lumped together under the term "Yuman Points." Later evidence showed that several distinct complexes were represented. These have been named according to the type sites, and the term "Yuma" has been largely, although unfortunately not entirely, abandoned.

One of the first of these types to be found in situ in a pure site was the one to which the name Plainview has been assigned because the type locality lay near Plainview, Texas (Sellards, Evans, Meade, 1947). Similar points have since been found as far north as Alaska and as far south as Mexico. They are widely distributed throughout the Plains. A sample from the type station was dated by the radiocarbon method at 9,170 ± 500 years ago (7,215 B.C.). Eighteen projectile points were found associated
with a great mass of bones of extinct bison. Their shape was like that of Clovis points, but they were unfluted although the bases had been thinned by the removal of some vertical flakes. Some specimens had essentially parallel flaking, but on others the flaking was more irregular.

Milnesand points, for which the type locality is a sand dune area with a bed of bison bones near Milnesand, New Mexico, are very similar to Plainviews, but the bases are straight instead of concave, and there is more pronounced basal thinning (Sellards, 1955). They are probably of the same age, for at a site near Colorado City, Texas, a Plainview and a Milnesand were found together in association with bones of an extinct species of bison (Cook, 1927). It seems probable that Plainviews and Milnesands, like Folsom, were derived from the earlier Clovis type.

Among the best known of the parallel-flaked points are Scottsbluffs and Edens, which, together with a distinctive type of knife, go to make up the Cody Complex. Scottsbluffs were first found in association with bones of extinct bison at a site in Nebraska near the town of that name (Barbour and Schultz, 1932). They are fairly wide relative to their length, and have small shoulders and broad stems. Flake scars are horizontal and parallel. Similar points which were narrower relative to their length, were less markedly stemmed, and often bore broad conchoidal flake scars, had been found on the surface, together with Scottsbluff points, in blowouts in Yuma County, Colorado, during the drought years of the 1930's, but it was not until 1940 that these two
types were found together in an excavated site near Eden, Wyoming (Satterthwaite, 1957).

Further proof that Scottsbluffs and the type to which the name Eden was given were made by the same people was provided by the excavation of the Horner Site near Cody, Wyoming (Jepsen, 1951, 1953). This site also yielded a distinctive type of knife, now known as a Cody knife, which had a transverse blade and was stemmed on only one side. Radiocarbon dates for this site were 6,876 ± 250 (4,921 B. C.) and 6,920 ± 500 B. P. (4,965 B. C.) (Libby, 1955). A similar assemblage attributed to the same complex was found at the Claypool Site in Washington County, Colorado, excavated in 1953 by Herbert Dick. Geological evidence suggests that the date of occupation would fall between 9,000 and 7,000 years ago (7,000 and 5,000 B. C.). Unfortunately, there are no adequate reports on either the Horner or the Claypool site, so we do not know the characteristics of the associated tools, nor do we have any detailed information about features which may have been present. Apparently the assemblage at the Horner Site included scrapers, knives, engraving tools, perforators, choppers, pounders, and rubbing stones. Lineally arranged pits, which could possibly have been used for storage, were dug into the gravel of the terrace. They were about a foot deep, 12 to 30 inches across at the top, and narrower at the bottom.

Points which fall in this same general tradition, although there are some variations, have been found at the Olson-Chubbuck Site near Cheyenne Wells, Colorado, excavated by Joe Ben Wheat.
They were associated with great masses of bison bones, which suggests that even at this early period hunters were able to undertake bison drives. The report on this site, which has not yet been published, will provide interesting insights into butchering techniques.

Points with very fine oblique flaking, believed to fall in the same general time period as the horizontally flaked types, have frequently been found on the surface, but they are known from very few excavated sites. The first subsurface find was made in 1933 in the Municipal Gravel Pit of Browns Valley, Minnesota (Jenks, 1937). Four points, an asymmetrical bifacially flaked implement, a flat stone, pieces of sandstone, and a partial human skeleton were found under conditions that suggested they had fallen from a burial pit lined with red ochre. The points were lanceolate in outline. Two, which are the type specimens for what has come to be called the Browns Valley type, had very fine oblique parallel flaking. They were broad points with convex sides, slightly over 3 inches long. The skull, that of an adult male, was long and narrow and the face was short. It had prominent brow ridges. Geological evidence suggests some antiquity but provided no definite date.

The site that provided the first definite dating for obliquely flaked points of somewhat similar shape was the James Allen site near Laramie, Wyoming, which has a radiocarbon date of 7,900 ± 400 years B. P. (5,900 B. C.) (Mulloy, 1959). Allen points may be related to the Browns Valley type, but they have a
lesser proportional breadth. There may also be some relationship with the Angostura points found in the now inundated Angostura Reservoir area in South Dakota and dated at some 7,000 to 9,000 years ago (5,000 to 7,000 B.C.). Not all of the latter have oblique parallel flaking; however, they taper to a narrow base, and some have straight bases. The Allen site contained the bones of extinct bison. Associated artifacts included 30 whole and fragmentary points and 6 plano-convex snub-nosed scrapers. Many small unretouched flakes were also found. A number of important sites belonging to the general period of 9,000 to 7,000 years of age (7,000 to 5,000 B.C.) have been lost through inundation of reservoir sites. It is fortunate that excavation had been undertaken through the River Basin Survey. These include the Long Site in the Angostura Reservoir area in South Dakota, and the Red Smoke, Lime Creek, and Allen sites in Nebraska.

All of the finds previously discussed have an age of some 7,000 or more years (5,000 B.C.) and would be assigned to the Paleo-Indian stage characterized by the hunting of big game and the use of finely flaked lanceolate points. A number of names have been applied to the following stage in the Plains, which was characterized by a greater dependence on small game and plant foods, and the use of stemmed and notched forms of projectile points. These names include Archaic, Middle Prehistoric, and Meso-Indian.

There is a gap in our knowledge for the time between about 7,000 and 4,500 years ago (5,000 and 2,500 B.C.). It is probable that complexes of this period have not been recognized; but it seems quite possible that, as Krieger has suggested, big game was
no longer abundant, and the Plains had few occupants during this
time which coincides with the warmer drier Altithermal period.
The earliest sites known to us for the period beginning some 4,000
or 5,000 years ago (2,000 or 3,000 B. C.) show a marked difference
in economic orientation with a greatly increased dependence on small
game and vegetal foods.

As is always the case when one is dealing with sites that
produce little but stone tools, it is stylistic changes in projec­
tile points that are most useful in working out cultural sequences;
Among the earliest points of this stage are those which are lanceolate
in outline and have concave bases. They probably represent a
later manifestation of the lanceolate point tradition of Paleo­
Indian times. Perhaps some small groups that remained in the Plains
during the Altithermal preserved this tradition. Often associated
with the leaf-shaped forms are points with broad lateral constric­
tions. Later types are corner-notched and are barbed. A few are
side-notched. There is some chronological overlap, for earlier
types often persisted into later times.

There is also the problem of intergrading between these types.
It cannot be denied that it is sometimes difficult to know in
which group a given specimen should be placed, but when a sufficient
number are examined it becomes apparent that the bulk of the points
falls into distinct groups and there are marked differences between
specimens at either end of the series. Wheeler (1954) has assigned
the name McKean to the lanceolate forms; Duncan to those with
insloping, nonbarbed shoulders, and bifurcated bases; and Hanna
to the barbed, corner-notched variety. The lanceolate forms may be the prototype from which the stemmed and notched forms developed, but these closely resemble types found to the west in Desert Culture sites, and to the east in Archaic sites; and they may reflect the coming in of new people or the diffusion of new traits.

Points of the Middle Prehistoric or Meso-Indian period, also sometimes called the Plains Archaic, were first found in a stratified site when the Signal Butte Site in Scottsbluff County, Nebraska, was excavated in 1932 (Strong, 1935). The site lay on a butte with an elevation of 4,583 feet. In windblown sand which extended to a depth of 8 feet, three cultural levels, separated from each other by sterile horizons, were recognized. Beginning at the bottom, they were designated Signal Butte I, II, and III. Later excavations indicated that the lowest level, Signal Butte I, showed three possible occupation levels instead of the single one which has been recognized (Bliss, 1950).

The lowest of these, Signal Butte I-C, appeared to have only stemless points. This type, now called McKean Lanceolate, continued to predominate throughout the Signal Butte I period of occupation, but in levels A and B stemmed and notched forms also occurred. Associated artifacts included not only chipped stone implements such as scrapers, knives, gravers, and drills, but grinding stones, hammerstones, objects that may have served as pestles, shaft polishers, and an axe. Some scrapers were plano-convex, others were bifacially flaked. Storage and fire pits, some stone-lined, had been dug into the silt and gravel that overlay the caprock.
Level II represents only a brief period of occupation. Some unstemmed leaf-shaped points were found, but most were stemmed or notched. The most common type was the one now called Hanna. Signal Butte III produced a few good-sized projectile points, but most were of the small triangular type, often side-notched, believed to have been used with a bow. Diamond-shaped knives with bevelled edges were a characteristic form. Two pottery wares, Upper Republican and Dismal River, were represented in this horizon. Glass beads and trade objects of historic age were found on the surface.

A locality in northeastern Wyoming, the now inundated McKean Site, has provided additional evidence of occupation during the Middle Prehistoric in the Plains (Mullay, 1954). Two culturally distinct groups of different ages were represented. There was an intermittent occupation by one group, followed by a long period when the site was not inhabited; then there was a time when the site was occupied at intervals by another group.

In the lower level, designated McKean I, were found McKean Lanceolate points and Duncan points associated with plano-convex end scrapers and side scrapers, and bifacially flaked knives ovoid to piriform in outline. There were some tools with one or more semicircular concavities. These have been called spokeshaves. Milling stones and manos were also present, but not in large numbers. Hearth were of two types, surface lenses and basinlike depressions lined with sandstone. The use of small plants and shrubs for fuel suggests a possible shortage of more suitable material.
The most diagnostic artifacts for McKean II, the upper occupational zone, were barbed corner-notched Hanna points, although a few lanceolate and triangular forms were found. They cluster around two size norms, suggesting that both the atlatl and the bow may have been in use at this time. Associated artifacts included plano-convex end and side scrapers; ovoid to piriform bifacially flaked knives; crude percussion flaked core bifaces that may have been used as choppers; a serrated scraper; and very thin flakes, with and without retouch, which appear to have served as cutting implements. Manos and milling stones, thin slabs with shallow depressions, were better represented than in the lower level, and there was one fragmentary grooved maul. Dependence on vegetable foods may have been greater during this period. Stone-filled basin-shaped hearths were larger than those found below and contained considerable quantities of charcoal, including pine, which would suggest that fuel was not in such short supply. Relatively few bones were recovered in either level. This is surprising in view of the number of projectile points found. Perhaps there was a seasonal variation in economy and other sites were occupied at times when more hunting was done. The bones found show that it was primarily small game, especially rabbits, that was hunted. The presence of large quantities of unio shells suggests that these mollusks were important in the diet.

Although the artifact assemblages of McKean I and Signal Butte I were not identical, they were sufficiently similar that it seemed that they must belong to the same general horizon, and
discrepancies between the first radiocarbon dates released were confusing. McKean II was dated at 3,287 ± 600 years ago (1,287 B.C.); while Signal Butte, which should be considerably older, since it is equated with McKean I, produced dates of only 3,440 ± 120 (1,440 B.C.) and 2,950 ± 200 years ago (950 B.C.) (Libby, 1955). However, the Lamont Laboratory has since assayed other samples which produced dates of 4,550 ± 220 years ago (2,550 B.C.) for Signal Butte I-A, and 4,170 ± 250 years ago (2,170 B.C.) for Signal Butte I-C.

A stratified site in Montana, Pictograph Cave, has provided evidence of a long period of occupation by the hunters and gatherers of the Plains (Mulloy, 1958). Four cultural levels were recognized ranging from Middle Prehistoric to Historic times. No perishable materials were preserved in the two lowest levels, so the record is not so near complete as for those levels higher in the deposit. Two Eden points, and two concave-based lanceolate points which resemble those from the Allen Site, were found in the lowest level, but Mulloy believes that these were older points picked up and reused by the Pictograph Cave I people. The dominant types were Duncan and Hanna points. The second level produced only one Duncan point. All of the others were barbed, corner-notched forms. They clustered around two size norms, one large and one small.

Pictograph Cave III has the most productive level and contained many artifacts made of normally perishable materials, as well as those made of stone and bone. Characteristic projectile points
were side-notched and had straight or concave bases. Associated with them were snub-nosed scrapers, bifacially flaked knives, drills, choppers, and retouched flakes. No milling stones were found, but the presence of two manos suggests that vegetable foods which required grinding were used. Bone and antler were used in the production of awls, flaking tools, metapodial scrapers, needles, knives, and gaming pieces.

Arrowshafts made of wood and cane were found in some quantity. Some showed evidence of feathering, and some contained stone points hafted with sinew binding and an animal glue adhesive. Decorations on the shafts, produced by painting or incising, may represent individual or tribal marks. Certain wooden objects found appear to have been gaming pieces. Fire-making equipment shows that fire was produced by friction. Hide tanning was skillfully done, for fragments of leather which were found were soft and pliable. Sinew was used for sewing. No garments were found, but it is reasonable to assume that there was some use of skin clothing. Pictograph Cave IV differed little from III, but it contained some pottery and objects which had been cut with metal tools.

Of particular interest is a remarkable group of paintings on the wall, done in red, black, and white. More than 100 figures are represented. It seems probable that they were painted after the deposit had reached nearly the modern level, for all of them occurred above the original surface. Those done in bright red, and showing historic objects, are assigned to the Pictograph Cave IV period. The remainder, done principally in black, have been tentatively equated with Pictograph Cave III.
Most of the latter show human beings with hornlike projections on their heads, probably representing a form of headgear or a manner of dressing the hair. Many have lines depending from the eyes. These lines have sometimes been called "tear streaks." Humans are shown carrying circular shields so large that they cover most of the body, only the head and legs projecting above and below the shield. A variety of designs appears on the shields, some geometric, and some zoomorphic or anthropomorphic. Many of the figures carry a weapon that resembles a bow with a spear head attached, a type of object that had ceremonial significance for Assiniboine warriors in historic times. There are also some rectangular-bodied figures and some with ovoid bodies shown in profile. Deer, elk, moose, bison, bear, badger, wolf, prairie dog, and turtle are among the animals depicted.

Another site, a rock shelter near Tensleep, Wyoming, has yielded large quantities of artifacts made of normally perishable materials, including a great deal of wood. Among the artifacts recovered were atlatls, darts, hafted knives and scrapers, and basketry. Nothing has been published on this site, but the material is now being analyzed by Donald Lehmer. The collection has been only most superficially examined by the writer, but even a casual inspection of this material is sufficient to indicate that the site is of exceptional importance. Stone typology indicates an occupation near the end of the "Middle Prehistoric" period. A charcoal sample yielded a date of $1,725 \pm 200$ years ago (A.D. 230).
Judging from the evidence now available, the dependence was on big game during Late Prehistoric or Neo-Indian times (estimated to have begun about A.D. 500) as it had been in the Paleo-Indian period. The bison, now of modern species, supplied most of the basic needs of the people for food, clothing, shelter, and fuel, and even furnished materials for making some implements. Bison scapulae provided material for scrapers, and metapodials were very commonly used to make fleshing tools.

Most projectile points were small, delicately chipped, triangular forms that usually had side notches and sometimes had a basal notch. The small size is thought to indicate the use of the bow. The introduction of the bow, which had a greater range and increased accuracy, probably led to some changes in hunting practices. As has been noted, the earliest clustering around two size norms, which may indicate the use of both the atlatl and the bow, is at the McKean Site in a level dating between 3,000 and 3,500 years ago (1,000 and 1,500 B.C.). In later periods the atlatl no longer appears to have been used.

The introduction of the horse, of course, had an even more profound effect than the introduction of the bow. Using the horse, peoples of the Plains could follow herds in a way that had never before been possible, and driving animals over cliffs or forcing them into stockades would be infinitely easier for mounted men than for those on foot. There is evidence, however, that such techniques were used even in the prehorse period. The use of the horse also made it easy for the Indians to transport heavy skin tents and food, such as preserved meat, which would
tide them over periods when hunting was poor. The greater availability of food made it possible for larger groups to live together.

Vast quantities of meat must have been obtained from kills in bison traps where hundreds of animals were slaughtered. The beasts were driven over cliffs where they were killed by the fall or were shot. In some cases enclosures were built to prevent the escape of uninjured animals. A great number of such bison traps are known, but few have been investigated and none has been adequately reported upon.

The remains of one prehistoric bison trap were uncovered within the city limits of Billings, Montana (Mulloy, 1952). Bison apparently had fallen on a rocky talus after having been driven over a low cliff. Buffalo bones lay in a deposit several feet thick. The deposit was divided by a sterile zone, which suggests that two different kills were represented. Near Emigrant, Montana, are two cliffs which served as bison traps. In one case there were two lines of stones about a mile long, laid in a V, which converged to a narrow opening at the cliff face. One site is reported to have produced some 1,500 small side-notched projectile points, and the other about 300 (Brown, 1932).

A bison kill attributed to the Late Prehistoric period has been excavated by Thomas F. and Alice B. Kehoe (1960). This site, designated 24GL302, is on the Blackfoot Reservation near Browning, Montana. Buffalo were stampeded over a bluff onto a terrace which formed a natural corral due to the presence of a curve in the stream and a heavy growth of brush. The natural
features were probably enhanced by burning the brush below the bluff and building a log fence. Two separate drives, believed to have taken place during late summer or early autumn, appear to be represented. This site has yielded valuable data on butchering techniques, as well as information regarding the types of arrow points, knives, and choppers, that were used by the hunters.

THE EASTERN UNITED STATES

There are differences between the cultural sequence of the Plains and that of the areas further east. The first archeological stages of the eastern United States once seemed to form a neat pattern. The earliest was the Paleo-Indian or Lithic stage, characterized by the making of fluted points. It was suggested that these might be of more recent age than similar specimens found in the West, and that their makers had perhaps been driven from the Plains by the aridity of the Altithermal period which lasted from about 7,000 to 4,500 years ago (5,000 to 2,500 B.C.). The next stage was the Archaic, which was characterized by a more evolved lithic industry, including barbed and stemmed projectile points and a larger variety of associated implements, and a greater dependence on small game and the gathering of plant and animal foods.

Good stratified sites that would clarify the problem are still lacking, but enough new evidence has been obtained to show that the whole problem is infinitely more complex than had been thought. It seems probable that the "Paleo-Indian Stage" and
the "Archaic Stage" of the East are not really sequential stages but rather two different traditions that were in part contemporaneous, although the latter continued into a later period.

The Archaic is not easy to define, for there is considerable regional variation; but, in general, certain traits characterize this tradition (or stage). Although settlements still were not very large, deposits in Archaic sites tend to be fairly deep, which suggests a more sedentary or at least seasonal type of occupation. Remains of houses have not yet been recognized, but they may well exist, since what appear to be floor areas have been found. The abundance of shellfish and fish in river and coastal areas made possible the existence of larger and more stable population groups.

There was probably greater socio-political development and greater religious complexity than among nomadic hunters living in very small bands. It was also possible for the Archaic peoples to have more possessions. These included heavy items such as stone vessels that are not practical unless there is some stability of occupation. Fire-burned rocks and clay balls suggest that stone boiling and pit roasting techniques were used. Milling stones, manos, and mortars and pestles indicate that vegetable foods were widely used. Great shell mounds found in some areas reflect a dependence on shellfish, and the presence of many artifacts used in taking fish attest to the importance of fishing.

There was also some hunting, and several kinds of notched and stemmed projectile points were commonly used. The standard of workmanship on chipped implements was, in general, considerably
lower than that found on the early points of the big game hunters. Tools of types used in woodworking would indicate a wide utilization of this material, as might be expected in a forest environment. Polished stone implements which, as time went by, became very common, were often very well made. The use of this technique suggests that the people had more leisure and that it was not necessary to spend virtually every moment in the quest for food. Chipped stone tools can be made very quickly, but there is no substitute for time in the production of hand-polished objects. Production of many ornaments also suggests greater leisure.

Archaic sites were largely nonceramic, but some that fall fairly late in the chronological sequence do contain pottery. These early wares were fiber tempered and had predominantly plain surfaces.

The dead were disposed of in a variety of ways. There were primary entombments, often with the body lying flexed in a pit, but sometimes extended; bundle burials, where the bones were reburied after the flesh had decomposed; and some cremations. In some cases, dogs, as well as people, were provided with graves.

The relationship between the Paleo-Indian tradition and the Archaic is far from clear. The confusion will continue until more good stratified sites have been excavated and the results published, and more radiocarbon dates are available. There is now not only proof that fluted points were being made in the East at least 9,000 years ago (about 7,000 B.C.); there is also evidence that some of the Archaic people and some of the Paleo-
Indians were contemporaries, and that the Archaic goes back to a far earlier period than had previously been believed. Stone polishing techniques seem to have been used earlier than had been postulated. Even metal has been shown to have been in use at a surprisingly early date.

Although in the East thousands of fluted points, including some that closely resemble the Clovis points of the West, have occurred as surface finds, very few have been found in excavated sites. None has ever been found in association with extinct fauna nor in a geologically datable formation. In only one stratified site, and one on which no detailed report has ever been published, have fluted points been found clearly underlying an Archaic level. This is the Hardaway Site in North Carolina (Coe, personal communication). The complex containing fluted points, some of which were notched, as were Archaic specimens, is the earliest of eight preceramic complexes which have been recognized in the area on the basis of the excavation of four stratified sites with a chronological overlap.

At the Doerschuk Site, sometimes referred to as the Badin Site, which lay across the river, there was a deep stratigraphic column which produced artifacts assigned to the Historic period and five earlier periods of occupation attributed to the Archaic. The complexes represented here, beginning with the earliest, are called Stanley, Morrow Mountain I and Morrow Mountain II, Guilford, Halifax, and Savannah River. The relatively recent Guilford Complex, which contains long, slender, lanceolate points and
small, notched axes, has been dated at 5,440 ± 350 years ago (3,485 B. C.). A polished atlatl weight is attributed to the Stanley Complex, which indicates that this technique of manufacture was used at a very early period. Points with contracting stems that resemble those found in Gypsum Cave, Nevada, and some reminiscent of the Lake Mohave type from California, were part of the Morrow Mountain I Complex. The latter type was also present in the Stanley level.

Investigations in Michigan and adjacent areas have led Mason (1958) to postulate an occupation by makers of fluted points about 13,500 and 8,500 years ago (11,500 and 6,500 B. C.). The only radiocarbon dates for a fluted point site in the East are those from the Bull Brook Site in Massachusetts (Byers, 1955, 1959). They indicate that people were there about 9,000 years ago (7,000 B. C.). None of the more than 100 points recovered was found in situ, but other implements, similarly flaked and made of the same material were. This is one of the Paleo-Indian sites for which there are adequate descriptions of the tools and implements other than points. These studies indicate that flaking techniques were very similar to those employed in the West, notably at the Lindenmeier Folsom Site. Trueblades (in the technological sense) were present. There were many snub-nosed end scrapers and side scrapers. Some of the latter were made from blades and others from large flakes. Needlelike gravers were found on flakes and on the outer ends of scrapers.

Other eastern sites with fluted points show some similarities and some differences when compared with the Bull Brook assemblage.
Four of these—the Shoop Site near Enterline, Pennsylvania, the Williamson Site in Virginia, the Quad Site in Alabama, and the Hardaway Site in North Carolina—Witthoft (1952) has assigned to what he has designated the Enterline Chert Industry. Unfortunately, the Hardaway Site, discussed on page 35, is the only one that yielded any stratigraphic evidence. The materials obtained at the other sites, through surface collecting, are of great interest from the viewpoint of typology, which has been ably discussed by Witthoft, but the sites do not provide other types of data nor aid in dating fluted points in the area.

The Reagan Site in Vermont (Ritchie, 1953), which yielded fluted points, is also known only from surface finds. Its principal interest lies in the fact that the fluted points are not all lanceolate in outline; triangular and pentagonal fluted forms are also represented, and there are some perforated artifacts made of talc. There are few end scrapers, and no gravers. Ritchie believes that this site is late in the stage characterized by fluted points.

There is an urgent need to find fluted point sites in the East which will lend themselves to careful and controlled excavation. Many of the specimens found resemble the Clovis points of the West, but among others there is great variation in shape. Many eastern points, for example, are basically triangular, and many are constricted at the base and have flaring ears. Only when these are found in excavated sites that can be dated will it be possible to determine the significance of many typological variations.
Only one Archaic site, so far, has yielded bones of extinct animals, but a few finds seem to indicate that some Archaic people may have been familiar with such forms as the mastodon, which, according to radiocarbon dates obtained from samples from Indiana, Ohio, and Michigan, may have survived until some 8,000 years ago or even later. Unfortunately, no detailed reports are available.

Certain Archaic sites, however, dated by the radiocarbon method, belong to a considerably earlier period than would have been thought probable some years ago. Only a popularized account is available (Miller, 1956); but Russell Cave, a large cavern near Bridgeport, Alabama, with stratified deposits, appears to be of particular importance. In the lower levels, which are attributed to the Archaic, were found triangular points and lanceolate specimens with basal constrictions. A stratum containing notched and stemmed forms lay above. Woodland and Mississippian artifacts were found in higher levels. Radiocarbon samples from the 13-foot level provided dates of 7,950 ± 200 years (5,994 B.C.) and 8,560 ± 400 years (6,603 B.C.) (Miller, 1957).

At the Modoc Rockshelter in Illinois, one ceramic and four preceramic occupational zones were recognized in 27 feet of stratified deposit (Fowler, Winters, Parmalee, 1956; Fowler, 1959). The lowest, Zone I, provided radiocarbon dates indicating occupation between 10,000 and 8,000 years ago (8,000 and 6,000 B.C.). There were two subzones. The uppermost, which contained few artifacts, consisted of wind-deposited material and may
indicate a break in occupation between Zones I and II. The projectile points found at the lowest level were side-notched. Somewhat higher were found a point with a contracting stem, and a lanceolate point. One projectile point was of deer antler. There were crude choppers and hammerstones, and some definitely shaped scrapers, but most cutting and scraping tools were flakes with a minimal retouch or scars indicative of usage. Worked bone was represented by awls and cut bird bones.

The Zone II occupation began about 8,000 years ago (6,000 B.C.) and lasted for about 2,500 years. Side-notched projectile points predominated, although there were also some stemmed and lanceolate forms. Most of the latter, which were basally ground but unfluted, were found in the lower portions of the zone. The presence of a milling stone suggests that seed gathering was practised. Faunal remains show that deer, small mammals, fish, clams, snails, and birds contributed to the diet. A fully grooved adze, found at a depth with an estimated age of 7,000 years (5,000 B.C.), indicates that a stone polishing technique was used at an early date.

Zones III and IV contained similar artifacts, but points with expanding stems became increasingly common and were the dominant form in Zone IV. There was a greater number of hafted scrapers. Posts interlaced with twigs and daubed with mud provided windbreaks.

Five flexed burials were found at the bottom of Zone II extending into Zone I. Several flexed and semiflexed burials were found in Zones II and IV. Polished stone artifacts occurred in
greater numbers. The latter included a plummet and an adze, as well as axes, celts, and bannerstones also represented in lower zones. The uppermost zone, Zone V, was mixed and contained both Woodland and Mississippian materials.

Another Archaic site which produced surprisingly early dates is Graham Cave in Central Missouri (Logan, 1952). This site was excavated in six 1-foot levels. A sample from a fire-place on the original cave floor was dated at 9,700 ± 500 years ago (7,745 B.C.), one from level 6 at 8,830 ± 500 years ago (6,875 B.C.), and one from Level 4 at 7,900 ± 500 years ago (5,945 B.C.).

This is one of the sites where lanceolate points, some of which were fluted and basally ground, occurred in a generally Archaic context. A long period of occupation by people on an essentially Archaic level appears to be represented; then there was a period when the cave was not occupied, and this was followed by an occupation by a pottery-making Woodland group.

The presence of large numbers of animal bones indicates that hunting was important. Small game was well represented, but deer were the animals most commonly hunted. Fish and shellfish also provided food. Few plant remains were found, but conditions were unfavorable for preservation. Grinding tools which could have been used for processing vegetal foods were found, but many bore traces of red ochre, which would suggest another purpose. The finely polished tools which characterize many Archaic assemblages were lacking.
Human bone remains, the majority of which represent the later Archaic occupation, were poorly preserved, and many of the burials were found in badly disturbed areas, so little is known of the physical type. Pit burials and bundle burials appear to be represented. Some graves contained burial offerings, others did not.

Chipped stone tools were the predominant artifacts. In the lowest levels, Nos. 5 and 6, were found lanceolate points with concave and straight bases. Some were fluted, and there is a resemblance to the Clovis type. In some cases there was unifacial bevelling such as characterizes the Dalton points of Missouri. Notched and stemmed forms were also present, but in Level 6 lanceolate forms constituted 50 percent of the total. Notched and stemmed forms increased in importance in Level 5 and succeeding levels. Bone and antler were used in making various tools, including awls and needles, which may have been used in the production of skin clothing.

A radiocarbon date of 8,430 ± 520 years ago (6,480 B.C.), obtained from charcoal collected at the Simonsen Site in western Iowa, indicates that points of a type attributed to the Archaic stage were quite early in this area (Agogino and Frankforter, 1960). Furthermore, there was an association with bones of an extinct species of bison. It is of particular interest that these points, which were side-notched with concave bases and rounded projections at the base, closely resembled a point associated with a human skeleton excavated near Turin, Iowa, from a prepared
burial pit stained with red ochre. This skeleton, that of an adolescent, was one of a group of four which included one infant. The geological evidence would be compatible with an age of some 8,000 years. Radiocarbon dates and a detailed report on the skeletons are eagerly awaited.

A rock shelter beneath the famous natural bridge in Sauk County, Wisconsin, was excavated in 1957 (Wittry, 1959). It was a stratified site occupied during the Archaic and Woodland stages. The Woodland materials were unfortunately removed during the last century. This site appears to have been a seasonal hunting camp. Three samples of charred wood were assayed by the radiocarbon method. One, obtained 7.5 feet below the surface, produced a date of 11,611 ± 600 years ago (9,652 B.C.). The earliest positive evidence of human occupation was encountered at a depth of 7 feet. Wittry estimates that the dates for the earliest occupation would be of the general magnitude of 10,000 to 11,000 years ago (8,000 to 9,000 B.C.). Unfortunately, there were no diagnostic artifacts, since the remains indicating the earliest occupation consisted only of a fire bed, split animal bones, and flakes. A cut antler and a heavy side scraper lay at a higher elevation, but some distance below the level dated at 5,200 ± 400 years ago (3,251 B.C.). Higher in the deposit was found a typical Archaic assemblage with side-notched points, a few corner-notched specimens, and straight and expanding stemmed stone points, barbed antler points, bifacial ovoid knives, side scrapers, drills, and bone awls. The lowest level with artifacts of this type has an
estimated age of about 8,000 years (6,000 B.C.). The absence of grinding stones is attributed to winter use of the camp when plant foods were not available.

Prior to the discovery of this shelter, most information about Archaic sites in Wisconsin had been derived from artifacts attributed to the Old Copper Culture. This was originally known only from surface finds but has now been found in two excavated cemetery sites designated Osceola and Oconto (Ritzenthaler, 1957). Characteristic of this culture are well made copper artifacts including large spear points which were sometimes socketed, harpoon heads, knives, awls, adzes, gouges, chisels, and ornaments.

Excavations at the Osceola Site, a cemetery which lay near the town of Potosi on the bank of the Mississippi River, provided the first information about the chipped stone artifacts which were part of the Old Copper complex, as well as detailed information about burial practices. The chipped stone implements exhibited excellent workmanship. Projectile points were long slender side-notched forms. There were also drills with expanding bases, and side-notched snub-nosed scrapers. It is estimated that some 500 individuals had been buried here, but the figure cannot be exact since many graves had eroded away or had been removed before excavations were undertaken. Burials consisted of single and multiple bundle reburials and partial cremation.

At the Oconto Site, which lies on the outskirts of the city of the same name, about half of the burials were primary entombments made while the flesh was on the bones; the remainder
consisted of secondary bundle burials and cremations. Associated artifacts included projectile points, awls, and ornaments of copper; a few chipped stone implements; and some worked bone, antler, and shell. Post molds were found which probably indicate the presence of structures, but there was no discernible pattern. The poor condition of the bones precluded intensive studies by physical anthropologists, but a few skulls from Osceola and Oconto which could be analyzed suggested that the Old Copper people could be assigned to the ancient Otamid variety defined by Neumann (1952).

Radiocarbon dates indicate a temporal priority for the Oconto Site. One sample collected from two locations at the site was dated at 7,510 ± 600 years ago (5,555 B.C.), and another from a cremation was dated at 5,600 ± 500 years ago (3,645 B.C.). Human bone from the Osceola Site was dated at 3,450 ± 250 years ago (1,495 B.C.). Ritzenthaler (1958) regards the latter date as surprisingly recent, and there may be some possibility of contamination.

There is thought to be some connection between the Old Copper Culture and the Laurentian of New York State and some cultures in New England, notably Red Paint. It has been suggested that they may be manifestations of an old culture, developed in the boreal forest, which may also have contributed some traits to Eskimo Culture. Rubbed slate artifacts and polished gouges are characteristic artifacts.

Sites containing material attributed to what has been termed the Boreal Archaic have been found near Ellsworth Falls, Maine.
Four periods of occupation were recognized. The earliest, which must be well over 4,000 years old, is characterized by large heavy implements made from pebbles or cores. These closely resemble scraper planes commonly found in Desert Culture and some California sites, and they are also strikingly similar to scrapers found in preceramic Siberian sites. The succeeding occupations are characterized by artifacts normally found in Archaic assemblages. Pottery was used during the final period of occupation. Chipped implements were not common, but there was a variety of polished stone implements which included spears made of slate, adzes, rods, and plummets. The second occupation ended and the third began about 2,000 B.C.

The Lamoka Complex, the earliest known in western New York, was first recognized at the Lamoka Lake Site (Ritchie, 1932, 1934). This site, which provided the basis for the initial definition of the Archaic cultural horizon in North America, is the largest and most productive of the Lamoka sites. Some three acres were explored, and over 14,000 artifacts were recovered. Features included huge fire beds, hundreds of small hearths, over 300 refuse-filled pits, and hard-packed areas that may represent house floors. There were five graves containing flexed burials of individuals of the dolichocephalic Ashiwid physical type.

Important chipped stone implements were narrow-bladed stemmed or notched projectile points and rough choppers with only a marginal retouch. Hunting was of major importance, but the
discovery of fishhooks and one harpoon suggests some dependence on fishing. Acorns and burned nuts found in the site show that plant foods were utilized. Ground stone tools included milling and hand stones, mortars and pestles, hammerstones, and whetstones. The most characteristic implements were polished bevelled adzes. Some adzes were plano-convex. There were some woodworking tools of copper. Bone and antler were intensively utilized for the production of awls, scrapers, knives, beads, netting or fishing tools, and whistles. Among the diagnostic specimens are antler pendants, with nicks or notches, sometimes decorated with red paint. Radiocarbon dates of $4,369 \pm 200 (2,414 \text{ B. C.})$ and $5,383 \pm 250 (3,428 \text{ B. C.})$ have been obtained from this site. The latter was the more carefully collected and is considered the more reliable.

The Laurentian Complex, a manifestation of the Boreal Archaic, which appears to be intrusive into the Northeast, is thought to have been present in eastern New York while the Lamoka people were living in the west. At Frontenac Island in Cayuga Lake, Ritchie (1945) found evidence of Lamoka and Laurentian cultural fusion with dominance of the latter. Characteristic Laurentian artifacts are harpoons, usually unilaterally barbed, and ground slate points and knives. Some of the latter resemble Eskimo ulu. The Frontenac Island site has produced radiocarbon dates of $4,930 \pm 260 \text{ years ago (2,975 B. C.)}$ and $3,963 \pm 80 \text{ years ago (2,018 B. C.)}$. 

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Some little-known complexes found in the South may have considerable antiquity. There is the early Macon Flint Industry of Georgia, with very heavily patinated artifacts found in deeply weathered loams, which is believed to precede the more evolved Archaic manifestations in the area (Kelly, 1938). There is also the Old Quartz Industry of Georgia and South Carolina, represented in small briefly occupied sites with a deep stratigraphic position (Caldwell, 1954). Artifacts consisted primarily of knives and scrapers, and there were very few projectile points. The latter were side-notched. There were no heavy implements such as choppers or axes, and no milling stones. The economy must have been largely based on gathering, but there was none of the intensive utilization of shellfish which characterizes the later less nomadic Archaic occupations in the Southeast.

Throughout the Southeast are found many deep midden sites consisting of shells and refuse left by Archaic peoples whose primary food was shellfish, although they utilized other animal foods and plants. These people were not really nomadic, but there was probably some seasonal movement. They apparently lived on the middens, discarding the shells which formed the heaps. The shell mounds served not only as living areas and garbage dumps, but also as cemeteries.

The shell heap site that has provided the earliest radiocarbon date is the Eva Site in western Tennessee (Kneberg, 1954). There were five stratigraphic divisions. The second from the bottom, which accumulated after the site had been occupied for some time,
produced a radiocarbon date of 7,150 ± 500 years ago (5,195 B.C.). Occupation continued at this site over a considerable period of time. Most projectile points were corner-notched, but some were side-notched or stemmed. There was a variety of chipped stone drills, scrapers, knives, and some very well made implements, including atlatl weights, which were made of polished stone. Some projectile points, scrapers, and shaft wrenches were made of antler. The dead were tightly flexed and forced into small pits. Dogs, too, sometimes were buried.

The largest and most famous of the shell heap sites is Indian Knoll, on the Green River in west-central Kentucky. The mound was 450 feet long and 250 feet wide, and in some sections fresh water mussel shells and other debris reached a depth of eight feet. This exceptionally important site was subjected to uncontrolled excavation in 1915, and 298 skeletons were removed. Systematic excavations were begun in 1939 under the direction of William S. Webb (1946). Eight hundred eighty more burials, and more than 55,000 artifacts, were found. A portion of the mound remains unexcavated.

Among the features recognized were putative floors consisting of thin clay layers, and scattered post holes near fire areas. These remains suggest the former presence of structures. There were many fire places. The presence of accumulations of burned rock suggests the use of stone boiling techniques. Deer and shellfish were the principal animal foods. Nuts and acorns were also important in the diet.
Most projectile points were notched (corner-notching predominated over side-notching), but some were stemmed. Knives were often triangular or lanceolate in outline. Straight-sided drills were common tools, and there were some choppers. The most common of ground stone tools were pestles. Also represented in this category were atlatl weights, grooved mauls and axes, hammerstones, and abraders. There were no ground celts. Stone tools were sometimes found in caches. Some caches contained chipped points and knives; others contained mortars, pestles, hammerstones, nut stones, and grooved axes. Awls comprised the greatest number of bone artifacts. Shell was widely used in the production of beads and ornaments. Traces of textiles suggest that there was some woven clothing. Of the artifacts recovered, over 13,000 were of chipped stone, over 3,000 of ground stone, and some 8,000 of bone, 4,000 of antler, and 25,000 of shell.

Of greatest interest was the burial complex exemplified by the graves found throughout the midden and in the underlying river bank. The most typical graves were single burials in round, straight-sided pits with flat bottoms. Bodies were interred in a flexed position, probably after having been rolled into bundles incased in textiles or skins. Red ochre was often spread over the body at the time of burial. Atlatl hooks and weights, and shell artifacts, including many shells from necklaces, were the most common burial offerings. There were also multiple burials where two or more bodies were placed in a single grave. The frequent presence of projectile points in these graves suggests that the
individuals may have met death through violence. In some graves, although there was no evidence of intrusion or disturbance, parts of the skeletons were missing, and it is thought that the bodies were dismembered or mutilated before burial.

Dogs were sometimes placed in human graves. In other cases they were given separate burial, and their graves appear to have received as much attention as those of human beings. The presence of dog bones in food refuse would suggest that they were sometimes eaten.

Charles E. Snow (1943) made a detailed study of 521 measurable adult human skeletons. The average occupant of Indian Knoll was found to have been relatively short and of a medium to slender body build. Skulls were somewhat narrow relative to length, but not markedly so. Faces were of medium proportions and somewhat protruding; the lower jaws were wide and flaring. The fundamental likeness of the skeletons suggests an isolated population with much inbreeding. There were various pathological anomalies, indicating that these people were beset by disease. Arthritis was extremely prevalent, with over half of the adult population affected.

Statistical studies undertaken by Von Bonin and Morant (1938) indicated that the Indian Knoll series differed widely from other series. The Indian Knoll population provided the basis for definition of the Iswanid variety of American Indian. Neumann (1952) has noted that this variety shows close relationships to Ashiwiid variety, exemplified by the Basketmakers of the Southwest, whose culture developed from a "Desert Culture" base.
Antler samples from the one-foot level averaged 5,302 ± 300 years ago (3,347 B. C.). Another sample from a band six inches thick at the one-foot level was dated at 4,282 ± 250 years ago (2,327 B. C.). A sample from the four and a half-foot level, near the bottom of the mound, which should be older, produced a younger date, 3,963 ± 350 years ago (2,008 B. C.). Despite this anomaly, it seems reasonable, in view of evidence from related sites, to postulate a time of occupation at about 2,000 or 3,000 B. C.

Some southeastern sites, although closely resembling Indian Knoll and sites of related complexes, and classified as Archaic, do contain pottery. This is a fiber-tempered ware, often plain but sometimes decorated by incising or punctation. It is thought to be the result of stimulus diffusion rather than a purely local development. One well-known site is Stallings Island in the Savannah River near Augusta, Georgia (Claflin, 1931; Fairbanks 1942). This is a large deep shell heap. Pottery was largely confined to the first foot in a section where excavations continued to a depth of eight feet. It contained tiny holes produced by the oxidation of the plant fibers used as a tempering agent. Some sherds were decorated with punctates and incisions, and two had been impressed with a twined fabric. The earliest radiocarbon date for plain fiber-tempered pottery was obtained at Sapelo Island, Georgia. It was 3,800 ± 350 years ago (1,845 B. C.).

Finds in the Back Bay area of Boston have shown that some Archaic peoples depended to a great extent on water-derived foods other than shellfish. When the foundations of the New England
Mutual Life Insurance Building were dug on Boylston Street, the excavations revealed that some 65,000 pointed stakes had been driven into the bottom of the bay. They had been interlaced with horizontally placed brush and wattling to form walls. This appears to represent the remains of an ancient fish weir, an underwater enclosure designed to trap fish. Some 12 feet of silt lay above the structure. On geological evidence, Antevs (1943) came to the conclusion that the weir was in use during a warmer period than the present and that the age must be somewhat in excess of 4,000 years (2,000 B.C.). On the basis of radiocarbon dates, it would appear that this estimate is of the right order of magnitude.

Silts underlying the fish weir, which must predate the period of construction, were dated at 5,717 ± 500 years ago (3,762 B.C.); and the overlying deposits, which must be younger than the weir, produced a date of 3,851 ± 390 years ago (1,896 B.C.) (Libby, 1955).

The nature of the structure indicates that a relatively large population was present, and there must have been a fairly high degree of organization, for such a project would require overall planning and division of labor. The people who built it must have been utilizing fish for a long time, for the construction of such an elaborate weir would hardly mark the earliest development of a fishing economy. They must also have been familiar with the habits of fish that swim in schools.

**THE WESTERN UNITED STATES**

Two localities in the western United States have provided some of the earliest radiocarbon assays which may date human
occupation. At Tule Springs, Nevada, charcoal, which may be of human origin, gave a date of more than 23,800 years ago (21,845 B.C.). A disc-shaped biface and a pebble chipped along one edge, found at this locality, may be of the same age as the charcoal (Harrington, 1955; Simpson, 1955). Further work at this potentially very important site would be highly desirable.

On Santa Rosa Island, off the coast of southern California, the remains of dwarf mammoths have been found under circumstances which suggest that they may have been killed by man (Orr, 1956). Some radiocarbon samples from this site average 29,650 ± 2,500 years ago (27,645 B.C.). A shell from a cemetery that contained several hundred burials was dated at 7,070 ± 250 years ago (5,115 B.C.), and a sample from a midden was dated at 6,820 ± 250 years ago (4,865 B.C.). No detailed report has been published, and it is impossible to evaluate these finds at the present time.

Fluted points occur occasionally as surface finds west of the Rockies, but, outside of the Southwest, few have been found in excavated sites. Some were found at a site near Borax Lake, California, but artifacts found with them are attributed to a relatively recent period (the Middle Horizon) which probably goes back no more than 3,000 years (1,000 B.C.). The fluted points may have been brought in by the inhabitants from some older and undiscovered site, or they may provide an example of cultural lag. The discovery of a southeastern Nevada site containing fluted points has been reported, but no detailed information has been published (Campbell and Campbell, 1940).
Among the best known western complexes are those which have been grouped under the term "Desert Culture" (Jennings and Norbeck, 1955). Choppers, keeled scrapers, and grinding stones (which would suggest dependence on plant foods) were characteristic tools. Projectile points, usually stemmed or notched, were less important than in the Plains area. There appears to have been a greater dependence on small game. When one compares the developed and fairly elaborate Archaic of the eastern United States with the Desert Culture found to the west of the Rocky Mountains, one is struck by the relative poverty of the latter, doubtless due to the stringency of the environment; yet, there are certain striking similarities. Some types of artifacts are very much alike, and in both areas, although some hunting was practised, there was a great dependence on gathering.

Two cave sites, one in Utah and one in Nevada, are of particular importance. Danger Cave, a rich stratified site near Wendover, Utah, was occupied over a very long period of time (Jennings, 1957). Five cultural zones were recognized. Zone I, the earliest, consisted of a two-component sand layer which rested on the floor. Radiocarbon dates for samples from this zone ranged from $11,453 \pm 600$ years ago (9,498 B.C.) to $10,270 \pm 700$ years ago (8,315 B.C.). Six small fires had been built on the lower sand. Chipped stone artifacts consisted of a rather irregular lanceolate point and some flakes with chipped edges. Three fragments of milling stones were possibly, but not certainly, associated with this zone. In any case, grinding stones were
DANGER CAVE, Utah. General view of work proceeding in the shelter. Photo courtesy University of Utah.
definitely present in Zone II, which produced dates of 9,789 ± 630 years ago (7,844 B. C.) and 8,960 ± 340 years ago (7,005 B. C.). If these dates are correct, milling stones may have been in use in the Great Basin at an earlier date than anywhere else in the world.

Zones II through V were extremely productive, yielding some 3,000 chipped stone implements and many grinding stones. There was a wealth of normally perishable materials including cordage and basketry. Fifteen different styles of basketry were represented. Twining was the earliest technique employed; coiling appeared later. It is of the greatest interest that basketry, so well made that it cannot represent the first use of a weaving technique, was being produced by about 7,000 B. C. A long period of time was represented, but there was a basic continuity in the way of life, even though there were shifts in the popularity of artifact types. Early in the period of occupation the dominant type of projectile point was a small side-notched type, often notched at the base. These continued to be made during later periods, but larger forms, ovoid to piriform in outline, became more popular.

Three interesting cave sites in Nevada---Humboldt (Heizer and Krieger, 1956), Lovelock (Loud and Harrington, 1929), and Leonard (Heizer, 1951)---have provided important data regarding the prehistoric cultures of the Great Basin. The latter, which lies 17 miles south of Lovelock, Nevada, is of the greatest importance, for it is a stratified site with three complexes
represented. The lowest level consisted of bat guano lying on gravels. Artifacts recovered included obsidian flakes, a flint knife, beads made of olivella shells which could have come only from California, nets made of cordage, a complete atlatl dart, and fragmentary wooden foreshafts. One of the latter provided a radiocarbon date of 7,038 ± 350 years ago (5,083 B.C.). Heizer has called this complex the Humboldt Culture.

The next, which he has designated the Leonard Culture, lay above in a stratum of windblown dust. Finds attributed to this complex included the skeleton of a newborn baby, cordage, and fragments of burned twined basketry. Two radiocarbon samples averaged 5,737 ± 250 years ago (3,782 B.C.). In the uppermost part of the deposit, which consisted of windblown sand and pack rat debris, were recovered nets made of cordage, coiled and twined basketry, tule matting, arrowshafts, and a small obsidian arrowpoint. No grinding stones were found. This complex is called the Lovelock Culture.

Another Nevada cave site is probably of major importance, but the fact that no direct radiocarbon dating on an artifact has been attempted, although suitable material is available, leaves it somewhat open to question. Gypsum Cave is a large limestone cavern 16 miles east of Las Vegas, Nevada (Harrington, 1933). Remains of sloth, camel, and possibly horse, occurred in the deposit together with artifacts. Among the most distinctive are dart points, with lozenge or diamond shaped blades and small tapering stems. These have been given the site name. One was found with a wooden dart shaft, and other painted shafts of wood
were found under a layer of sloth dung that was believed to have been undisturbed. Radiocarbon dates from sloth dung ranged from 8,527 ± 250 years ago (6,572 B.C.) to 10,455 ± 340 years ago (8,500 B.C.). It is entirely probable that these samples date the artifacts as well as the sloth dung, but a direct dating on a wooden artifact would remove all uncertainty.

All archeological sites in California could be assigned to Theme I, since agriculture was not practised during the prehistoric period except along the Colorado River. In desert areas all possible resources were exploited. Acorns were the basis of subsistence in many sections, but in coastal areas fish and the gathering of shellfish were important. A full exploitation of marine resources made possible large communities and increased leisure.

On fossil beaches and terraces of former Lake Mohave in the Mohave Desert, a number of localities yielded interesting surface finds of artifacts (Campbell and Campbell, 1937). No exact dates have been obtained, but the presence of campsites in a region that is now so exceptionally arid suggests that the period of occupation may date back to a pluvial period. Ernst Antevs (1952) has suggested an age of about 9,000 years ago (7,000 B.C.). Two named projectile point types are recognized. These are the Lake Mohave, a very slightly shouldered point with a long tapering stem somewhat rounded at the base, and the Silver Lake point which resembles the former but is shorter and more definitely stemmed. Associated artifacts consisted of crude
choppers, a variety of scrapers, including keeled and domed forms, biface and flake knives, crescentic tools, perforators, and drills. There were no grinding stones, but many of the chipped implements closely resemble some of those attributed to the Desert Culture.

Another series of campsites, thought to be of some antiquity, was found in the Pinto Basin in Riverside County, California (Campbell and Campbell, 1935). The most distinctive artifact is the point type that has been given the name of the locality. It is a rather crude stemmed point with a bifurcated base. These specimens are often serrated. Keeled scrapers were also a feature of this complex. Pinto points were found at the Stahl Site in Inyo County (Harrington, 1948), where there was some evidence of house construction. Points similar to these have been found in many localities in the Southwest where they appear to be intermediate in age between Folsom and the more recent pottery producing cultures. They are sometimes found in association with the Gypsum Cave type of point, but the nature of the relationship between the two complexes is not clear. Similar types have also been found in the Southeast, notably at the Doerschuk Site (discussed on page 35) where they occur in an early horizon.

Of excavated sites on which published data are available, one of the oldest, and one which gives a clear idea of the life ways of the ancient Californians, is the Tank Site in Topanga Canyon near Los Angeles (Treganza and Malamud, 1950; Meighan, 1959; Greenwood, 1959). No radiocarbon dates are yet available,
but estimates of age range between 10,000 years ago (8,000 B.C.) and 7,000 years ago (5,000 B.C.) for the earliest occupation. This was a habitation site with two phases. It was occupied over a very long period of time. Thousands of artifacts, as well as hearths and human burials, were found.

The Topanga people were more concerned with food gathering than with hunting. The dependence on plant foods is attested to by the vast number of milling stones, manos, and the stones used in maintaining them. One season's digging produced some four tons of artifacts. It is the presence of so many stones used for grinding that has given rise to the term "Early Milling Stone Cultures" (Wallace, 1955). Evidence from the second phase at the Tank Site and another nearby site indicates a gradually increasing use of mortars and pestles.

In addition to the milling stones at the Tank Site, there were large numbers of crude percussion flaked choppers and scrapers. Many of the latter were keeled or discoidal domed forms. Projectile points represented only a tiny fraction of the total artifact assemblage. They were crude triangular or stemmed forms; some of the stems were of the contracting type. There were some unusual objects, such as flat stone discs, and stones shaped like cog-wheels, sometimes classified as charmstones. The dead were disposed of in a variety of ways. Some were buried in an extended position, and there were some partial reburials under inverted milling stones. In some cases only the long bones were interred.

In central California three sequential horizons, designated Early, Middle, and Late, have been recognized (Beardsley, 1948;
Heizer, 1949). There is evidence of both continuity and change. The Early Horizon has provided one radiocarbon date of $^{14}C$ 4,052 ± 160 years ago (2,097 B.C.). It is characterized by elaborate burial practices, and the many artifacts found in graves have provided valuable data. The dead were usually buried face down in an extended position. Among the most common offerings were large flaked projectile points, shell beads, and clear quartz crystals. The projectile points suggest dependence on hunting; but fish, taken with hooks, trident spears, or weighted nets, were probably also important. Impressions in clay indicate the presence of twined basketry. Ceremonial objects include artifacts of human bone and polished charm stones that resemble the specimens identified as plummets in the eastern Archaic.

Middle Horizon sites have also produced many graves. Bodies were usually flexed. The most common offerings were red ochre, shell beads, and unworked bone. Mortars and pestles gained in importance although they were not common. There were some handstones and hammerstones. Projectile points, of stemmed and leaf-shaped forms, were still of relatively large size, and some were characterized by oblique parallel flaking. Artifacts found in coastal sites indicate a strong dependence on fishing. There, presence of many sharp bone awls suggests that coiled basketry was produced. Bone and some antler were used in the production of ornamental and ceremonial objects, but shell was the material most commonly used for making ornaments. Charmstones continued to be made.
During late Horizon times, which continued until the Historic period began, there was a general elaboration of culture. There was increasing emphasis on the utilization of acorns. Small *Pseudion* arrowpoints, which indicate the use of the bow, came into use and became very common. Cremation, which had been introduced in Middle Horizon times, increased in popularity. Charmstones continued to be important ceremonial items, and shell was widely utilized.

Points that somewhat resemble those found in the Pinto Basin are a minor component of the Cochise Culture of southeastern Arizona and southwestern New Mexico, a regional manifestation of the Desert Culture, which produced many milling stones (Sayles and Antevs, 1941). Some hunting was practised, but there was a great dependence on the gathering of wild plant foods. Three stages of development have been recognized.

The earliest, known as the Sulphur Spring Stage, was first recognized at the Double Adobe Site near Douglas, Arizona, when artifacts were found below the skull and bones of a mammoth. Other bones of extinct animals were found in the same level as the artifacts. It is difficult to reconcile the palaeontological and geological evidence with the earliest radiocarbon date obtained, 7,756 ± 350 years ago (5,801 B.C.). Some authors have regarded the association as questionable (Willey and Phillips, 1958), but there seems to be no basis for this doubt (Haury et al., 1959).

Thin flat milling stones and small handstones were the most characteristic implements, but there were also percussion flaked implements including choppers, hammerstones, and plano-convex scrapers. Some of the latter were of the domed discoidal variety characteristic of many Desert Culture assemblages. Projectile points, for which there are as yet no detailed descriptions, were relatively small. Some were leaf-shaped, others stemmed.

The next stage, the Chiricahua, was essentially a continuation of the Sulphur Spring, but it had larger milling stones with shallow depressions, and there was probably some use of
mortars and pestles. Although plano-convex forms persisted, some implements were bifacially flaked. Projectile points, which were stemmed or laterally notched, had bifurcated bases. The San Pedro Stage, which followed, showed greater typological differences. Handstones were larger, the basins of milling stones were deeper, mortars and pestles became more common, and there were more bifacially flaked implements, including a good many large projectile points with expanding stems. Houses were represented by oval floors of hard-packed earth, and pits were used for storage and cooking.

Bat Cave, a site near Magdalena, New Mexico, contains Chiricahua-like material. It will doubtless be considered in more detail in Theme II, for it produced the oldest examples of maize yet known. It is considered here, however, because of the pre-horticultural stages represented, and because of its relationship to the Cochise Culture. Three beds were recognized. The lowest was sterile, but the other two contained artifacts. Grinding tools and flaked choppers, scrapers, and knives, very similar to those found in Chiricahua and San Pedro sites, showed little change throughout the stratigraphic column; but projectile point styles, represented by some 400 specimens, changed markedly.

The earliest points, which have been given the site name, had rounded shoulders and straight or concave bases. Next came points with contracting stems, suggestive of the Gypsum Cave type, which have been called Augustin points. Later forms resembled those found in Chiricahua and San Pedro sites. There was some overlap between these types and some Pinto Basin-like types.
Still higher were found corner- and side-notched specimens. Going from bottom to top, projectile points decreased in size.

The Chiricahua Phase at Bat Cave is found in the lower half of the horizon dated at 4,500 to 2,500 years ago (2,500 B. C. to 500 A. D.), and the San Pedro in the upper half.

Ventana Cave, on the Papago Indian Reservation in southern Arizona, is one of the most important of Southwestern sites. This deeply stratified site will undoubtedly be considered in more detail in other themes, since the upper levels represent occupation by the agricultural Hohokam people. The lower levels, however, contained artifacts left by prehistoric hunters and gatherers to be considered in Theme I.

The lower beds were formed by nature, the upper are middens consisting largely of trash produced by human occupation. The two lowest beds are assigned to the same general climatic horizon, although the lower is a conglomerate and the one above it consists of weathered volcanic debris. The former produced only two doubtful implements, but in the latter were found 90 manmade tools and the bones of extinct animals. These included horse, tapir, ground sloth, jaguar, and wolf, which suggest the former existence of a grassland environment with persistent streams. One projectile point had the shape of a Folsom, but was unfluted; the other was leaf-shaped. The other artifacts consisted of crude choppers and cutting and scraping tools made of basalt, one mano, and a hammerstone. Large shells found in the deposit showed no traces of human workmanship, but they were marine species that could have been introduced only by man.
Above this level lay red sand which contained stemmed and leaf-shaped points. The midden, which lay above the red sand stratum, was moist in the lower portion and dry in the upper. Only the moist portion attributed to the pre-agricultural, pre-ceramic period need be considered here. Milling stones and manos, which resemble those found in Chiricahua sites, were found throughout the moist zone, but they became less common in the upper part where the projectile points were of the San Pedro type. The most common type of projectile point found below was a stemmed form with bifurcated base reminiscent of Pinto Basin and Chiricahua points. Also present, although in smaller numbers, were points with small contracting stems that somewhat resemble those found in Gypsum Cave. All faunal remains were of modern type.

No radiocarbon dates are yet available, but the geological interpretation (Bryan, 1950) suggests that the lower cemented beds correlate with a Pluvial period that coincided with the last major advance of the Wisconsin, and that the earliest artifacts were deposited after the end of the Pluvial maximum. The red sand was adjudged to be of Altithermal age, which would place all of the artifacts in a post-Altithermal period, indicating a probable age for these of 4,000 years (2,000 B.C.) or less.

Sites in the northwestern portion of the United States follow a somewhat different pattern from those found elsewhere. The evidence for the earliest occupation, not yet published in detail (Cressman in Wormington, 1957, pp. 186-187), indicates an age of
some 10,000 or more years ago (8,000 B.C.). The important site that produced these early dates was located at Five Mile Rapids on the Columbia River in Oregon. The earliest horizon contained percussion flaked implements, tools made of elk antler, and burins which were used in their manufacture. Fish and large birds contributed to the food supply. During the following period fish gained in importance and birds and elk continued to be hunted. The bones of the latter were used in the production of tools. Artifacts showed increasing diversification; there were true blades, pressure flaked implements were produced, and there were bolas stones, presumably used in taking birds.

Bone remains found in the next level indicate a decreased use of fish and birds, and a less intensive occupation. Following this period, which was marked by aerial deposition of fill, a new period of heavy occupation began about 6,000 years ago (4,000 B.C.). This marked the beginning of the great diversification of tools and weapons that continued until historical times.

Fort Rock Cave in Oregon has added greatly to our knowledge of the non-lithic artifacts that were being produced in the western United States at a very early date (Cressman, 1951). There were two strata separated by a layer of pumice attributed to the Newbury eruption. The material found above the pumice contained only large and small projectile points, scrapers, drills, a mano, and some wooden artifacts. Below the pumice, however, were found not only stone implements (which included stemless and corner- and side-notched points of a size believed to have been used with the atlatl
some end and side scrapers, drills, and manos) but also between 75 and 100 well made sandals of shredded sagebrush bark, and fragments of fine twined basketry decorated with false embroidery. A direct date obtained from the specimens was 9,052 ± 350 years ago (7,098 B. C.). This is of particular significance, because it indicates that weaving was practised in the United States at an earlier date than any for which there is evidence in Europe or Asia. Furthermore, the techniques were so highly developed that these cannot possibly be the earliest specimens produced.

Medicine Rock Cave in the Upper Klamath Lake area also provided evidence of early occupation in this area. A well made corner-notched point of basalt was found below a layer of pumice attributed to the Mount Mazama eruption, which is believed to have occurred about 7,500 years ago (5,500 B. C.).

A deeply buried site in Washington, which produced relatively few specimens despite a great deal of effort, is still of major importance because of the nature of the artifacts and the age. Lini Coulee, in central Washington, was excavated under the salvage program of the River Basin Survey (Daugherty, 1956, 1959). The site was discovered when flint chips and bone fragments were found eroding out of the coulee wall. The cultural stratum, which lay under 11 to 13 feet of overburden, contained well made stone and bone artifacts. Of the 21 identifiable projectile points recovered, 12 were stemmed. In most cases the stems were tapered. Among the stemless points was a basal fragment suggestive of the Lerma type, and a lanceolate specimen with concave base. There were
some interesting examples of crescentic tools, some choppers, bifacially flaked knives, and a variety of uniface side and end scrapers. Some of the scrapers with one concave edge fall in the spokeshave category. Ground stone tools were represented by handstones and palettes which are believed to have been used for grinding pigments, since they bore traces of red and yellow ochre. Pieces of pigment were also found. Bone artifacts were of particular interest, for they included bone shafts closely resembling those found at Clovis and in an early site in Oregon. There was also a fragmentary serrated point.

Unworked bones showed that bison were hunted, but, unfortunately, none of the remains were sufficiently complete to permit species identification. Other bones, identified as those of geese, ducks, muskrats, and beavers, indicate occupation during a period of greater moisture. Geological evidence indicated that the occupation occurred between 11,000 and 6,000 years ago (9,000 and 4,000 B.C.). Radiocarbon dates averaged 8,700 ± 400 years ago (6,745 B.C.).

All Alaskan sites could properly be included in this theme, but only two will be considered here. Until recently the Denbigh Flint Complex, first found at the Iyatayet Site near Bering Strait, was the earliest known in Alaska (Giddings, 1951, 1954). A still older assemblage, which contains notched points, has since been found, but no detailed report is yet available (Giddings, 1960). Iyatayet was a stratified site with Neo-Eskimo material above, and a different type of complex below. The two horizons were separated by sterile laminated clay.
Some of the artifacts are strongly reminiscent of those found in Neolithic sites in Siberia. These include micro-blades, polyhedral cores, and biface side and end blades that were originally set into slotted implements of bone or antler. Also present were various types of burins— implements used in grooving antler and bone. Some artifacts were very like those found in the western United States and attributed to an early period. There was one fluted point. Other specimens were characterized by very fine oblique parallel flaking such as was used in the Plains between about 9,000 and 7,000 years ago (7,000 - 5,000 B.C.). It has been suggested that this flaking technique may have spread from America to Siberia (Tolstoy, 1958).

Radiocarbon dates indicate an age between 4,200 and 5,000 years (2,200 and 3,000 B.C.) for the cultural stratum at Iyatayet, but there were some discrepancies. Geological and paleoclimatic studies suggest that dates of about 4,500 and 5,000 years ago (2,500 and 3,000 B.C.) would be of about the right order.

An extremely interesting Alaskan site is the village of Ipiutak, which lies north of Bering Strait on the Point Hope Peninsula (Larsen and Rainey, 1948). Here were found some 600 to 700 houses laid out in five long rows. The houses were semi-subterranean buildings, square with rounded corners. Four posts placed inside the walls supported a wooden superstructure which was covered by a layer of dirt and sod. There were low benches along three walls and a fireplace in the center. The village is believed to have been occupied during the summer when the Ipiutak
IPIUTAK, Alaska. Artifacts from Ipiutak include spectacular swivels, chains and fantastic carvings in ivory, slotted bone points with inset stone side blades and tips, and human carvings. Photo courtesy Dr. Kaj Birket-Smith, Nationalmuseet den Etnografiske Samling, Copenhagen, Denmark.
people lived on the coast. Inland sites were probably used during the winter.

Even though it is improbable that all of the houses were occupied at the same time, this still must represent a remarkably large community for a hunting culture. Its existence was probably made possible by a full exploitation of rich animal resources. Birds and fish were utilized to some extent, but the greatest dependence was on seal, walrus, and caribou. Marine mammals were taken with well made toggle harpoons and lances; land mammals were hunted with bows and arrows. Arrows used in hunting birds were blunt. There were also special spears for birds and fish. Projectile points, side blades, knives, and scrapers were of chipped stone. They closely resembled those of the Siberian Neolithic. There was an absence of the polished slate tools and lamps used by many Eskimos. No pottery was used. Vessels were made of birch bark. No remains of clothing have been found, but the presence of fine bone needles suggests that sewed garments of fur may have been used. Some ivory carvings indicate a probable use of facial tattooing.

Among the most remarkable artifacts are works of art, produced with great skill, in the form of carved and engraved bone and ivory. There were beautiful masklike forms and some unusual spiral objects of unknown use. Animal figures, done in a style reminiscent of the Scytho-Siberian, were skillfully depicted, and there were non-representational designs with straight and curvilinear lines and circles. Some engraving tools were of iron.
A radiocarbon date of 912 ± 170 years ago would indicate occupation about A.D. 1,000. This is surprisingly recent, and it seems probable that there was some contamination of the samples due to the dense growth of grass on the site.

The discovery of a cemetery near the site provided additional information, for most graves contained burial offerings. The dead were often adorned with artificial eyes, mouth covers, and nose plugs. Some bodies were placed in deeply buried log coffins, others were placed on or near the surface. Larger quantities of grave goods were usually associated with the latter. No description of the Ipiutak skeletal material has yet been published.

It is extremely difficult for the non-specialist to evaluate the position of Ipiutak in the theoretical structure of Eskimo archeology, since the leading specialists hold quite divergent points of view. Larsen (1954) regards Ipiutak as a manifestation of the Paleo-Eskimo Culture, the basic foundation on which later Eskimo cultures rested. Collins (1954), although he believes the radiocarbon date may be too recent by some 500 years, does not concede the temporal priority of Ipiutak. He does accept a radiocarbon date which places Okvik, the earliest phase of the Old Bering Sea Culture, at about 300 B.C. He has suggested that Ipiutak and Okvik-Old Bering Sea descended from a common source, probably derived from the Denbigh Flint Complex. No matter which theory is regarded as more nearly correct, the fact remains that the Ipiutak site, which is the most spectacular and one of the best documented sites in Alaska, is of great importance.
CHRONOLOGICAL CHART for prehistoric hunter and gatherer sites indicating actual radiocarbon dates, period of known occupation, and postulated periods of occupation. Adapted from a chart prepared by C. V. Haynes for use in the first supplement to "Ancient Man in North America", to be published by the Denver Museum of Natural History.
CONCLUSIONS

At least 10,000 years ago (8,000 B.C.) different cultural traditions, well adapted to regional environmental conditions, were fully established in different parts of the country. Much earlier manifestations must ultimately be found, for it is obvious that it took time for these patterns to develop. There can be no question that we must begin to think in terms of greater antiquity for man in North America than we have considered in the past. The earliest definitely established complexes that we now know simply cannot be the earliest in fact.

There are tantalizing clues that suggest a very great antiquity for New World man, but in no case is there entirely acceptable proof. One could wish for clearer association at the Tule Springs Site, where there is a radiocarbon date in excess of 23,000 years (21,000 B.C.); and more data are required regarding the Santa Rosa Island find with a possible age of some 29,000 years (27,000 B.C.). The date of more than 37,000 years ago (35,000 B.C.) for the Lewisville Site may well date the hearth from which the sample was taken, but the presence of a Clovis point, although almost certainly deliberately introduced by someone not connected with the excavations, has cast certain doubts on the site. There are also finds in Mexico, notably at Tequixquiac and in the Valley of Puebla, where faunal associations suggest great age, but further investigations are required.

In addition to the questions pertaining to the age of the first migrants, one must consider the fact that the carefree days, when the early prehistoric stages of the United States seemed to
form a neat sequential pattern, have ended. In the eastern United States, according temporal priority to the makers of fluted points is largely a matter of inference rather than proof. It seems entirely possible that the area was already occupied by Archaic people or their ancestors when the hunters arrived. Radiocarbon dates indicate that if this were not the case, an already developed Archaic tradition must have been introduced very shortly thereafter. To the west of the Rockies there is no evidence of the development of a seed-gathering economy from a big game hunting base, since certain of the Desert Culture sites have provided early dates indicating some contemporaneity. One way or the other, we are faced with the problem of the origin of the eastern Archaic and the Desert Culture, as well as the big game hunting tradition.

To gain insight into these matters it is necessary to consider the archaeology of Siberia and try to determine what was available for export and when. This is not easy to do, for there are no firm dates for the Siberian sites, and new discoveries have made obsolete much of the neat three-part division of the Siberian Palaeolithic, leading to a different chronological position for certain key sites.*

*Data pertaining to the Siberian Palaeolithic utilized here are not entirely in accord with the literature, but are the result of a knowledge of current conceptions of Soviet archeologists gained by the writer in the course of a two-month visit to the U. S. R. in 1958 on the basis of a cultural exchange of scientific personnel. I am particularly indebted to N. A. Beregovaya, V. V. Feodorov, L. Kryzhevskaya, and A. P. Okladnikov for their assistance.
Should there ultimately be proof that man has been in the New World for more than 25,000 years (23,000 B.C.), we must admit that we know nothing of his Siberian ancestor, for there is no known site of greater age in eastern Siberia. It is true that in many of the Palaeolithic sites there are certain tools, particularly discoidal scrapers (similar to those found at Tule Springs and Puebla), that are strongly reminiscent of Middle Palaeolithic types. These could represent traits surviving from an earlier period of occupation, and perhaps pure Mousterian sites will be found someday in eastern Siberia.

The sites attributed to Stage I, the earliest of the Siberian Palaeolithic sequence, seem to represent a hybrid culture which included certain Middle and Upper Palaeolithic traits such as discoidal scrapers and blades, and elements of the chopper-chopping tool tradition of southeastern Asia. There were some irregular bifacially flaked leaf-shaped points or knives, but these constituted only a very minor component in the total assemblage. It is possible that these chronologically and geographically divergent traits may have come into eastern Siberia at different times, and that the Mousterian-like traits that are so clearly present survive from an earlier period. Present evidence, however, does not favor this possibility.

Finds made in the Altai Mountain area, in sites older than any of those found farther to the east, indicate that there was a complex which included various tools, made in the Levalloisa-Mousterian tradition, Mousterian points, blades, and probably
bifacially flaked implements. It seems quite probable that this was the source from which these traits (already associated here although chronologically distinct in Europe) reached the Lake Baikal area where pebble chopping tools closely resembling those of southeastern Asia, were added to the assemblage. The importance of the latter cannot be minimized, because the chopper-chopping tool tradition is an integral part of the Siberian Palaeolithic and persisted over a very long period of time. Sites in the Baikal area also received some East Gravettian influences, and in the course of time a distinctive Central Siberian tradition developed. Estimated ages for the earliest Siberian Palaeolithic are of the general magnitude of 20,000 to 22,000 years ago (18,000 to 20,000 B.C.).

A complex characterized by choppers, discoidal scrapers, blades, and some bifacial flaking would provide a logical background for New World developments. The estimated age of such a complex would probably allow sufficient time for the necessary movement north to the mouth of the Lena, then eastward to Bering Strait, and for subsequent specialization in the New World. Admittedly, Lake Baikal is a long way from the Strait, and no Palaeolithic sites have been found north of Yakutsk; but one cannot be certain that they do not exist in this vast area.

There is nothing on an early level in Asia that resembles the fluted or notched points found in the United States; therefore, these must represent a New World development. The most that could possibly be derived from Asia as a prototype for early American types of projectile point types is a simple, nondescript, leaf-shaped
form bifacially flaked by percussion. Bifacial flaking was only a very minor element in Siberian Palaeolithic, but it could have increased greatly in importance on this continent. Some of the Siberian leaf-shaped points would provide a logical prototype for the double pointed forms found in preceramic complexes from Alaska to South America. Some are undoubtedly early, for examples found in Mexico, known as Lerma points, are some 9,000 years old (7,000 B.C.), and similar types were being produced in Argentina about 8,000 years ago (6,000 B.C.). Some Siberian specimens could be made into reasonable facsimiles of Sandia points by the removal of a few flakes to form a single shoulder. The differences are greater when these types are compared with notched and stemmed forms, but something as generalized as this could also have developed into the forms characteristic of the Desert and Archaic cultures.

It may seem surprising that there has been no mention of pressure flaking, since much has been made of this in the literature dealing with early projectile points. The omission has not been accidental. Analyses of flaking techniques employed in the production of early projectile points have been made recently by L. S. B. Leakey and François Bordes, and have been substantiated in experiments by Bordes. These analyses indicate that Sandia and Clovis points were produced by a skillful use of percussion, and that even Folsoms show only a minimum of pressure retouch. The later lanceolate forms with parallel flaking were, however, produced by pressure. This must be a development that occurred independently in the New World. Since such flaking was in use in Siberia only
at a much later date, it must have been independently invented there or derived from some other area, possibly North America, as Tolstoy (1958) has suggested.

It would not seem unreasonable to suggest that over a long period of time, from a very simple base such as is represented by the early Siberian Palaeolithic, different traditions developed independently in the New World, conditioned in a large measure by environmental factors. In an area where big game was abundant (perhaps the Plains) and there was greater emphasis on hunting, projectile points gained in importance and specialized lanceolate forms were developed. Choppers, and domed and keeled scrapers, tended to diminish in importance, and knives and scraping tools began to assume new forms. In arid areas to the west of the Rocky Mountains, where big game was not abundant and the rigors of the environment necessitated a greater dependence on plants and small game, choppers, which could be useful in the taking and preparation of plant foods, and domed and keeled scrapers (sometimes called scraper planes), which could be used in the preparation of plant fibers, remained virtually unchanged. Some forms found in Desert Culture complexes are identical to the choppers and the Mousterian-like scrapers of the Siberian Palaeolithic.

Projectile points developed in the western area also, but they were not of overwhelming importance, and they tended to be notched or stemmed. The technique of grinding seeds with milling stones was independently invented there, perhaps for the first time in the world. Also, at a very early period, there was an
independent development of a twining technique which led to the 
production of cordage for traps and nets, basketry, and wearing 
apparel such as sandals.

What of the Archaic cultures of the eastern United States? 
There can be little doubt that they and the Desert Cultures of 
the West developed from a common base, although the base culture 
was greatly modified in the different areas. There are, however, 
questions which cannot be answered at the present time as to 
when and where this dichotomy began, although there would be 
general agreement that there was continent-wide distribution of 
a gathering and hunting economy by about 8,000 years ago (6,000 
B. C.), and probably earlier. The basic questions are: 1) Was 
a similar cultural substratum present in the West and in the East 
at a very early period? Was there then independent development 
in the two areas, so that later similarities of life ways and 
artifact types are due to convergence? 2) Was it only after a 
basic pattern with distinctive New World characteristics had 
developed in the West that it spread to the East, presumably 
through an area to the south of the Plains, in an already developed 
form?

Finds such as the little known Early Macon and Old Quartz 
industries of the Southeast would suggest that possible fore­ 
runners of the known Archaic people could have been present in 
this area for a long time, and the fully developed Archaic may 
be the result of indigenous development. On the other hand, 
some radiocarbon dates suggest a possible temporal priority
for this general tradition in areas west of the Mississippi. More work must be done in all parts of the country before we shall have answers to these questions, or to those concerning the source of the "Middle Prehistoric" complexes of the Plains which could reflect influences from either direction.

Certain aspects of the "Boreal Archaic" suggest possible outside influences on a fairly early level in the eastern United States. It is, however, only in Alaska that largely unmodified Asiatic elements such as micro-blades, polyhedral cores, and side blades are found under circumstances indicating age. In general, we seem to be dealing with a long period of purely indigenous development in the United States prior to the introduction of agriculture, and pottery, and American agriculture and at least some pottery are of New World Origin.

In the eastern United States, where greater resources were available, the early cultures were developed and elaborated. There was greater possibility for variation, and a firm foundation was laid for the impressive later developments which followed the introduction of agriculture and pottery. In many parts of the West, notably the Great Basin, more stringent environmental conditions precluded an elaboration, and an agricultural economy never superceded the simple hunting and gathering way of life of the early people. In parts of California and the Northwest Coast, marine resources permitted elaboration of culture without the addition of agriculture. To the people of the Plains, agriculture was of less importance than hunting. Only in the Southwest
did a flourishing farming economy stem from a Desert Culture base.
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PART II
SURVEY OF SITES AND BUILDINGS

General Discussion

The theme of Prehistoric Hunters and Gatherers is well represented by surviving sites throughout the United States. The present study attempts to give attention to sites representative of the theme on a nation-wide basis, but, as pointed out earlier, confines itself to sites which are demonstrably early in local culture sequences. The sites presented on the pages which follow are preponderantly those which date in the pre-Christian era.

Since the sites represent a stage in New World culture growth wherein material cultural trappings were quite simple, tangible remains on any one site are unspectacular. No permanent structures are apparent. Often times the sites have been completely excavated, leaving no displayable features. In such cases, the sites today symbolize a significant advance, or a discovery of far reaching effect in scientific thought. They are landmarks testifying to the fact that on these spots important scientific finds once were made.

Even for this early period no one single site can adequately typify the whole North American aboriginal occupation. Certain commonalities in tools, weapons, economy, and population distribution are apparent in a nation-wide comparison, but important local or regional developments are known which are worthy of preservation and interpretation. The list below includes sites which may appear to be quite similar due to our current rather
sketchy knowledge of the period. Their importance lies in the fact that they serve to typify (1) the over-all distribution of man in the United States in the early phases of New World occupation; and (2) the beginnings of man's varying solutions to the basic problems of life in differing New World environments.

As is inevitable, the sites least affected by the ravages of our own expanding civilization are in the western United States. With the exception of some sites located on waste tracts, or tracts of land with low economic utility, sites in the East tend to be partially destroyed or obliterated by cultivation. Others are now wholly or partially inundated by the waters of lakes resulting from dam construction.

The preservation of archeological sites by agencies other than the federal government is in its infancy still, although recent years have seen a significant rise in interest in such work on the part of several states.* Most of the sites listed on the ensuing pages do not now enjoy any kind of public protection. It is hoped that this enumeration of sites which currently appear to have prime significance in a nation-wide (or even continental) evaluation will stimulate states, state societies, or other interested groups to undertake the protection of these areas where significant discoveries have been made.

*Wisconsin, Georgia, Illinois, Missouri, North Carolina, and New Mexico are among the states notable for their activity in this kind of work.
EARLY MAN AND ARCHAIC SITES of exceptional significance in the United States.
RUSSELL CAVE (PROJECT)

Location: Near Bridgeport, Alabama.

Ownership-Administration: The land on which the cave is located is in the process of being donated by the National Geographic Society to the Federal Government for National Park Service administration and development.

Significance: Russell Cave is a large cavern with deep deposits intermittently occupied from about 6000 B.C. to 1650 A.D. This is the earliest Archaic manifestation known in the Southeast. There is evidence for occupation not only in the Archaic stage, but also during the Woodland and Mississippian periods. The site is discussed on page 38.

Features and Condition: Russell Cave has been partially excavated by an archeologist of Smithsonian Institution in a project sponsored by the National Geographic Society. The National Geographic Society has subsequently offered the cave and surrounding lands to the National Park Service.

Principal Reference:
Miller, Carl F.
RUSSELL CAVE, Alabama. This limestone shelter contains deep deposits indicating human occupation in the Southeast as early as 6,000 B.C. Photo courtesy National Geographic Society.
Location: On Cape Denbigh, Norton Sound, Alaska, at 64 degrees, 28 minutes North, 161 degrees, 28 minutes West.

Ownership: Federal government (Public Land)

Significance: This is one of the earliest sites yet found in Alaska. Alaskan archeology before the discovery of Iyatayet in 1948 provided a picture of essentially "Eskimo" culture reaching back to the earliest known whaling groups of the Asian side of the Bering Strait; a distinctly American Paleo-Indian horizon which included Ipiutak and near-Ipiutak cultures of Point Hope; and scattered finds from the interior which included use of the microblade-and-core as an element. Iyatayet held in vertical stratigraphy each of these distinct cultural horizons. Deposits of Nukleet culture at the top are those of slate-polishing Eskimos, perhaps extending back to A.D. 800. Some centuries earlier the site had been that of Norton culture people, whose flints and other artifacts were like those found at Point Hope near Ipiutak. The Norton culture appears to have persisted here from 500 B.C. to A.D. 300, or later. A much earlier layer, lacking organic materials, and separated from Norton by a sterile, sandy layer, contained chips and delicately-flaked small artifacts named the Denbigh Flint Complex. Here were united such diverse techniques as the microblade-and-core, fluting, or channeling of projectile points, diagonal flaking, and burin-making. The last named
technique was here acknowledged for the first time in America. The many elements of the Denbigh Flint complex, in combination not previously known elsewhere in the world, brought Alaskan archeology into a circumpolar continuum, and gave substance to the almost universal assumption that the first people in the Americas came south from Alaska.

**Features and Condition:** The Iyatayet site comprises approximately five acres of land on a bench near the mouth of a small creek flowing into Norton Sound. The oldest deposits are found only on the top of the forty-foot bench. The early layer of the site is perhaps two-thirds excavated. At present the land is used for no purpose which would impair the site's integrity. The site is discussed on page 67.

**Principal References:**

Giddings, J. L., Jr.


Location: Near the tip of the Point Hope Peninsula, Alaska, at 68 degrees, 20 minutes north; 167 degrees, 50 minutes west.

Ownership: Federal government (Public Land).

Significance: The archeology of the Eskimo region of Alaska was known in 1939 from a few incompletely reported excavations at Bering Strait and Point Barrow, and from the essentially Asian sites of St. Lawrence Island. The discovery, in July, 1939, of this large ancient community brought to light a form of culture very different from those of Asia, and one in which single-period house floors could be isolated as they could not be in stratified mounds. It is the type site of the Ipiutak culture. Ipiutak culture at first appeared to be much older than the Old Bering Sea culture of Asia. The absence of polished slate, lamps, pottery, and evidence of whaling, along with the presence of flint techniques new to American archeology strengthened this assumption. The presence of telluric iron in an Ipiutak house, however, together with objects decorated in an early St. Lawrence Island style, indicate the age of the site to be no greater than two thousand years. The remarkable burial cult of Ipiutak included multiple burials in log tombs; both practical and fanciful grave goods; and the preparation of the dead with fittings which included inset ivory eyeballs. Elements in the intricate Ipiutak engraved designs on ivory and antler resemble those of Scytho-Siberian art. Jeland connections are
shown by the use of birch bark and the emphasis on caribou as a food source. The relationship of Ipiutak culture to that of the Birnirk-to-modern Eskimos of Alaska continues to puzzle archeologists.

Features and Conditions: The Ipiutak site consists of some 600 to 800 house ruins and a cemetery in about 200 acres of an open tundra area extending along a stretch of about four miles. It is the largest known ancient Eskimo settlement. The site is in good condition and partially excavated by archeologists of the American Museum of Natural History in New York.

Principal References:

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Larsen, Helge.

Larsen, Helge, and Froelick Rainey.
Location: Twelve miles northwest of Douglas, Arizona, in the Sulphur Springs Valley on the west bank of Whitewater Creek, 250 yards west of the bridge on the Double Adobe-Lowell road.

Ownership: Owned privately by a resident of Bisbee, Arizona.

Significance: Located 12 miles northwest of Douglas in the Sulphur Springs Valley. The first site where the distinctive Cochise Culture of southern Arizona was recognized. Artifacts were found below mammoth bones and in association with the bones of other extinct animals. They included milling stones, handstones, and percussion flaked tools characteristic of the Cochise Culture. The maximum radiocarbon date, which indicates occupation about 5,700 B.C., is not in accord with the faunal and geological evidence, which would indicate greater age.

This important site, excavated by Dr. Byron Cummings in 1926, indicated that the climate and ecology of southern Arizona formerly were quite different from today. Discoveries at the site were the impetus that led to the definition of Cochise Culture which was the base from which several ceramic cultures developed, particularly the Mogollon.

Features and Condition: The site was an exposure in the west bank of Whitewater Creek. At this particular bend the creek has cut through some 17 feet of clays, silts, and sand.
DOUBLE ADOBE, Arizona. At this site archeologists first recognized the Cochise Culture, whose remains indicate greater dependence on wild plant foods than on hunting, evidently at an early date. National Park Service photo.
deposited over the past 10,000 years. The surrounding desert land is a broad valley covered with sparse growth typical of the Basin and Range province. The site is discussed on pages 61-62.

Principal References:
Sayles, E. B. and Ernst Antevs.
Gila Pueblo, Globe, Arizona.
VENTANA CAVE

Location: In the Castle Mountains, eleven miles west of Santa Rosa, Arizona, on the Papago Indian Reservation.

Ownership: Papago Indian Tribe, Sells, Arizona.

Significance: Ventana Cave, excavated by the Arizona State Museum in 1941 and 1942, contained deep, stratified deposits. Aside from the artifacts associated with extinct fauna at the base of the cave, the majority of the material represents more or less continuous human use over a period of about 4,000 years.

The earliest stage of the continuous occupation is related to the Amargosa complex of southern California. The Middle stage exhibits a dominance of materials more commonly associated with the Cochise culture along the southern portion of the Arizona-New Mexico border. The upper deposits contain ceramics of the Christian era, directly ancestral to the historic Papago Indian.

This site is important, not only because of the great length of time represented by the materials recovered, but also because it illustrates the material changes of an indigenous people who were heavily influenced by a foreign culture, both in pre-ceramic and in ceramic times.

Features and Conditions: This high but shallow cave underlying volcanic rock, is about 75 miles south of Phoenix, and lies at the base of a cliff as a southeast face of Castle Mountain. It is made up of two sections, the southwestern or
upper cave, which contains a spring, and the northeastern portion or lower cave. The cave varies from 25 to 65 feet in depth and the opening is about 175 feet across. The talus in front of the cave slopes to the desert floor of the valley. The region is typical of the Basin and Range province.

Excavations removed all but a small section of the fill in the upper cave, which was left for future checking. The shelter and land on which it is located has no use at present. This site is discussed on page 63.

Principal Reference:
Haury, Emil W. and Collaborators.
DENT

Location: At the Dent railway stop of the Union Pacific Railroad, Colorado, south and west of Greeley.

Ownership: Privately owned.

Significance: This was the first site to provide proof of the contemporaneity of man and mammoth in the Western Hemisphere. Two projectile points, of the type now called Clovis, were found in a mass of articulated bones representing twelve Columbian mammoths. The stratigraphy of the Dent Site has been largely destroyed. This site is discussed on page 11.

Principal Reference:
Figgins, Jesse Dade.
Location: About 28 miles north of Fort Collins, Colorado, one and three-fourths miles south of the Wyoming state line on Section 27, Township 12 north, Range 69 west.

Ownership: Privately owned by a Wyoming ranching firm.

Significance: This was the first recognized and investigated camp site in the United States where Early Man had lived and worked. Evidence recovered included an assemblage of artifacts used by Early Man, and "food bones" of several species of animals, one of which was an extinct species of bison. The investigations were conducted by one of America's foremost archeologists who published comprehensive reports of his first two season's accomplishments. No other site in the United States could be considered to have been more significant in modifying and developing archeological concepts. A recently obtained radiocarbon date places the age of the Folsom occupation here at over 10,000 years ago.

Lindenmeier is the only extensive Folsom habitation site yet discovered. A wide variety of projectile points and stone tools, as well as some bone artifacts found here made it possible to define the Folsom Complex. The finding of work shop debris and tools broken in manufacture provided information relating to stone technology. Some intensive geological studies were undertaken here.
LINDENMEIER SITE, Colorado. On this High Plains terrace, the first Folsom campsite was excavated, giving American archeologists a broader picture of the life of Early Man in the New World. Photo courtesy Smithsonian Institution, Washington, D. C.
Features and Condition: The size of this site is unknown. Condition of the site evidently is reasonably unimpaired, as it has been used solely for grazing purposes since the excavations performed by the Smithsonian Institution were terminated. This site is discussed on page 15.

Principal References:
Roberts, Frank H. H., Jr.


THE TANK SITE (LAN-1)

Location: At "92 Acres," Topanga Canyon, Los Angeles County, California.

Ownership: Undetermined, as the site is currently in court litigation.

Significance: The oldest adequately documented California site that gives a clear picture of the people of the "Early Milling Stone Cultures." Thousands of artifacts and many burials were excavated. 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 archaeologists 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 radio-carbon 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.
THE TANK SITE near Los Angeles, California. View showing a section of Topanga Canyon. The Tank Site is in the cleared area in the upper right of the photograph. Photo courtesy University of California Archaeological Survey.
Features and Condition: The Tank Site comprises about two acres of mixed brush and grassland. Its condition is good at the present time, although it appears that it will become part of a residential subdivision as soon as the court litigation is complete. The subdivision construction will, of course, seriously impair its integrity. The site is in the process of excavation by the Santa Monica Junior College. This site is discussed on page 58.

Principal References:
Greenwood, Roberta S.

Treganza, A. E.

Treganza, A. E. and C. G. Malamud.

Wallace, William James.
Location: On the Savannah River eight miles above Augusta, Georgia.

Ownership: Probably Federally owned.

Significance: The Stallings Island Shell Mound is perhaps the most famous of shell heap sites in the deep Southeast. Here archeologists demonstrated existence of a non-ceramic hunting and gathering complex into which, in the later stages at the site, pottery making was introduced. This early pottery was fiber tempered—the earliest ceramic ware known in the Southeast. Another site with similar pottery has been dated at 1700 B.C.

Features and Conditions: The site occupies an area protected by power company installations. Although the site has been excavated, cultural deposits remain. This site is discussed on page 50.

Principal References:
Claphin, William.

Fairbanks, Charles H.
Location: Two miles south and east of Prairie du Rocher and two miles north of Modoc, Illinois.

Ownership: Privately owned.

Significance: The Modoc Rockshelter contains twenty-seven feet of stratified deposit which offer evidence of one ceramic and four pre-ceramic periods of occupation. The earliest occupation began about 8,000 B.C. and the second, which lasted for some 2,500 years, began about 6,000 B.C. This is one of the oldest sites attributed to the Archaic stage east of the Mississippi. It provided evidence of the use of stone polishing techniques at a very early period.

Features and Condition: The site is partially excavated, but in good condition with a large deposit of cultural material still remaining. This site is discussed on page 38.

Principal References:
Fowler, Melvin L.

Fowler, Melvin L. and Howard Winters
MODOC ROCK SHELTER, Illinois. In the deep deposits of this shelter, archeologists of the Illinois State Museum found Archaic type artifacts in association with charcoal which yielded dates within the range of time previously considered characteristic only of Folsom and Clovis remains. Photo courtesy Illinois State Museum, Springfield, Illinois.
Location: In Ohio County, one-half mile upstream from the ferry landing at Paradise, Kentucky.

Ownership: Unknown.

Significance: Indian Knoll is the largest and one of the most fully documented of the Archaic shell heap sites in the eastern United States. The thousands of artifacts recovered provided vital data pertaining to the life of the Archaic inhabitants. The presence of some 800 graves made it possible to learn a great deal about the burial practices, and the study of the skeletons provided the basis for the definition of the Iswanid variety of the American Indian. Occupation is thought to have begun prior to 300 B.C. The present condition of this site is unknown. This site is discussed on page 147.

Principal References:
Neumann, George K.

Snow, Charles E.

Webb, William S.
BOYLSTON STREET FISHEWIR

Location: Under Boylston Street between Berkeley and Clarendon Streets, Boston, Massachusetts.

Ownership: Privately owned.

Significance: This site consisted of a fishtrap made up of more than 65,000 pointed stakes. It has provided evidence that, prior to 200 B.C., there were people who had been utilizing fish resources for a long time and who were able to live in fairly large and organized groups. The site has been obliterated by the construction of the New England Mutual Life Insurance Building. This site is discussed on page 51.

Principal References:
Johnson, Frederick, Ed.

GRAHAM CAVE (23-Mt-2)  NHL - January 20, 1961

Location: About one-half mile north of U. S. Highway 40, approximately one-fourth of a mile east of the bridge across the Loutre River in the Northwest quarter of Section 27, Township 48 North, Range 6 West, Montgomery County, Missouri.

Ownership: Privately owned and protected.

Significance: Graham Cave was the first site to provide radiocarbon dates for an Archaic occupation in the range previously assigned to the Paleo-Indian or Early Lithic stage. Prior to the discovery and excavation of Graham Cave, there had been little investigation of the Archaic period in Central Missouri or the Middle West generally.

Three radiocarbon dates have been obtained from the Radiocarbon Laboratory of the University of Michigan. All are from charcoal and burned bone samples, representing two of the lower three levels in the cave. The three dates obtained are 9,700 ± 500 years ago, 8,830 ± 500 years ago, and 7,900 ± 500 years ago. The first date is the earliest which has been obtained for Missouri. Thus, occupation began about 8,000 B.C.

The earliest level is reminiscent of early man sites elsewhere in the country. The later complex shows an increasing infusion of Southeastern Archaic traits. Some linkage with the Plains is also indicated for the later complex. There was a later period of occupation by Woodland people.
GRAHAM CAVE, Missouri. This was the first site to provide dates for an Archaic occupation in the time range previously assigned to the Paleo-Indian.

PICTOGRAPH CAVE, Montana. This site contained 23 feet of stratified deposits ranging from about 1,000 to 2,000 B. C. to historic times.
Other preceramic complexes indicate a dependence upon hunting, some fishing, and only limited gathering. However, since this is not a completely dry shelter, little perishable material, except for basketry and twine impressions on clay, has been preserved.

Features and Condition: The site is a sandstone rock shelter 100 feet wide at the opening, over fifty feet deep and fifteen feet high. Its condition is excellent. The splendid cooperation of the present owner has permitted long-range preservation of the shelter on an unofficial basis. It is currently being used as a shelter for cattle, but the unexcavated portions are fenced off to protect them from damage. Graham Cave was disturbed once in 1890, and then only to a limited extent. When the owner started to bull-doze the extensive refuse deposits in front of the cave in 1948, the University of Missouri began salvage operations. Through the cooperation of the owners, excavation continued until 1956. At least as much material remains in situ in the cave as has already been taken out, making this an important area for further excavation. This site is discussed on page 39.

Principal Reference:
Logan, Wilfred D.

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PICTOGRAPH CAVE (Indian Caves)

Location: Seven miles southeast of Billings, Montana, about seven miles above the mouth of Bitter Creek, a southern tributary of the Yellowstone River.

Ownership: State of Montana.

Significance: A site with twenty-three feet of stratified deposits that has provided evidence of a long period of occupation ranging from "Middle Prehistoric" to Historic times. Many artifacts made of normally perishable materials were recovered. On the cave walls was an exceptionally fine series of prehistoric paintings.

Features and condition: Two caves, Ghost and Pictography, contained many feet of deposits which provided evidence of intermittent occupation by prehistoric man over a period of several thousand years. All of Ghost Cave and a small portion of Pictograph Cave were excavated immediately before World War II. A museum and a trail system were also completed. Vandals damaged the museum building and looted the unexcavated cultural deposits in Pictograph Cave during the war. The report of investigations was not published until 1958 but the results of the research became widely known to archeologists immediately after the war. The chronology of Northern Plains culture was largely established by the interpretation of evidence found in the stratified levels of Pictograph Cave. This site is discussed on page 27.

Chief Reference:
Mulloy, William
Location: Located on the Blackfoot Indian Reservation near Browning.

Ownership: Blackfoot Indian Tribe.

Significance: This site is a good example of the bison drive sites which are common in the Plains, and contain the remains of animals driven over bluffs or cliffs. The site contains evidence of two drives in Late Prehistoric times. Studies undertaken here have provided data concerning prehistoric butchering as well as hunting techniques. This site is discussed on page 31.

Principal Reference:
Location: About one-fourth of a mile from Kiowa Creek, 14 miles southwest of the North Platte River in Scottsbluff County, Nebraska.

Ownership: Privately owned.

Significance: Signal Butte was the first "Middle Prehistoric" site to be described and is one which had provided much of the data necessary for determining the cultural sequence in the Northern Plains. On the butte summit were found stratified deposits with three cultural horizons which ranged in age from about 2,500 B.C. to historic times.

Features and Condition: Signal Butte is a picturesque mesa with a spectacular view overlooking a large section of western Nebraska. It is believed the artifact bearing zones have been more or less exhausted by excavations—some by archeologists, but mostly by local collectors. A fossil quarry on Kiowa Creek near the north base of Signal Butte produced Early Man points in association with an extinct species of bison. The stratified deposits atop Signal Butte, excavated by a highly competent archeologist in 1932 provided extremely important data for establishing a cultural chronology for the Plains at a time when little was known. This site is discussed on page 23.

Principal Reference:
Strong, William Duncan
1935 An Introduction to Nebraska Archaeology. Smithsonian Miscellaneous Collections, vol. 93, No. 10. Washington, D.C.
SIGNAL BUTTE, Nebraska. Atop this butte in western Nebraska was found evidence of a sequence of occupations, the first of which dated around 2,500 B.C. Photo by C. L. Dow, courtesy Smithsonian Institution.
Bliss, Wesley.  
1950 Early and Late Lithic Horizons in the Plains.  
University of Utah, Anthropological Papers, No. 11.  
Salt Lake City.

Mulloy, William.  
1958 A Preliminary Historical Outline for the Northwestern Plains.  
Location: About eleven miles due south of Lovelock Nevada, in Township 25 North, Range 31 East.

Ownership: Indeterminate without a survey at the present time. The site evidently is on land owned by the government or the Southern Pacific Railroad.

Significance: This is a stratified site that has provided important information regarding three periods of prehistoric occupation in the Great Basin, beginning about 7,000 B.C. Objects made of wood and fibre as well as of non-perishable materials were found. Cultural remains correlate with those found in other cave sites in Nevada, notably Humboldt and Lovelock, and have aided materially in establishing a cultural sequence for the area.

Leonard Rock Shelter, named after Zenas Leonard, a member of the Walker expedition, is formed by the outward tilting of a prominent cliff on the western side of the Humboldt Range. The north face of the cliff is heavily encrusted with calcareous tufa draperies, which were probably deposited by algae colonies during one of the high stages of Lake Lahontan. This tufa adds to the sheltering effect of the cliff, and it is directly beneath the tufa that the occupation deposit is most marked.

Occupation or other use of the shelter is also indicated by a series of petroglyphs, presently difficult to perceive, which have been scratched into the lower tufa wall of the shelter.
LEONARD ROCK SHELTER, Nevada. View to south, showing main shelter area. Photo courtesy University of California Archaeological Survey.
The shelter bears approximately the same relation to the now virtually dry remnant of the Humboldt Lake the Lovelock Cave does, and there is no evidence that man occupied Leonard Rock Shelter when the waters of Humboldt Lake (part of Lake Lahontan) were lapping the slope near the lower part of the shelter, although the shore line of Humboldt Lake was presumably higher when Leonard Rock Shelter was first occupied than it is today.

The culture deposit in Leonard Rock Shelter is not nearly so spectacular, either in number or type of artifact recovered, as that in Lovelock Cave. Radiocarbon dates derived from both bat guano and artifacts show a much longer period of occupation in Leonard Rock Shelter than in Lovelock Cave. The earliest bat guano sample has been dated at about 11,000 years ago, while one artifact, an atlatl foreshaft, dates at about 7,000 years ago. Two obsidian flakes found in the lower guano level, however, may indicate human presence at the site concurrent with the earliest deposition of guano.

In all, Leonard Rock Shelter's interest lies in its interesting geographical relationship to Humboldt Lake, to its great age and therefore possible association with "early man" in the Great Basin, and finally to its role as climatic indicator as well as a storehouse of ancient artifacts.

Features and Condition: If it happens that Lovelock Cave, with its potential as a spot of archaeological interest in the context of the U. S. National Park Service's program, is
ever developed, Leonard Rock Shelter should also be included as an integral part of the same interpretational scheme. This site is discussed on page 55.

Principal References:

Grosscup, G. L.

Heizer, Robert F.
Location: On the east side of Las Huertas Canyon in the north end of the Sandia Mountains, New Mexico.

Ownership: United States Forest Service (part of Cibola National Forest)

Significance: This is a stratified site with two early cultural horizons. The uppermost contained Folsom points, and implements and the lower Sandia points and associated artifacts. Bones of extinct animals, including elephants were found in both horizons. This is the type station for Sandia points, one of the first sites to provide evidence of pre-Folsom occupation, and a site which lent itself to geological studies that have had far reaching influences in dating Early Man sites.

Sandia Cave, excavated by the University of New Mexico in 1936, yielded three culture bearing horizons, each separated from the other by a well-defined, water-laid, sterile layer. The top level contained material from the Christian era, including sherds; the middle layer contained Folsom-like material associated with extinct fauna, and the lowest level yielded the distinctive points named Sandia, also associated with extinct fauna. The evidence obtained from this site indicates that the Sandia material was older than Folsom, and dates from a moist period, possibly just prior to the last glacial sub-stage. The lack of agreement relating to the carbon 14 dates for this site does not detract from the significance of Sandia Cave, which appears to be one of the earliest Paleo-Indian finds in the Americas.
The cave, located on the east face of Las Huertas Canyon, is situated about 1000 feet above the canyon floor, and is tunnel-like formation in the limestone, being about 150 yards long and 10 feet wide.

Features and Condition: The site, protected as it is in a National Forest, is in good condition. It has been completely excavated by the University of New Mexico. This site is discussed on page 10.

Principal References:
Bryan, Kirk.
1941 Correlation of the Deposits of Sandia Cave, New Mexico, with the Glacial Chronology: Evidences of Early Occupation in Sandia Cave, and Other Sites in the Sandia-Manzano Region. Smithsonian Miscellaneous Collections, vol. 99, No. 23. Washington, D. C.

Hibben, Frank C.
1941 Evidences of Early Occupation of Sandia Cave, New Mexico and Other Sites in the Sandia-Manzano Region. Smithsonian Miscellaneous Collections, vol. 99, No. 23. Washington, D. C.
Location: On the Baxter Ranch, seven miles north of Portales, on the north side of Blackwater Draw, Roosevelt County, New Mexico.

Ownership: Privately owned, but leased as a gravel quarry.

Significance: Blackwater Draw is the type station for the Clovis point, and is the site that provided the first evidence for association of such points with bevelled bone shafts. Studies here established the temporal sequence of Clovis, Folsom, Portales (the latter characterized by parallel flaked points), and provided further data on faunal associations with these three complexes—-that is, association of Clovis points with mammoth and horse bones; Folsom and Portales points with extinct bison. The significant difference in extinct fauna associated with these complexes suggested an important ecological change.

Excavations at this site were carried out between the years 1932 and 1937 by the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania Museum. Later work has been conducted by several institutions. The entire region between Clovis and Portales has yielded a number of important Early Man finds.

Features and Condition: The original Clovis Site (Blackwater No. 1) has been destroyed by gravel quarrying operations. Nevertheless, the site is of prime significance
BLACKWATER NO. 1 (CLOVIS SITE), New Mexico. Here, excavations gave evidence that peoples making Folsom points and hunting extinct bison were preceded by others who made Clovis Fluted points and hunted the mammoth. Photo courtesy Laboratory of Anthropology, Santa Fe, New Mexico.
in terms of effect on current archeological thought. Other deposits are known to exist in the locality. (See Recommendations for Further Study, p. 153).

Principal References:

Cotter, John Lambert


Howard, Edgar B.


Sellards, E. H.
1952 Early Man in America. Austin.
Location: On the banks of Dead Horse Gulch, a tributary of the Cimarron River, eight miles west of Folsom, New Mexico.

Ownership: State of New Mexico

Significance: Though cultural material associated with extinct animals had been reported prior to 1926, none played so important a part in establishing man's association with extinct fauna in North America than the find at Folsom. Three seasons of work (1926-1928) by paleontologists from the Colorado Museum of Natural History conclusively proved the association of extinct fauna and human culture at this site to the satisfaction of archeologists. Since that time, spurred by this discovery, archeologists have made intensive surveys for and investigations of Early Man in America. This is the most famous Early Man site in America for it was the first to provide proof of the contemporaneity of man with a species of bison believed to have been extinct for some 10,000 years. It is the type station for Folsom points. These are of a distinctive type, characterized by fluting, and were found in unmistakable association with the articulated bison bones.

Though little cultural material aside from the points was recovered at this site, investigations elsewhere have provided more data on the culture of these people. Finds relating to the Folsom complex have been recorded on the interior great plains, from Alaska to Texas, and practically coincide with the distribution of the extinct bison.
THE FOLSOM SITE, New Mexico. On this site, in 1926, scientists of the Colorado Museum of Natural History made their dramatic find of man's weapons unquestionably associated with extinct bison bones, thus confirming the suspicions of progressive thinkers about man's antiquity in the New World. National Park Service photo.
Radiocarbon dates from other sites indicate a probable age of around 8000 B.C.

Features and Condition: The site is on the bank of Hereford Canyon, a small stream in the Cimarron headwaters in the south slope of John Mesa. The Folsom Site consists of less than an acre. No cultural remains now exist on the site, and the excavated area has been eroded. The area has no present commercial use. It is a State monument of the State of New Mexico. The complete absence of additional cultural remains, or bison skeletons, however, does not detract from the fact that on this spot occurred one of the really great discoveries in North American prehistory, and the site remains a scientific landmark of cardinal significance. This site is discussed on page 14.

Principal References:
Cook, Harold J.

Figgins, Jesse Dade.
BAT CAVE

Location: At the southwestern end of the San Augustin Plains, in Section 20, Township 6 South, Range 13 West, New Mexico.

Ownership: Public land leased to a local ranching firm.

Significance: Bat Cave, excavated by Dr. Herbert W. Dick for Harvard University in 1948 and 1951, contained three stratified layers. The site also is of significance in Theme II, "Early Indian Farmers," for the bottom part of the topmost layer produced some of the oldest examples of maize yet found. However, the lower occupation levels contained pre-agricultural complexes with artifacts indicating relationships with other Desert Culture manifestations, including the Cochise Culture, which are of major importance in any discussion of early gathering groups.

Carbon 14 dates from the uppermost level, though not consistent, range from about 900 years to 3900 B.C. The great number of points recovered represent or resemble types found in early horizons elsewhere in the Southwest. Their stratigraphic associations at this site will contribute toward determining their relationships, when the final report is published. This site is discussed on page 62.

Principal Reference:
Dick, Herbert W.
BAT CAVE, New Mexico. This shelter, at the southwestern end of the Plains of San Augustin, contained complexes related to Cochise and other Desert Culture phenomena. It also produced the most ancient examples of maize yet found in the United States. Photo courtesy Dr. Herbert W. Dick, Trinidad State Junior College, Trinidad, Colorado.
Location: Near the head of Lamoka Lake near Tyrone, Schuyler County, New York, on a stream connecting Waneta and Lamoka Lakes.

Ownership: Privately owned.

Significance: This is the type station of the Lamoka Focus and the site which provided part of the basis for the initial definition of the Archaic culture stage in the United States. It is the largest and most productive of Lamoka sites. It is considered by Ritchie as the classic Archaic site in the Northeast.

Features and Condition: The Lamoka Site consists of about five acres of cultivated land. The land at the present time is apparently in the hands of the widow of its former owner, and it has been suggested that she will sell the farm soon. This site is discussed on page 45.

Principal References:
Ritchie, William A.

Location: The central Piedmont near Badin.

Ownership: Private

Significance: This site contains six of the eight complexes in the North Carolina sequence developed through the excavation of four stratified sites. Correlation of the earliest complex represented here with the second from the bottom at the nearby Hardaway Site has provided the best evidence yet obtained indicating greater age for fluted points and for Archaic manifestations in the east. It has also yielded specimens that resemble some found in California (Lake Mohave) and in Nevada (Gypsum Cave). This site is discussed on page 35.

Principal References:
Coe, Joffre Lanning
Location: Northwest quarter of Section 25, Township 25 South, Range 13 East, Willamette Meridian.

Ownership: Federally owned.

Significance: Fort Rock Cave provided the famous Fort Rock sandals, which are the oldest dated artifacts (by a direct dating method) in the New World. It also proved that Indians occupied the central Oregon region at the time of the Newberry eruption of Mount Mazama.

Features and Condition: The interesting basalt column, of which the cave is a part, rises like a fortress above the flat plains. It is shaped like an imperfect horseshoe or crescent a third of a mile across the walls and a sheer 325 feet in height. It is an outstanding geological formation, (however, not as outstanding as Devil's Tower National Monument), and is in a picturesque area. The State of Oregon has placed a highway marker with interpretive information on the main highway six miles from the formation. There are no archeological deposits remaining in the cave. This site is discussed on page 65.

Principal References:

Cressman, L. S.

Cressman, L. S., Howell Williams and Alex D. Krieger

130
FORT ROCK, Oregon. General view. Cave excavated by Cressman is in dark area at extreme right of the crescent. National Park Service photo.
FIVE-MILE RAPIDS

Location: Five miles east of The Dalles on the south bank of the Columbia River at the head of Five-Mile Rapids.

Ownership: Because of the length of unbroken occupation, Five-Mile Rapids is one of the most important sites in North America. The continuity of occupation extended from 11,000 years ago until after 1820. The site demonstrated culture change from an early hunter, fisher economy to the historic economy of aborigines in the area, and showed a technology employing burins, antler, Lamellar flakes and polyhedral cores in an early context. A culture change around 6000 years ago, probably brought about by migrations from the Great Basin was also indicated. The site contained reshaped artifacts in the early horizon which showed that there was an even earlier occupation before the Spokane Flood of the late Pleistocene. The Five-Mile Rapids site is an area of approximately one-half acre in extent. Although it is of very high significance, it has been lost from the standpoint of any on-site development as it has been inundated in the waters of The Dalles Dam Reservoir. Further discussion of this site can be found on page 64.

Principal Reference:
Cressman, L. S.
FIVE MILE RAPIDS, The Dalles, Oregon. Lowest stadia rod is 4 metres long, top rod is 3 metres long. Photo courtesy L. S. Cressman, University of Oregon.
RAY LONG SITE

Location: Located in the Angostura Reservoir thirteen miles south of Hot Springs.

Ownership: Federal ownership.

Significance: The Ray Long Site is the type station for the Angostura type of projectile point, one of the distinctive types of the parallel flaked variety, with a probable age of about 7000 B.C. The only site where parallel flaked points and grinding stones have been associated.

Principal Reference:
Hughes, Jack T.
SCHARBAUER ("MIDLAND MAN")

Location: Six miles south of Midland, Texas.

Ownership: Privately owned as part of a cattle ranch.

Significance: The site which has produced the only generally accepted skeletal remains attributed to an early phase of the Paleo-Indian Stage in the United States, and the type station for Midland points. Folsom points were also found. Inconsistencies in radiocarbon dates makes it impossible to give an exact date for this site, but a guess date of about 9000 B. C. seems reasonable for the human bones.

Features and Condition: The site comprises less than an acre of land in flat, sandy terrain. The excavated area has now been filled with wind-blown sand. The land is used for grazing. This site is discussed on page 17.

Principal References:
Wendorf, Fred and Alex D. Krieger.

Wendorf, Fred, Alex D. Krieger, Claude C. Albritton, T. D. Stewart.
1955 The Midland Discovery. Austin.
SCHARBAUER (MIDLAND "MAN") SITE, Texas. At this sand blow-out, an amateur archeologist found human bones which led to excavation of human remains which now appear to be the earliest human skeletal fragments yet unearthed in America. Photo courtesy Laboratory of Anthropology, Santa Fe, New Mexico.
Location: Located within the city limits of Plainview, Hale County.

Ownership: Unknown; evidently private.

Significance: Plainview is the type station for Plainview points. Points of this type had for some time been commonly represented in surface collections, but at this site, they were found in association with bones of an extinct species of bison in a massive bone bed. The age of this site is about 7000 B.C. This site is discussed on page 18.

Principal References:
Sellards, E. H.
1952 *Early Men in America*. Austin

Sellards, E. H., Glen L. Evans, and Grayson E. Meade.
THE PLAINVIEW SITE, Texas. Here for the first time the unfluted Plainview type point was found with the bones of extinct bison. National Park Service photo.
Location: On the west edge of Bonneville Salt Flats about 1 mile from Wendover, Utah, in the Desert Hills. Southeast quarter, Section 8, Township 1 South, Range 19, West.

Ownership: Federal Government (United States Air Force)

Significance: 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.

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 7000 B.C., zone 3, no dates obtained, zone 4, about 2000 B.C., and zone 5, about 20 A.D. to 2900 B.C.
DANGER CAVE, Utah. This large shelter produced evidence that weaving techniques were in use prior to 7,000 B.C. and that harvesting and milling of small grains was known by 8,000 B.C. Photo courtesy University of Utah.
Features and Condition: The site encompasses less than an acre on the Wendover Bombing Range. It has no present government or commercial usage. This site is discussed on page 54.

Principal Reference:
Jennings, Jesse D.
1957 Danger Cave. University of Utah Anthropological Papers, No. 27. Salt Lake City.
LIND COULEE

Location: Southwest quarter of Section 1, Township 17 North, Range 31 East, in Grant County, Washington.

Ownership: Federally owned.

Significance: The Lind Coulee site has the greatest antiquity of any archaeological site yet located in Washington (radiocarbon date of 8700 ± 400 years). It is a site with a 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 were 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.

Features and Condition: The site is situated adjacent to Lind Coulee which is an old erosion channel formed during the various phases of late Pleistocene glaciation. An estimated one-third of the site was excavated, the remaining portion exists undisturbed. Lind Coulee is now a natural wasteway for waters of the Columbia Basin Irrigation project. It has no present commercial use and is surrounded by farmland. This site is discussed on page 66.
LIND COULEE. Excavations in progress at the Lind Coulee site, 1951. Approximately eight feet of sterile overburden was bull-dozed from the surface before the trench was dug. Photo courtesy R. D. Daugherty, Washington State College, Pullman, Washington.
Principal References:
Daugherty, Richard D.

OSCEOLA SITE

Location: Northwest half of Section 14, Township 2 North, Range 3 West, two miles south of Potosi, in Grant County, Wisconsin.

Ownership: Federally owned.

Significance: This was a large cemetery and the first excavated site to provide information on stone tools as well as detailed knowledge of Old Copper Culture burial practices. A radiocarbon date indicating an age of 1500 B.C. seems recent in view of the earlier dates obtained from related sites, and there may have been some contamination of the sample.

Features and Condition: The site, located on a beach of the Mississippi River, was partially destroyed by flood waters before excavation. Artifacts still erode from the site after flooding. This site is discussed on page 42.

Principal Reference:
Ritzenthaler, Robert, Ed.
Location: In Government Lot 8, Section 24, Township 28 North, Range 21 East, Oconto County, Wisconsin, about 3 miles upstream from the Oconto River's entry into Green Bay.

Ownership: Owned by the State of Wisconsin.

Significance: Like the Osceola Site, the Oconto Site was primarily a cemetery, although scattered post holes and artifacts indicated a habitation site as well. In addition to greatly expanding knowledge of the Old Copper Culture, this site provided the oldest dates for the complex thus far recorded. One wood sample from a crematorium produced a date of 5,600 years ago. Another sample dated 7,150 years ago.

Features and Condition: The Oconto Site is located on a sand and gravel ridge about 150 yards from the Oconto River in close proximity to the Oconto city dump. The State of Wisconsin has recently acquired the property for state park purposes. No cultural deposits remain, however. This site is discussed on page 42.

Principal References:

JAMES ALLEN SITE

Location: About 16 miles south of Laramie, Wyoming.

Ownership: Privately owned.

Significance: The James Allen Site is the type station for Allen points. Points with oblique parallel flaking often occurred as surface finds and it was generally believed that they were old. This is the first site, however, where such specimens were found in an excavation associated with extinct bison. A radiocarbon date indicates an age of about 6000 B.C.

Features and Condition: The site occupies the north flank of a boulder ridge, at the foot of an area where the slope is greater than usual, and may represent remains of a bison trap. It was excavated by William Mulloy of the University of Wyoming. This site is discussed on page 21.

Principal Reference:
Mulloy, William
MCKEAN SITE

Location: On the south side of the Belle Fourche River about three and one quarter miles above the Keyhole Dam, Wyoming.

Ownership: Federally owned.

Significance: McKean is a site with evidence of occupation by two culturally distinct groups of different ages, which provided much of the basic framework for the definition of the "Middle Prehistoric" period in the northern Plains. The date for the more recent period of occupation is about 1200 B.C. The McKean Site has been inundated. This site is discussed on page 25.

Principal References:
Mulloy, William.
Location: On Sage Creek about four miles northeast of Cody, Wyoming.

Ownership: Privately owned.

Significance: The Horner Site is the type station for the Cody Complex, which includes Scottsbluff and Eden points and the distinctive Cody knife. Artifacts were found in association with large quantities of bones from bison of an unidentified species. Radiocarbon dates indicate a period of occupation about 5000 B.C.

Features and Condition: The Horner Site occupies a high flat terrace near the confluence of Sage Creek and the Shoshone River. Although the site has been excavated by archeologists from Princeton University and Smithsonian Institution, there may be cultural deposits remaining. This site is discussed on page 19.

Principal References:
Jepsen, Glen L.

TENSLEEP ROCKSHELTER

Location: Ten miles south of Tensleep, Wyoming.

Ownership: The main shelter is privately owned; other related shelters Federally owned.

Significance: Tensleep Rockshelter is a site which has produced vast quantities of artifacts, made of normally perishable materials, attributed to the latter part of the "Middle Prehistoric" period. It was occupied about A. D. 200.

Features and Condition: The Tensleep Shelter has been excavated, along with other related shelters in the immediate vicinity. This site is discussed on page 29.

No references. The excavated artifacts are in the collections of the University of Wyoming.
APPENDIXES
APPENDIX A

Other Sites Considered

In addition to the sites suggested for classification as possessing exceptional value, a number of other sites were evaluated in the course of study. While these latter sites may be considered to have more than ordinary interest in this theme, they are believed not to rank with those enumerated above. There are several reasons for this secondary ranking. In archeological studies, the site which most profoundly modifies theories, concepts, and ideas is usually the first site wherein a new culture type is discovered. This is normally true unless the site has yielded inconclusive or insufficient data, or has been excavated in such a way as to cast doubt upon the integrity of the discovery. Subsequent finds, while they may add knowledge of additional traits or complexes to give more detailed understanding of a cultural event, period, or trend, are usually of lesser importance from the standpoint of their effect in the history of the development of scientific thought. Thus it is that most of the significant archeological sites in this theme are "firsts" of one kind or another. Other sites which are similar, therefore, appear on the lists below. In some other instances, the sites seem to indicate complexes of purely local importance.

The list which follows is grouped alphabetically by states. Each is followed by a brief characterization of the materials found, along with a statement of ownership and condition, where known.
Alabama

Quad: Located on two deeply eroded ridges near Decatur, Alabama, this site contained both Paleo-Indian and Archaic components.

Arizona

Naco: This site contained evidence of association of mammoth remains with Clovis points. It is located near the Mexican border eight miles southeast of Bisbee, and one mile northwest of Naco, Arizona. The site consisted of mammoth bones eroding from the bank of an arroyo, and has been excavated by archeologists from the Arizona State Museum.

Lehner: A second site in which Clovis points were found in association with mammoth bones. This site is located on the Lehner Ranch one and one-half miles southwest of Hereford, Arizona, on an arroyo tributary of the San Pedro River.

California

Lake Mojave: Finds of projectile points made on fossil beaches and terraces of the former Lake Mojave have been looked upon by geologists as having some antiquity.

Pinto Basin: This complex was represented by a series of campsites containing projectile points and other implements. The sites are located in Riverside County, California.

Colorado

Claypool: A site which yielded artifacts of the Cody Complex. The site is privately owned, and is located in a blow-out about 19 miles south of Otis in Washington County, Colorado.
Iowa
Simonsen: This is a bone bed eroding from a creek bank near Cherokee, Iowa. It evidently is a bison kill site. Projectile points found here with the bones of extinct bison resemble types from Archaic sites to the east. Located on a private farm, the site is badly eroded.

Maine
Ellsworth Falls: These sites on the Union River near Ellsworth Falls, Maine, allowed definition of a sequence of preceramic and pottery-making occupations.

Massachusetts
Bull Brook: This site, near Ipswich, Massachusetts, contained fluted points and other artifacts of early types. The site was exposed by a bulldozer cut and has now been excavated.
Assawompsett: Located on the shore of Assawompsett Pond, this is an Archaic site which may be the first site in the Northeast where Archaic houses, village plan, and burial complex have been found.

Minnesota
Browns Valley: Near Browns Valley, Minnesota, in 1933, fragments of human bone and a parallel flaked point were found in a load of gravel. Investigation by A. E. Jenks of the University of Minnesota revealed a burial pit below undisturbed dark humus. Geological evidence, though inconclusive as to exact age, indicated some antiquity for the discovery.

Montana
Billings Bison Jump: This was a bison trap in the city limits of Billings, Montana. Evidence from the excavations indicated that two different kills were represented.
Emigrant Bison Jump: A bison trap near Emigrant, Montana, evidently of rather late origin in comparison to the majority of sites representative of this theme.

Nebraska
Allen Site: This site contained artifacts dating around 8000 years ago in age. The assemblage, which differed from that found in other sites in the same area is called the Frontier Complex. The site, located on Medicine Creek, in Frontier County, Nebraska, has been inundated.
Red Smoke and Lime Creek Sites: Deeply buried zones in this site yielded artifacts resembling Plainview points. A date for the uppermost zone in the site of over 8000 years ago indicates that the lower zones must be older. These sites have been inundated.
Scottsbluff: Here, in 1932, Scottsbluff type points were found in association with extinct bison bones.

Nevada
Lovelock: A stratified site containing evidence of occupation dating back to about 7,000 years ago.
Humboldt: The earliest complex represented in the Lovelock Cave, dating about 7,000 years ago.

New Mexico
Lucy: This site contained Sandia points in association with mammoth remains.
Milnesand: The type locality for a projectile point form similar to that of Plainview, which have been associated with extinct bison.
New York

Frontenac: An Archaic manifestation indicating fusion of Lamoka and Laurentian cultural elements. The type site is located on Frontenac Island in Cayuga Lake, New York.

North Carolina

Hardaway: The only site in the extreme eastern part of the United States where fluted points have been clearly associated with an Archaic occupation. The site lies at the Fall Line where the Yadkin River enters the Coastal Plain.

Oregon

Medicine Rock: A site in which artifacts were found beneath a layer of pumice attributed to the Mount Mazama eruption which appears to have occurred about 7,500 years ago.

Pennsylvania

Shoop: This site, near Enterline, Pennsylvania, contained an assemblage of artifacts which included fluted points.

Tennessee

Eva: A shell mound in western Tennessee containing evidence of a long Archaic occupation. This is the type site of the Eva Focus.

Texas

Lewisville: Near Lewisville in Denton County, Texas, a series of hearths contained remains of elephant, extinct bison, and other mammals. In the largest hearth excavators found a Clovis point and a piece of charred wood. Radiocarbon tests on the wood indicated a date beyond the range of laboratory technique, or, in other words, a date in excess of 37,000 years ago. This appears to be too old for Clovis points.
Lubbock: In the Valley of Yellow House Draw near Lubbock, Texas, archeologists obtained the first material permitting radiocarbon dating of a Folsom Site. The dates obtained (9,883 ± 350 years ago from the University of Chicago and 9,300 ± 200 years ago from the Lamont Laboratory) are slightly younger than the date for the Lindenmeier Site of nearly 11,000 years ago.

Vermont

Reagan Site: Located near Shavville, Vermont, six miles south of the Quebec border, this site has yielded fluted points and other artifacts. The site lies in an area of shifting dune sands and all the specimens were collected over a section about two miles in extent. Tests on the site did not indicate a habitation zone.

Virginia

Williamson: This site is considered to be related to the Enterline Flint Industry. It is located in Dinwiddie County on a private farm.

Wisconsin

Raddatz: This rock shelter in Sauk County, Wisconsin, contained deep deposits of cultural debris representing Archaic and Woodland occupations. Although the dates from the shelter have been spectacularly early (earliest date: 11,611 ± 600 years ago) for this area, no distinctive artifact types have been discovered. The shelter is on private land.
APPENDIX B

Recommendations for Further Study

In the study of sites pertaining to prehistoric hunters and gatherers, several were noted which require additional study before definite recommendations may be made as to their value in presenting this theme. Such sites are those which, either from surface indications or through limited tests, give clear indication of being representative of the theme, but in which further field work or additional study of the artifacts will be necessary to a true assessment of their importance in affecting broad theories or concepts.

In California, finds on Santa Rosa Island off the Southern California coast have suggested the possibility of human cultural remains in association with the bones of very small mammoths. Dates from burned bone found on the sites indicate an age in the neighborhood of 16 to 30 thousand years for the finds. Other finds in the area date around six to seven thousand years ago. The discoveries were such that archeologists are not absolutely certain of the antiquity of the material, or of the undisturbed nature of the site. Further study may clarify this situation.

In Iowa, the discovery of the Turin burials in 1955 aroused nation-wide publicity. From associated projectile point comparisons based on the later discoveries at the Simonsen Site near Cherokee, Iowa, it appears that the Turin skeletons may represent a find of human physical remains of genuine antiquity. However, we cannot be positive of the date of these skeletons, and further study is necessary.
SHEEP ROCK SHELTER, Pennsylvania. Although incompletely excavated and reported at the present time, the Sheep Rock Shelter is one which gives strong indications of significance in the study of Early Man in the Northeast. Photo courtesy Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania.
For several years the University of Missouri and the Missouri Archaeological Society have conducted excavations in a deep sandstone rockshelter near the Missouri River in Callaway County. This shelter, called "Research Cave" or "Arnold Cave," evidently has given a detailed sequence beginning at a period comparable to the Early Man-Archaic level in Graham Cave, and continuing into Late Woodland times. The cave has produced perishable items which have not been preserved in other sites of the region. A determination of the shelter's significance in this particular theme awaits a final detailed report on the studies carried out.

Perhaps of greatest importance from the standpoint of need for further study is the land along Blackwater Draw, New Mexico, in the Anderson Basin east of Highway 70. Here, for an interval of about four miles is a tract which gives promise of yielding as much, if not more material than was found at the original Clovis site. Again, further excavation and laboratory study are required.

Other sites which, for reasons similar to those presented above, must await further information or studies before final classification can be made are Tule Springs and Gypsum Cave in Nevada; the Folsom Site near Laramie, Wyoming; the Agate Basin site in Wyoming; and the Sheep Rock Shelter in Pennsylvania. The Agate Basin Site, and the Sheep Rock Shelter are currently being excavated.
APPENDIX C
Criteria for Classification
of sites and buildings

Listed below are the criteria by which each site considered in the Survey is evaluated. Sites and buildings under consideration must meet one or more of the criteria to be designated as possessing "exceptional value as commemorating or illustrating the history of the United States." In the classification of aboriginal sites criteria 5 and 6 are employed almost exclusively.

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 idea or ideal 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.