OKLAHOMA PREHISTORY

by Claudette Marie Gilbert

University of Oklahoma Stovall Museum and
Oklahoma Archeological Survey
Norman
1980

OKLAHOMA PREHISTORY

Oklahoma Prehistory has been published jointly by the Oklahoma Archeological Survey and the University of Oklahoma Stovall Museum of Science and History. By making this booklet widely available, it is hoped that the publicized results of archeological field work will foster an appreciation for, interest in, and knowledge of the people who have called Oklahoma "home" over the centuries.

Oklahoma Prehistory

by

Claudette Marie Gilbert

The University of Oklahoma Stovall Museum and
The Oklahoma Archeological Survey
Norman
1980

This publication, printed by the University of Oklahoma Press, is issued by the University of Oklahoma Stovall Museum and the Oklahoma Archeological Survey and authorized by Dr. Gary Schnell, Acting Director of the University of Oklahoma Stovall Museum, and Mr. Don Wyckoff, Director of the Oklahoma Archeological Survey. A total of 2,500 copies have been prepared and distributed at a cost to the taxpayers of the State of Oklahoma of $5,000.00.

TABLE OF CONTENTS

page

Acknowledgments vii
Introduction viii
Chapter 1
Big Game Hunters
25,000 B.C. to 5000 B.C. 4
Chapter 2
The Foragers
5000 B.C. to A.D. 1 20
Chapter 3
Early Farmers
A.D. 1 to A.D. 1000 28
Chapter 4
Plains Village Farmers
A.D. 800 to A.D. 1400 36
Chapter 5
Caddoan Mound Builders
A.D. 1000 to A.D. 1500 46
Chapter 6
Early Historic Buffalo Hunters
A.D. 1500 to A.D. 1700 68
Bibliography 75

ACKNOWLEDGMENTS

I would like to thank the many people who have contributed their time and skills to this project: Don Wyckoff for his help in the research and editing; Larry Neal, David Hughes, Sarah Herstand, and Tim Baugh who reviewed the text; Lois Albert for her help in the discussion of palynology; Janet Black and Pam Odell who typed the final draft of the manuscript; Tim Baugh and Rain Vehik who patiently answered questions and helped with photos for the early buffalo hunter and forager chapters; Mary Goodman for her beautiful illustrations; Robert E. Bell who reviewed the manuscript and patiently tracked down negatives; J. Daniel Rogers for his help with the chapter on Caddoan mound builders; and all the other people at the Oklahoma Archeological Survey who have helped to bring this publication to press.

I would also like to thank the Museum of the Great Plains at Lawton, Oklahoma, for graciously allowing us to use their photo files and illustrations, and for the generous cooperation of Towana Spivey and Steve Wilson. Peter Tirrel and Judy Furlong of Stovall Museum also reviewed the manuscript.

A special thanks goes to the Peabody Museum of Archaeology and Ethnology at Harvard University, Cambridge, Massachusetts, for permission to use four illustrations from *Pre-Columbian Shell Engravings* from Spiro by Philip Phillips and James A. Brown. Richard C. Bartlett, Director of Publications, was most helpful in giving permission to use the illustrations, in supplying the names of the illustrators, and in his kind encouragement of this project.

Claudette Marie Gilbert

INTRODUCTION

INTRODUCTION

Broken pots, discarded stone tools, pollen, and bones—these are some of the bits and pieces archeologists use to reconstruct the past. Written history in Oklahoma goes back only a few centuries, and that record is often sketchy at best; but people have lived in this state for thousands of years. Through archeology, we can learn their story.

Archeology is a branch of anthropology. It is the study of peoples and cultures of the past. We learn about these people by studying the traces they have left of their passing, such as tools, buildings, and other artifacts. Many artifacts are beautiful and important as works of art. Early archeologists, however, were interested in them primarily as a means of learning about the past. As the discipline matured, excavators demanded more and more detail. Modern archeologists carefully record information about the relative positions of artifacts, about changes in the soil, and many other factors.

The Lee Creek Ceremonial Center in northeastern Oklahoma is an excellent example of controlled excavation. The Lee Creek site was a regional ceremonial center whose people shared the same culture as those at the Spiro Mounds in eastern Oklahoma. Unlike Spiro, the site contained very few historic artifacts, and untrained excavators would have found little to interest them. But by carefully recording each change in the soil, the archeologists at the Lee Creek site were able to determine the sequence of events involved in the construction of the mound.

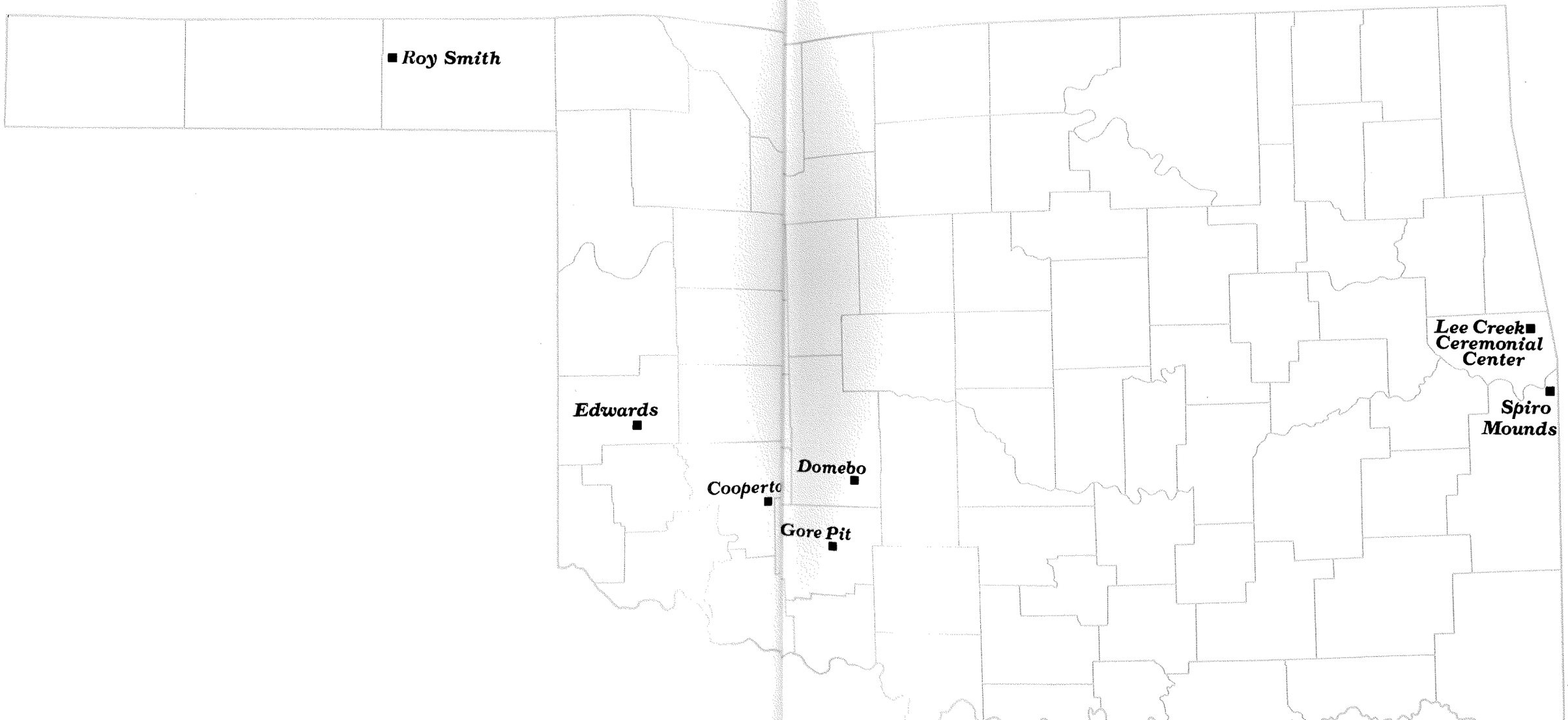
Dating techniques have also improved remarkably. In the 1950s, radiocarbon dating came into use. All living things contain Carbon, and after death, some of this Carbon—the type called Carbon-14—slowly changes into Carbon-12. Scientists learned how to measure the amount of this change and so to estimate the age of the organic (once living) material. The results of radiocarbon testing radically changed theories about when the first people reached the Americas. During the early part of this century, archeologists commonly believed that people entered the New World some 4000 or 5000 years ago. These estimates have been pushed back gradually as new information becomes available.

With the advent of radiocarbon dating, the samples of organic material—such as charcoal and bone—that were tested yielded ages of 10,000 and even 20,000 years old. The controversy still goes on as even earlier dates have been obtained. Radiocarbon samples, however, are subject to contamination from many sources, and those samples that yield dates of more than 20,000 years old are scrutinized extremely carefully. In the meantime, scientists continue to search for other dating techniques that can be used to cross-check one another. Flourine dating, archeomagnetism, and dendrochronology are just a few of these techniques. We may never know the complete story of

Oklahoma's past people, but future research will continue to expand our knowledge.

This booklet is an attempt to bring together information from the many scientific journal articles, reports, and monographs written on the various aspects of Oklahoma archeology. It is intended for the general reader with an interest in archeology but no previous knowledge of the subject. We hope that you will find this an interesting and entertaining account of Oklahoma's prehistory.

Locations of Some Archeological Sites in Oklahoma



BIG GAME HUNTERS

25,000 B.C. to 5000 B.C.

CHAPTER 1

BIG GAME HUNTERS

25,000 B.C. to 5000 B.C.

The smell of damp earth and grass drifted down to him, mingling with the rank odor of mammoth. The steep-walled canyon was shady and cool after the long chase over the grassy plains. It was his first hunt, and he rubbed each sweaty palm in turn against his thigh to dry it, then gripped the spear tightly.

It was his best weapon, the wood smoothed straight and true with a sandstone abrader. He'd painted the shaft with red ochre—the color of blood—for luck. The point was made of finely chipped black flint mounted on a bone foreshaft and set securely in a socket at the end of the spearshaft.

The wind shifted again and blew the hunters' scent towards the mammoth. Angrily, she shifted from foot to foot. Almost three times the height of a man, she paced back and forth, limping more than ever now. It was probably from an old injury, the hunt leader had said. The old wound made her bad tempered, and her inability to get along with the other mammoths had forced her out of the herd. Alone, she fell prey to the small party of humans.

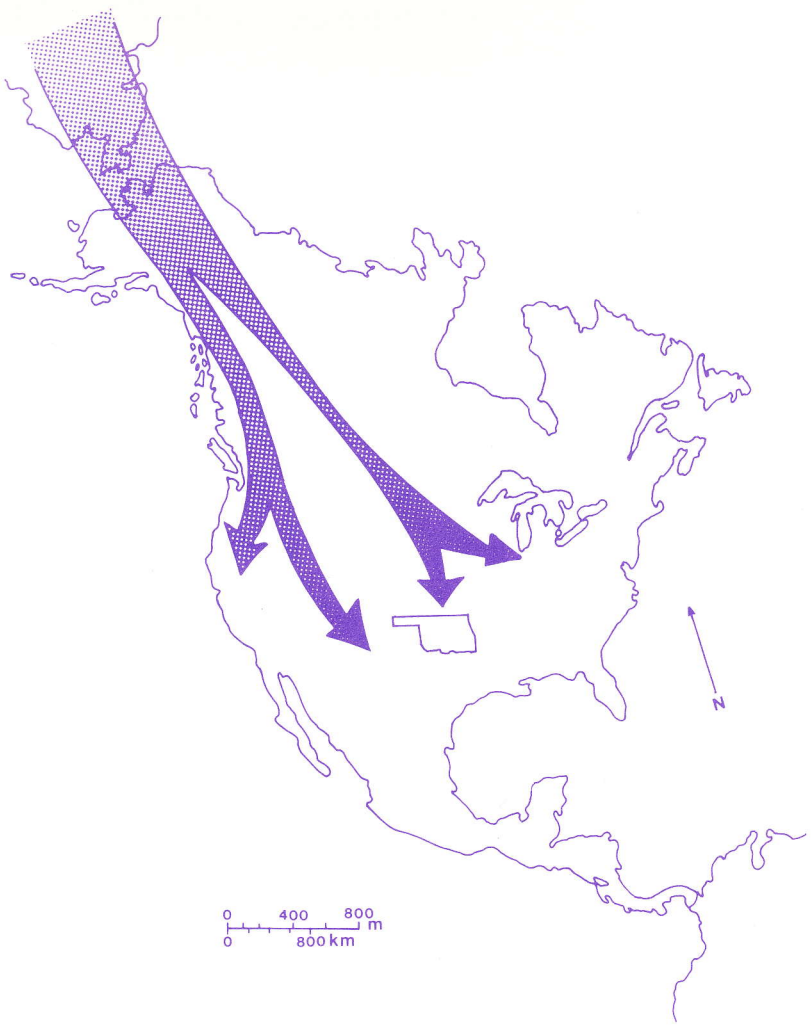
"Yaah!" yelled the hunt leader, and men moved in, spears held for thrusting.

The mammoth trumpeted, raising curved tusks longer than a man was tall. Her long black hairs were dusty, and the yellow-brown underwool was matted with mud. The wary hunter splashed through a small stream that ran along the bottom of the canyon and thrust at the bladder, hoping to poison her with her own urine. Others went for the eyes and the heart. The mammoth screamed and sank to her knees, blood streaming from half-a-dozen spear wounds. The young hunter pulled out his shaft and rammed another point into the socket. Slowly, the mammoth sank down onto her left side, her head facing north. The kill was soon over, and the hunters began butchering the huge carcass while a runner sped the good news to the rest of the band.

Later, he sat by the fire re-working a broken spearpoint. The hunting medicine had been very good this day. He'd lost his first spearpoint somewhere in the giant carcass, but soon the band would pass the place where the purple and white striped flint could be found, and he'd make new spearpoints even more beautiful than the old.

Human beings entered the New World relatively recently. Dinosaurs became extinct about 63 million years ago; but it wasn't until about 25,000 years ago that the first people reached the Americas.

POSSIBLE PALEO-INDIAN MIGRATION ROUTES:
25,000 [?] B.C. THROUGH 10,000 B.C.



Archeologists call these first people Paleo-Indians, meaning "old Indians." There were several sub-groups of these people whose culture spread across all of the Americas and lasted several thousand years.

During the last ice-age, glaciers covered much of the northern and southern parts of the world. They locked up huge amounts of water that remained frozen year around. As the glaciers grew, the sea level dropped. This exposed many areas of land that are now covered by the oceans. One of these areas existed in the northern part of the Pacific Ocean called the Bering Strait, between Siberia and Alaska. Scientists called this land-bridge "Beringia." About 25,000 years ago, the Bering Strait was a vast, dry land plain with a narrow, ice-free corridor extending from the interior of Alaska into the heart of North America. At its widest point, Beringia was nearly 1000 miles across. It was easy for animals and the men and women who hunted them to drift across this vast span of dry land without ever realizing that they had moved from one continent to another.

The first people to traverse this corridor and enter the New World were nomadic big game hunters. They moved southward slowly, over a period of generations. There, they found an unpeopled new land with abundant game and plant foods.

These first Paleo-Indians are known to us as big game hunters because they successfully hunted the gigantic game animals common during the last ice age. Huge bison, short-nosed bears, mastodons, mammoths, and ground sloths the size of elephants were common then. However, the Paleo-Indians of 10,000 years ago are best known for their mammoth kills.

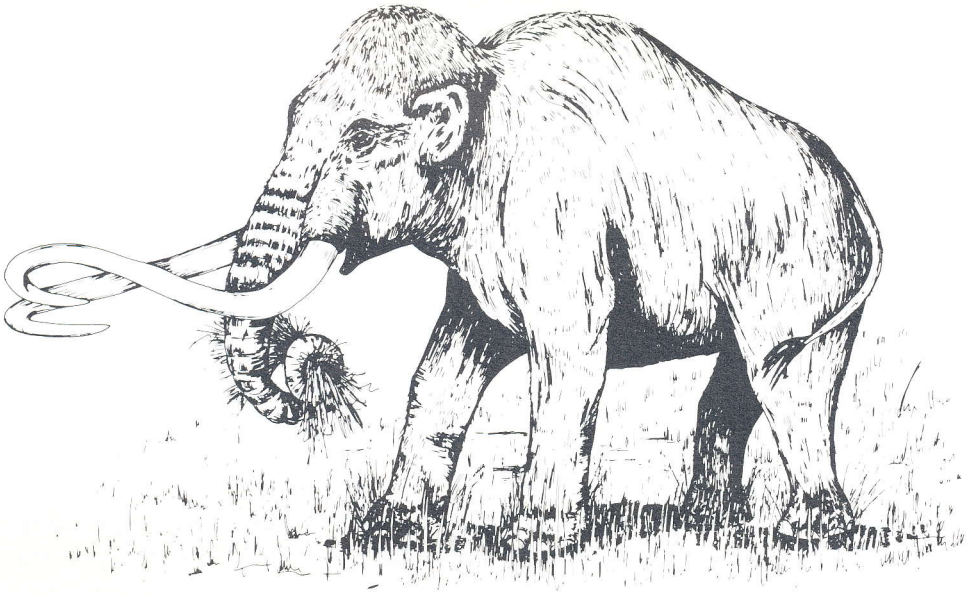
Mammoths were members of the elephant family. Two main kinds of mammoths roamed the North American Plains at the time of the early Paleo-Indians: Columbian mammoths and Imperial mammoths. The Columbian mammoth stood about 14 feet high at the shoulder while the average Imperial mammoth stood some 3 or 4 feet taller. Like modern elephants, mammoths probably lived in small family groups numbering no more than 8 or 10 animals—2 or 3 adult females and their immature young. The males were probably solitary as are modern elephant males.

EARLY BIG GAME HUNTERS: THE CLOVIS PEOPLE:

Archeologists call the mammoth hunters the Clovis People—named after the Clovis site in New Mexico where their artifacts first were found. According to the archeological evidence, mammoths were important to the Clovis people, but the kills were infrequent. Small groups of men hunted the mammoths with stone-tipped spears. Nearly all organic materials from this time have long since rotted away, especially in the warm, humid regions, so most of the remaining evidence of their lifestyle is made of stone. The Clovis people made many types of stone tools—scrapers, drills, and knives are just a few

of them—but they are best known for their spearpoints.

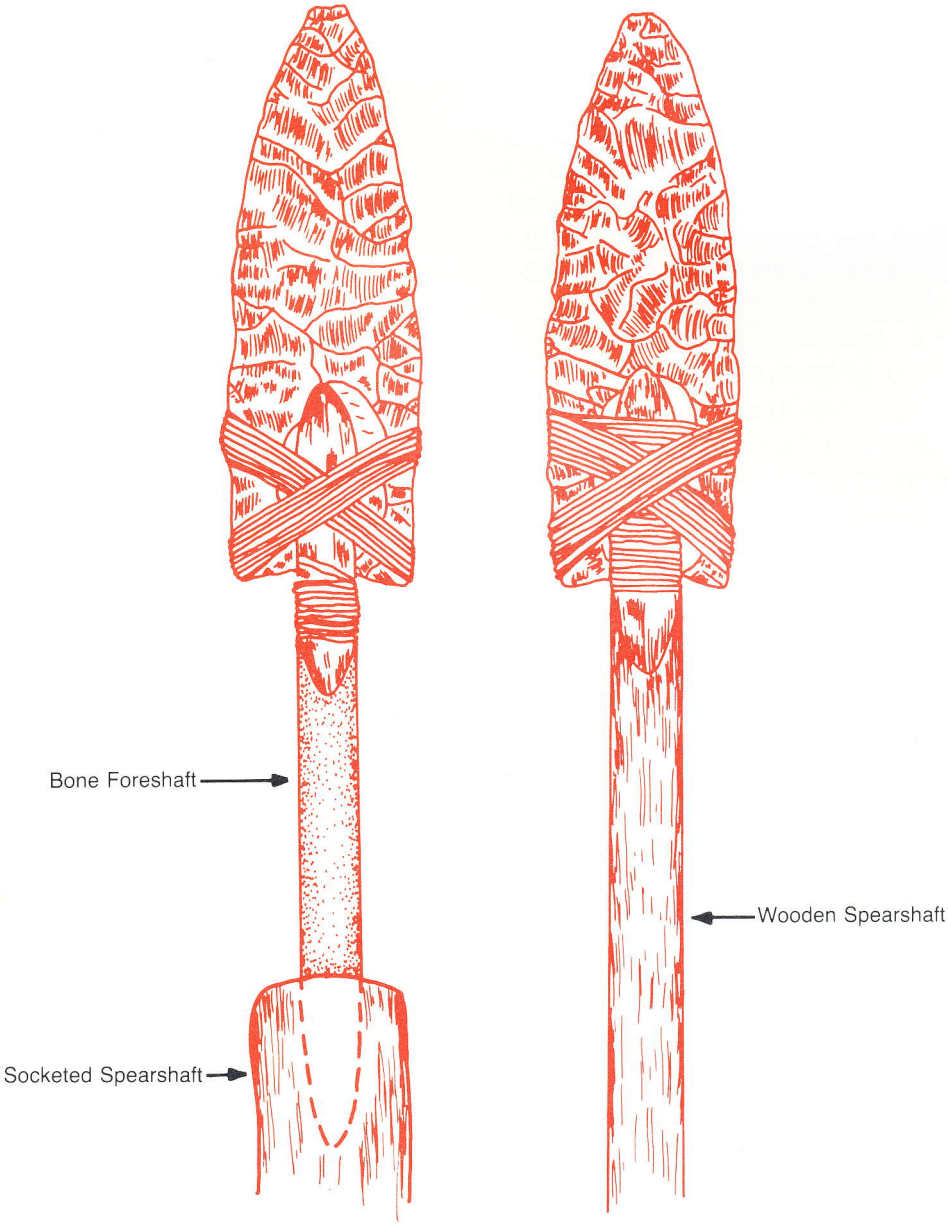
Clovis spearpoints are typically 3 to 4 inches long. They are thin and leaf-shaped and usually have one or more long flakes removed from the base toward the center. This creates a flute which makes it easier to fasten the point to the shaft. These points were used on spears, not arrows. The Clovis people did not make bows and arrows.



Imperial Mammoth

Spearpoints may have been fastened to the shaft in one of two ways. The hunters may have hafted the spearpoint to a bone foreshaft and then set the foreshaft in a socket in the wooden spearshaft. Using this method, the hunter could thrust rapidly and repeatedly. A bag containing spearpoints mounted on bone foreshafts would have been easy to carry. Another method of hafting was to tie the spearpoint directly onto the wooden spearshaft. This method would have been useful for inflicting repeated shallow wounds or for killing smaller game.

TWO POSSIBLE METHODS
OF MOUNTING SPEAR POINTS



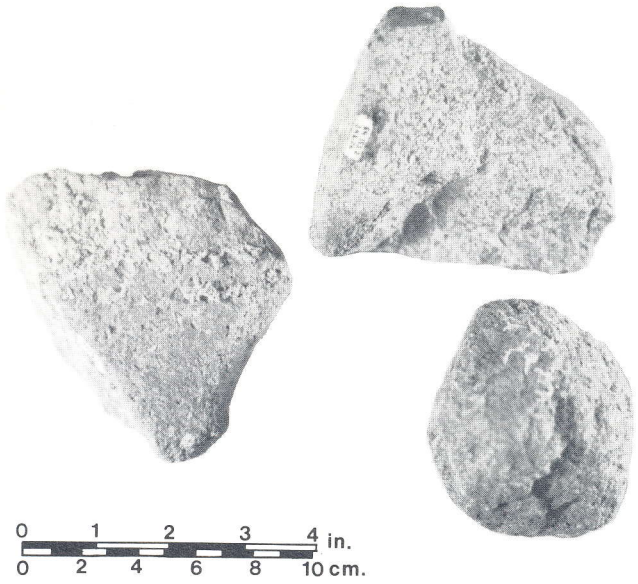
THE COOPERTON SITE:

Isolated Clovis points have been found in many places in the state. Without accompanying datable materials, however, no age can be assigned to them, and they can tell us little about the prehistoric big game hunters. There are also finds of mammoth skeletons, but most of these are natural deaths, telling us nothing about the people in the

region at the time. In Oklahoma, our information about this period comes from two thoroughly studied sites: the Cooperton site in Kiowa County and the Domebo site in Caddo County.

The dates obtained for the Cooperton site indicate that it is about 17,000 to 21,000 years old. If this is correct, Cooperton provides the oldest evidence of human occupation in the state. However, due to disagreement over the reliability of certain dating techniques, some scientists are not satisfied that these dates are correct. The Cooperton site was discovered in 1961 and was excavated under the supervision of the Museum of the Great Plains in Lawton. The excavators uncovered the bones of an immature, male Columbian mammoth. The artifacts found with the skeleton were not clearly human-made; however, the bones, while still green, had been broken in such a way that some scientists attribute the breakage to human activity. The archeologists who excavated the site found 3 rounded, fist-sized rocks which they believe were used as hammerstones and a large, 15-pound boulder which may have been used as an anvil by the prehistoric people who found the mammoth. Both the hammerstones and the anvil were of a size not natural to the area, and any stream strong enough to have washed them to the site would also have been strong enough to wash away the mammoth bones.

The excavators believe that a small band of Paleo-Indians came upon a mammoth that had died of natural causes. The meat may have been spoiled, but the bone was useful for making tools. They also



Big game hunters may have used these stones to break the bones of the Cooperton mammoth.

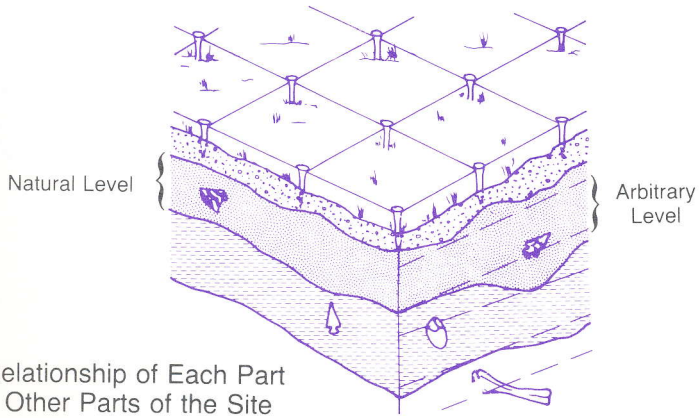
Photo from Oklahoma Archeological Survey Files, taken by permission at the Museum of the Great Plains.

might have split the bones and set them in the sun in order to collect the liquid marrow that rose, as some African tribes do today with elephant bones. The bones may have been broken by putting them on a boulder carried to the site for that purpose and then pounding them with the hammerstones. This would result in a break with jagged, sawtoothed edges like those found at this site. If the bones had been broken by pressure from the weight of the ground after they were buried, they would have broken in a smoother line.

THE DOMEBO SITE:

The second important site from this period yielded both mammoth bones and carefully made Clovis spearpoints. This is the Domebo (Dum.bo) mammoth kill site in Caddo County near Anadarko. The area is a flat, prairie-plain with many small streams cutting steep canyons into the sandstone bedrock. In 1961, Mr. J. E. "Buck" Patterson of Apache, Oklahoma, noticed a mammoth tusk eroding out of a stream bank in one of these narrow canyons. Mr. Patterson reported the find to Mr. Adrian D. Anderson, then archeologist at the Museum of the Great Plains at Lawton. When Mr. Anderson examined the site, he found a Clovis spearpoint with the mammoth bones. He knew at once that this was an important discovery. Mammoths had been extinct for some 10,000 years. This meant that the site was more than 10,000 years old, and the spearpoint found with it was probably the oldest known indisputable evidence of the presence of human beings in Oklahoma. A National Science Foundation Emergency grant was secured, and excavation began in 1962.

The context of the Domebo site was extremely important. The excavators were concerned with the relative positions of each of the features and artifacts of the site. A Clovis point by itself cannot be dated; mammoth bones alone may not tell us anything about the people of the time; but together, they provide important information. Therefore, the excavators were careful to note the exact position of all the remains. In order to keep a precise, three-dimensional record, the site was first marked off in a grid of equal squares. The squares were



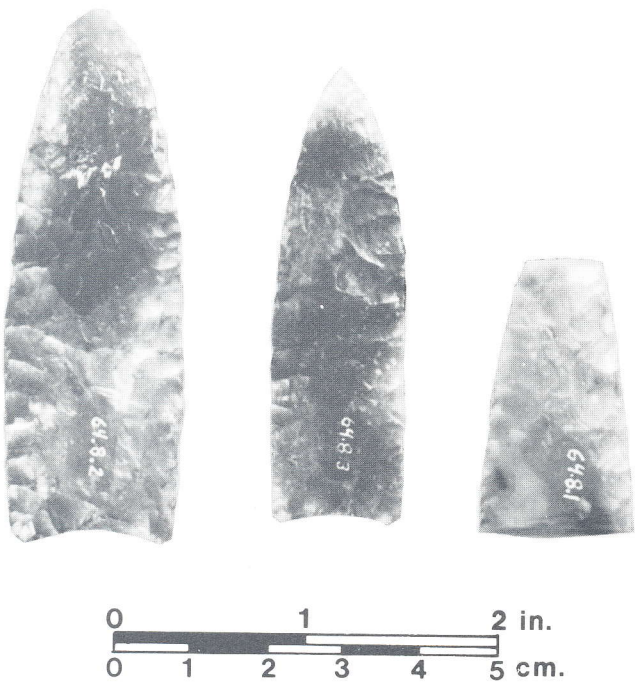
CONTEXT: The Relationship of Each Part of the Site to the Other Parts of the Site

measured with reference to a central point, and this kept the grid formed by the squares uniform. The grid made it possible to map the surface of the site. For a three-dimensional record, however, measuring depth was also important. Depth is recorded in "levels." Levels may be either arbitrary or natural. When measuring in arbitrary levels, the archeologist decides that a certain number of inches or centimeters will be dug to best expose a level. All the levels will be the same depth. Natural levels, on the other hand, are based on changes in soil color and texture that the archeologist uses to demark the different levels. The excavators at the Domebo site used arbitrary levels.

The Domebo skeleton proved to be that of an immature, female, Imperial mammoth. She stood about 14 feet high at the shoulder. With her bones, the excavators found 2 complete spearpoints, 1 spearpoint fragment, and 3 waste flakes. Another spearpoint, a scraper, and a worked flake were found in the gravel downstream from the excavation.

FLINT KNAPPING:

The waste flakes indicated that one of the hunters had made or retouched a tool while they camped nearby. Before metal became generally used, people made their tools from stone, wood, and bone. The early stone tools were made by a technique archeologists call "flint knapping." The flint knapper struck chips from the stone being



THREE OF THE POINTS FOUND AT THE DOMEBO SITE.
Photo courtesy of the Museum of the Great Plains.

made into a tool with another stone or with a piece of bone or antler. The tools were made from different varieties of flint or chert, occasionally obsidian, and sometimes quartzite. Obsidian is like glass; it has no crystals. The edge of a new obsidian tool is extremely sharp because it breaks to the last molecule, but is dulls quickly for the same reason. Most of the Clovis period artifacts are made of flint. The spearpoints especially show great refinement and skill.

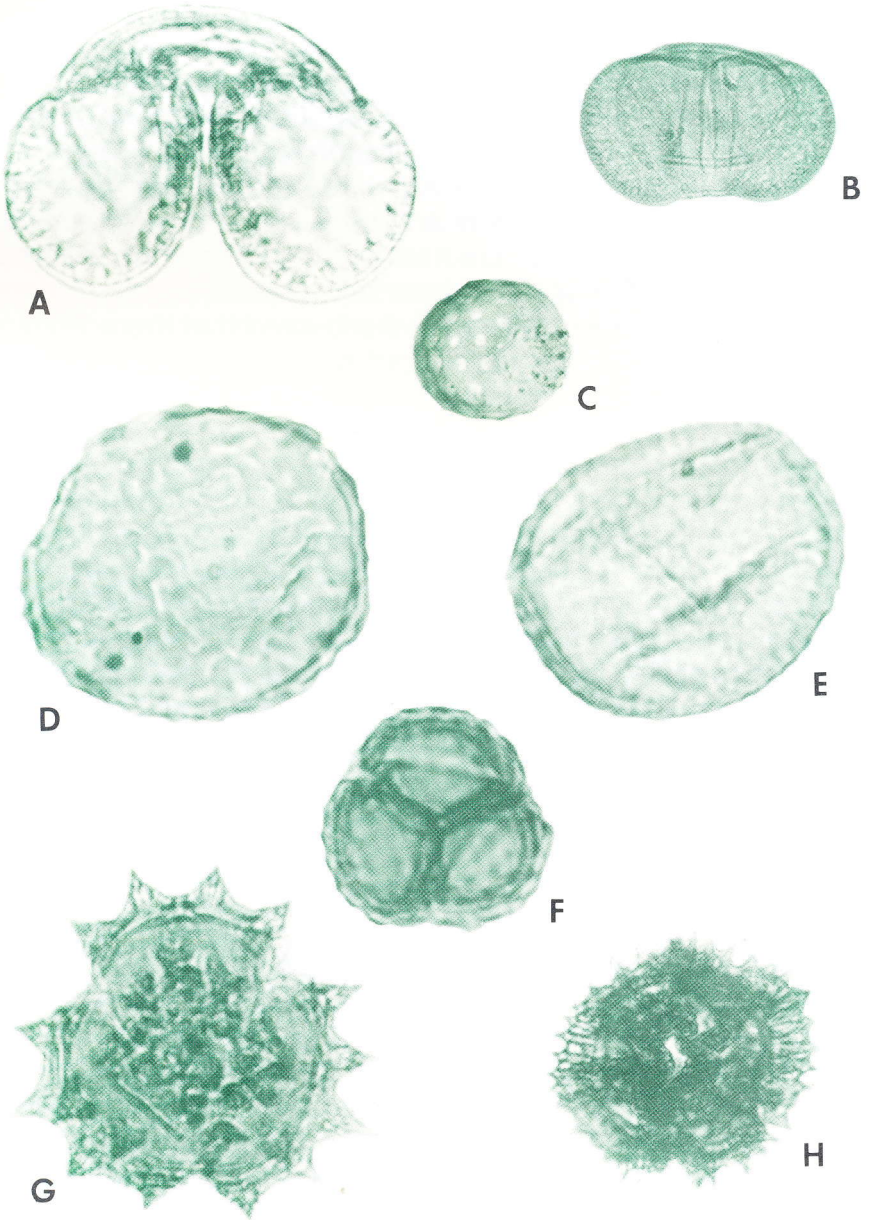
When a piece of flint is struck from above at the correct angle, a shock wave travels through the stone and causes a flake to detach from the bottom. Archeologists have discovered that there were two basic techniques used to make flaked stone tools. One technique flakes off pieces of the original stone—called a core—until it reaches the desired shape. This is what archeologists mean when they refer to "core tools." These are usually large, heavy tools such as choppers and hand-axes.

In the second technique, the flint knapper makes finished tools from the flakes chipped off the core. These flakes may be used as they are, or they may be retouched or reshaped. Retouching requires a great deal of skill. The flakes can be knapped with a hammerstone or with a bone or antler striker for finer flaking. Even more delicate finishing work can be done along the edges by pressure flaking. In pressure flaking, the flake is pressed off with pressure from the bone or antler flaker rather than struck off.

FOSSIL POLLEN:

A palynologist (a person who studies pollen) studied the fossil pollen recovered from the Domebo site in order to learn more about the environment at the time of the kill. Trees, grasses, and other plants produce millions of pollen grains each year, and a percentage of these grains is buried in the annual accumulation of sediment. Samples of sediment were collected when the Domebo site was excavated. The pollen of most plants is very resistant to decay if buried under the right conditions. Plants whose pollen is carried by the wind produce many times more pollen than those using insect or animal carriers, however, so more wind-borne pollen is deposited than other types. The type of soil is also important since pollen is preserved best where there is either much or no water and in a clayey rather than a sandy soil. Air reaching the pollen causes it to decay more rapidly. Some kinds of pollen grains preserve better than others because they have thicker, more resistant walls.

There is almost as much variation among pollen grains as there is among their parent plants. Thus, it is possible to tell what kinds of plants produced the pollen and to estimate whether many or few of them were growing in the area. Knowledge of the kinds of plants growing near the site at the time being studied can provide information



Pollen grains similar to these were found at the Domebo site. Pollen types are: A) pine, B) spruce, C) amaranth (pigweed family), D) elm, E) oak, F) composite (ragweed type), G) composite, H) composite (dandelion type). Scale variable.
Photos courtesy of R. L. Wilson and L. E. Sanders.

about the climate, since different kinds of plants grow in different climates.

By looking at the pollen samples recovered from the Domebo site, the palynologist learned that the climate was about 10° cooler in the summer and 10° warmer in the winter at the time of the kill. Across the state, there was less variation in rainfall and temperature than there is now. There were more trees and plenty of lush grassland.

LATE BIG GAME HUNTERS:

By around 10,000 years ago, the mammoths were extinct. No one knows why, although it has been suggested that changes in climate and over-hunting may have been factors leading to their extinction. The hunters then turned to the giant forms of bison as their main source of meat. The Paleo-Indian bison hunters lived from 10,000 to 5,000 years ago.

These people hunted the ancestor of the modern bison or buffalo. These bison were anywhere from 25% to 30% larger than modern bison and correspondingly heavier. A buffalo bull weighs about 1800 pounds and a cow about 700 to 1200 pounds. An extinct giant bison bull, in comparison, probably weighed some 2250 pounds and a cow around 1000 pounds.

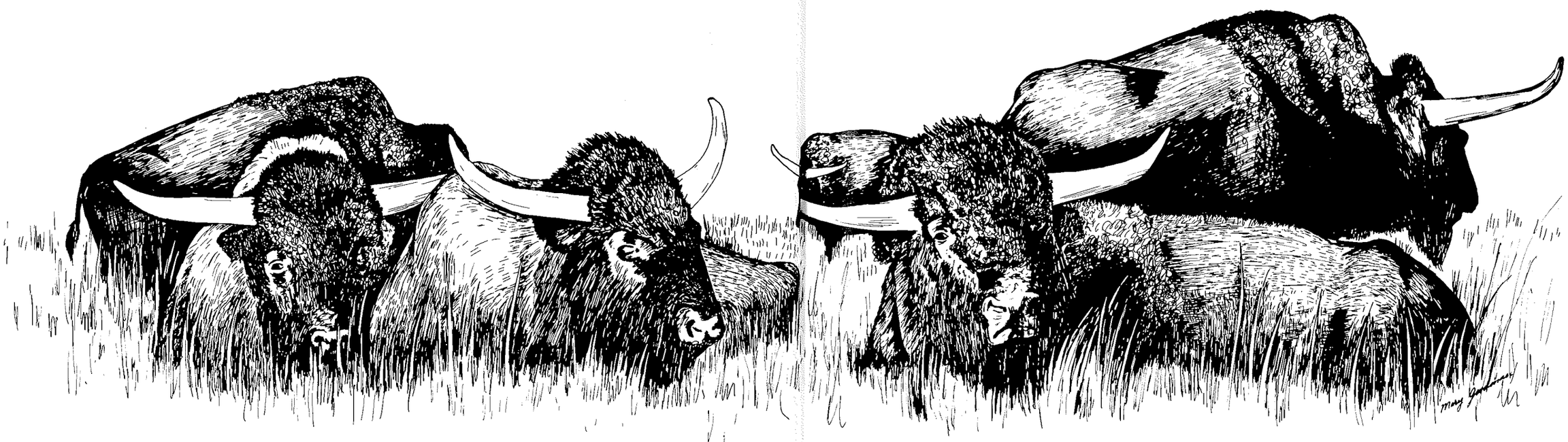
Lacking horses, the Paleo-Indians hunted bison on foot, a dangerous and tricky undertaking. They frequently used either the surround or the mass drive or a combination of the two. In a surround, the animals are encircled by the hunters who close in slowly, driving the game towards the center of the circle. The animals are unable to break through the human fence for fear of the people. Bunched together in the trap, they are easily killed by the hunters. In a drive, the animals are stampeded over a cliff or into a natural trap or a corral.

Individual or small group hunts also went on throughout the prehistoric past at the same time as the communal hunts. The mass hunt depended upon the availability of a herd of bison, the presence of a natural trap or a human-made corral, and a band of hunters large enough to force a controlled stampede.

As soon as the bison were killed, the hunters butchered them. Spoilage begins immediately after death, so in warm weather speed was important. The hunters often used heavy choppers and even the bones and hooves of the bison themselves. Bone from a freshly killed animal is very tough—much stronger than bone that has dried—and makes a good butchering tool.

The most extensive research on the late big game hunters has been done in Wyoming and Colorado; however, similar conditions existed in western Oklahoma at this time. A layer of bison bones was found eroding out of a hillside at the Certain site in Beckham County, and archeologists have recorded a bison kill in Caddo County. A camp from this period has been found near Altus in Jackson County.

Prehistoric bison.



The late big game hunters used spears to hunt with, as had the Clovis people before them. The spearpoints from this period display a much greater variety of sizes and shapes than previously. The flint knappers made many other types of tools as well. Archeologists have found knives, hide scrapers, drills, awls, and other artifacts made of stone and bone at sites in Oklahoma. Gradually, the hunters roamed over smaller and smaller territories, ushering in a new era: the time of the foragers.

THE FORAGERS

5000 B.C. to A.D. 1

CHAPTER 2

THE FORAGERS

5000 B.C. to A.D. 1

The young girl and her mother rose early and left their hut of grass and branches. They soon joined other women and children of the band, and the noisy group strolled slowly to the stand of blackberry bushes. After half-an-hour's walk, they came to the spot where the fat, dark berries hung thickly on the briars. The girl reached out eagerly, filling her mouth first, then dropping berries into the skin bag her mother had given her to fill.

"A bear! A bear!" cried one of the children. Mothers snatched up their babies, and the older children tugged along their little brothers and sisters. They hurried back to the camp. When they reached the temporary huts, they found only two of the band's twelve hunters seated by the fireside.

"There's a bear among the blackberries," one of the women said, "a big, brown bear."

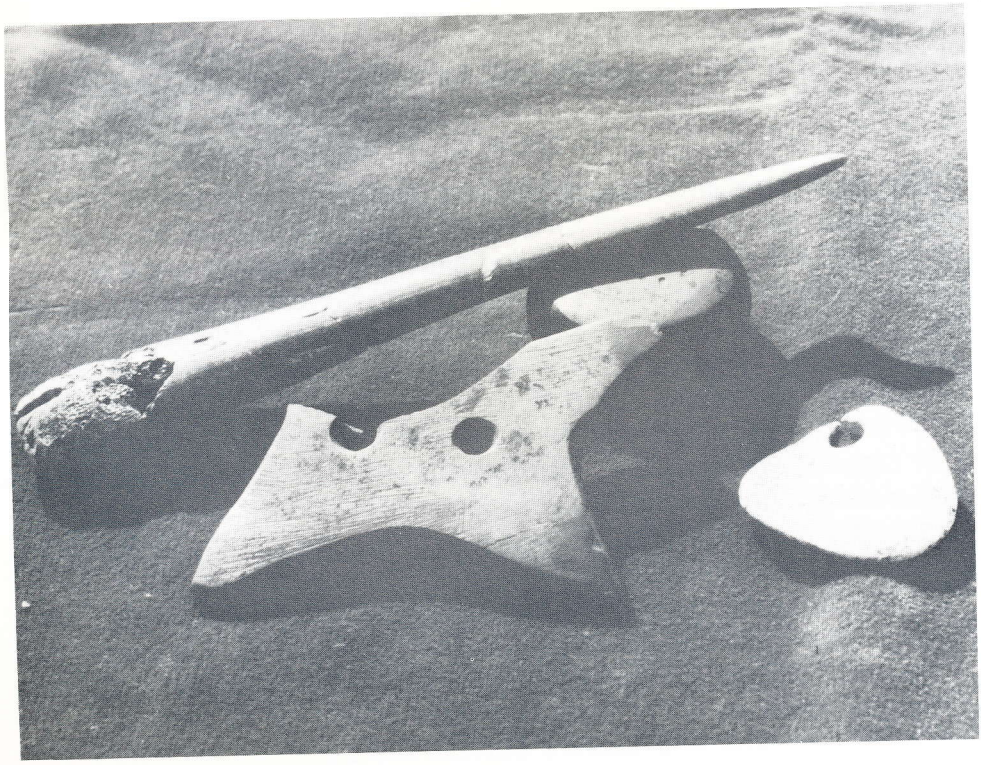
The men quickly put down the stone tools they'd been sharpening. They gathered up their darts and their atlatls—dart throwers. The darts were shorter than spears but had the same heavy heads. With the aid of the atlatl, the hunters threw the darts with great force and accuracy. The women and children talked excitedly. The hunters would surely make their kill, and the whole band would feast on bear meat tonight.

The foragers were hunters, like the people before them, but they hunted modern species of game. In eastern Oklahoma, deer were an important source of meat while buffalo were hunted in the western part of the state. The foragers, however, ranged over a more restricted territory and made more intensive use of local natural resources than had the people before them. During this time, Oklahoma vegetation also attained its historic character. In season, the foragers gathered nuts, berries, seeds and roots. They crushed and mashed the hard-shelled plant foods in grinding basins made of sandstone. These basins were small, with a shallow depression where the grinding stone was rubbed over the food in a circular motion. The foragers used wooden digging sticks with fire-hardened tips, and they made baskets, nets, and string from plant fibers and long, stringy roots.

GROUND STONE TOOLS:

The grinding tools and some other tools such as axes and atlatl weights were made of pecked and ground stone. This was a new tool

Ground stone, shell, and bone artifacts from the forager period. (Not to scale.) Oklahoma Archeological Survey Photo Files.



making technique. Pecking differs from flaking in that the chips of stone are much smaller and are knocked off the side of the surface that is struck rather than the side opposite it as is the case in flint knapping. After the artifact was pecked into shape, it was finished by grinding. This was done using an abrasive—such as sandstone or sand—and water. The water was very important to this process since it kept the abrasive particles suspended. The artifact was ground until it was smooth. It may also have received a final polishing with clay or a piece of hide.

THE ATLATL:

Foragers hunted deer, buffalo, rabbits, squirrels, birds, and other game. The first evidence of the atlatl or dart thrower appears at this time. A dart is a short spear; spearshafts were generally about 48 inches long while dartshafts were about 36 inches. The heads of both weapons were alike. Atlatls were made of wood with a bone or antler hook at the end to keep the dart from sliding out. They were usually about 18 inches long with a groove down the center for the dart to rest in. They were sometimes weighted with ground stone weights to give more force to the thrust. An atlatl functions like an extension of the

The butt of the spear fits against the hook at the end of the atlatl. Drawing courtesy of the Stovall Museum.

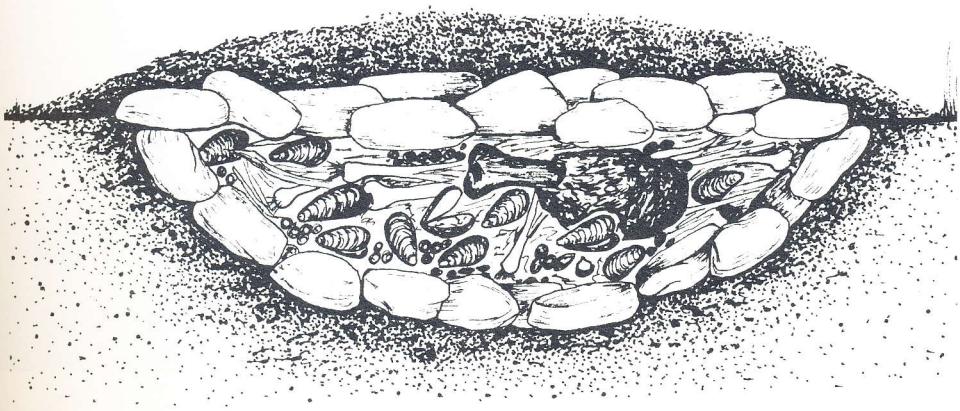
arm. It allowed the hunter to throw his dart further and more accurately than before.

The hunters in eastern Oklahoma usually took their deer in single kills, but in western Oklahoma herds of buffalo were killed by bands of hunters. The buffalo were herded into small, circular enclosures of rock or brush or into narrow, closed canyons where the hunters speared the animals as they milled in a compact group. There is some evidence of hunting magic associated with these kills.

Buffalo are members of the cow family. The two modern varieties of American bison are the wood buffalo and the plains buffalo. They look much alike and interbreed readily. The foragers hunted both varieties. Since the hunters had no horses, buffalo hunting at that time was far more difficult than in historic times. Buffalo may run at 30 to 35 miles per hour for up to 10 miles. A fast human runner, on the other hand, travels only about 12 to 15 miles an hour, so the hunters had to be able to outwit their quarry.

THE GORE PIT SITE:

The foragers followed a seasonal round, their movements and the number of people in the group determined by the available food

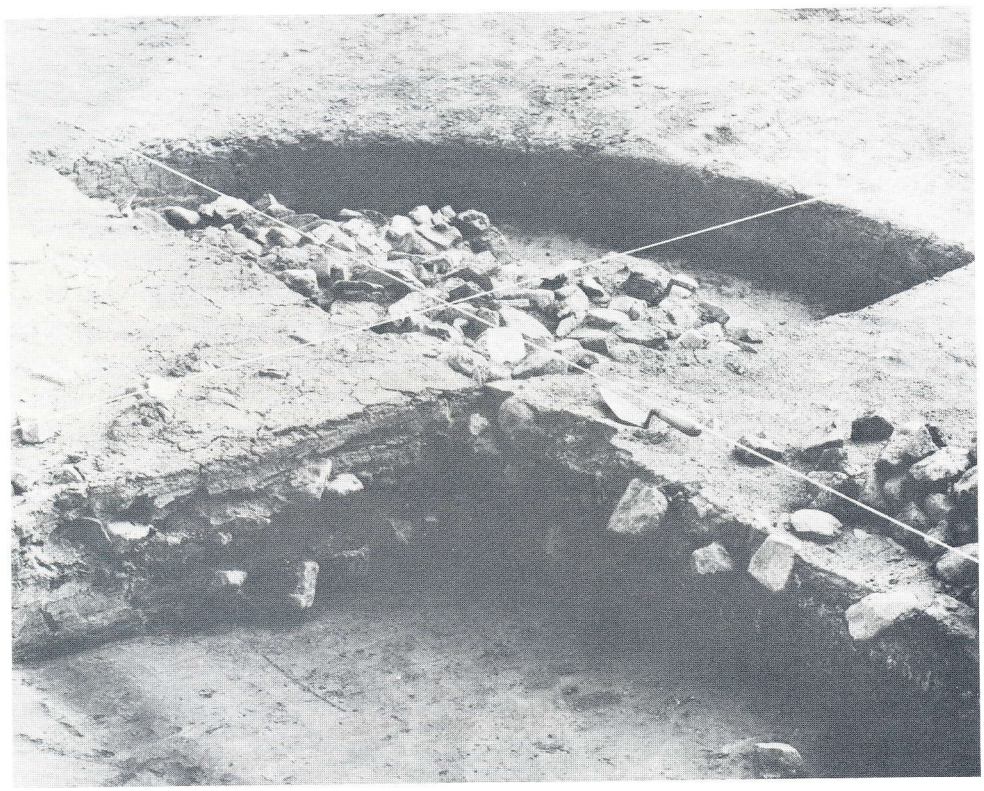


PROFILE OF A ROCK OVEN

The foragers used rock ovens of various kinds to bake their food.

supply. They used the same camp sites year after year as each area's special harvest became available. To cook their food, they often built rock-lined fireplaces or roasting pits. Archeologists have found evidence of this cooking technique at the Gore Pit site in Comanche County. There, archeologists aided by Oklahoma Anthropological Society members found several burned rock and charcoal concentrations.

The cooking pits were surrounded by a scatter of burned rocks, mussel shells, animal bones, and ash. Some 6000 years ago people at this site camped near a small spring where they dug shallow pits 6 to 8 feet across. They piled wood in the pits and burned it down to coals, then placed rocks on top of the coals. They put the food to be cooked on top of the rocks and piled more rocks and earth over it. Then they left this oven until everything was fully baked. When it was done, they threw aside the top layer and removed the food, leaving behind evidence of their activity in the form of burned rock and charcoal lenses in the soil.

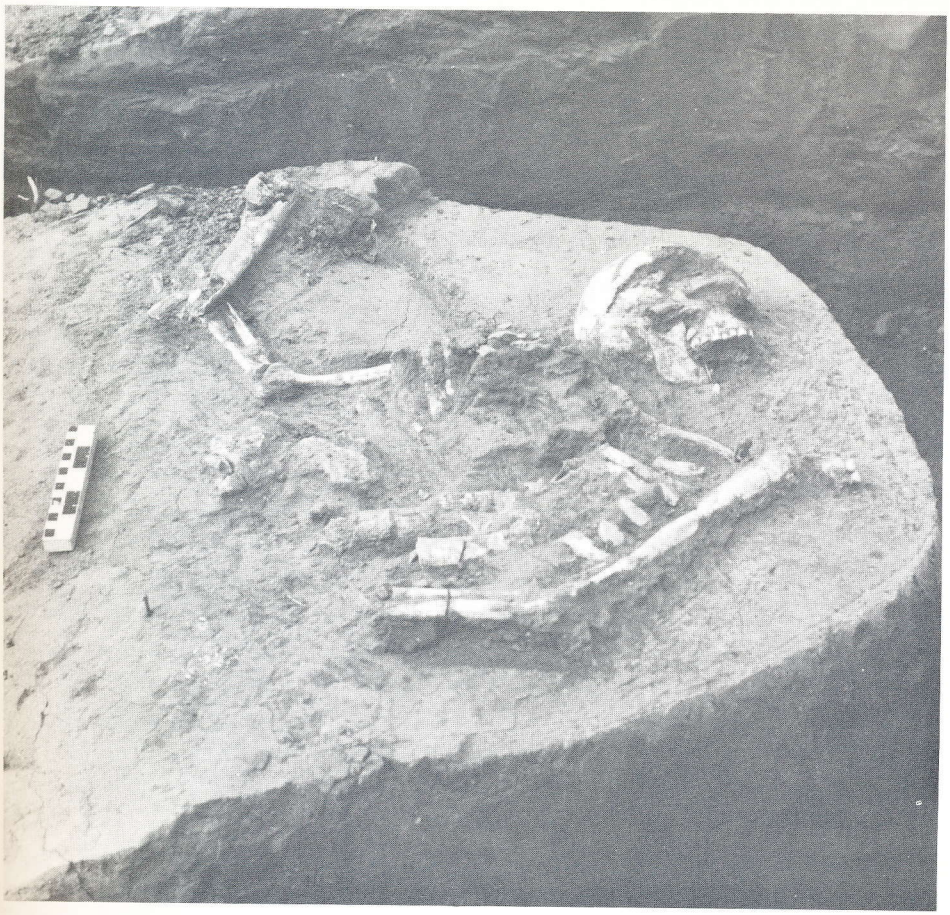


Excavations at the Gore Pit site, Caddo County.
Photo courtesy of the Museum of the Great Plains.

BLUFF SHELTERS:

Some foraging groups in northeastern Oklahoma used caves or bluff shelters for their camping places. Bluff shelters exist where there is enough overhang to protect an area 5 to 15 feet deep at the base of the cliff. These shelters generally are protected from wind and well drained. The same factors that made them choice living quarters also protected the debris left by the foragers so that they often provide excellent records of life during this period. Over the years, the trash discarded at these shelters accumulated as thick layers of soil which contains broken bone, bits of stone, ash, and broken tools. If these sites are undisturbed by vandals or erosion, careful excavation can provide a year by year record of the activities that took place in them.

Some human burials of foragers have been found in Oklahoma as well as some dog burials. The human skeletons give us information about how these people looked, lived, and died. The earliest burial for



Foragers often buried their dead in a "curled up" position.
Photo courtesy of the Museum of the Great Plains.

this period in Oklahoma was found in Comanche County and was radiocarbon dated at 7000 years. The skeleton was found lying on its side in a flexed position, the arms together in front, legs bent, and the head bent towards the knees. This curled up position is common in many prehistoric burials, although some people buried their dead in a fully extended, flat on their back, pose. There were no grave goods with the burial. Other skeletons from eastern Oklahoma are from 3400 to 2000 years old. These people were of average height and were generally in good health. Some individuals suffered from decayed teeth and arthritis. Some skeletons had bones that had been broken but had healed while the person was still alive. On the average, men were about 35 years old when they died. The women usually died at a little younger age.

These people lived during an important period of transition. In Oklahoma, the population continued to grow slowly, and the people began to build semi-permanent houses and to live in the same place for most of the year. Towards the end of this period, they developed pottery and the beginnings of horticulture. This led to the rise of the early farming communities in Oklahoma.

EARLY FARMERS

A.D. 1 to A.D. 1000

CHAPTER 3

EARLY FARMERS

A.D. 1 to A.D. 1000

The young man pounded the pole into the ground while his brother held it upright. He used a round stone as a hammer, and the repeated "chuck, chuck" was a rhythmic background to the other noises the family made as they helped to build the new house. He stopped to wipe the sweat from his face with a forearm tanned dark brown from a life lived mostly out of doors. Across the way, his wife-to-be smiled at him from where she was helping to dig a storage pit. He smiled back, then returned to work. Soon, the two of them would share this house together.

About 2000 years ago in northcentral Oklahoma, farming began to replace the hunter-gatherer way of life. The early farmers lived in semi-permanent houses and stayed in the same place long enough to raise a crop of corn, beans, squash, and sunflowers. They lived in small hamlets of two or three houses, each occupied by members of the same extended family in which all the people were related to one another; they were parents, grandparents, brothers, sisters, aunts, uncles and cousins of the same family. The early farmers also ate game from nearby hunting areas and continued to gather wild plants.

In the New World, farming began about 4000 to 7000 years ago. The important American food plants—including corn, beans, squash, pumpkin, and chile—were domesticated far to the south of Oklahoma in Mexico, Central America, and South America. Sunflowers, marsh elder, and chenopods apparently were domesticated in North America. The early farmers' fields were more like family garden plots than like the large scale efforts of modern farmers. They did all their cultivating by hand, using wooden digging sticks and hoes with flint or bone blades. The crops were planted in clusters so that the vines could grow up the cornstalks, making tending and harvesting easier for the farmers.

Most of the corn was allowed to become fully mature and dry on the cob before it was harvested. The dried corn would keep indefinitely and so provide food throughout the winter. The hard kernels of dried corn were made into meal by being ground in sandstone basins with rough-surfaced grinding stones. Many particles of sandstone came loose from the milling basin and were mixed with the corn meal. This resulted in extreme wear on the teeth, often causing abscesses.

Archeologists cannot yet tell us who Oklahoma's first prehistoric farmers were, but there are four regions in the state where a farming way of life developed. These are: 1) along the Grand River in north-

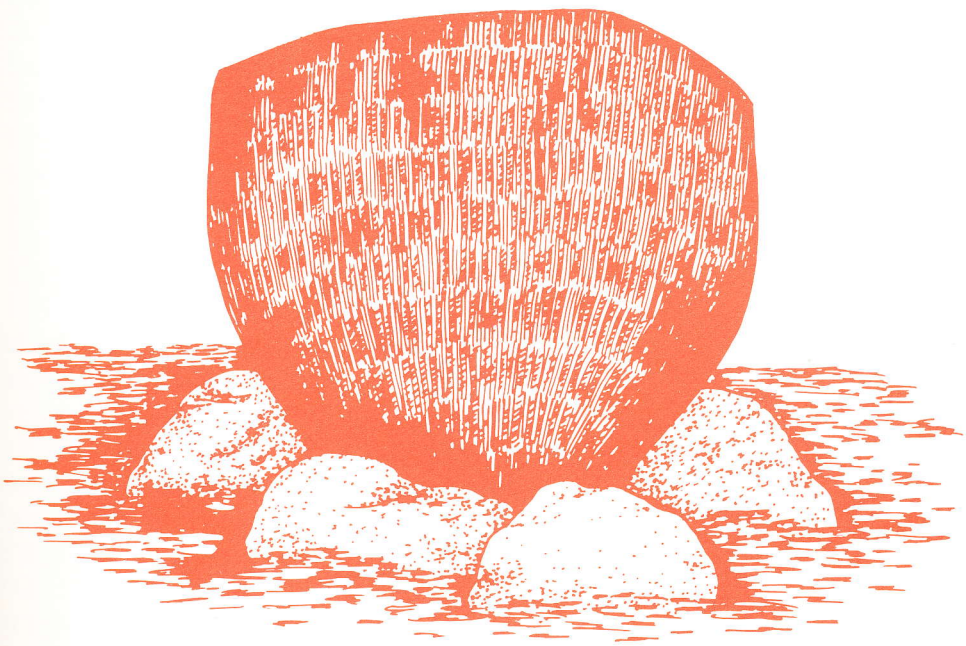
Early farmers ground corn and other foods in sandstone grinding basins.
Photo from Oklahoma Archeological Survey Files.

eastern Oklahoma, 2) in the Ouachita Mountains in the southeast, 3) in the Cross Timbers of central Oklahoma, and 4) along the Cimmarron River in the western panhandle. We know most about the early farmers who lived in the northeast and northcentral parts of the state. These people made pottery and stone tools that looked like those made by the early farming people of western Missouri. Either some of the latter moved to Oklahoma to live, or some of the foragers of northeastern Oklahoma learned about farming from their neighbors in Missouri. The people in the Mississippi Valley also influenced Oklahoma's early farmers.

POTTERY:

Pottery, or the idea of making it, probably came from both the Mississippi Valley and Missouri regions. The foragers used skin bags and baskets because they were lightweight and durable—important considerations for nomadic people who had to be able to carry all their household goods with them on their seasonal rounds. But as people settled in permanent dwellings, pottery became practical.

Clay is easily worked into a variety of shapes. Yet once fired, it becomes pottery, a new material with new properties. Baking the clay at high temperatures causes chemical changes in it. The resulting pot is hard, capable of holding water, and very resistant to heat. Temper—which modern potters call grog—is added to the clay before shaping so that the vessel won't break during firing. The early potters used ground bone, sand, ground shell, and other materials as temper.



Early farmers' pots must have been propped up to stay upright.

Making pottery was traditionally women's work among the historic Native American societies, so archeologists think that the first potters were probably women. We know about the type of pottery made during this period from the pot sherds that have been found. Pottery is brittle, but the broken pieces—the pot sherds—may last for thousands of years. Archeologists almost never find a whole pot and seldom even enough sherds from the same pot to reconstruct it. The pots may have been broken and discarded—as we throw away broken dishes today. Then they may have been further broken by natural forces such as streams or pressure from the ground. Some societies ritually "killed" vessels used in burials and ceremonies by knocking a hole in them. In modern times, construction machinery destroys many artifacts, and treasure hunters break them and scatter the pieces with their careless, unscientific digging. Despite these problems, archeologists have found enough evidence to tell something about how the early farmers made their vessels.

The potters used a coiling technique. They rolled the clay out in ropes and coiled them one layer on top of the other to form the body of the pot, pinching the coils together as they worked. Some potters set the base of the pot in a basket or gourd while they worked. When the clay dried enough to be firm but not hard, the potter often finished it by cord-marking. Using a smooth rock in one hand and a cord-wrapped

The first pots were simple and utilitarian.
Photo from Oklahoma Acheological Survey Files.

paddle in the other, she beat the outside of the pot with the paddle. The rock held on the inside supported the wall of the pot as she pounded, keeping it from collapsing. Sometimes, the pots also were decorated with simple designs around the rim. Archeologists are not sure why these women cord-marked their pots. The pounding thinned the walls of the pot, making it lighter weight for its size, and it also sealed the coils together more firmly. These may have been considerations. On the other hand, the women may simply have liked the decorative effect of the cord-marking. Archeologists can sometimes answer the "what" and "how" of the past, but the "why" may never be answered.

These early pots were shaped much like the baskets and skin bags that had been used before. They were usually oval or egg-shaped, with the bottom either pointed or rounded. This meant that the pots needed to be propped up to stay upright. Probably, they were propped up with rocks or lumps of clay in the fire, or the bottom was set in a hole, then hot coals piled around the sides.

TOOLS:

While women made the pottery, it appears that the men made the tools of stone and wood. Axes of chipped and ground stone were used to cut down trees to make temporary shelters and wooden tools. One type of axe is called a grooved axe because of the groove around the center that made it easier to fasten the axe head to the handle. The early farmers also made double-bitted axes—they had a cutting edge at both ends—and adzes. An adze differs from an axe in that it is fastened to the handle so that the cutting blade faces down, making it useful for jobs like hollowing out logs. The early farmers also made celts of polished and ground stone. The celts were like a small axe—usually about 4 to 6 inches long and 1 or 2 inches wide—and were sometimes sharpened at both ends. They were smooth in the middle with no groove for attaching a handle. Some archeologists believe that the celts may have had a ceremonial function.

By A.D. 500, there were small farming villages along the Arkansas, Verdigris, and Grand Rivers and their tributaries. By A.D. 700, there were villages as far south as the Arbuckle Mountains. The early farmers selected places of mixed forest and prairie to live. Their tiny villages were located in fertile valleys where the soil was easy to till using their tools of wood, bone, and stone. The open prairies were unsuitable for early farming techniques since the grasses growing on them set down long, tough roots through the sod, making the soil too difficult to till with the tools available then. It wasn't until modern times when metal plow blades became widely available that farming on the prairies became practical. The early farmers used the prairies primarily as a hunting ground for deer, bison, and other game.

HOUSES:

The early farmers' houses, while more elaborate than any shelters built previously, were still lightly constructed, easily assembled buildings. The farmers drove poles into the ground to form a framework, and this was covered with grass thatch or cane matting to form the walls. The people made circular hearths out of limestone or other rock and dug shallow, basin-shaped pits that they used for storage and, finally, for trash. A few artifacts, burned rocks from the hearths, and some shallow trash pits may be all that remain to mark the location of any early farmers' hamlet. By careful study of such clues, archeologists can reconstruct what life was like for the people living in Oklahoma 2000 years ago.

PLAINS VILLAGE FARMERS

A.D. 800 to A.D. 1400

CHAPTER 4

PLAINS VILLAGE FARMERS

A.D. 800 to A.D. 1400

The heat made the sweat run down her back and gather at the waist of her skin skirt. She ignored it, using her bone-tipped digging stick skillfully to dig out the weeds that threatened to strangle the young corn. Already, it grew as high as her knees, and the tender bean plants looped over it like a necklace. The gourds grew well too. They would have a good harvest this year. Some years, there was too little rain. Then the crops died in the fields and the people faced hardship.

Nearby, in the shade cast by the wall of the house, her mother and her aunts were making clay pots. They had dug the clay from the river bank and brought it home to make big, round-bottomed cooking pots. The rest of the extended family had gone to hunt buffalo. When they returned, there would be fresh meat to eat and dry, hides to tan, and bone to be made into tools. In the meantime, there was the garden.

Due to a more stable food supply and improved varieties of corn, the early farmers' population expanded. By A.D. 800, pioneering farmers had spread into the Plains of north central and western Oklahoma. They continued to build their villages along river valleys where the soil was easily cultivated. The remains of these villages have been found along the valleys of the Washita River, the North Fork of the Red River, and along the Beaver River in the Panhandle.

The Plains Village farmers of central and western Oklahoma had to contend with a dryer and more variable climate than did the people living to the east. Although more moist conditions prevailed between A.D. 1000 to A.D. 1300, drought and violent storms were common. The area was mostly tall-grass prairie with a few trees growing near the streams. The people grew crops in garden-like plots, hunted local game, and occasionally fished. Archeologists have found the remains of corn, beans, and gourds, and the farmers probably also grew squash, pumpkins, sunflowers, and tobacco. The women apparently tended the crops; hoes and digging sticks have been found in some women's graves, but none have yet been found in men's graves. The men probably hunted since spear and arrowpoints have been found in their graves. A similar, sex-based division of labor was common among historic Native Americans.

Deer and buffalo supplied most of the meat, hides, and bones for tools and ornaments. The hunters also killed elk, antelope, wolf, badger, coyote, raccoon, beaver, lynx, opossum, rabbit, squirrel, and

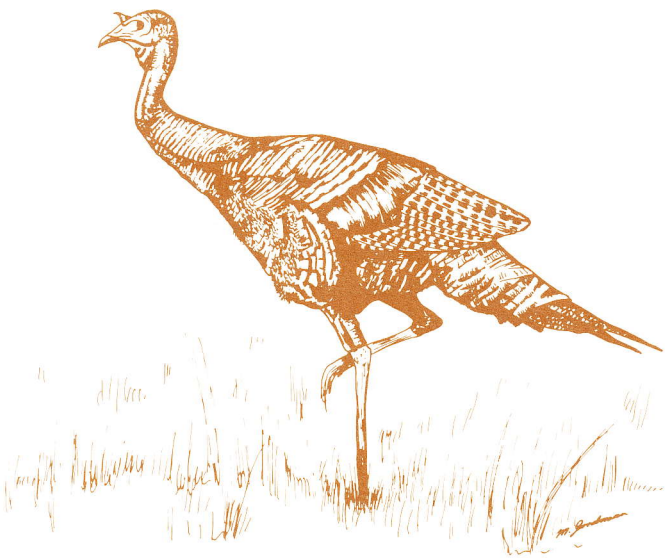
White-tailed deer

other game. They hunted wild turkey, ducks, and crow, and they took fish, mussels, and turtles from the rivers. The hunters used bows and arrows and spears, and they may have used traps, snares, deadfalls, or pits. There is no evidence of the buffalo jumps and surrounds common during the time of the big game hunters, so hunting was probably done by only one or two men at a time.

The women planted their crops near the villages, tending them with tools of bone and wood. Digging sticks were made from buffalo leg bones, hoe blades from buffalo shoulder blades or skulls, and sickles were made from deer jaws. The Plains Village farmers also gathered many wild plants for food, dyes, and medicine. Hickory nuts and walnuts, hackberry seeds, wild cherries, plums, persimmons, and many other plants grew nearby. Corn and some seeds were ground in milling basins, and mortars were used to crush other foods.

Food was stored in underground pits called cache pits by archeologists. These pits were larger and deeper than those dug by the early farmers. They were from 3 to 5 feet deep and 3 to 5 feet wide. The cache pits probably functioned like root cellars, keeping the dried corn or other food cool and sealing it away from scavengers. Eventually, insects and other vermin penetrated the pits, making them no longer useful for storage. When this happened, the pits were used for dumping trash and debris.

The women cooked over fireplaces, either indoors or outside. The interior fireplaces were better made and show more signs of use. They provided heat and light as well as being a place for cooking. Much of the food was cooked in pottery vessels. The pots must have been placed directly over or in the fire since many of the pot sherds from village sites of this period often have a thin, carbonized layer on the



Wild turkey

Washita Focus figurine fragment showing lines which probably represent a necklace and sash. (Actual size.)
Photo from Stovall Museum Files.

outside of the sherd. These pots were made by the coil method. The outsides were usually smooth, although some were cord-marked. Occasionally, the pots were decorated with small nodes or indentations, but the majority were plain. The women made bowls and cooking pots. The pots usually held 1 or 2 quarts, but some of the larger ones held as much as 2 or 3 gallons. Crude clay figurines may have been made as dolls for children. The figurines usually have cylindrical bodies with a head, nose, and breasts but no arms or legs. Some of the marks on the figurines may represent jewelry or clothing or tatooing.

The Plains Village farmers still lived in very small groups. A hamlet might have from 2 to 12 houses and, usually, less than 100 inhabitants. The hamlets were scattered along the rivers and their tributaries—some miles apart and others within sight of one another. The houses were square or rectangular in floor plan with walls from 20 to 28 feet long. A framework of wooden posts 5 to 8 inches in diameter formed the support for the walls. The posts were set upright in holes averaging about 10 inches deep and 25 inches apart. The space between the posts was filled with sticks or cane, and then the walls were plastered with daub—a mixture of clay and grass. The finished walls were probably 8 to 10 inches thick. Center posts supported a steeply pitched roof of grass thatch whose eaves probably hung well out over the walls to keep the daub from being washed away when it rained. Logs of red cedar and other trees were used for the posts and must have presented considerable problems in cutting and transportation. The logs may have been floated down the river, or they may have been dragged to the village in winter over the slick, ice-covered ground.

The Plains Village farmers made tools from a variety of materials. Bone was used for hoes, sickles, digging sticks, flakers, and arrowpoints. They used pecked and ground stone for milling basins, mor-

tars, and hammerstones, celts, grooved abraders for smoothing arrowshafts or bone tools, whetstones, knives, and several kinds of scrapers. Wood was probably used too, but no wooden tools have survived.

The western farmers buried their dead in cemeteries near their villages. Specialists have studied the bones found in the burials and were able to learn approximately how old these people were at the time of death and to tell something about the state of their health. They found that the Plains Village farmers lived a harsh, physically demanding life. Less than half of the people lived long enough to reach puberty. Of these, less than a quarter lived to age 35. Almost no one lived past 55 years of age. More than one-third of the newborn died before they were a year old. Yet the Plains Village farmers' health was generally good. They suffered from arthritis and tooth decay; a few of the deaths were due to violence in feuds or raids; but the majority died young because the harsh struggle for existence exhausted them at an early age. These people were a little smaller than modern Americans. The men averaged about 5 feet 6 inches and the women about 5 feet ½ inch. The burials were simple. The body was usually placed in a curled up position with the head facing east. A socially prominent person's burial might have a few grave goods such as a pot or tools that the person had used during life, but these offerings were not elaborate.

THE ROY SMITH SITE:

The way of life of the Plains Village farmers of the Oklahoma Panhandle was similar to that of the farmers in south-central Oklahoma. Their houses, however, are unique because of their stone foundations. The Roy Smith site in Beaver County was inhabited by Plains Village farmers from A.D. 1250 to A.D. 1450. The site is located along the Beaver River in the semi-arid High Plains region. The farmers grew corn and other crops and hunted buffalo. The site was excavated in 1965 by a University of Oklahoma field school in archeology. The excavators found that the sandstone slabs forming the walls of the house rested directly on bedrock. The slabs had been pecked into rough rectangles and were held upright by clay packed around the bases. The slabs were no more than 3 feet high. In some wall sections, another layer may have been added for height.

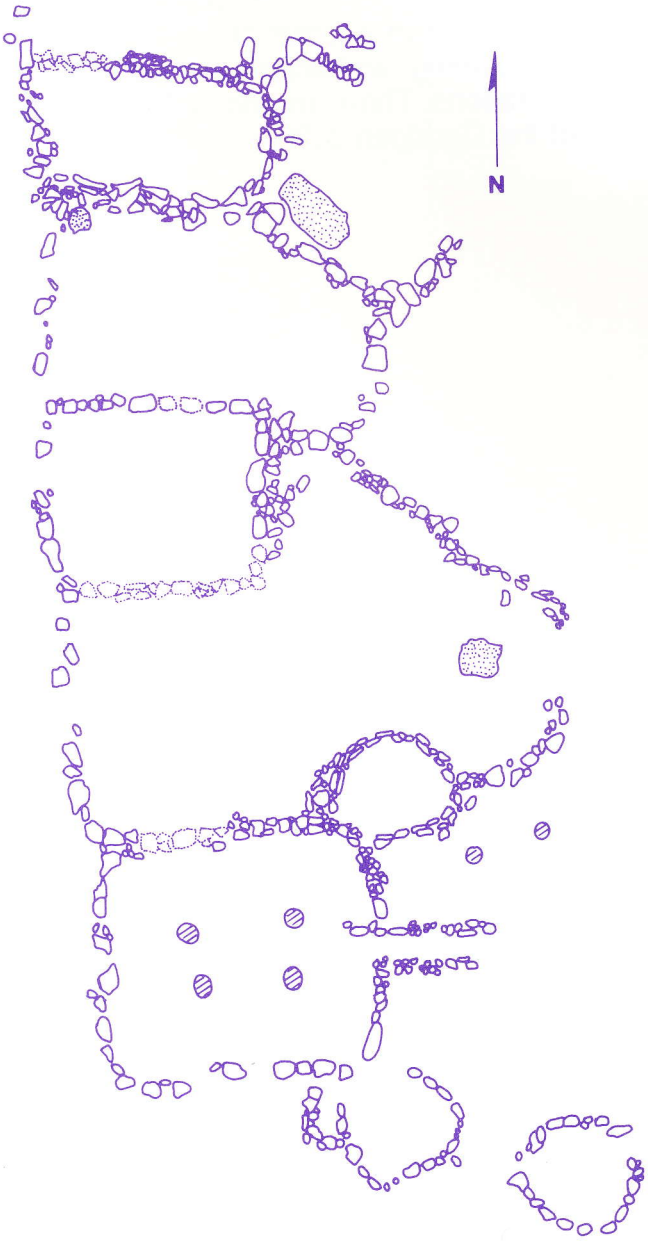
The west wall of the house ran unbroken for about 70 feet. Along this wall, five areas were sectioned off into rooms averaging 15½ feet by 11½ feet. There may have been a family living in each room, and all of the inhabitants were probably part of the same extended family. The archeologists also found 4 post holes in the main room at the southern end of the building. They had been pecked into the hard bedrock floor to hold upright poles. The poles supported crossbeams that probably were covered with tree limbs and thatched with long grass to form the

The Roy Smith house is unusual because its walls were built of stone. Shown are the main room, entrance way, and a possible storage room.
Photo from Oklahoma Archeological Survey Files.

room. This main room was rectangular, running 17½ feet from east to west and 15 feet north to south. A long, narrow entryway in the east wall led into the room from outside. The entryway was about 7 feet long and a little more than 1½ feet wide.

Two areas contained large quantities of bone and flint. These rooms may have been used to prepare food, make flaked stone tools, and work hides. Three small rooms on the southeast side of the house probably were used to store crops. Tools associated with farming have sometimes been found in similar circular rooms at other Panhandle sites. At Roy Smith, a bone hoe and knife were found in the storage rooms. The Plains Village farmers who lived at the Roy Smith site grew corn and hunted buffalo. They also hunted antelope, and ate some fish and mussels. They made cord-marked pottery and used bows and arrows as well as spears.

The Plains Village farmers were not isolated. Articles found at Roy Smith indicate that they traded with other Plains and Southwestern people. Most of the flaked stone tools found at the site were made of Alibates flint, a red, brown, or blue-white flint found in the Texas panhandle about 100 miles away. From New Mexico came obsidian. Two small beads made from Pacific Coast shells indicate that the



FLOOR PLAN OF THE PREHISTORIC HOUSE
AT THE ROY SMITH SITE

Illustration courtesy of the Oklahoma Anthropological Society.

Panhandle farmers participated in a trade network that extended all the way from the Pacific Ocean. This was not necessarily direct contact. It is possible that the exchange of ideas and goods spread slowly from group to group, but that the whole system made a network that covered a large part of western North America.

Trade patterns, farming, and artistic skills continued to grow over the next few generations. Then, around 1000 years ago, there arose the first signs of the Caddoan culture in Oklahoma.

CADDOAN MOUND BUILDERS

A.D. 1000 to A.D. 1500

CHAPTER 5

CADDOAN MOUND BUILDERS

A.D. 1000 to A.D. 1500

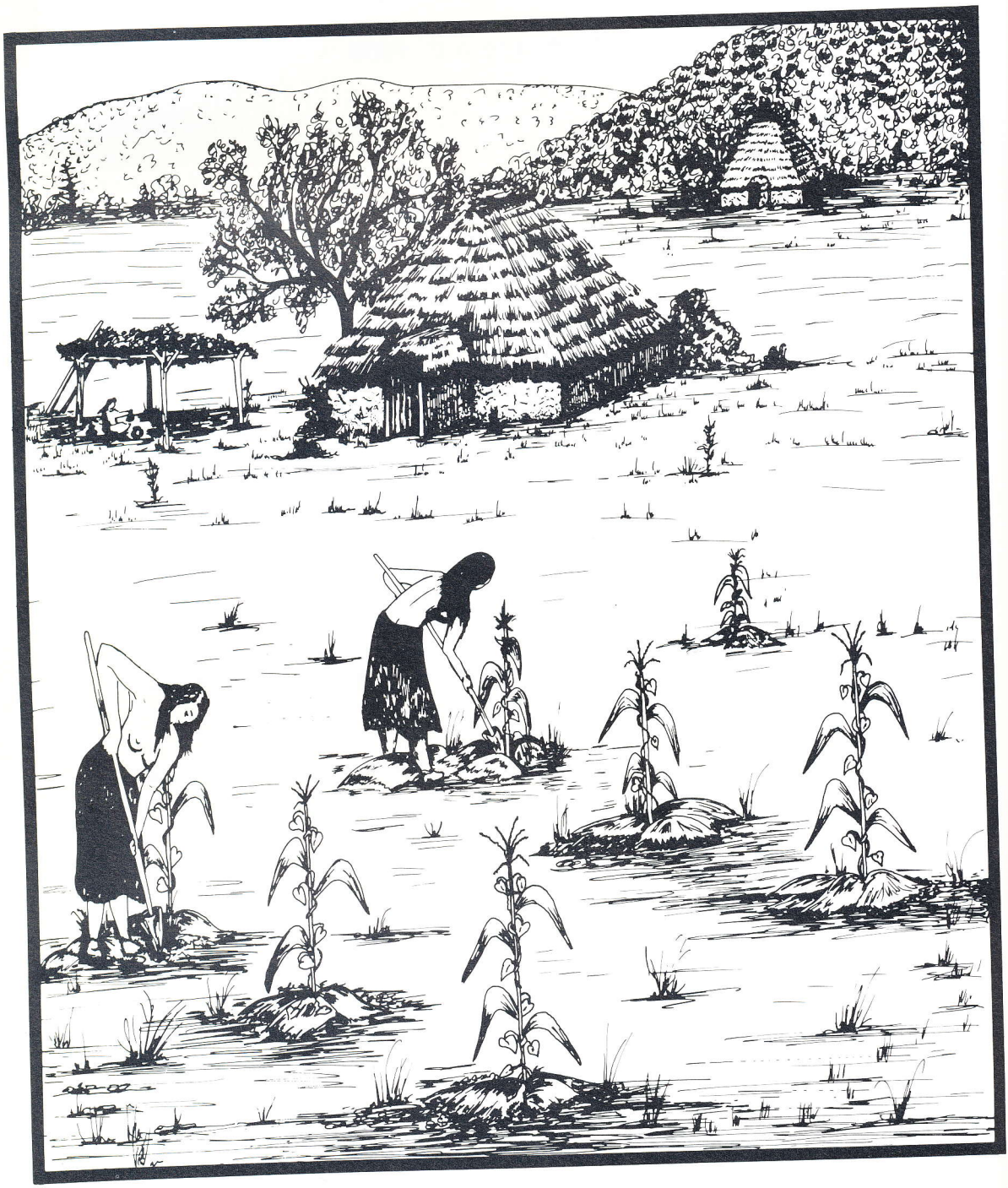
Today was the day the chief's brother's bones would be carried into the mortuary. The body had already lain in the building until the flesh had fallen away from the skeleton. Now the bones and the rich offerings were carried through the temple complex with great ceremony. The boy watched the preparations with excited eyes. He and his family had come from their tiny village some five miles to the west to witness the ceremony.

A hawk dancer passed by, wearing copper ornaments and a conch shell pendant necklace. His cape of rabbit fur yarn fluttered out behind him, showing the hawk feather design woven into it. The young man joined a group of other men dressed in the hawk regalia, and they slowly began dancing.

Later, the boy saw the cedar pole litter carried in procession to the temple. It took six warriors to carry it, it was so large and heaped so high with grave goods. The boy saw engraved conch shell cups, copper plates, and fresh water pearls. Heaps of shell beads and blankets covered the bones. At last the litter disappeared into the mortuary as the sunset glowed golden off the tree tops. The boy and his family went back to their tiny garden-farm, tired but happy at witnessing the sacred rituals correctly performed. Their leaders were strong, and the people were safe.

The period from A.D. 1000 to A.D. 1400 saw the rise of the Caddoan mound builders in eastern Oklahoma. These people—called Caddoan after their language family—were probably the ancestors of the historic Caddo and Wichita confederacies visited by Spanish explorers in the sixteenth century. The Caddoan people of eastern Oklahoma were one of the most western groups to share in the Mississippian culture common to many tribes in the Southeastern United States. All of these people, in turn, were influenced by the Central American pyramid builders. Central American ties can be seen in certain pottery styles, in the construction of large mounds—some with temples on them and others containing mortuaries for the elite dead—and in many of the art motifs. The major centers of Caddoan culture in eastern Oklahoma were at the Harlan and Norman sites in Wagoner and Cherokee Counties and at the Spiro Mounds in LeFlore County. There were many smaller regional centers—such as Reed, Eufaula, Parris, and Hughes Mounds—that were also extremely important.

Over 1000 years ago some archeologists believe that a people who had lived in Louisiana and east Texas migrated to Oklahoma. These farmers grew corn, beans, squash, sunflowers, and tobacco. They



Spiroan farmers were probably women.

gathered nettles for making cloth as well as other wild plants. The labor was probably divided between men's work and women's work as it was in historic times. The men hunted, helped in building houses, made war, led the political life, and broke ground for planting. The women tended the crops after they were planted, kept house, took care of the children, made pottery, and also helped in the house building. The crops were planted on the fertile bottomland. The early farmers used digging tools of bone, wood, and flint that worked well on the rich, silty floodplains.

The people may have been matrilineal, tracing their descent through the female line. Important ancestors in a matrilineal society are one's mother, her sister, one's grandmother, and so on. Children inherit from their mothers and their mother's brothers. In such societies, women often have a great deal of power.

The early Caddoans constructed houses and temples that were square or rectangular in floor plan with four center posts to support the roof. Some later structures had only two center posts and a few were circular. To begin the building, a row of posts was set upright in the ground. Smaller saplings and/or cane were laid vertically between the logs to form the walls. A single entrance, often with an extended doorway, was the only way in. The walls were covered with daub, and the roof was thatched with grass.

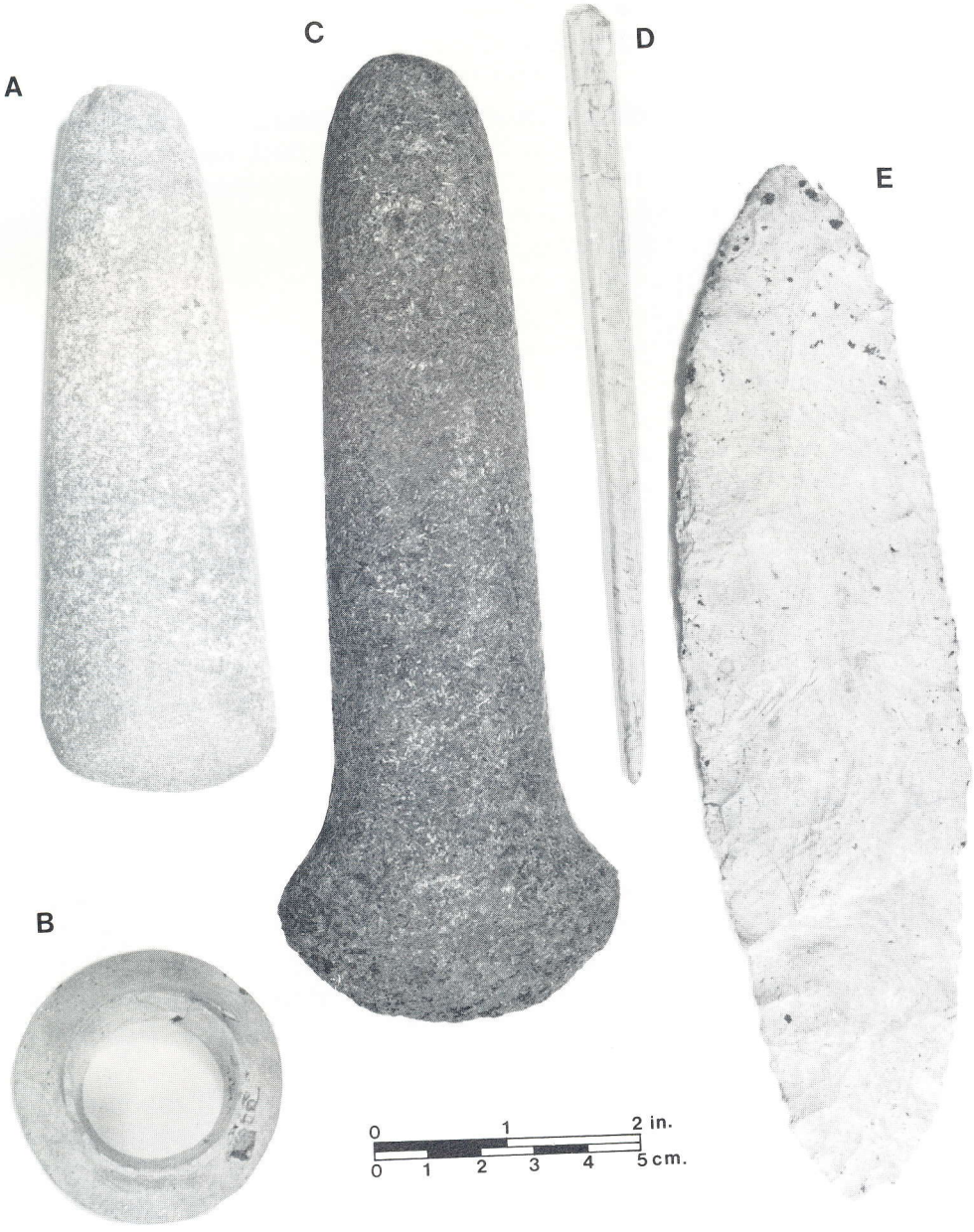
THE HARLAN SITE:

The Harlan site in Cherokee County is the earliest known major center of Caddoan culture in Oklahoma, although it is younger than similar sites in Texas and Louisiana. The site was excavated in 1949, 1950, and 1958, before it was covered by the waters of the Fort Gibson reservoir. The excavations were directed by Dr. Robert E. Bell of the University of Oklahoma.

The Harlan site consisted of one large mound, three smaller mounds, and one compound mound composed of three small, linked mounds. The whole site covered an area of about 20 acres. The main burial mound contained the fragmentary remains of 127 individuals and numerous artifacts. Most of the burials had deteriorated to the point where only the teeth, the long bones of the legs, or portions of the skulls remained.

Most of the people were buried lying on their sides in a flexed position. Many of the burials were disarticulated—the bones had been cleaned, and the skeleton was placed in position before the burial. The artifacts found were generally grave goods included with the burials. The grave goods in the upper class burials were often luxury items whereas those in a poorer person's burial were often the objects he or she had used in daily life. The inclusion of grave goods probably was a means of showing concern and respect for the dead.

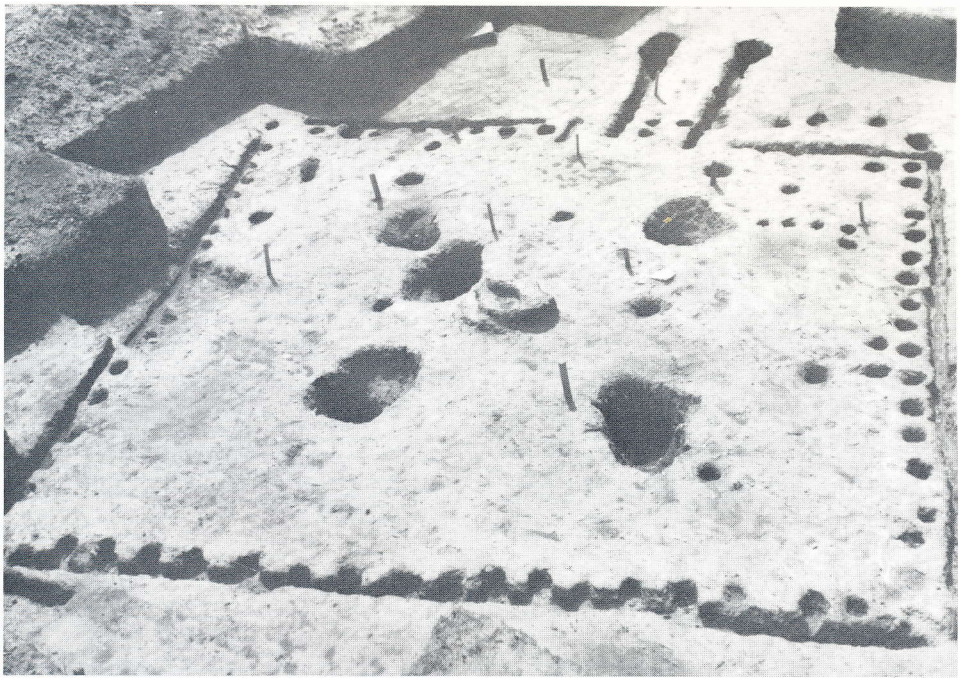
Grave goods found at the Harlan site included such items as arrow-



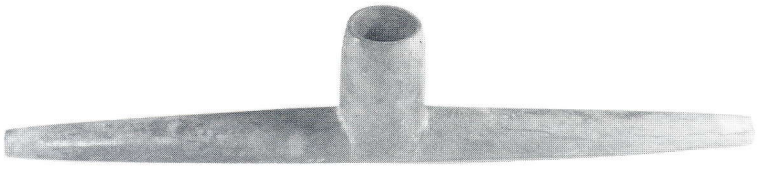
These artifacts are from the Harlan site in Cherokee County: a) celt, b) earspool, c) stone spud, d) bone awl, and e) knife.

Photos courtesy of the Oklahoma Anthropological Society.

points, spearpoints, stone knives, engraved pottery vessels, beads of shell, stone, and wood, stone pipes, cane matting, earspools (a type of earring), various objects covered with a thin veneer of copper—such as beads and earspools—and a long-nosed god maskette of copper. This maskette was small—about the size of the palm of one's hand—and was probably worn as part of a headdress. Archeologists also found a stone spud and stone and shell hoe blades. Organic stains in the soil indicated that there may have been other grave goods that weren't preserved.



The pattern of postholes from this house at the Harlan site helps archeologists to understand how the Caddoan people built their house.
Photo courtesy of the Oklahoma Anthropological Society.



T-shaped stone pipe from the Spiro Mounds site. (Not to scale.)
Photo from Stovall Museum Files.

The excavators found little evidence of people living near the mounds. Instead, the site served as a mortuary and religious center for the scattered farming communities located along the Grand River Valley and Fourteen Mile Creek. The site dates from about A.D. 700 to A.D. 1400, but its heaviest period of use was from A.D. 900 to A.D. 1200. Probably the priests or some other caretakers lived in the few houses discovered on the site. The earlier burials have few grave goods, and these burials were usually of a simple type. Later burials became increasingly elaborate. This elaboration reached its peak at the Spiro Mounds site, some 90 miles downstream.

THE SPIRO MOUNDS:

The most famous Caddoan site in Oklahoma is the Spiro Mounds site in LeFlore County. It is known not only for the extraordinary and well preserved artifacts recovered but also is famous for the controversy that surrounded its first excavations. The mounds were known to the local inhabitants for nearly 100 years before they received any attention from the scientific community. Most of the people living near the site in the 1930s were descendants of Choctaws and of their freed slaves who had received their land allotments after the Civil War when they were made members of the tribe. These people were familiar with the mounds found in other parts of the Southeast and so knew that the Spiro Mounds contained burials. This made them sacred ground, and

This drawing is based upon a photograph of Craig Mound taken by James Thoburn in December, 1913.
Original photo from Stovall Museum Files.

Members of the Pocola Mining company at Craig Mound. They held the lease on the Spiro Mounds site from 1933 until 1935.
Photo from Stovall Museum Files.

therefore they were left unmolested until commercial diggers began work on the site in the 1930s.

From 1933 to 1935, the "Pocola Mining Company" held a lease on the site. They dug into the mounds and carried away many artifacts that were sold at high prices in the east coast markets. Dr. Carl Guthe, then Chairman of the National Research Council Committee on State Archeological Surveys, contacted Dr. Forest E. Clements of the University of Oklahoma Department of Anthropology for more information about the site. Dr. Clements went to see the mounds and met the group of men calling themselves the "Pocola Mining Company."

After prolonged, difficult negotiations, Dr. Clements obtained a lease on the site for the University of Oklahoma which was scheduled to begin as soon as the Pocola Mining Company's lease expired. Dr. Clements then went to California for the summer. He returned to find

Craig Mound being excavated under the supervision of University of Oklahoma archeologists. The University obtained the lease in 1935.
Photo from Stovall Museum Files.

that the miners had continued their work despite the new state law prohibiting digging archeological sites without a license:

> I shall never forget the shock and grief I experienced when, upon my return in the late fall, I learned that the digging had been resumed during the summer and had been allowed to procede unmolested; that the great mound had been tunneled through and through, gutted in a frenzy of haste. I went to look at it. Sections of cedar poles lay scattered on the ground, fragments of feather and fur textiles littered the whole area; it was impossible to take a single step in hundreds of square yards around the ruined structure without scuffing up broken pieces of pottery, sections of engraved shell and beads of shell, stone, and bone. The site was abandoned; the diggers had completed their work.
>
> Clements 1945:56

Despite this tragic looting of the mound, the scientific excavation began in 1936 and continued through the 1941 season under Dr. Clement's overall direction. During the 1960s, Mr. Don Wyckoff, Oklahoma State Archeologist, located still more mound sites. Due to lack of funds, however, excavations were not conducted at the site until 1979. During the 1979 season, Mr. J. Daniel Rogers of the Oklahoma Archeological Survey conducted excavations at the Spiro Mounds site which were funded by the Oklahoma Department of Parks and Tourism and the U.S. Heritage Conservation and Recreation Service.

The mounds at Spiro have yielded a tremendous amount and variety of information and artifacts. The site consists of at least 11 mounds covering an area of approximately 80 acres. The main features of the site are two groups of mounds: 1) Craig Mound—which contained the Great Mortuary—and the two Ward Mounds, and 2) Brown and Copple Mounds and the other small mounds which cover the remains of buildings.

The rulers of the Spiro site achieved their dominance over the surrounding area due to the site's key position on the Arkansas River. Originally, there was a village on the site, as well as the mounds now called Brown Mound and Copple Mound. The Spiro elite controlled a large area downstream and to the north and south of the site. Their position on the Arkansas River allowed them to monopolize trade between the Plains farmers to the west and the other major cultural centers in the Southeastern United States. They probably exercised military control since many of the ceremonial objects were weapons or weapon-derived forms. Gradually, Spiro grew into a major religious center with only a few caretakers actually living there. The village was abandoned, and the Great Mortuary was built. This period of major religious importance occurred between A.D. 1200 and A.D. 1350.

During the summer of 1979, students from the University of Oklahoma field school and high school students from the Archeology in Action program participated in further excavations at the Spiro Mounds.

Photo from Oklahoma Archeological Survey Files.

Spiroan lace. Drawn from a photo by J. Tribble, Stovall Museum Files.

The Spiro elite were part of what archeologists call a "chiefdom." In a chiefdom, the highest ranking person had control over critical resources—in this case, a monopoly over trade in luxury goods and the products of the local farmers, as well as control of the military. Everyone is related to everyone else in the chiefdom, but rank within the group depends upon how closely one is related to the chief. The closer one's relationship to the chief, the higher one's rank in a society such as existed at Spiro, and high rank meant special treatment, even in death.

THE MOUNDS:

The mounds at the Spiro site were an important part of the system of rank. Many regional ceremonial centers as well as local cemeteries were scattered throughout the area under the Spiroan chiefdom's control. Burials in local cemeteries—which usually contained only a few utilitarian grave goods—were outranked in status by burials in regional centers containing some luxury goods. These in turn had lower status than the spectacular displays of grave goods at Spiro.

Not all Caddoan mounds were the same. There were actually three types of these earth constructions. One type of mound was raised as a platform for a structure. These were usually in the shape of a truncated pyramid with a ramp on at least one side. The second kind of mound was an earth cover over a destroyed building, generally ranging in size from 2.5 feet high and 40 feet across to 3.5 feet high and 75 feet in diameter. The third type was an accretional burial mound—one built up of increasing layers of burials, burial goods, and earth. The Spiro site contained all three kinds of mounds as well as combinations such as Craig Mound.

THE GREAT MORTUARY:

The Great Mortuary was found at the base of the main cone in Craig Mound. It was built on the remains of a still earlier mortuary and covered an area of some 55 by 37 feet. Here, the elite Spiroan dead decomposed before their final interment in an accretional burial mound. Within the Great Mortuary there were at least three classes of burials. The very highest ranking were the litter burials. Cedar pole litters, ranging in size from 6 by 7 feet down to 2 by 2 feet, were heaped with luxury goods and the bones of the honored dead. In the second class of burials, the bones were laid out in an extended position and surrounded by a few artifacts. Third class burials were bundles of bones in basketry chests also accompanied by a few artifacts. It is possible that cremations were also a form of burial, but by their nature

Some rare pieces of polychrome cloth from the Spiro Mounds site. (Variable scale.) Photos by J. Tribble, Stovall Museum Files.

A litter burial from Craig Mound.
Photo from Stovall Museum Files.

One of the few burials found in Brown Mound.
Photo from Stovall Museum Files.

Line drawing of a design found on an engraved shell cup from Craig Mound.
Illustration from *Pre-Columbian Shell Engravings from the Craig Mound, Spiro, Oklahoma*, Part I, by Philip Phillips and James A. Brown, Peabody Museum Press, 1978, Plate 68. Artist: Eliza McFadden.

they leave little trace. A large crematory basin measuring 16 feet in diameter was found at the base of the second mound unit. The basin was about 1.6 feet deep with three sets of steps leading down into it. However, this basin was not in the Great Mortuary and probably relates to an earlier period of ceremonialism at Spiro.

THE MYTH OF THE CENTRAL CHAMBER:

The Great Mortuary was originally built over a smaller mortuary and contained a number of burials of all three classes. When their period of use ended, Caddoan mortuaries were usually cleaned out and dismantled or burned, and their contents were interred in an accretional burial mound. The Great Mortuary differs, however, for although the building was dismantled, the burials and their fantastic grave goods were left in place. A platform mound was erected over the remains of the Great Mortuary and a new mortuary was built on top of the mound. Most archeologists believe that this sequence of burial and building occurred several times until, finally, Craig Mound was given a cone-

Line drawing of a design found on an engraved shell cup from Craig Mound. Illustration from *Pre-Columbian Shell Engravings from the Craig Mound, Spiro, Oklahoma*, Part I, by Philip Phillips and James A. Brown, Peabody Museum Press, 1978, Plate 20. Artist: Eliza McFadden.

shaped cap and abandoned. In its final form, Craig Mound was a series of four cones measuring about 300 feet long. The main cone was 33 feet high and 100 feet in diameter, and the smaller cones were no more than 15 feet high.

When members of the "Pocola Mining Company" tunneled into the center of the main cone, they reached the remains of the Great Mortuary. There were many tales spread then about an elaborate "central chamber" at the heart of the mound. The stories of this "chamber" are fascinating, conflicting, and unfortunately, they are also false. Dr. Clements, during his excavations in the 1930s, made observations and measurements in an attempt to find out whether the

Stone pipe from the Spiro Mounds site, resting warrior figure. (Not to scale.) Photo from Stovall Museum Files.

story was true. First, he examined the interior of the mound where the relic miners had been working. Towards the end of the lease period, the miners broke into three mutually distrustful factions, and this may have been the reason why three tunnels were driven into the mound from different directions to meet in a hollowed space in the center. Clements said:

> This chamber was irregular, varying from 15 to 20 feet across and was perhaps eight feet from the floor to the center of the roof. There was no indication that it was of other than recent excavation, for tool marks were thick over its clay-like walls. It was bare except for a few gin bottles and cigarette stubs. The great cone, therefore, was but a thick shell of earth.
>
> Clements1945:61

Next, Clements examined the amount of earth removed from the mound by the miners. The miners had taken the earth removed from tunneling the main cone and wheeled it in barrows to a nearby dump. All this loose earth was sifted through screens during the W.P.A. work on the site. The total amount was estimated at 6000 cubic feet. The three tunnels, according to Clements' estimate, would account for about 1000 cubic feet. Since all the dirt came from the interior of the mound, the remaining 5000 cubic feet must have come from the chamber hollowed out by the miners themselves.

There probably was a small, hollow cavity in the center of the main cone, but it was not the "King Tut's Tomb in Oklahoma" reported in some of the more sensational newspaper articles. After the Great Mortuary was dismantled and its contents buried, air was trapped in

Line drawing of a design found on an engraved shell cup from Craig Mound.
Illustration from *Pre-Columbian Shell Engravings from Craig Mound, Spiro, Oklahoma*, Part I, by Philip Phillips and James A. Brown, Peabody Museum Press, 1978, Plate 26. Artist Barbara C. Page.

and around the many shell cups, blankets, and litters piled on the floor. Over the years, these goods would have settled, separating from the clay above them. This would have resulted in the almost perfect preservation of the many fragile artifacts in the pocket of trapped air.

CADDOAN RELIGION:

The grave goods found at Spiro fall into three broad classes. These were weapons and weapon-derived objects such as monolithic stone axes and maces; ritual objects like the copper hawk-dancer plates and long-nosed god effigy masks; and perishable items such as baskets, clothing, wood, and shell. They all display a highly developed artistic skill and tradition. Most of the decoration has a religious theme or symbolism. Most of what we know about early Caddoan religion comes from grave goods like these.

About all we can say with certainty regarding the Caddoan religion is

These are three of the copper Hawk dancer plates from the Spiro Mounds site. The Spiroan people had no gold or silver, and copper was their most precious metal. (Variable scale.)

Photo by J. Tribble, Stovall Museum Files.

that elaborate burial of the elite dead was a major feature, and that many of the artistic motifs were like motifs used by people in similar cultural centers in other parts of the Southeastern United States. That's not much, not when we would prefer a detailed account, but the people at Spiro—for all their high level of culture—did not have a written language. This means that the archeologists must gain what knowledge they can from the ritual objects that have survived the passage of time and the dangers of non-scientific excavation.

Some archeologists have analyzed Caddoan religious art motifs, especially those found on the engraved shell cups and gorgets (a type of pendant). They concluded that the Caddoan religion was part of what is called the Southern Cult, named after the many traits certain Southwestern sites have in common. Presently, there are two possible interpretations of these designs: 1) the people may have believed in a single god with many attributes, or 2) they may have believed in a number of gods with the serpent and falcon representing the two main gods.

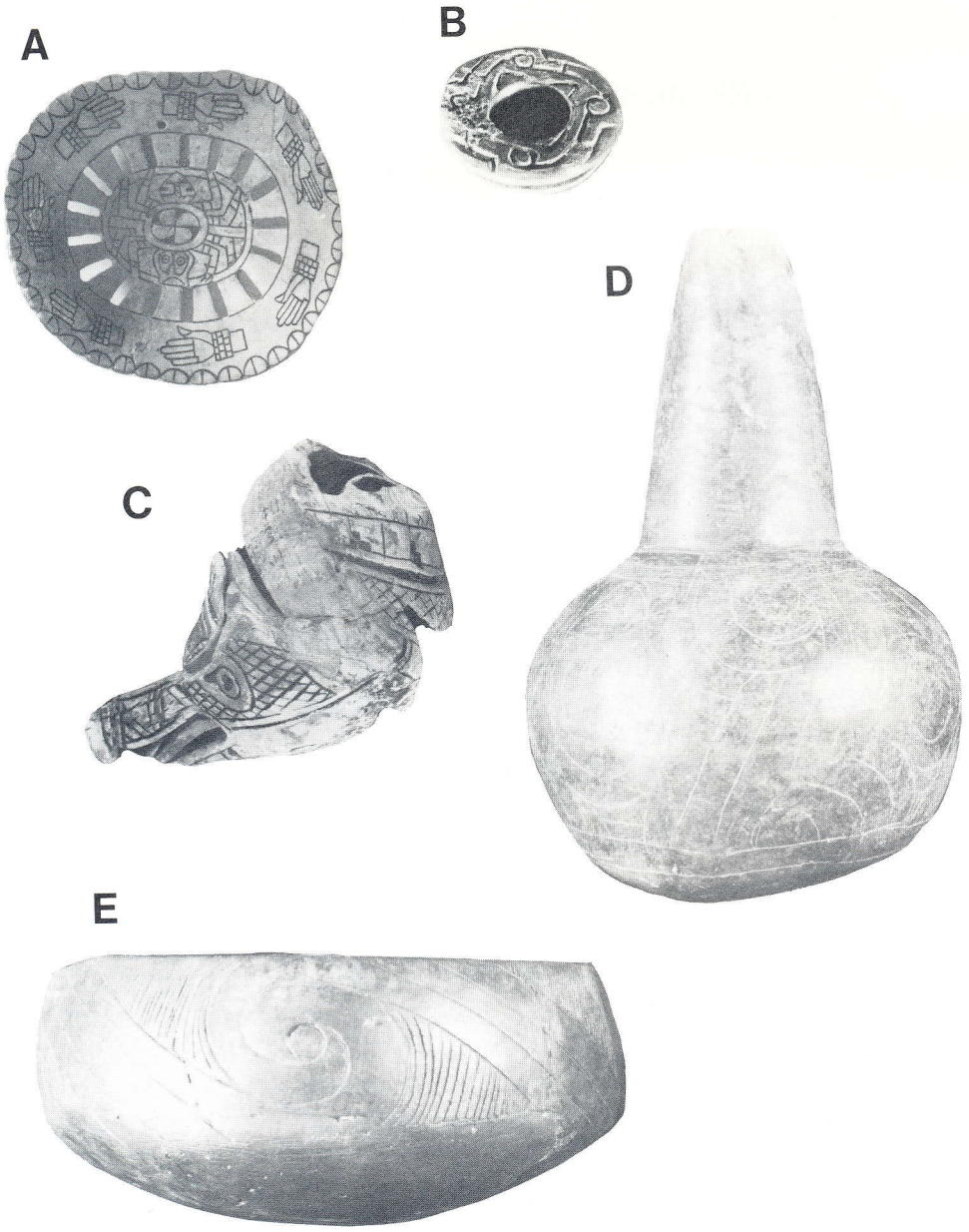
Monolithic stone axe from the Spiro Mounds site. (Not to scale.)
Photo from Stovall Museum Files.

A dancing human figure dressed in a falcon costume was a frequently used design in Spiroan and other art. Serpents and possibly people in serpent costume were often depicted. Other animals, especially spiders and human beings engaged in ceremonial activity, were also engraved on shell.

GRADUAL DECLINE:

During the late Caddoan times, a new sun and fire symbolism rose to a more prominent place. Spanish explorers found sun worship common among the Caddo confederacies of north Texas in the sixteenth century. We cannot be certain exactly what happened, but we do know that mound building gradually ceased between A.D. 1400 and A.D. 1500. The main portion of Craig Mound was finished with a conical cap of earth, and no more burials or mortuary building took place there. There seems to have been a conscious, deliberate decision to stop using the site. The mound cap was neatly finished, and there were no signs of war or violence. The common people of eastern Oklahoma continued farming but began to trade increasingly with people to the west, rather than to the east as they had during the Spiro elites' ascendancy. The elite themselves seem to have disappeared. Whether this was due to disease, decline in birth rate, or another cause, we cannot tell. The elaborate burials ceased with the end of the mound building. Between A.D. 1500 and A.D. 1700, drier conditions on the southern plains led to an expansion of the buffalo range and this, in turn, led to a dramatic increase in buffalo hunting.

The earspools had a pulley-shaped back which fit into enlarged holes in the earlobe.



Artifacts from the Spiro Mounds site: a) shell gorget, b) stone earspool, c) carved shell pendant, d) clay jar, and e) clay bowl. (Variable scale.)
Photos from Stovall Museum Files.

EARLY BUFFALO HUNTERS

A.D. 1500 to A.D. 1700

CHAPTER 6

EARLY HISTORIC BUFFALO HUNTERS

A.D. 1500 to A.D. 1700

They circled on foot. The whole tribe moved slowly through the grass driving the buffalo inexorably towards the compound. There were about 200 animals in the herd and only 50 members of the tribe. They edged in and out of view of the buffalo, careful not to scare them into a too early stampede. The young man behind the pile of rocks waited patiently. The herd moved into view, and he glimpsed his sister among the drivers. The buffalo bunched together as they were driven by the tightening funnel of human beings. The corral was just ahead, the drop off invisible to the oncoming herd.

Suddenly, all the encircling hunters emerged at once. The buffalo started uneasily, trotting forward. At a signal from the hunt leader, the young man sprang forward from behind the concealing pile of stones. Yelling, the others hiding behind nearby piles emerged too. The herd broke into a run. The hunters raced back and forth, forming a human fence and forcing the buffalo into the trap. The herd stampeded over the edge and into the corral. Once inside, there was no way out. The hunters quickly killed the panicky, milling animals, and the butchering began.

After A.D. 1500, the climate in western Oklahoma became too dry for dependable farming, and the people increasingly turned to buffalo hunting as their chief source of food. They also hunted deer, antelope, and rabbits, and gathered wild plant foods. They planted small crops of corn when there was enough water. Their usual weapons were bows and arrows. The buffalo hunters abandoned their permanent houses and lived in tipis. These conical tents with covers of buffalo hide were easily taken down and put up. The people did not yet have horses—Spanish horses first reached Oklahoma around A.D. 1700—and they followed the herds on foot.

The people living in the wetter climate of eastern Oklahoma continued farming but made increasing use of buffalo. Archeologists have found larger amounts of buffalo bone tools and debris in sites from this period. The eastern farmers probably made periodic hunting expeditions into the western buffalo plains, then returned to their villages.

Buffalo herds wander at will, seeking the best water and forage. They have no invariable annual north-south migration patterns, and so the hunter followed their erratic movements closely. This nomadic lifestyle meant that, as in the time of the foragers, their possessions had to be light and easily transportable. The early buffalo hunters lacked horses, but they did have domesticated dogs, and they used

The early buffalo hunters hunted modern buffalo like these on foot. Photo courtesy of Tim Baugh.

the dogs as pack animals. A member of the Coronado expedition in the 1540s wrote:

> They travel like the Arabs with their tents and troops of dogs loaded with poles and having Moorish pack saddles and girths. When the load gets disarranged, the dogs howl, calling some one to fix them right.
>
> Winship (translator) 1896:527

These saddle and pole equipages came to be called travois.

The buffalo provided food from the meat, clothing and shelter from the hides, and tools from the bone. They undoubtedly also played a major role in the religious and social organization of the hunters, as we know they did just a few generations later from descriptions of historic tribes. The hunters' methods of preparing the buffalo were not the same as the technique used today, but they made full use of the

This drawing is based upon an early illustration of an American buffalo which appeared in Andre Thevet's *Les Singularitez de la France Antarcique*, Antwerp, 1558.

resources. From the account of the Coronado expedition we learn that:

> These people eat raw flesh and drink blood. . . .They dry the flesh (of the buffalo) in the sun, cutting it thin like a leaf, and when dry they grind it like meal and make a sort of sea soup of it to eat. A handful thrown into a pot swells so as to increase very much. They season it with fat . . . . They empty the large gut and fill it with blood, and carry this around the neck to drink when they are thirsty. When they open the belly of a cow (buffalo), they squeeze out the chewed grass and drink the juice that remains behind, because they say this contains the essence of the stomach.
>
> Winship (translator) 1896:527–528

The dried meat was called pemmican by the European settlers. It was often flavored with fruit or berries to improve the taste. Pemmican would keep without spoiling indefinitely, and weighed only about two-thirds as much as the same amount of fresh meat. These were both important considerations in the days before canning and easy transportation.

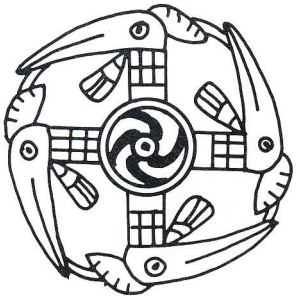
The buffalo hunters generally used a combination of the drive and the surround. This group effort probably required very strict discipline—as was the case during historic times—since the welfare of the whole tribe depended upon the success of the hunt.

The Native American cultures had by this time diversified into a

These artificats from the Edwards site in Beckham County show some of the beads, arrowpoints, and fragments of pottery used by early buffalo hunters.
Photo from Oklahoma Archeological Survey Files.

number of tribes and confederacies having different customs, different beliefs, and different languages. The Plains tribes, however, communicated with one another by means of sign language. Some of the plains hunters were Apache Indians. There were several different groups among the Apache, but historians included them all under the term "Plains Apache." Other tribes may have been ancestors of the modern Kiowa and such Wichita bands as the Wichita proper, Waco, and Kichai.

The European settlers brought horses with them to the New World. Many of these horses were lost or stolen and around A.D. 1700, they started appearing in Oklahoma. The acquisition of horses made buffalo hunting much easier, and many tribes who had heretofore been primarily farmers moved onto the plains. Other tribes were moving westward because of pressure from the increasingly large European settlements. The two centuries that followed were full of turmoil and change. The buffalo were hunted nearly to extinction. Several of the tribes that had existed before historic times died out or were diminished. The tribes fought the Euroamerican settlers and, even more disastrously, they fought among themselves so that they were never able to unite in a truly effective resistance. The story of these turbulant years marks the beginning of United States history and the end of this chronicle of Oklahoma's prehistoric people.



BIBLIOGRAPHY

Amsden, Charles
n.d. America's Earliest Man. *Southwest Museum Leaflets*, No. 4, Southwest Museum, Highland Park, Los Angeles.

Anderson, Adrian D.
1975 The Cooperton Mammoth: An Early Man Bone Quarry. *Great Plains Journal*, Vol. 14, No. 2, pp. 130-175, Lawton, Oklahoma.

Bastian, Tyler
1969 The Hudsonpillar and Freeman Sites, North-Central Oklahoma. *Archeological Site Report*, No. 14, Oklahoma River Basin Survey and the University of Oklahoma Research Institute, Norman, Oklahoma.

Bell, Robert E.
1972 The Harlan Site, Ck-6, A Prehistoric Mound Center in Cherokee County, Eastern Oklahoma. *Oklahoma Anthropological Society Memoir*, No. 2, Oklahoma City, Oklahoma.

1973 The Washita River Focus of the Southern Plains. Reprinted from: *Variation in Anthropology*, edited by Lathrap and Douglas, Illinois Archeological Survey, Illinois.

Briscoe, James
1977 The Plantation Site (Mi-63), An Early Caddoan Settlement in Eastern Oklahoma. Oklahoma Highway Archaeological Survey, *Papers in Highway Archaeology*, No. 11, Oklahoma City, Oklahoma.

Brown, James A.
1966 *Spiro Studies, Volume 1, Description of the Mound Group*. First Part of the Second Annual Report on Caddoan Archeology, Spiro Focus Research, Stovall Museum of Science and History and the University of Oklahoma Research Institute, Norman, Oklahoma.

1973 Spiro Art and its Mortuary Contexts. In: *Death and the Afterlife in Pre-Columbian America*, Dumbarton Oaks Research Library and Collections, edited by Elizabeth P. Benson, Washington, D.C.

Cartledge, Thomas R.
1970 The Tyler-Rose Site and Late Prehistory in East-Central Oklahoma. *Archaeological Site Report*, No. 19, Oklahoma River Basin Survey, University of Oklahoma Research Institute, Norman, Oklahoma.

Clements, Forrest E.
1945 Historical Sketch of the Spiro Mound. In: The Spiro Mound Collection from the Museum, *Contributions from the Museum of the American Indian*, Heye Foundation, Vol. XIV, New York.

Davis, Hester A.
1969 What is Archeology? In: *Arkansas Archeological Survey Popular Series*, No. 1, Fayetteville, Arkansas.

Duffield, Lathel Flay
1964 Engraved Shells from the Craig Mound at Spiro, LeFlore County, Oklahoma. *Oklahoma Anthropological Society Memoir*, No. 1, Oklahoma City, Oklahoma.

1973 The Oklahoma Craig Mound: Another Look at an Old Problem. *Bulletin of the Oklahoma Anthropological Society*, Vol. 22, pp. 1-10, Oklahoma City, Oklahoma.

Eddy, Frank W.
1964 Metates and Manos: The Basic Corn Grinding Tools of the Southwest. Museum of New Mexico Press, *Popular Series Pamphlet*, No. 1, Santa Fe, New Mexico.

Frison, George
1970 The Glenrock Buffalo Jump. *Plains Anthropologist*, Memoir No. 7, 1970, pp. 15-50, Part 2, Lincoln, Nebraska.

1974 *The Casper Site: A Hell Gap Bison Kill on the High Plains*. Academic Press, New York.

Gilbert, Claudette Marie
1979 Mammoth Hunters: the Domebo Site. *Prehistoric People of Oklahoma*, No. 4, the University of Oklahoma Stovall Museum of Science and History and Oklahoma Archeological Survey, Norman, Oklahoma.

Griffith, William Joyce
1954 The Hasinai Indians of East Texas as seen by Europeans, 1687-1772. *Philological and Documentary Studies*, Vol. II, No. 3, Middle American Research Institute, Tulane University, New Orleans.

Hammatt, Hallett H.
1976 The Gore Pit Site: An Archaic Occupation in Southwestern Oklahoma and a Review of the Archaic Stage in the Southern Plains. *Plains Anthropologist*, 1976 (21-74), Lincoln, Nebraska.

Hartley, John D.
1974 The Von Elm Site: An Early Plains-Woodland Complex in North-Central Oklahoma. *Archaeological Site Report* No. 28, Oklahoma River Basin Survey and University of Oklahoma Office of Research Administration, Norman, Oklahoma.

1977 Archaeological Investigations at the Bryson-Paddock Site: an Early Contact Period Site on the Southern Plains. *Archeological Site Report* No. 32, Oklahoma River Basin Survey, Norman, Oklahoma.

Hester, James J. with sections by Ernest L. Lundelius, Jr., and Roald Fryxell
1972 Blackwater Locality No. 1: A Stratified Early Man Site in Eastern New Mexico. *Fort Burgwin Research Center Publication*, No. 8, Southern Methodist University, Ranchos de Taos, New Mexico.

Hester, T. R., M. P. Mildner, and L. Spen
1974 Great Basin Atlatl Studies. *Ballena Press Publications in Archeology, Ethnology, and History,* No. 2, edited by Robert F. Heizer, Ramona, California.

Hofman, Jack L.
1978 An Analysis of Surface Material from the Little Deer Site, 34-Cu-10, of Western Oklahoma: A Further Investigation of the Wheeler Complex. *Bulletin of the Oklahoma Anthropological Society*, Vol. 27, pp. 1-110, Oklahoma City, Oklahoma.

Holmes, Mary
1973 The Packard Site. *Prehistoric People of Oklahoma*, No. 1, the University of Oklahoma Stovall Museum and Oklahoma Archeological Survey, Norman, Oklahoma.

Holmes, Mary Anne and Claudette Marie Gilbert
1979 Prehistoric Panhandle Farmers: the Roy Smith Site. *Prehistoric People of Oklahoma*, No. 3, Oklahoma Archeological Survey and the University of Oklahoma Stovall Museum of Science and History, Norman, Oklahoma.

Hudson, Charles
1976 *The Southeastern Indians*. University of Tennessee Press, Knoxville, Tennessee.

Johnson, Alfred E. (editor)
1976 Hopewellian Archaeology in the Lower Missouri Valley. University of Kansas, *Publications in Anthropology*, No. 8, Lawrence, Kansas.

Iowa State Archeologist
n.d. Paleo-Indian Period. *Office of the State Archeologist Educational Series 1*, Iowa.

n.d. Archaic Period. *Office of the State Archeologist Educational Series* 2, Iowa.

n.d. Woodland. *Office of the State Archeologist Educational Series*, Iowa.

Leonbardy, Frank C. (editor)
1961 Domebo: A Paleo-Indian Mammoth Kill in the Prairie Plains. *Contributions of the Museum of the Great Plains*, No. 1, Lawton, Oklahoma.

Lewis, Thomas M. N. and Madeline Kneberg
1958 *Tribes that Slumber*. University of Tennessee Press, Knoxville, Tennessee.

McGimsey, Charles R.
1969 Indians of Arkansas. In: *Arkansas Archeological Survey Popular Series*, No. 1, Fayetteville, Arkansas.

McHugh, Tom
1972 *The Time of the Buffalo*. Alfred A. Knopf, New York.

Muto, Guy R., with appendices by John D. Northcutt and Don G. Wyckoff
1978 The Habiukut of Eastern Oklahoma, Parris Mound, Part I, Phase I. Oklahoma Historical Society, *Series in Anthropology*, No. 3, Oklahoma City, Oklahoma.

Muto, Guy R., Molly S. Mayo, and Kay Zahrai, editors
n.d. From Hunting and Gathering to Business and Banditry. Holocene Adaptations in Lee's Creek Valley, an Anthropological Assessment, Parris Mound Project Part 2, Phase I, Oklahoma Historical Society, *Series in Anthropology*, in press, Oklahoma City, Oklahoma.

Newcomb, W. W., Jr.
1961 *The Indians of Texas: from Prehistoric to Modern Times*. University of Texas Press, Austin and London.

Orr, Kenneth G.
1942 *The Eufaula Mound, Oklahoma; Contributions to the Spiro Focus*. A dissertation submitted to the faculty of the division of Social Sciences in candidacy for the degree of Master of Arts, Department of Anthropology, University of Chicago, Chicago.

Phillips, Philip and James A. Brown
1978 *Pre-Columbian Shell Engravings from the Craig Mound at Spiro, Oklahoma, Part I.* Peabody Museum Press, Harvard University, Cambridge, Massachusetts.

Pillaert, E. Elizabeth
1963 The McLemore Site of the Washita River Focus. *Bulletin of the Oklahoma Anthropological Society*, Vol. 11, Oklahoma City, Oklahoma.

Reynolds, John D.
1979 The Grasshopper Falls Phase of the Plains Woodland. Kansas State Historical Society, *Anthropological Series*, No. 7, Topeka, Kansas.

Schoenwetter, James
1965 How Old Is It? The Story of Dating in Archeology. Museum of New Mexico Press, *Popular Series Pamphlet*, No. 2, Santa Fe, New Mexico.

Scientific American
1951 *Early Man in America*. Readings from Scientific American, W. H. Freeman and Company, San Francisco.

Story, Dee Ann
1972 *Preliminary Report of 1968, 1969, and 1970 Excavations at the George C. Davis Site, Cherokee County, Texas*. Report of Field Research Conducted under NSF (GS-2573 and 3200) and Interagency Contracts between the University of Texas at Austin and the Texas Building Commission and Texas Historical Survey Committee, Texas. Story, Dee Ann and S. Valastro, Jr.

1977 Radiocarbon Dating and the George C. Davis Site, Texas. *Journal of Field Archeology*, Vol. 4, No. 1, pp. 63-90, Association for Field Archeology, Boston.

Watson, Virginia
1950 The Optima Focus of the Panhandle Aspect: Description and Analysis. *Texas Archaeological Society Bulletin*, No. 21, pp. 7-68, Texas.

Webb, Clarence H. and Hiram F. Gregory
1978 The Caddo Indians of Louisiana. Department of Culture, Recreation, and Tourism, Louisiana Archaeological Survey and Antiquities Commission, *Anthropological Study*, No. 2, Baton Rouge, Louisiana.

Wheat, Joe Ben
1972 The Olsen-Chubbuck Site: A Pale-Indian Bison Kill, *Memoirs of the Society for American Archeology*, No. 26, Washington, D.C.

Winship, George Park
1896 The Coronado Expedition, 1540-1542. *14th Annual Report*, Bureau of American Ethnology, Part I, Washington, D.C.

Winters, Howard D.
1969 The Riverton Culture: A Second Millenium Occupation in the Central Wabash Valley. *Reports on Investigations*, No. 13, The Illinois State Museum and Illinois Archaeological Survey, Springfield, Illinois.

Wright, Muriel H.
1951 *A Guide to the Indian Tribes of Oklahoma*. University of Oklahoma Press, Norman, Oklahoma.

Wyckoff, Don G.
1964 The Cultural Sequence at the Packard Site. *Archeological Site Report*, No. 2, Oklahoma River Basin Survey Project, University of Oklahoma Research Institute, Norman, Oklahoma.

1967 The E. Johnson Site and Prehistory in Southeast Oklahoma. *Archaeological Site Report*, No. 6, Oklahoma River Basin Survey and University of Oklahoma Research Institute, Norman, Oklahoma.

1968 The Bell and Gregory Sites: Archaeological Chronicles of Prehistory in the Pine Creek Reservoir Area, Southeast Oklahoma. *Archaeological Site Report*, No. 11, Oklahoma River Basin Survey, University of Oklahoma Research Institute, Norman, Oklahoma.

1970 The Horton Site Revisited: 1967 Excavations at Sq-11, Sequoyah County. *Studies in Oklahoma's Past*, No. 1, Oklahoma Archeological Survey, Norman, Oklahoma.

1971 *The Caddoan Cultural Area: An Archeological Perspective*. Oklahoma Archeological Survey, Norman, Oklahoma.

Wyckoff, Don G. and Lyonel Talor
1971 The Pumplin Creek Site: An Early Archaic Camp on the Southern Plains Border. *Plains Anthropologist*, 1971, pp. 16-51, Lincoln, Nebraska.