

The background of the cover is a detailed, reddish-brown illustration of various Oklahoma Indian artifacts. It includes a scale bar at the top left marked from 0 to 5 cm. Other items depicted are a circular object with a cross-like pattern, a human face, a long bone or pipe, a fluted arrowhead, a circular object with concentric rings, a spearhead, a large shell, and various other stone and bone fragments.

# OKLAHOMA INDIAN ARTIFACTS

by  
Robert E. Bell

A STOVALL MUSEUM PUBLICATION

# **OKLAHOMA INDIAN ARTIFACTS**

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## Introduction

As Curator of Archaeology at the Stovall Museum or as archaeologist in the Department of Anthropology at the University of Oklahoma, I am frequently asked about or receive letters regarding the identification of various Indian artifacts. General questions are asked in efforts to identify the object: What was it used for? How old might it be? What Indian tribe made it? How was it made? Where are they found? While the answers to such questions are not always easy and are frequently subject to controversy, I felt that some general information, with illustrations, of typical Indian artifacts that have been found in Oklahoma would be a useful source of information to interested individuals.

In the following pages I have selected a variety of artifacts for illustration and have offered some brief general comments regarding the artifacts. I have purposely avoided citing references but have included a brief selected bibliography for those individuals who might wish to do some additional reading on specific kinds of artifacts. In selecting the items for illustration and discussion I have also omitted a number of artifacts which are very rare in Oklahoma, for example, monolithic axes, flint maces, stone spuds, effigy pipes, copper hawk plates, discoidals, and others. I had greater interest in the more common artifacts or those which have been more subject to questions about identification.

With a single exception, all illustrated specimens are in the University of Oklahoma Stovall museum archaeological collections. The single exception is one of the corner tanged knives (Figure 4a) which belongs to Mr. Ralph W. White of Guymon, Oklahoma, who provided a photograph of this specimen. All of the illustrated specimens, with three exceptions, were found in Oklahoma. These exceptions are from adjacent states but are similar to artifacts found in Oklahoma.

There are numerous alternatives in classification and how artifacts are grouped is arbitrary depending upon what one plans to do with the data. Many archaeologists group archaeological materials into such classes as chipped stone, ground and polished stone, bone, shell, clay, etc. I have also followed this procedure by discussing each of the artifacts representing these various materials. Doing this, however, presents some difficulties as we find pipes made of stone and of clay; hence, using this type of classification, they are not discussed together under the heading Pipes, but rather under Stone Pipes and Clay Pipes. Some archaeologists would group all pipes together regardless of the material from which they were made. Other groupings such as those followed by the ethnographer are sometimes used. In such cases artifacts associated with hunting, for example, would be classed together, or items associated with household activities might form an artifact cluster. I have chosen the



flint, ground stone, bone, shell, clay system for identification convenience.

I have also accepted a functional designation for the various artifacts. Such terms as arrowhead, drill, knife, awl, etc., imply the function of the artifact concerned and I have used such terms freely. A number of archaeologists, however, object to this system and use only descriptive terms to avoid any functional implication. They would classify chipped flint items such as projectile points, knives, chipped hoes, etc., as bifaces. The bifaces would be divided according to other characteristics such as form, size, etc., so that a projectile point, for example, might be classed as a flint biface 2:b, whereas a flint knife might be classed as a biface 4:C1. I view such systems as useful for analysis but awkward and detrimental to easy communication. It is also worthwhile to note, however, that some archaeologists who are reluctant to use functional terms for artifacts are quite willing to speculate and postulate theories regarding social organization, family organization, marriage customs, etc.

I have mentioned a number of archaeological time periods or phases to indicate the general dates when certain artifacts were in use. Although these are common terms for Oklahoma archaeology, a general time period for these should be included here to help place this material in a broad framework. I need to point out, however, that although we have a large number of radiocarbon dates for sites in Oklahoma, we are still ignorant about when some of these occupations started or ended. The suggested dates are only reasonable approximations to provide a rough chronological framework.

### **Paleo-Indian:**

This refers to the oldest Indian material associated with big game hunting and extinct animals. It starts at least before 20,000 years ago and continues up to approximately 5000 BC. The Clovis and Folsom assemblages are typical of this period and date around 10,000 to 12,000 years ago.

### **Archaic:**

This refers to an early forest adaptation prior to the appearance of agriculture and ceramics. It ranges from perhaps 9000 BC or earlier up to the birth of Christ. Divisions in the Archaic are commonly made with Early Archaic ranging from around 9000 BC up to 5000 or 4000 BC. Middle Archaic ranges from around 4000 BC up to 2000 or 1500 BC, and Late Archaic ranges from around 2000 BC or 1500 BC up to the birth of Christ.

## **Woodland:**

The Woodland period is believed to range from around the birth of Christ up to about AD 800. It is commonly subdivided into Early, Middle, and Late phases.

## **Fourche Maline:**

An early pottery period in eastern Oklahoma dating approximately from around the birth of Christ up to around AD 800.

## **Plains Village:**

This includes the Custer focus, Washita River focus, Antelope Creek aspect, and Henrietta focus and dates around AD 900 to AD 1400.

## **Caddoan:**

This includes the Harlan phase from approximately AD 800 or AD 900 to AD 1200; the Spiro phase from AD 1200 to AD 1350 or AD 1400; and the Fort Coffee phase from AD 1400 to AD 1600. Fourche Maline appears to be a developmental Caddoan occupation.

## **Proto-historic Wichita:**

This refers to early Wichita Indian occupations found in Kay County, Oklahoma and along the Red river in Jefferson County. It dates from the 18th century.

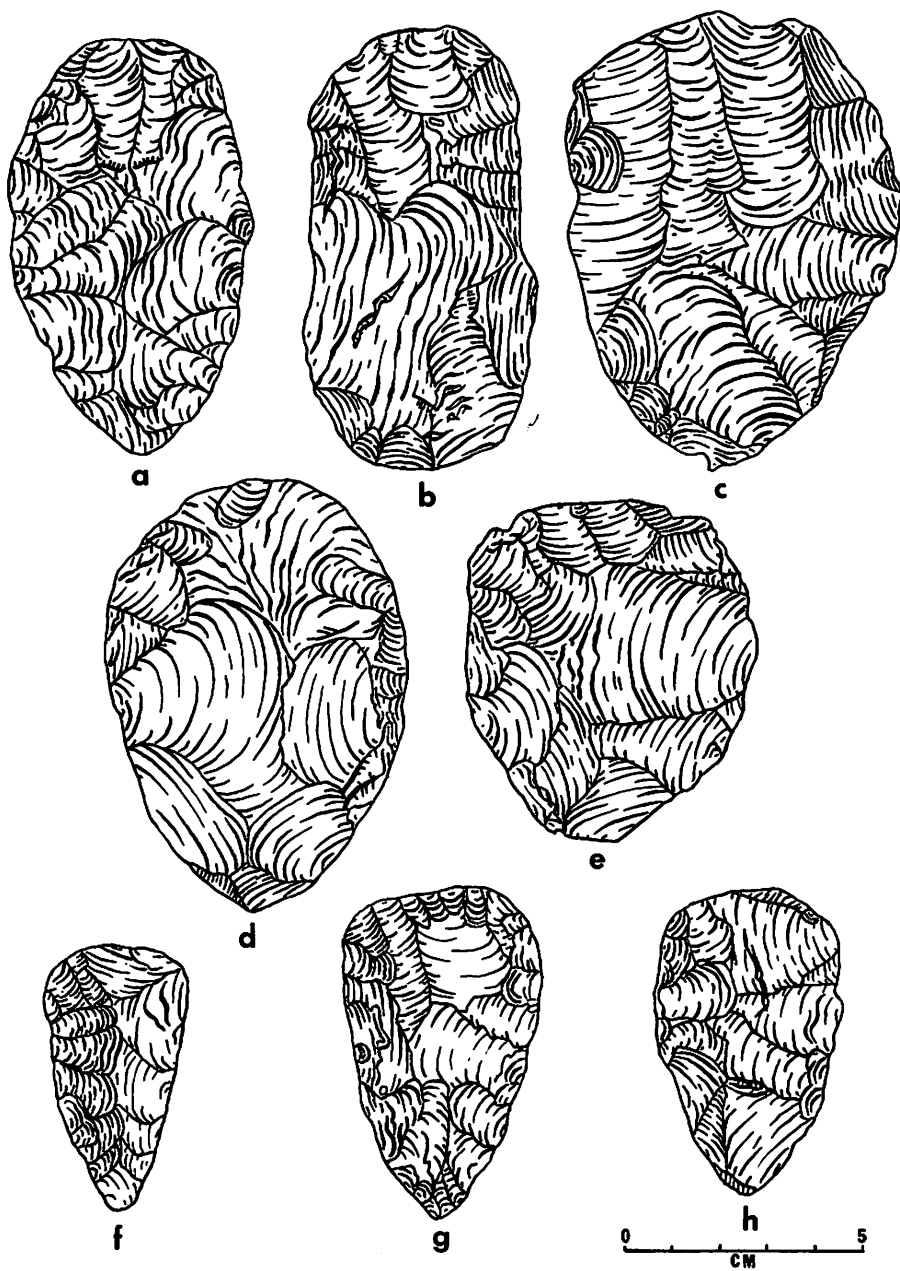


Figure 1 . Preforms

# Chipped Stone Artifacts

## Preforms

The term *preform* is currently being used for various flint objects which were not finished. The preforms provide a series of individual examples of the lithic technology indicating steps followed in the manufacturing process. Preforms are not tools as such, but they represent resources of raw material which could be transformed into a desired tool or implement. Obviously, the conversion of a chunk of flint obtained at the quarry source into a satisfactory projectile point or knife requires a series of reduction stages on behalf of the flint knapper. This usually requires the initial reduction of the flint block into a crude biface, the gradual thinning of the biface, and finally the shaping and completion of the desired tool. Consequently, a preform varies considerably in shape and the amount of work done, depending upon the stage of lithic reduction represented by the artifact. In one sense, a block of flint, a core, or a single flake that could be used for making an artifact might be termed a preform. The term as generally used, however, refers to a specimen in which some initial flaking or shaping has been done thus separating it from the unmodified block or flake of flint. The preform may vary from a crudely roughed out quarry biface to a carefully shaped and thinned projectile point blank that has been completed except for forming the notches (Figure 1).

Preforms are a common artifact and are especially plentiful at lithic workshops or locations where flint knapping was done. Many of them, however, were broken during the manufacturing process or were discarded because of defects or flaws in the flint. Consequently, many preforms represent unsuccessful attempts to make specific artifacts and were thrown away by the flint knapper.



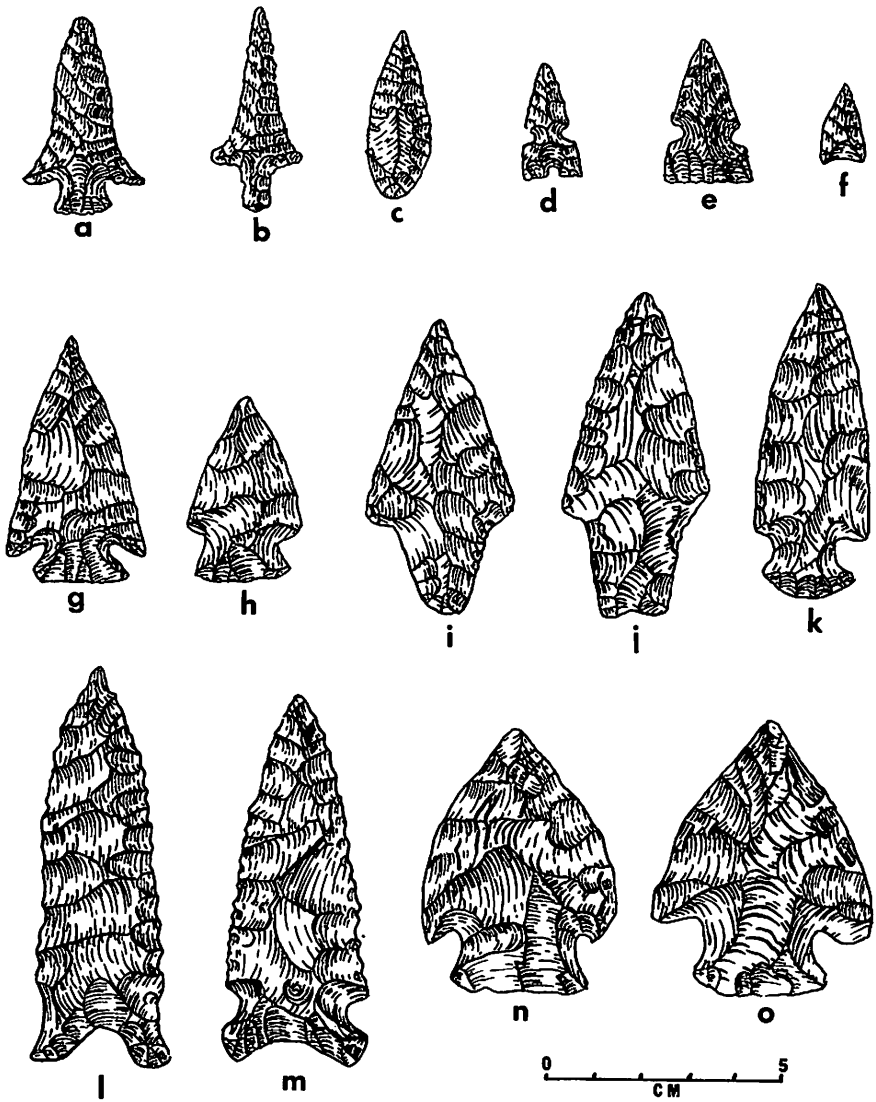


Figure 2 . Projectile Points

Identification of preforms is not always easy as they can be confused with crude tools or other kinds of artifacts. They are commonly misclassified as knives because of their form and lack of hafting areas. Preforms by definition, however, are unfinished items and not tools and will not display evidence for use wear or indications of tool service. A crude knife, in contrast, should have evidence of having been used as a knife.

Preforms are found as a common artifact on all archaeological sites in all sections of Oklahoma. Examples representing the various stages of manufacture are instructive in establishing the lithic technology of the makers involved.

## **Projectile Points**

Flint projectile points are one of the more common Indian artifacts found on archaeological sites. Such items are easily recognized and usually termed arrowheads. Archaeologists, however, prefer the term "projectile point" as one cannot always tell if the point was used on an atlatl dart, spear point, or arrow point. Projectile points vary a great deal in size, shape, and workmanship, and it is from such characteristics archaeologists are able to suggest the time period when certain types of points were in use. The different styles of projectile points are characteristic of certain time periods and localities, and many sites where these have been found have been dated by radiocarbon methods. Consequently, the style or type of projectile point tends to be representative of a particular time period or cultural grouping.

Although some variations on style may represent that projectile points were used for different purposes, this has not been demonstrated. The idea that points of a certain shape were "war points," "fish arrows," "bird points," etc. is not supported by the archaeological record.

Archaeologists usually classify projectile points into two broad groups: dart points and arrow points. In general, dart points are larger in size and weight than arrow points and were used as tips for darts or spears. Arrow points are smaller in size, weigh less, and were used as tips for various kinds of arrows. Examples of each group are shown in Figure 2.

Dart points exhibit enormous variation in form and workmanship. The smaller sized dart points overlap with the larger sized arrow points and commonly one cannot be certain with regard to the classification of a particular point. Most dart points, however, range from about 35 mm to 100 mm in length. Longer specimens, which are common, are usually termed "spearheads" by many writers but many of these are hafted knives or artifacts which served some special cultural function. Dart points, either long or short, tend to have a wide stem or hafting area 10 mm or more in minimum width,

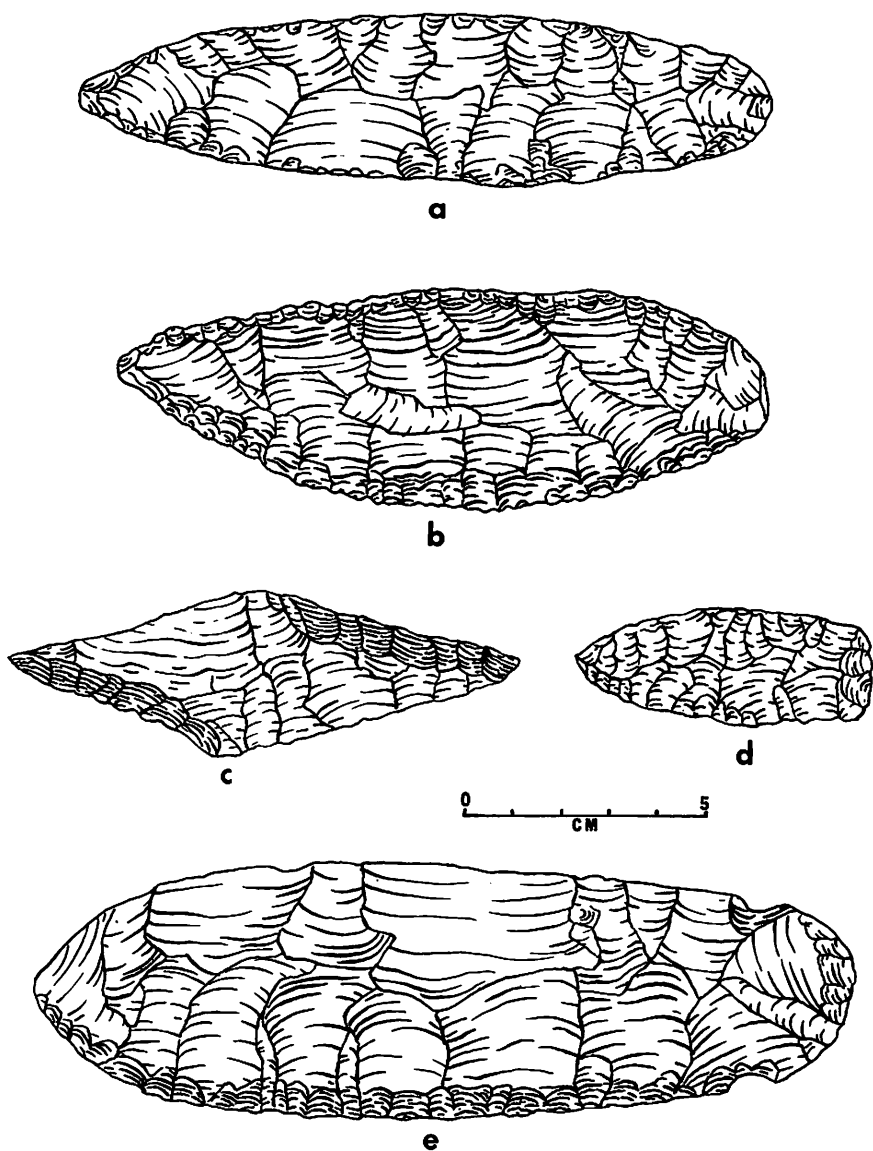


Figure 3 . Flint Knives

for mounting on a heavy wooden shaft or dart foreshaft. Arrowheads, on the other hand, tend to have a stem width less than 10 mm, compatible with mounting on an arrow shaft.

Dart points appear earliest in the archaeological record and were used for several thousands of years before the bow and arrow became available. Of course, the use of the atlatl and dart continued after the availability of the bow and arrow, but these were eventually abandoned. In general, dart points are to be associated with the Paleo-Indian, Archaic, Woodland and other early assemblages. Their final usage apparently disappears sometime during the first millenium AD.

Arrow points are small sized and light weight projectile points, usually less than 35 mm in length and with a narrow stem or hafting width. They are commonly made from a thin flake in which the flake scar is still evident on one face of the point. These are commonly termed "bird points" among collectors but this is an error as the point size is not to be correlated with the size of the game being hunted. The Plains Villagers, for example, used these small points for hunting the bison and dart points were apparently not used at all for this purpose.

The time of the appearance of the bow and arrow in Oklahoma is not known. Small points first occur in sites along with small dart points, perhaps 2000 years ago, but by AD 1000, arrow points appear to be the popular projectile point everywhere. From archaeological work with old Wichita sites, it appears that flint arrowheads were being replaced by metal points between AD 1750 and 1800.

## **Flint Knives**

The knife was a necessary tool for cutting purposes, and it is probably one of the most common artifacts along with projectile points and scrapers on most archaeological sites. Knives vary considerably in form and size but have a thin cutting edge which commonly shows indications of resharpening by the removal of small pressure flakes along the edge. Actual identification as a knife is best made by a study of the edge wear which leaves distinctive microscopic wear patterns on the cutting edge.

The common knife is typically a bifacially flaked ovate or elliptical shaped form, rounded or sometimes rectangular at the base. They are sometimes well pointed but the tip is likely to be more rounded or less well defined than in the case of projectile points. Knives generally do not have stems or notches for hafting although these specialized types do occur. The cruder forms can be mistaken for preforms or unfinished artifacts and identification in this case must rely on edge wear studies. The length is commonly between 50 mm and 200 mm although much larger specimens, some measuring up to



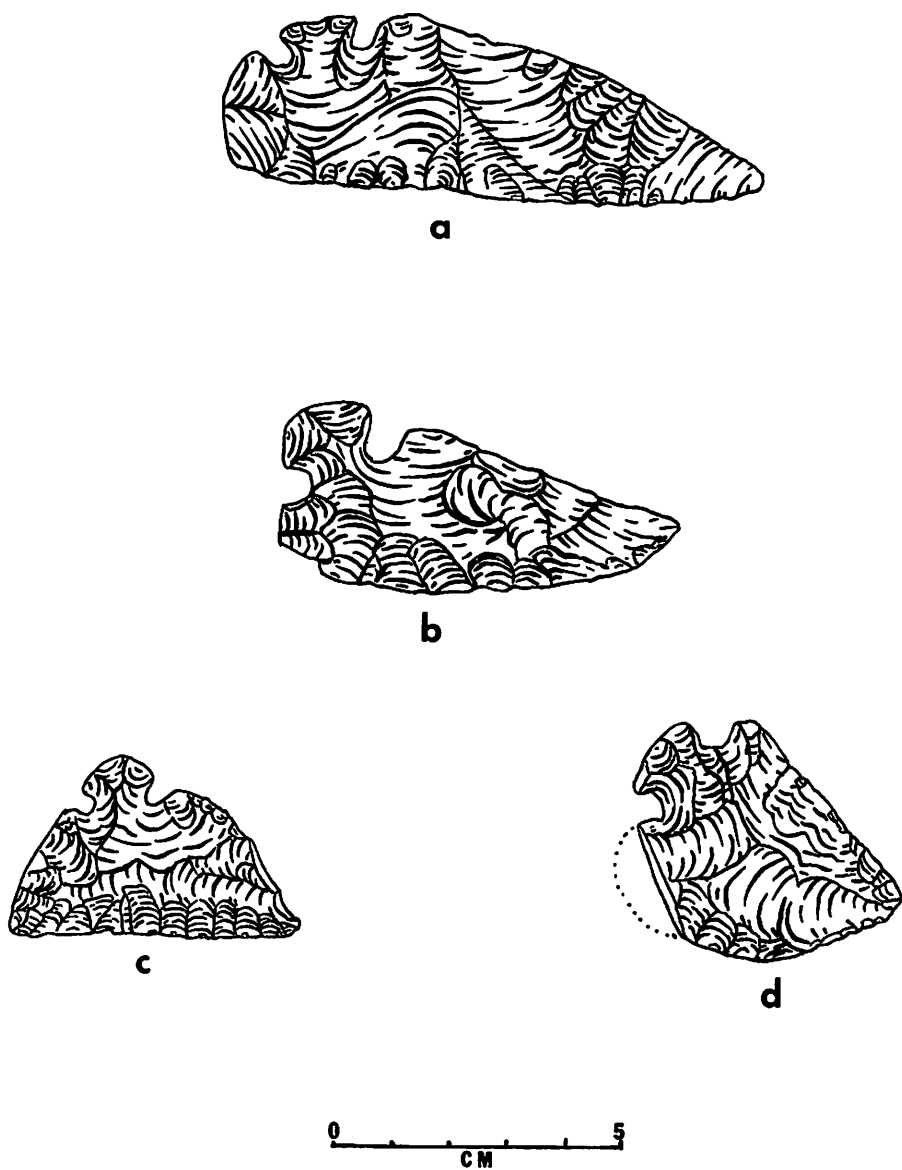


Figure 4 . Corner Tanged Knives

600 mm or more in length, are known. The larger specimens, however, are more rare and represented a valuable social asset for the individual or society concerned.

It should be pointed out that many unmodified flint flakes or blades were also used as knives. Flint flakes when struck from the core have razor-sharp edges and many of these were used as cutting tools without any modification of the flake. In fact, the freshly removed flakes provided a much sharper cutting edge than bifacial knives and they were probably used much more than we currently recognize. The Woodland cultures used many of these flake knives and many were prepared especially for that purpose.

Knives which have notches or some modification for hafting onto a handle are termed hafted knives. These are more rare than the unmodified or plain knife. Although they appear elsewhere, hafted knives are associated with the Neosho focus sites in northeastern Oklahoma and are commonly beveled along the edges from resharpening (Figure 3e).

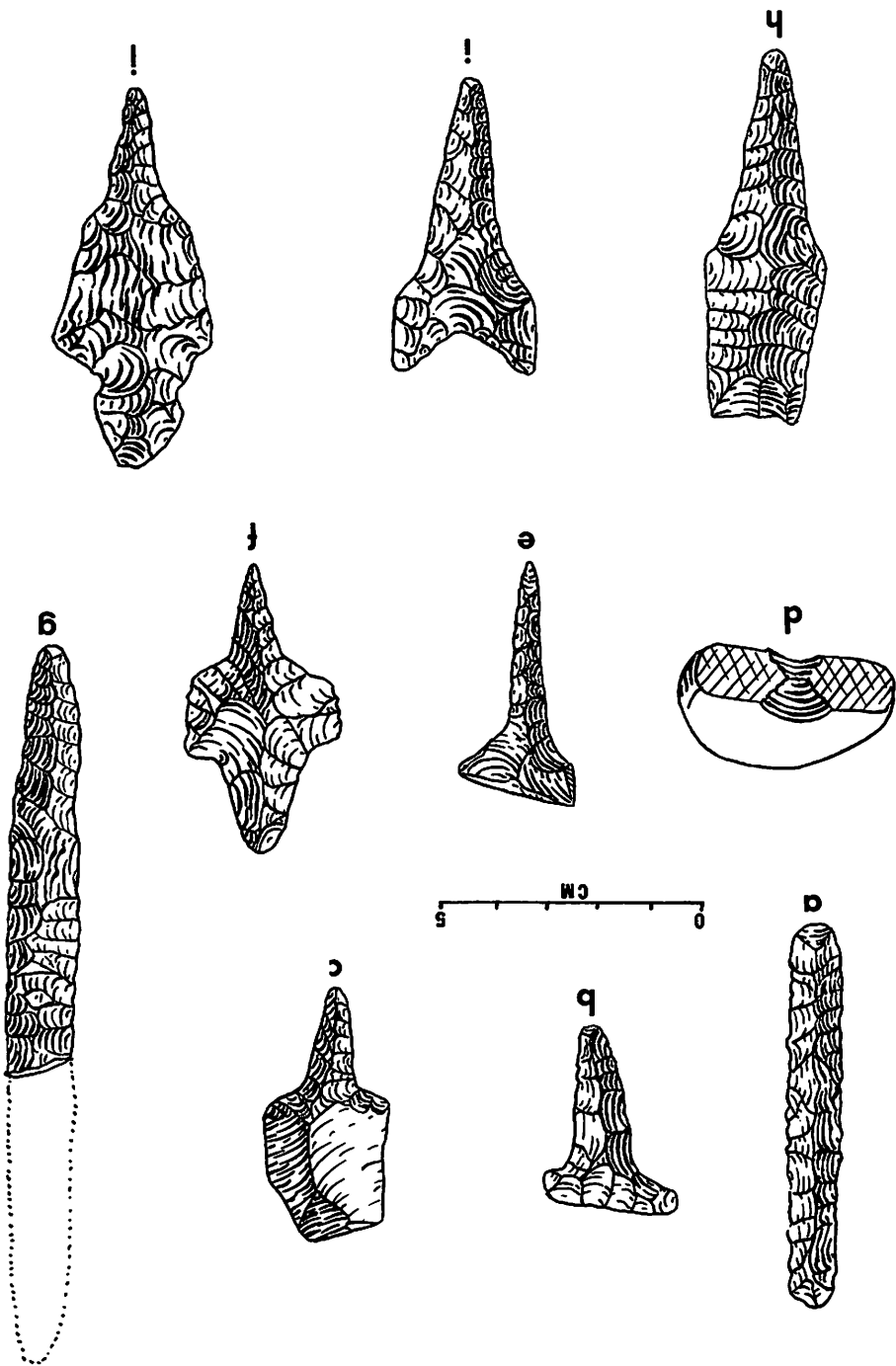
Another flint knife that is found throughout most of Oklahoma is the diamond-shaped alternate beveled knife or Harahay knife (Figure 3c). The beveling is a result of numerous resharpenings of the cutting edge. The Harahay knife is very characteristic of the late Plains Village occupations in central and western Oklahoma, although examples are present in eastern Oklahoma sites. This knife appears to date roughly between AD 1100 and 1500. Otherwise, knives are present in all archaeological assemblages found throughout the state.

## **Corner Tanged Knives**

The corner tanged knife is a specialized form of flint knife that is characteristic of Texas. Examples are found occasionally in Oklahoma and may appear in almost any portion of the state. The name, corner tanged knife, is derived from the fact that the notches and stem are located at the corner or side of the specimen, rather than at the base as in a hafted knife. The form is typically asymmetrical and there is considerable variation in outline from specimen to specimen. The greatest number of examples fall between 50 and 120 mm in maximum length, although larger specimens are known. In general, the quality of workmanship is very good and of high quality although occasionally cruder specimens are found. The cutting edge opposite the notches frequently displays indications of resharpening and use wear although this is not always limited to this section of the knife.

At the present time it is not clear as to how this type of knife was mounted or what special purpose it served. It is usually believed to have had a wooden or bone handle attached to the notched area, which resulted in an angular or L-shaped tool. While it would serve as a cutting tool, similar to more common knives, the unusual form

Figure 5 . Drills or Perforators



suggests that it was for some specialized function that remains unknown.

The Oklahoma specimens that have been found occur in different contexts: examples have been recovered from the Archaic, Antelope Creek aspect, and Fourche Maline phase. Four Oklahoma examples are illustrated in Figure 4.

It should be noted that the corner tanged knife is commonly faked. This is usually accomplished by the addition of notches to a triangular or appropriately shaped biface of Indian manufacture. Completely modern-made specimens are common, however, because of their popularity with relic collectors.

## **Drills or Perforators**

Flint drills or perforators are a common type of artifact that is found throughout all sections of Oklahoma. They are made from a silicious material such as flint or chert and vary considerably in size and form. There is much variation in size and they range from about 20 mm to 150 mm. Most examples, however, fall between 40 mm and 80 mm. They are all characterized by a slender, pencil-shaped section representing the point and shaft of the drill. The base or mounting portion is subject to considerable variation. Projectile points were sometimes reshaped to provide drill-shaped points and some items classed as drills were certainly used as projectile points. Hodge (1907:90) illustrated a human skull found in a mound in Illinois with a drill imbedded in the temporal area. Generally, however, these artifacts were used as drills or perforators for various kinds of material — skins, leather, wood, shell, bone, and stone. Specimens that have been used for drilling or perforating stone, as in perforating a stone pendant or drilling a pipe stem, will display smoothed areas on the sides of the tip or drill shaft. Most of the specimens used for this purpose were mounted in a wooden shaft which served as a spindle for a bow drill or similar implement. In drilling stone such as slate, the drill point becomes damaged and worn from the drilling pressure and must be resharpened from time to time to serve efficiently; consequently, it becomes shorter and shorter with usage. Many drills or perforators were probably mounted in a short wooden handle and served as an awl or perforating tool for softer materials. Many specimens, of course, could be hand-held and would serve satisfactorily without the need for any mounting.

The typology of stone drills is not well developed and few terms are used in the same way by different writers. One rather common term in use is the “pin” drill which has no special shaped base section (Figure 5a). Another useful term is the T-shaped drill which has a T-shaped base to facilitate handling or mounting (Figure 5b). Another type, termed by Orr (1946) the ensiform drill, after its



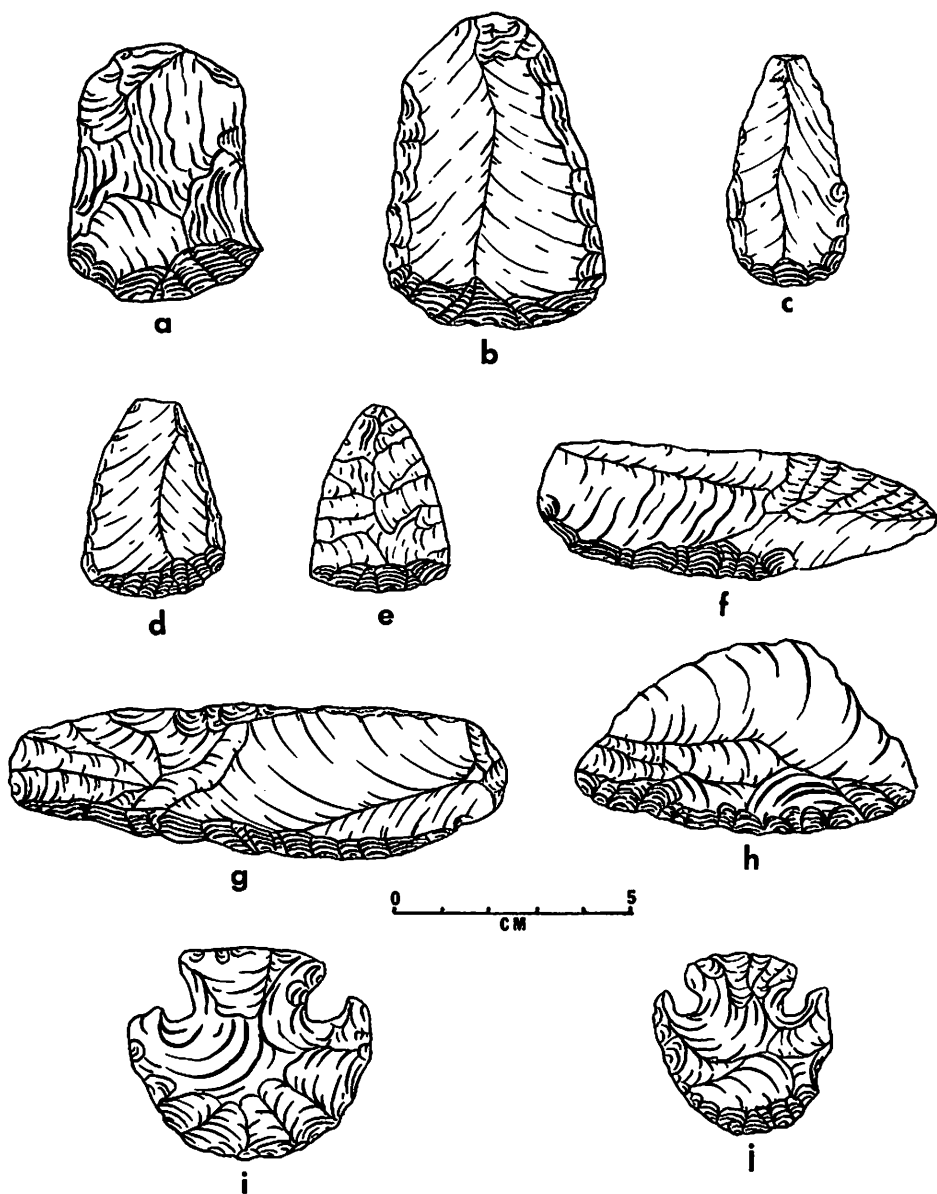


Figure 6. Flint Scrapers

shape, is commonly considered to be a stone pipe drill (Figure 5g). Other variations in the stem or bases are illustrated in Figure 5.

Perforations made with stone drills are usually conical in cross section and display concentric rings or striations along the bore produced by irregularities of the drill shaft (Figure 5d). Most perforations made in stone were made by drilling from both sides of the object, resulting in an hour-glass shaped cross section. Frequently, the makers judgment was off when drilling from both sides and the two cones from the drilling process are slightly offset making an irregular perforation.

Stone drills appear to be represented in about all of the archaeological assemblages found in Oklahoma. They are most plentiful in the eastern section of the state associated with the Archaic or Woodland periods. Although present in later time periods as well as in the Plains Villages, most of the latter drills tend to be smaller in size and of less sturdy construction.

## **Flint Scrapers**

Flint scrapers are common artifacts that are represented in all of the archaeological assemblages found in Oklahoma. They were used chiefly for the preparation of hides and skins for clothing or bedding but were also used for the working of wood, bone, or other softer materials.

Scrapers were typically made from flakes without modification except to produce a scraping edge. A number of flakes were removed from the end or side of the flake to produce a thick wide-angled scraping edge. This thickened edge provided greater strength to the scraper bit and was less likely to damage the surface of the skin. Edge wear is very characteristic of scrapers and they must be occasionally resharpened in order to serve effectively. Consequently, scrapers became shorter and shorter in length with continued usage and resharpening. In fact, many of the scrapers found on sites were probably thrown away as they were no longer functional. Many of the scrapers found are large enough that they could have been held in the hand and used without any mounting. It seems probable, however, that most of them were mounted in a short wooden or bone handle. The finding of such mounted specimens, however, is extremely rare.

Scrapers are commonly divided into two broad types — end scrapers and side scrapers, depending upon which portion of the flake was used to form the scraping edge. The end scrapers are typically spoon-shaped with one flat surface from the original flake, and the other a convex surface with the edge trimming at one end. Sometimes the convex surface has been more carefully shaped, possibly to facilitate some form of mounting. Broken bifaces were sometimes trimmed and utilized as scrapers, and broken projectile



a



a'



a''



b



c



d



e



f



g

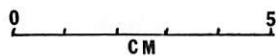


Figure 7 Clear Fork Gouges

points may have been trimmed to produce a scraper from the salvaged fragment. The side scraper was also made on a flake, but the side was used and this produced a longer and usually straighter scraping edge. The side scrapers are more variable in form and were probably hand held rather than having been mounted.

Scrapers vary considerably in size but most of them range between 20 mm and 60 mm although both smaller and larger examples are common.

One characteristic of the early Paleo-Indian type scrapers is the presence of small graver spurs (Figure 6a) which occur at one or both sides of the scraping edge. These do not always occur, but the presence of the graver spur is typical of the older type of scraper.

A type identified as a hafted scraper is also found. These were usually made from broken projectile points (Figure 6i-j). The hafted scraper is commonly associated with the Woodland periods in Oklahoma.

Scrapers are found in all of the archaeological assemblages in Oklahoma and are especially plentiful at sites where bison hunting played an important role in the economy.

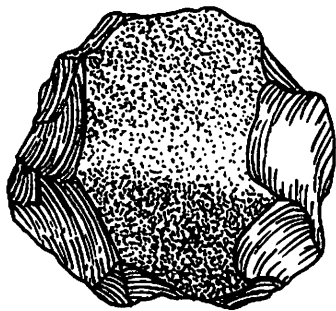
## **Clear Fork Gouges**

The Clear Fork gouge is the name given to a type of artifact that is common in certain sections of Texas. It appears to represent a specialized type of tool that was used for some particular purpose. In spite of considerable discussion and study, however, the function of the Clear Fork gouge is not clearly understood.

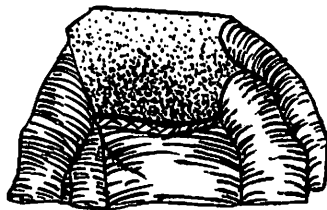
Numerous examples of Clear Fork gouges have been found in Oklahoma as well as in other sections of the country outside of Texas. It appears to be typically associated with the Plains region during Archaic times.

The gouge is represented by a roughly triangular or sub-rectangular shaped artifact with a distinctive gouge-like cutting edge at one end (Figure 7). This gouge-like end is characterized by a wide- angled edge, resembling those present on typical scrapers, and this appears to be the working edge of the tool. The rest of the gouge is usually bifacially flaked although this is not always the case. There are numerous examples in which the back surface clearly represents the outside cortex of a pebble or small nodule from which the gouge was made. The lateral edges are sometimes smoothed, either from use wear or possibly for purposes of mounting the gouge or dulling sharp edges for easier handling of the artifact.

The use of this tool is not well understood. The wear that is present usually occurs on the back surface immediately behind the gouge cutting edge as if the artifact were pulled or pushed as a wood working plane. Many of the gouges, however, are so small that they appear unsatisfactory for this purpose unless they were mounted in some form of handle.



**a**



**a'**



**b**



**b'**

**Figure 8 . Pulpig Planes**

The Oklahoma specimens tend to be somewhat smaller in size than many that are found to the south in Texas. The typical Oklahoma specimen has a length falling between 35 mm and 60 mm although both smaller and larger specimens occur. Information about the gouge in Oklahoma is not well known and specimens are often not correctly identified, but are considered to be broken bifaces or crude preforms. The Oklahoma examples appear to be associated with the Archaic period and are to be associated with the prairie or plains region more than the eastern part of the state.

## **Pulping Planes**

The pulping plane is a crude artifact that is occasionally found in Oklahoma; however, it is rarely reported or is not identified correctly. The artifact is more characteristic of the Southwest and western sections of the United States and sections of Mexico. It is well represented in the Desert cultures of California and the Cochise culture of Arizona, both of which represent the Archaic time period.

Pulping planes are typically heavy and rather massive artifacts, usually cone shaped or hemispherical in form with a flat base. Most of them are roughly made from a cobble in which the cobble cortex formed the base of the pulping plane. The trimming to shape the plane usually extends all around the edges of the implement although many variations can be seen in a large sample of specimens. Two Oklahoma examples are illustrated in Figure 8.

The pulping plane is sometimes termed a domed scraper, a core, a reject, or some other type of tool. The tool was used on a flattened surface, held in the hand and pushed back and forth with a planing motion. The artifact displays wear evidence on the flat base of the plane and sometimes on the steep cutting edge, which was occasionally trimmed or resharpened.

Although this tool could probably be used as a plane to thin or remove rough spots on hides or skins, indications from outside of Oklahoma suggest that it was used for crushing vegetal materials to obtain plant fibers for cord, rope, or weaving. It may have been used in some phase of food preparation, or for other purposes, but the pulping plane represents a useful and important tool that is frequently not identified.

The specimens found in Oklahoma occur in the central and western sections of the state where they appear to be associated with the Archaic time period.



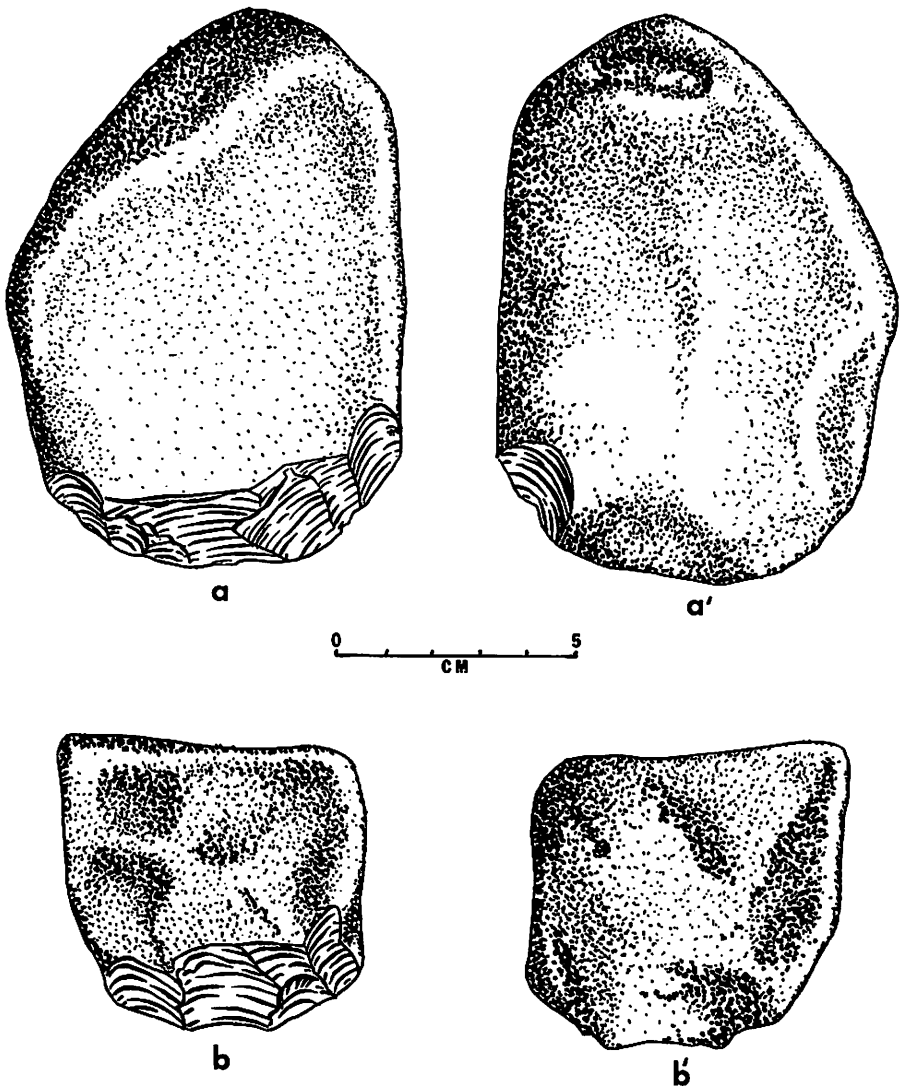


Figure 9. Choppers

## Choppers

The term chopper is used to refer to a simple and crudely made pebble artifact that has one cutting edge. A chopper was used for cutting, hacking, or chopping through various soft materials such as meat or wood. It is a simple tool that was made from a nodule or pebble of flint in which several flakes had been struck from one end or side to form a sharp edge (Figure 9). In most cases, percussion flakes were removed from only one surface of the nodule, producing a sharp but rather steep angled cutting edge. Occasionally, the cutting edge has been trimmed or shaped by additional flake removal from the alternate face of the nodule, producing a bifaced cutting edge.

One distinctive feature of the chopper is the presence of the cortex or outside unmodified surface of the original pebble or nodule of flint. This remains unworked with the exception of the cutting edge, from which only a small portion of the original cobble has been removed.

Choppers vary a great deal in their form, depending upon the shape of the original nodule or cobble used to make the artifact. Most of them, however, are of a convenient size to be held in the hand and the average specimen has a length falling between 50 mm and 120 mm. The chopper was apparently not mounted in any way but was held in the hand for actual use. Although crude and simple in manufacture, it was an efficient tool for numerous purposes.

The term chopper is usually associated with "pebble tools" which were common in Africa, and elsewhere, during early Paleolithic times. Cutting edges made on a pebble, however, provided a simple and useful tool so that examples are found almost world wide and from various time periods. Because of their simplicity and crude appearance, they are often believed to represent very old artifacts, but this is not necessarily true as they frequently occur in late occupations.

Choppers are found in most sections of Oklahoma and appear to be more frequent in the Archaic period but do occur on later sites.

Choppers can be confused with discarded debris to be found at lithic sources or gravel deposits where flint nodules are plentiful. Indians in search of lithic materials commonly picked up suitable appearing nodules or cobbles and removed one or more flakes from them in order to examine the interior of the stone to determine if it would be useful for making artifacts. This cobble testing produces chipped nodules which may resemble choppers in appearance, but they lack evidence of use wear along the cutting edges. Choppers should show some edge wear or evidence for use as a tool.

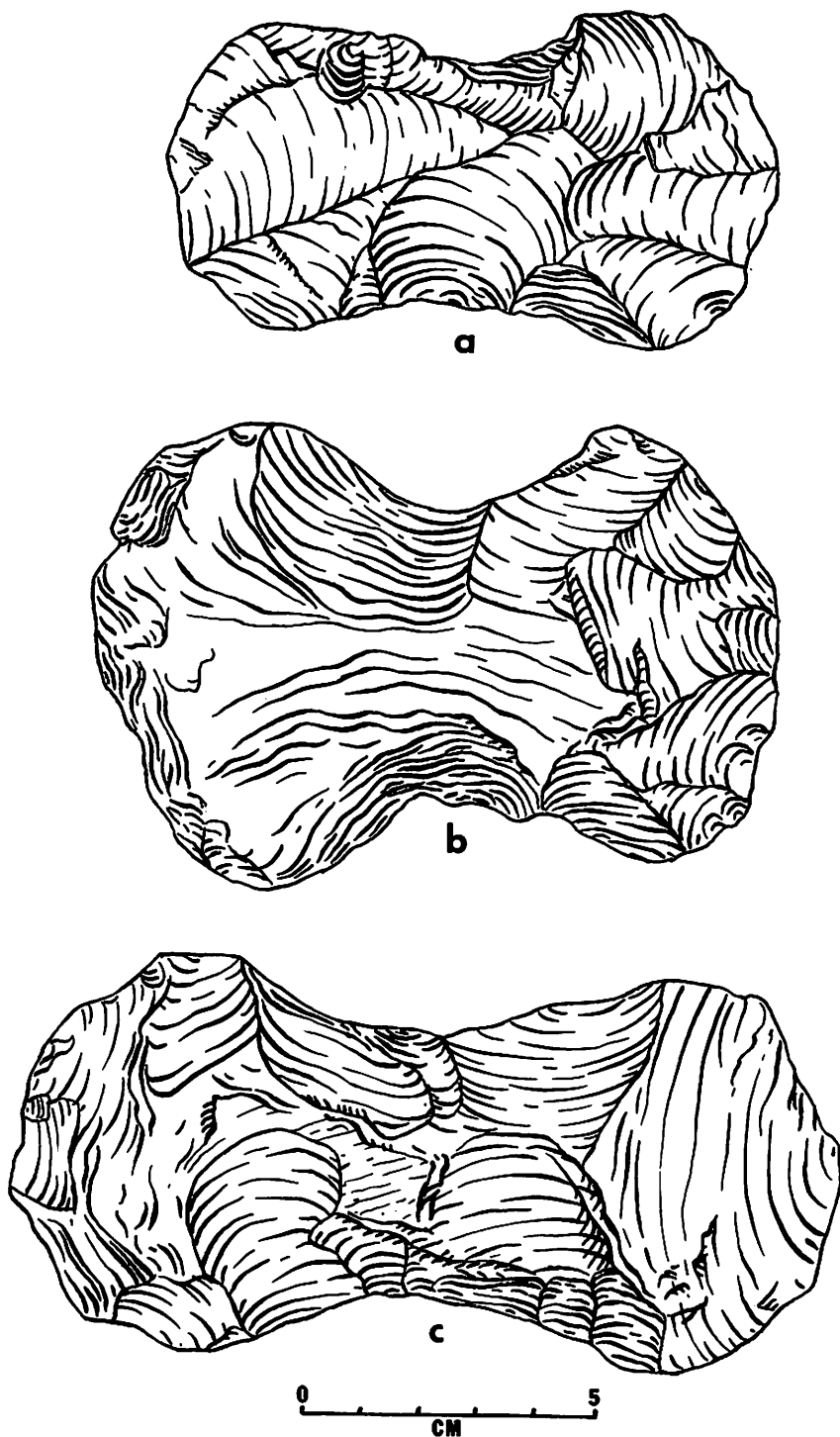


Figure 10. Chipped Double-Bitted Axes

## **Chipped Double-Bitted Axes**

Chipped double-bitted axes are common artifacts found in most sections of eastern Oklahoma. There is variation in form but they have two chopping edges and a constricted midsection for mounting on a wooden handle. They are normally rather crude in workmanship with the shaping done by percussion chipping although more carefully made specimens are plentiful. The outline form varies from almost rectangular in shape to "bow-tie" forms, and the typical specimen falls between 100 mm and 150 mm in length (Figure 10). The midsection is usually quite thick in cross section and often has smoothed or worn areas produced by wear from the original wooden handle. The axe bits sometimes display use wear and commonly have indications of resharpening on the cutting edge.

The double-bitted axe is clearly a utilitarian tool, and many of them are quite crude and were quickly manufactured for the immediate purpose. They do not seem to be found as grave offerings but are found throughout the site occupational area. They are apparently a substitution for the stone grooved axe and the celt as a wood cutting instrument. Stone axes and celts are sometimes found in minor numbers on such sites, but the flint double-bitted axe is much more frequent, perhaps because it could be produced with much less effort.

The double-bitted axe is common throughout the Ozarks region and is found in parts of Oklahoma, Arkansas, Missouri, and Kansas. Within Oklahoma, it appears to be most common in Late Archaic and early developmental Caddoan time, such as Fourche Maline. It is commonly associated with early pottery such as Williams Plain and was a popular tool from 1000 to 2000 years ago.

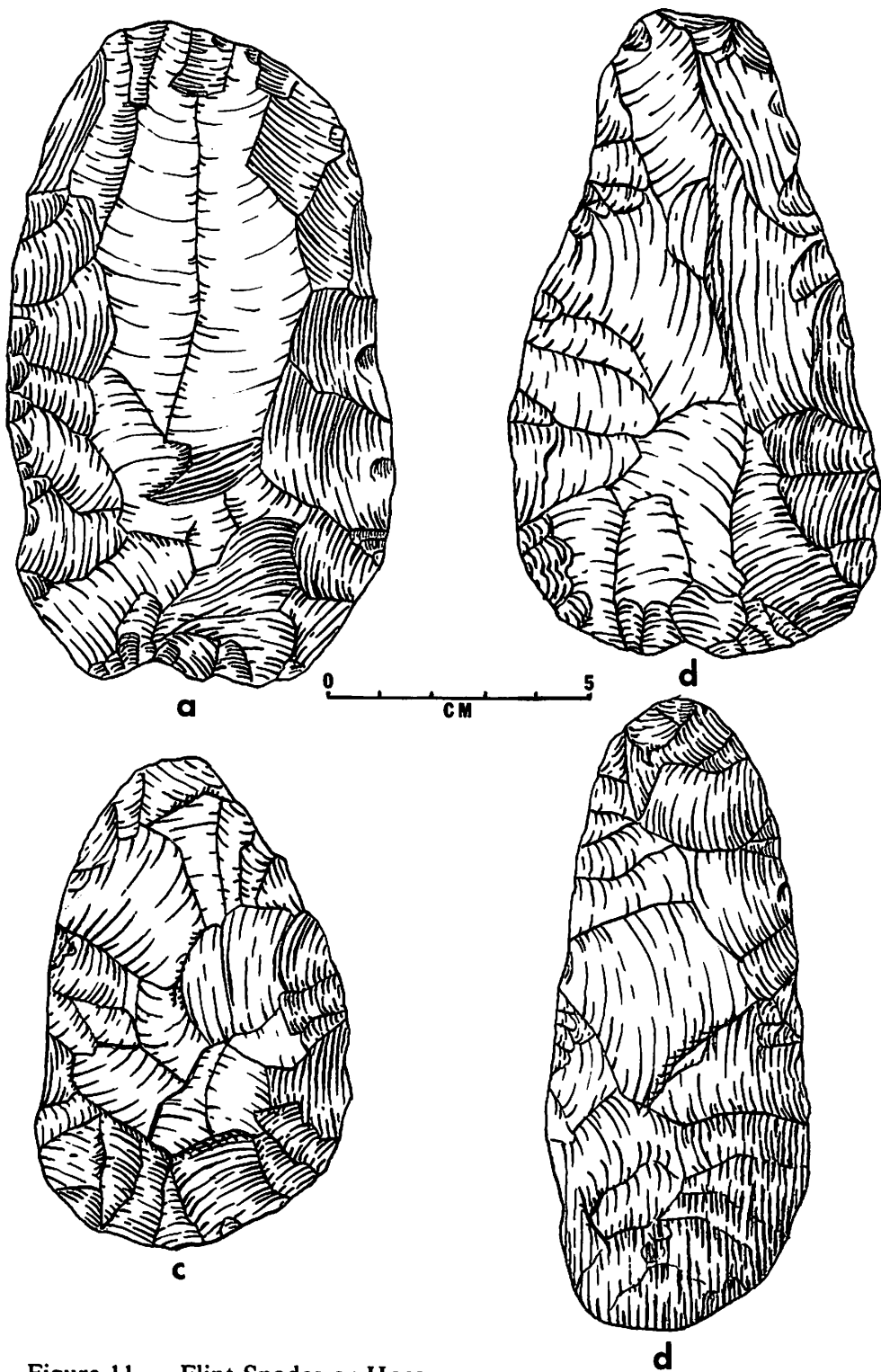


Figure 11 . Flint Spades or Hoes

## **Flint Spades or Hoes**

Small chipped flint hoes or spades are fairly well represented in Oklahoma, especially in the eastern part of the state. These are usually oval or ovate in outline and exhibit percussion chipping resulting in a biface type of tool. They share many features with unfinished tools or preforms but can be distinguished from these by the presence of a polished surface or corn gloss at the bit. This surface polish arises from extensive use in digging in the soil, and provides evidence for tool use either as a hoe or digging tool. The amount of corn gloss or use polish varies from specimen to specimen, but it reflects the amount of actual usage in working the soil. The cutting edge is frequently damaged from striking objects in the soil, and evidence for reworking or sharpening of the edge is commonly present. This resharpening or trimming usually removes parts of the polished surface resulting from usage, but small areas may still remain from the earlier flake scars.

These artifacts resemble the larger spades or flint cultivating tools so characteristic of the Mississippian culture of Missouri and Illinois. The examples found in Oklahoma are smaller in size, however, and most examples will fall between 80 mm and 140 mm in length.

It is not entirely clear how these artifacts were used. It is likely that the tool was mounted onto an L-shaped wooden handle and was used as a modern garden hoe. The spade or hoe is sometimes used as indirect evidence for the presence of agriculture at sites where they are found. It should be remembered, however, that the digging of cache pits, storage pits, graves, or grubbing for roots would also produce a similar wear pattern and that the tool could have been used for many purposes other than gardening.

The specimens recovered in Oklahoma appear to be associated with either Woodland or early Caddoan occupations. They appear more frequently in the northeastern section of the state than elsewhere. Four examples are illustrated in Figure 11.

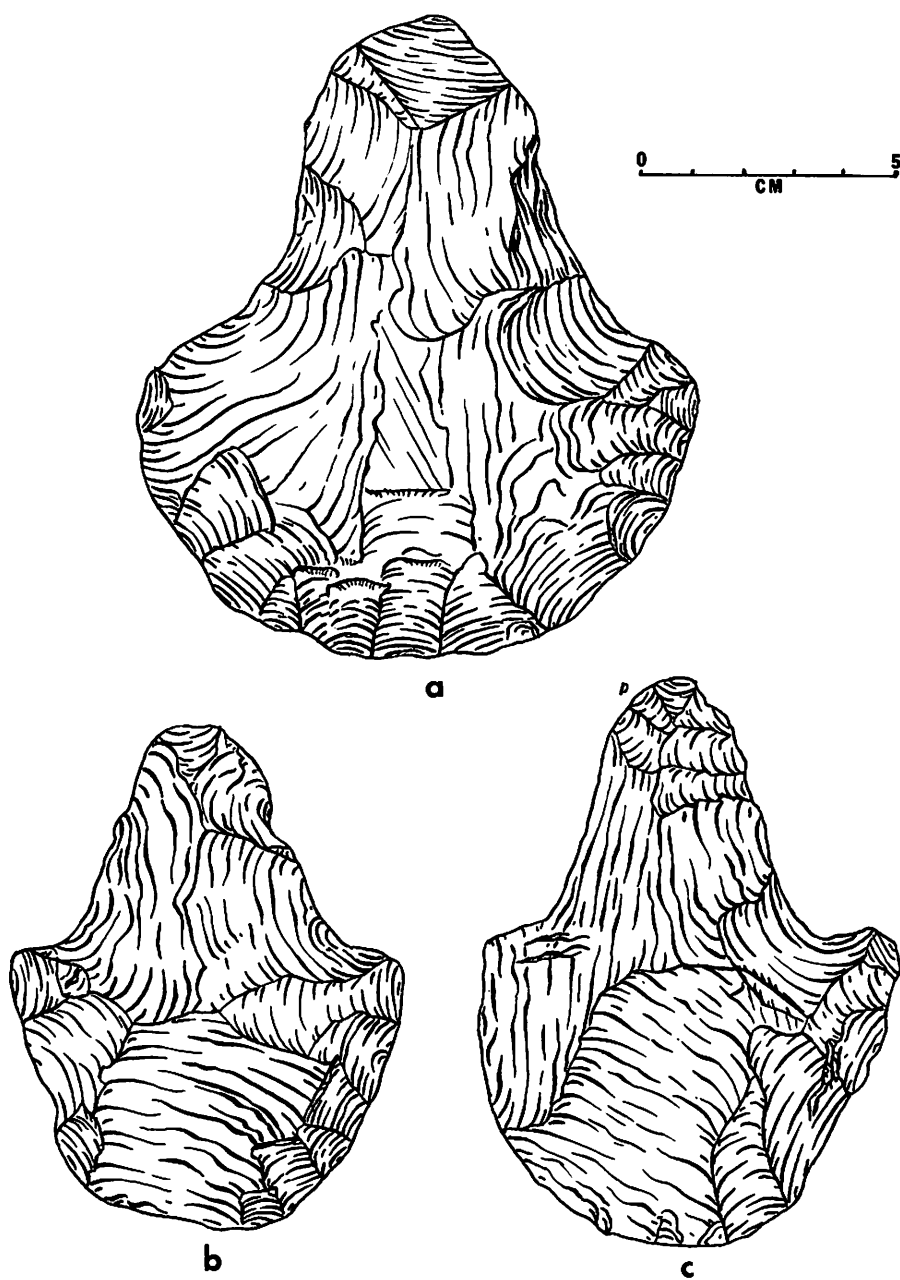


Figure 12 . Stemmed Hoes

## **Stemmed Hoes**

Another chipped stone artifact that is commonly found in the eastern section of Oklahoma is the stemmed hoe. This is apparently a hoe or digging tool for many specimens exhibit use polish on the bit or cutting edge. They resemble the ovate spade or hoe except for the specially prepared stem section which facilitated the mounting onto a handle (Figure 12).

It should be noted that these artifacts are sometimes termed single-bitted flaked axes because of their general similarity to the double-bitted flaked axes. In this case, however, one end has been trimmed and reduced in size to form a stemmed section rather than having a double bit. It is quite possible that many of the stemmed hoes could have been used as single-bitted axe blades. Experimentation and studies of edge wear would certainly improve our understanding of this artifact.

The stemmed hoes are made by percussion chipping and tend to be rather crude in workmanship. The average length of the stemmed hoe falls between 80 mm and 140 mm. The stem section, intended for mounting into a socket or lashed onto a wooden handle, sometimes exhibits smoothing of the lateral edges. Most specimens are rather thick in cross section and are made of a gray colored quartzite material.

Information regarding the cultural placement of stemmed hoes is not as good as one would like, but they are commonly found associated with other forms of hoes or spades and flaked double-bitted axes; they appear to have been in use after the appearance of pottery. At the present time, the stemmed hoe would appear to have been popular from roughly AD 1 until AD 1000. The distribution is not well known but similar artifacts are found throughout eastern Oklahoma and the adjacent regions of the Ozarks, especially in western Arkansas.



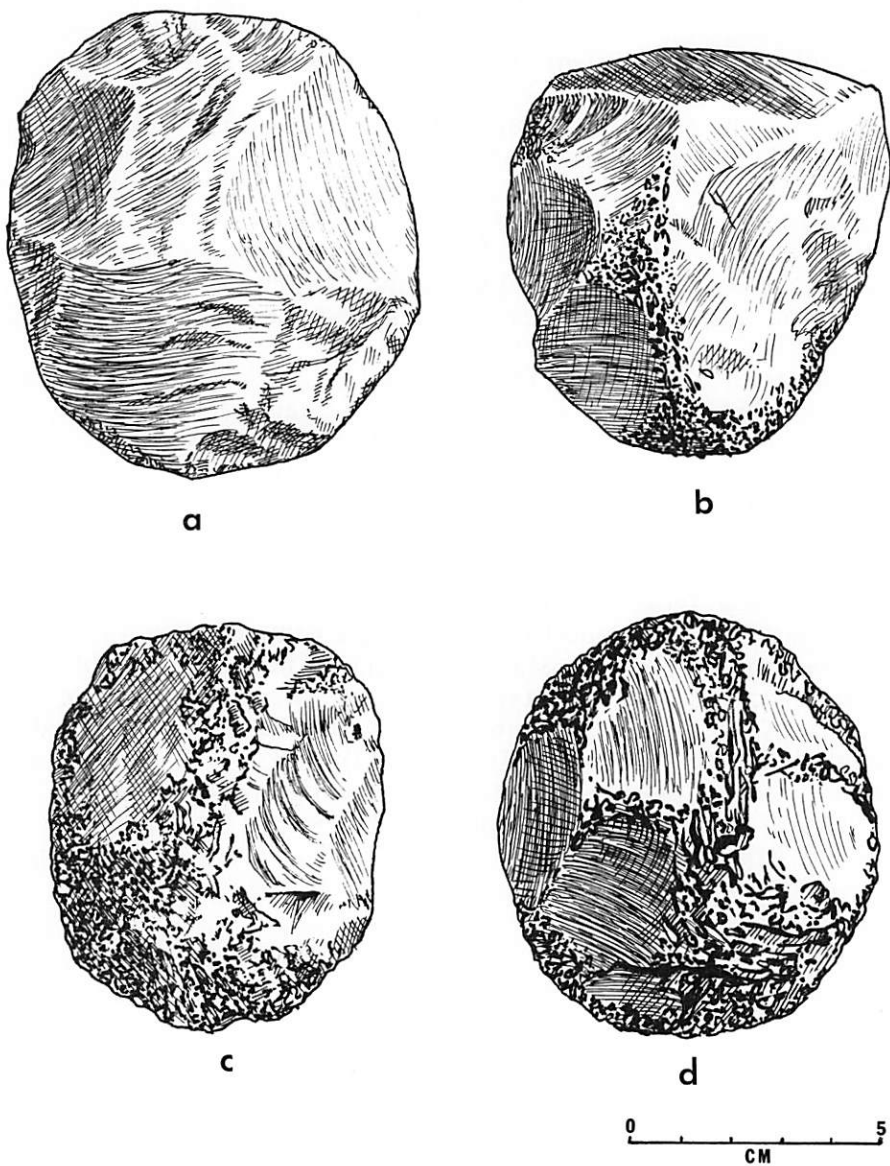


Figure 13. Pecking Hammers

# Pecked, Ground, and Polished Stone Artifacts

## Pecking Hammers

The pecking hammer is a common artifact on many archaeological sites in Oklahoma and elsewhere. It was used for the pecking process during manufacture of ground stone tools. In the manufacture of a stone celt or grooved axe, for example, after a suitable piece of stone was selected the initial shaping of the implement took place by a pecking process. This involved hitting the stone with a hammerstone or pecking hammer to crush or crumble a small amount of stone from the potential artifact. When the stone was struck with a hammer the point of impact resulted in a small "peck mark" where the hammerstone crushed a small area which was removed. These peck marks resulting from the pecking process are commonly present on stone artifacts if they have not been smoothed and polished by grinding to remove them.

The hammerstone that is used to produce the peck marks during this manufacturing process is termed a pecking hammer. They are normally made of flint or some equally hard material that will be effective on the stone item being manufactured. An angular block of flint, convenient to hold in the hand, serves very well as a pecking hammer. Of course, not only does the item being struck by the hammerstone reflect a peck mark, but the hammerstone is also impacted and this action will soon round off edges, sharp points, or other irregularities of the pecking hammer. An angular block of flint with several sharp edges serves best as a pecking hammer. With continued use, however, these edges become dulled and rounded so if the pecking hammer is used long enough, it will eventually become spherical or ball-shaped. By this time, of course, it is less effective as a pecking hammer because the angular areas have been removed and it is not as efficient. Moreover, many pecking hammers become broken or split in two during the pecking process and must be replaced.

The pecking hammers vary in size and form, but most of them are between 50 mm and 80 mm in diameter and are convenient to hold during the pecking process. The form varies from angular blocks in which very little battering is evident to specimens that have been used so much that they have become well rounded ball-shaped forms. Examples with various amounts of battering are shown in Figure 13.

Pecking hammers are likely to be found on any site where ground stone items occur. They also served to roughen the surface of milling stones or handstones (manos) which had become worn smooth from usage. Well rounded specimens are sometimes called "game balls" by collectors.

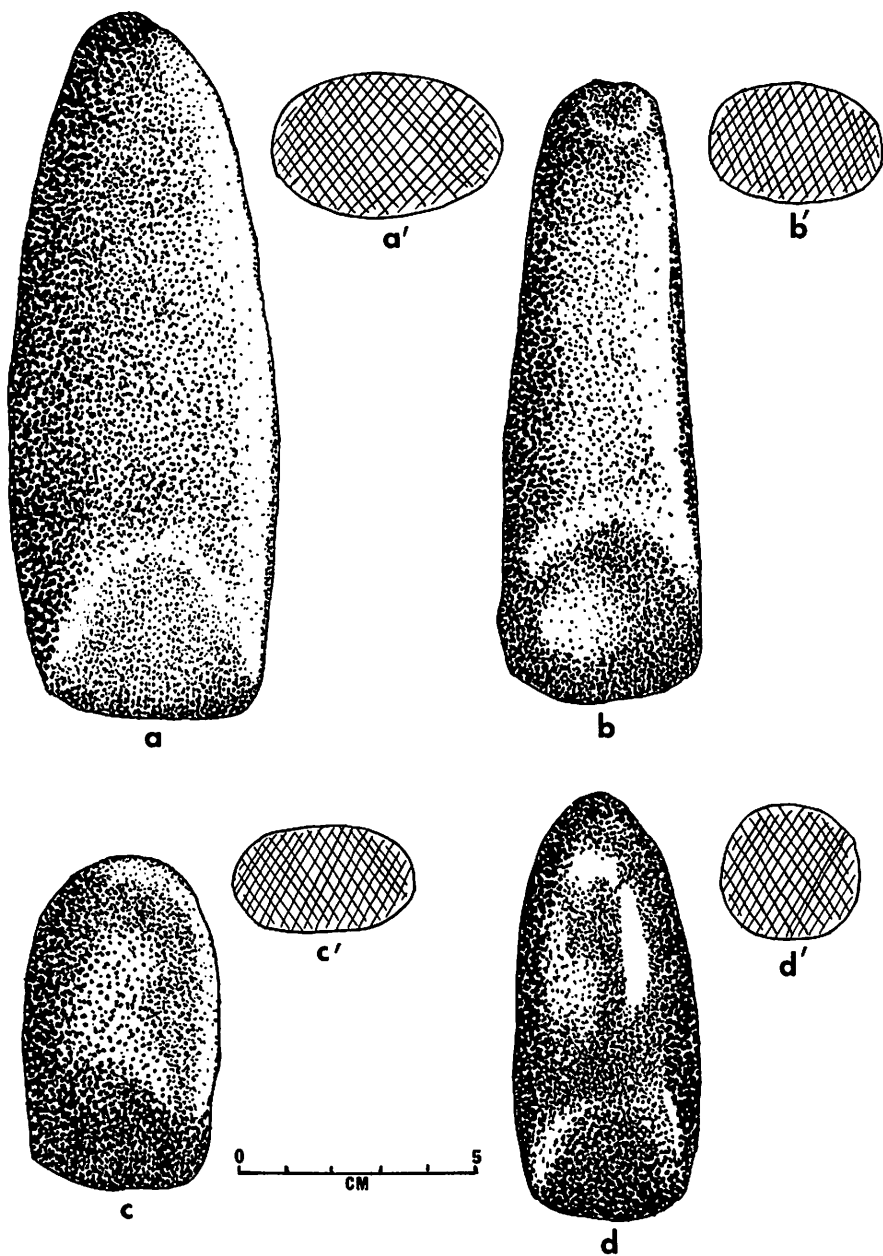


Figure 14. Stone Celts

## Stone Celts

The stone celt is found throughout most sections of Oklahoma although they are most frequent in the eastern part of the state (Figure 14). It is not a common artifact in Oklahoma when compared to its occurrence in other states such as Ohio or Illinois, but it is found in small numbers in several Oklahoma assemblages. The celt is essentially an axe or wood-working tool with a hatchet-like cutting edge. It seems probable that the flaked double-bitted axe may have replaced the celt among many Oklahoma Indian groups, thus accounting for the relatively scarcity of the celt.

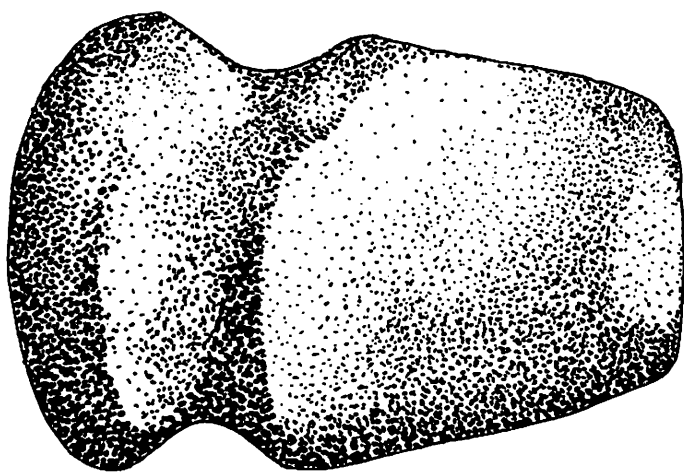
The celt does not have a groove or other modifications for mounting, but was inserted into a socketed wooden handle. Some specimens still mounted on their original wooden handles have actually been preserved, and monolithic axes show mounted celts.

Celts are made of various kinds of stone, usually of an igneous or metamorphic rock although softer stones such as limestone, sandstone, or others were sometimes used. The stone was worked by a pecking process to roughly shape the artifact which was finally completed by hand-grinding and smoothing of the surface with a suitable abrasive stone. There is considerable variation in the amount of work represented by different specimens. Some have been carefully shaped and polished all over the entire surface while others are sometimes poorly crafted with only the wedge-shaped cutting edge receiving much attention.

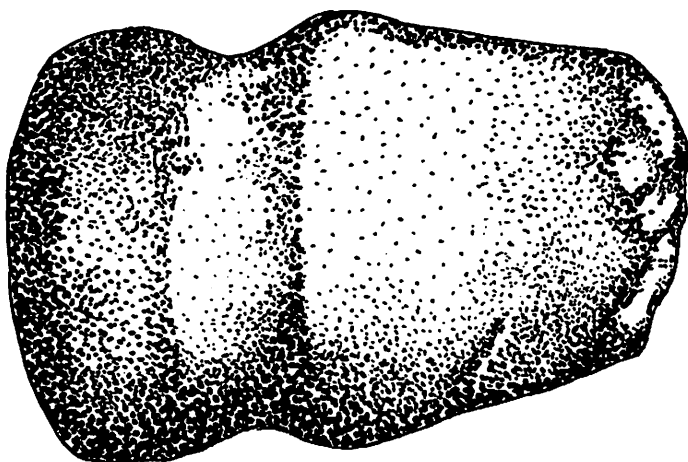
Celts also vary considerably in shape. They are generally wedge-shaped at one end, the main body of the artifact having an outline that ranges from triangular to ovate or rectangular form. The basal section tends to be rounded but may also be quite pointed or even rectangular and blunt. Cross sections also vary from a rather thin lens-shaped section to one which is thick and round in section. Such differences in celt forms partly reflect different groups or different localities as those found in some archaeological assemblages are quite uniform in style. The Washita River focus celts, for example, are typically round in cross section, ovate in outline, and well polished. Celts from the Archaic period, however, are more variable.

Celts also vary considerably in size. Small celts made of black hematite are frequently less than 40 mm in length, but large stone celts measuring over 200 mm in length also occur. Most commonly, however, celts found in Oklahoma will measure between 80 and 160 mm in length.

The celt is represented in all time periods except the Paleo-Indian. It appears to become less frequent in later periods associated with agriculture. By Caddoan times (Spiro phase) the celt appears to have functioned less and less as an axe and more as a fighting weapon or symbol of authority and power.



**a**



**b**

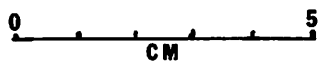


Figure 15 . Grooved Axes

## Grooved Axes

Grooved stone axes are found in Oklahoma but they are not a common artifact in any locality. Most specimens have been found in the eastern section of the state in forested areas close to the Arkansas border. The grooved axe appears to have been associated with the Archaic period although it may have persisted into later times. Examples of grooved axes from excavations are rare and surface specimens are not plentiful. They have been found in association with Fourche Maline and Grove focus materials.

The grooved axe resembles the stone celt in having a wedge-shaped cutting edge for wood working. The axe, however, has a groove for mounting the axe close to the poll or hammer end of the implement (Figure 15). Grooved axes appear in many varieties throughout the Mississippi valley, but the Oklahoma axes are full grooved types. On this type, the groove, which was used in mounting the specimen on a wooden handle, completely encircles the body of the axe. In other localities there are variations in the prepared groove, as it is often three-quarter grooved and does not completely encircle the axe. This variation, to my knowledge, is not found in Oklahoma.

The Oklahoma specimens are fully grooved and with a rounded poll. They are commonly made of fine grained sandstone, limestone, or some similar material. Specimens of granite or other igneous rocks do exist but are more rare. The typical specimen is small in comparison with stone axes found in the Ohio valley region, and most of them have a total length measuring between 100 mm and 140 mm.

The stone axe was mounted onto a wooden handle for service. Although details of the prehistoric mounting method remain unknown for Oklahoma specimens, a satisfactory handle can be formed from a stick which is shaped or split to fit the grooves. Green wood can be shaped more easily, and if the axe is lashed tightly with green rawhide, a light and sturdy mount will result after some seasoning.

A number of experiments have been performed to manufacture grooved axes by primitive methods and then use the axe for cutting wood. A satisfactory stone axe can be made of hard stone in a few hours of working time, and trees can be chopped down though with more difficulty than with a metal axe.

## Stone Abraders

Stone abraders served the Indian as a file, hone, or whetstone in working other stones, shaping wood, or shaping bone tools. They are made of a granular type of stone, rough to the touch, and which would serve as an abrasive material. Most of the abraders found in Oklahoma are made of sandstone, usually rather coarse grained and rather easily broken.

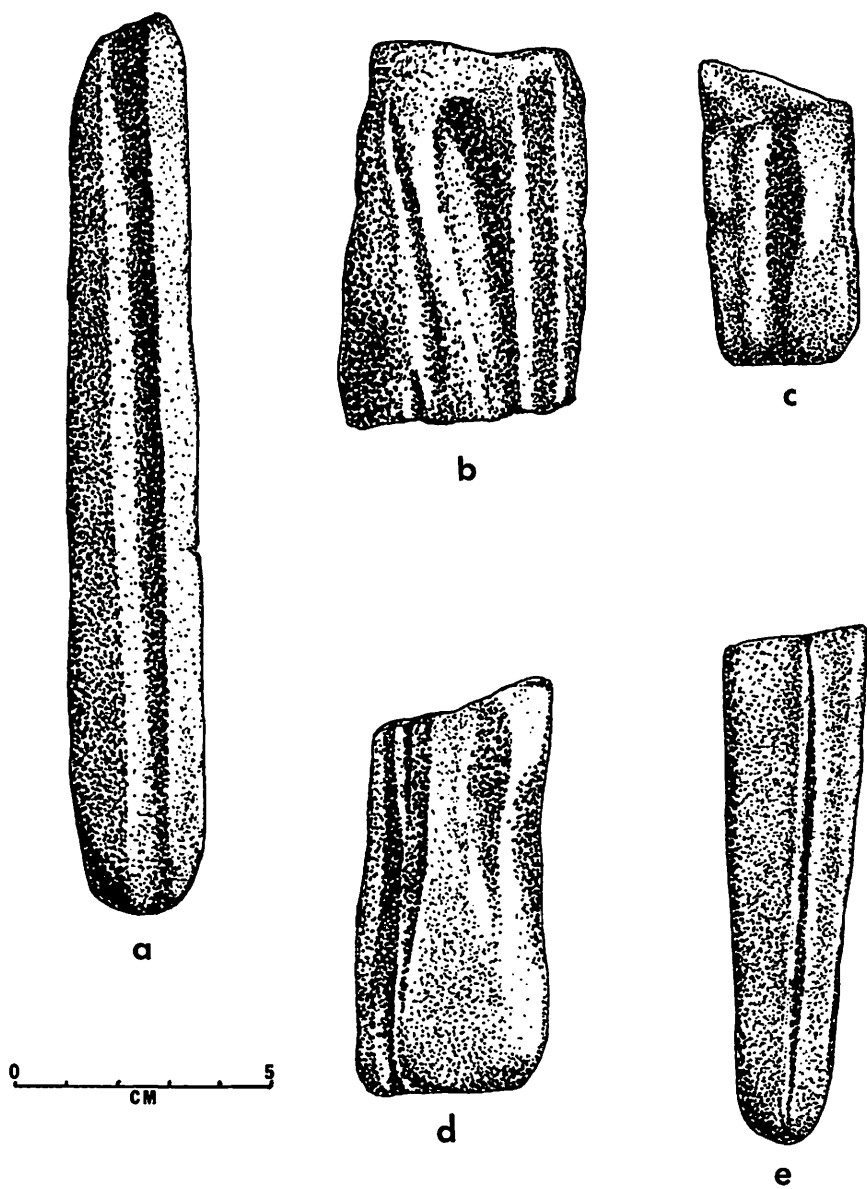


Figure 16 . Stone Abraders

One common use for an abrader was for the smoothing and polishing of stone artifacts, such as the celt. A suitable piece of sandstone would be used to smooth the surface and eliminate the pecking marks produced by the shaping process. The abrader shows flattened or worn areas with striations present from the polishing process. Generally, the stone used for such an abrader has not been specially shaped or prepared but was used for the purpose at hand and then discarded. Some specimens display more wear and use than others but there is no consistency in form other than that it is a convenient size to hold in the hand. Abrasion marks or worn grooves are commonly located in bedrock near living areas such as rockshelters where stone tools were smoothed and polished by rubbing them against the exposed outcrop.

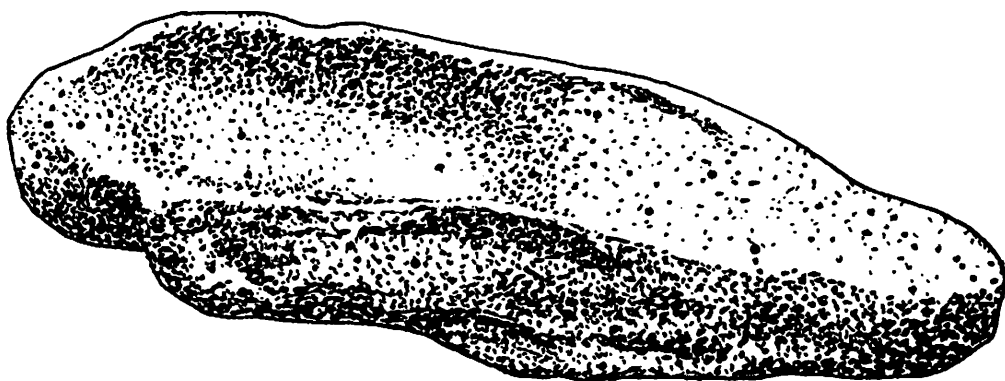
Other stones, usually of harder material, often display abrasions and indications of use as an abrader. Some of these are the result of wear on a stone used by a flint knapper to dull the sharp edges of cores or bifaces during the knapping process. This smoothing or abrasion of the sharp feather edges strengthened the striking platform so that the desired flake could be properly detached. The rubbing stone or abrader for this purpose became worn with shallow grooves or worn surfaces.

The most common abraders found in Oklahoma, however, are those used for smoothing and shaping wooden arrows or for working bone tools, especially for sharpening the points of bone awls. These abraders tend to have been shaped although blocky pieces of sandstone were sometimes used without much modification, especially for honing bone tools. Abraders for smoothing arrowshafts are marked by a shallow U-shaped groove which runs along the face of the stone. They are commonly loaf-shaped or bar-shaped with the groove running lengthwise of the tool. These were made in pairs with matching grooves to be held in the hand for shaping and smoothing arrowshafts to a suitable diameter. Pairs of this tool, however, are found less frequently than single specimens (Figure 16a).

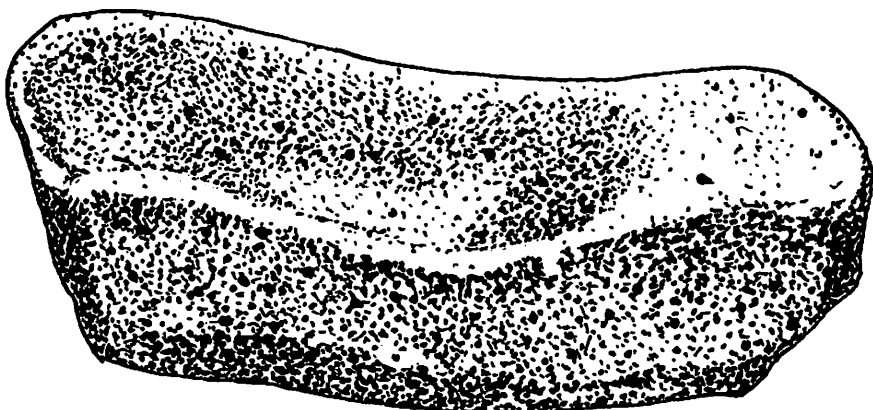
Abraders for sharpening bone awls or similar pointed tools are characterized by V-shaped grooves, usually of shorter length and with greater variation in width and depth. The typical awl sharpener is also loaf-shaped and commonly has grooves along all four sides of the stone. Whole specimens become broken easily and smaller fragments often display numerous grooves from use in sharpening bone awls (Figure 16).

Both the arrowshaft abrader and awl sharpener are very typical of sites in central and western Oklahoma associated with the Plains Villages. However, they also occur in some parts of eastern Oklahoma at a comparable time period, especially in northeastern parts of the state.

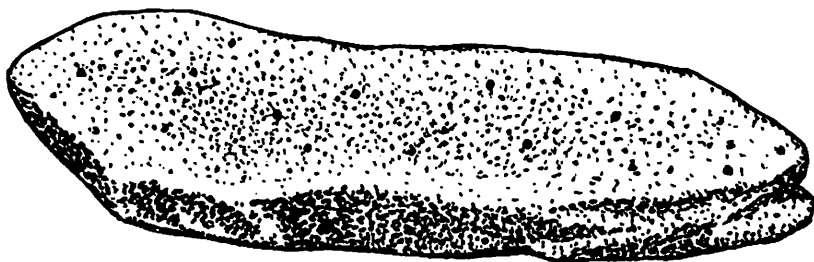




a



b



c

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Figure 17. Milling Stones

## Milling Stones

Milling stones are common artifacts on many Oklahoma archaeological sites. The milling stone or milling basin, frequently called a metate, was used for grinding seeds, corn, or other vegetal products into a flour for food. Specimens are more frequent at sites after the appearance of agriculture and pottery although they also occur on older sites and probably were used for processing wild plant foods.

Milling stones are normally large flattened rocks of considerable weight which have a shallow or deep basin-shaped depression in one or both sides. They were used in conjunction with a hand stone or mano to grind seeds or grain. Whole specimens are less frequently found than broken fragments on archaeological sites.

The classification of milling stones or grinding basins is not standardized among writers, but some general suggestions can be made regarding variations in these artifacts. The term "metate" is derived from the Southwest and Mexico to refer to the corn grinding stone still available today in Mexican markets. This term has been commonly applied to all kinds of grinding basins found elsewhere even though obvious differences exist. One characteristic of the usage of the metate is the grinding process itself in which the hand stone is rubbed back and forth in a washboard motion to grind the grain. This movement results in a trough-shaped grinding surface which is best utilized with a long two-handed grinding stone that can be moved back and forth. The term metate is appropriate for a milling stone of this type (Figure 17a).

Most of the milling stones found in Oklahoma, however, have oval or circular-shaped grinding surfaces in which the hand stone was moved in a circular or rotary motion (Figure 17b). It is suggested that these be termed milling basins and that the term metate be restricted to the trough-shaped forms similar to those found in the Southwest.

Another term frequently used is "milling slab" (Figure 17c). This refers to a milling stone which is almost flat with a shallow or slightly depressed basin. These are characteristic of older sites such as the Archaic and were apparently used for grinding seeds or wild grains. The stone slab which has been used for this purpose is rarely altered except for preparation of the milling surface.

Metates, milling basins, and milling slabs are all found in Oklahoma. Metates tend to occur in the western portion of the state while the others are found in all locations.

The milling basins, as well as the metates, sometimes show considerable intentional shaping of the stone around the basin area. Shallow cups or pits are sometimes present along the ends or margins. The depth of the basin-shaped depression varies considerably depending upon the amount of grinding and use of the

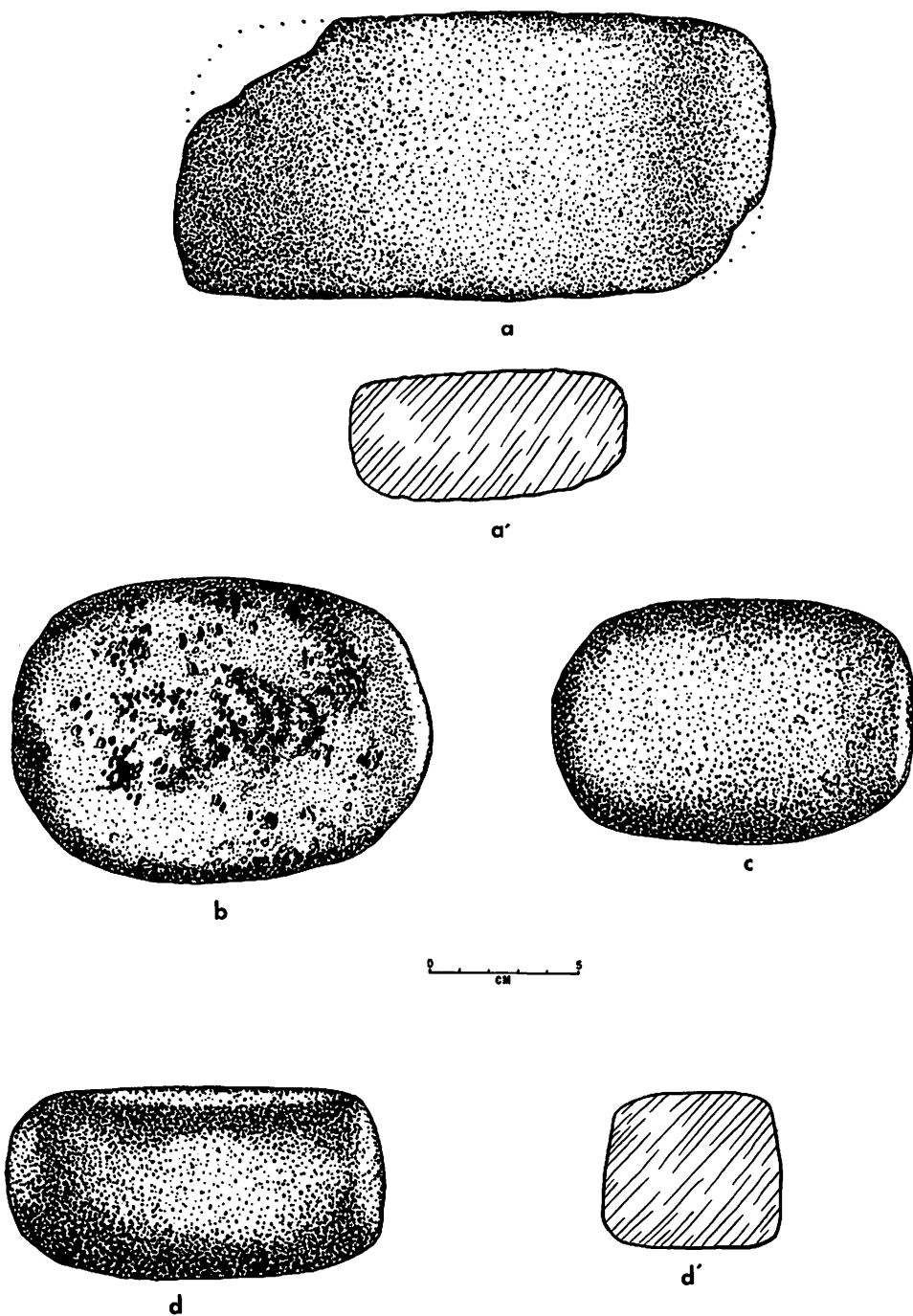


Figure 18. Manos and Mullers

stone. The basin surface must be occasionally roughened by peck marks in order to have a suitable grinding surface and this deepens the basin area with continuous usage. Some specimens become broken by the pecking process or roughening as the basin becomes too deep for the thickness of the stone.

## **Manos and Mullers**

Manos and mullers refer to the handstones used in conjunction with milling basins and metates for grinding seeds or grains into flour. They are common artifacts on many archaeological sites throughout Oklahoma. They were utilized over several thousand years, earlier for grinding wild plant products and later for grinding maize (corn).

The term “mano” is commonly used for these artifacts but it should properly be used for the handstone associated with the metate. Some archaeologists have suggested that the term “mano” be reserved for the handstones that are used on the metate in a back and forth or washboard motion, and that the term “muller” be used for handstones that are used on milling basins or milling slabs with a rotary grinding motion. While this distinction seems satisfactory, it is not always clear in looking at the handstone for what style of grinding it was utilized. Although both the milling basin and handstone were common artifacts, rather few studies of them have been done, and there is little current agreement on terminology.

These artifacts are made of hard stone, commonly a fine grained sandstone, and they vary considerably in size, shape, and workmanship. In general, they are oval, roughly rectangular, or circular in outline with one or two grinding surfaces (Figure 18). They range in workmanship from conveniently shaped stones which have been used as a grinding stone on one surface only, to carefully shaped ovate or rectangular specimens which are carefully formed and used on both faces. The size range varies from small specimens about 70 mm in length to large specimens measuring over 180 mm in length. The typical specimen usually falls between 120 mm and 150 mm in length. The long grinding stones are most similar to the manos found in the Southwest and were held in both hands while grinding in a metate. The medium to small sized specimens are single-handed grinding stones and were probably used in grinding basins.

There is one type, however, that is fairly common in Oklahoma and appears to be associated with the Archaic period. It is more loaf-shaped, often almost square in cross section with all four surfaces having been used for grinding (Figure 18d).

Many specimens will have shallow cups or pits pecked in the center of the grinding face and the entire grinding surface will commonly show roughening from peck marks. This was done to facilitate the grinding process as the surface must be frequently

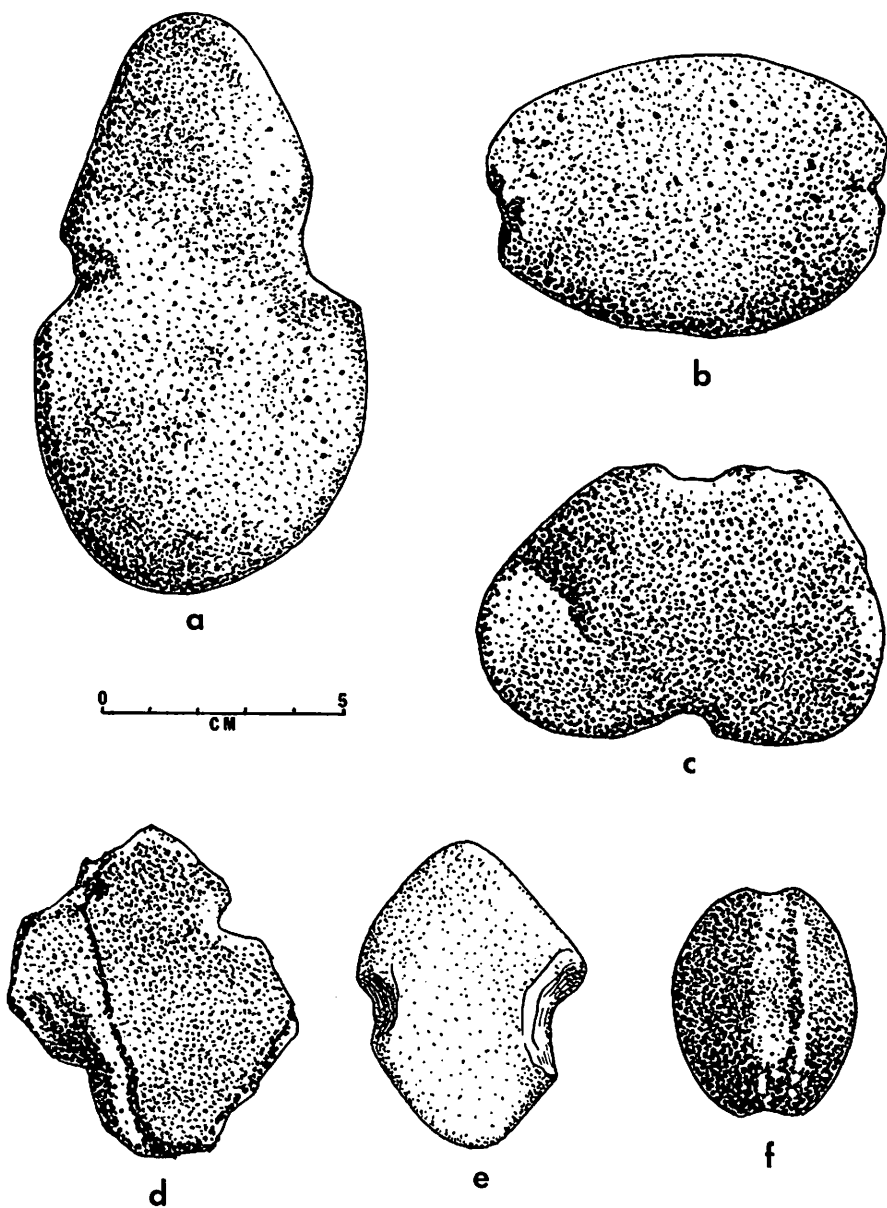


Figure 19. Net Weights

roughened in order to grind properly. When the grinding stone surface becomes too smooth, it will not grind the meal but slips on the basin which must also be roughened. As the stones become smoothed from use, the crushed stone becomes mixed into the flour providing grit which can produce extensive tooth wear, as is observed on many Indian burials. The handstone, of course, although primarily for use with the milling basin, was also used frequently as a hammerstone or anvil. With continued re-roughening and utilization, the stone would become thinner in cross section and when it became inconvenient to hold, it was discarded.

## Net Weights

Stone net weights are found in Oklahoma but are limited in their distribution. They appear most frequently in southeastern Oklahoma, especially in McCurtain county, and along the Red River valley as far west as Lake Texoma. They probably occur in other localities in the state, but the distribution of this artifact is not well known.

These stones, here termed net weights, are also referred to as "notched pebbles," "notched cobbles," "fishing weights," etc., and were presumably used to weight fishing lines or fish nets. Our information about fishing equipment in prehistoric times, however, is limited, and it is possible that these items were used for some other purpose besides fishing weights.

The artifacts here classed as net weights are represented by essentially three kinds of weights: 1) notched pebbles or cobbles; 2) grooved pebbles or cobbles; and 3) Waco net weights.

Notched cobbles are probably the most common type. They were made from a rather flat pebble or cobble by taking a hammerstone and making notches in opposite sides of the cobble so the line-tie would be secure and the weight would not be lost. A few percussion blows with a hammerstone would batter or indent the cobble edge producing a satisfactory notch. Such weights could be made quickly from flat cobbles that would be available in stream gravels or elsewhere. Examples of notched cobbles are illustrated in Figure 19a-e.

Grooved cobbles were also used. These are more rounded or egg-shaped cobbles that were too thick to be notched, so they were roughly grooved with a pecking hammer to provide a string groove around the stone.

The third type of weight is commonly known as the Waco net weight, named after Waco, Texas. This type, illustrated in Figure 19f, is more common in Texas but does occur occasionally in Oklahoma along the Red River valley, especially in the Lake Texoma locality. The Waco weight is made from a small rounded pebble or stone that was carefully selected for its shape or was sometimes part-

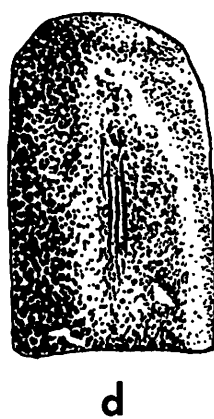
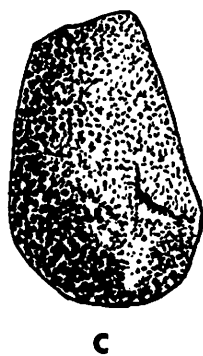
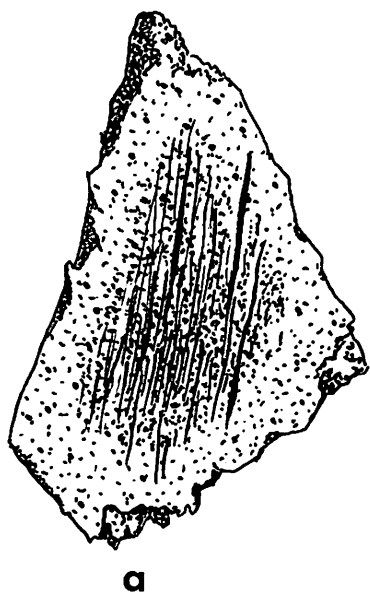


Figure 20 . Paint Stones

ly shaped to form a thick oval which was then grooved lengthwise completely around the stone. The Waco weights are more consistent in size and general form than either of the other types.

The stone net weights appear in an Archaic context in Oklahoma. They are found in the middle and late Archaic period and are probably to be associated also with the early Caddoan occupations.

## Paint Stones

Pieces of natural hematite and limonite were picked up by the Indians for use as paint. The stone was scraped, rubbed, or abraded to reduce the material to a powder which could be used as a pigment. This pigment made an ocher or red colored paint, depending upon the material used, which could be applied directly or it could be mixed with fat or grease for storage and later utilization. The piece of raw material which supplied the powdered pigment will show evidence of scraped, rubbed, or abraded surfaces to distinguish it from other pieces of similar material that have not been used. Since these were used for making paint, they are commonly termed "paint stones."

The hematite paint stones are somewhat heavier than other stones of the same size; they are usually reddish or reddish-brown in color and will make a red colored mark when drawn across a streak plate or piece of light colored flint.

The paint stones are all different in so far as their size and shape are concerned. The raw material was collected as various shaped natural pieces which can be gathered in many places in Oklahoma. Some specimens have very little evidence of usage, perhaps only a scratched surface where some powdered material was removed; other specimens have been rubbed and ground over the entire surface. Consequently, the size and shape of the paint stone recovered from an Indian site is dependant upon the initial size and shape of the raw material and the amount of abrasion and grinding that has taken place. Examples of paint stone are shown in Figure 20.

Figure 20a is a broken section of a flat tabular piece of hematite that has been scraped and scratched on both surfaces without altering the sides. Figure 20b has been ground on all surfaces but one, the grinding having produced several faceted surfaces. Figure 20c has been rubbed or scraped on all surfaces producing this rather pear-shaped paint stone. Figure 20d is a fragment from a loaf-shaped nodule of hematite which has been scraped around the sides and ground on the end.

Paint stones are found on sites from all time periods from Paleo-Indian to historic times. They are a common artifact and are not diagnostic for any particular locality or time period.



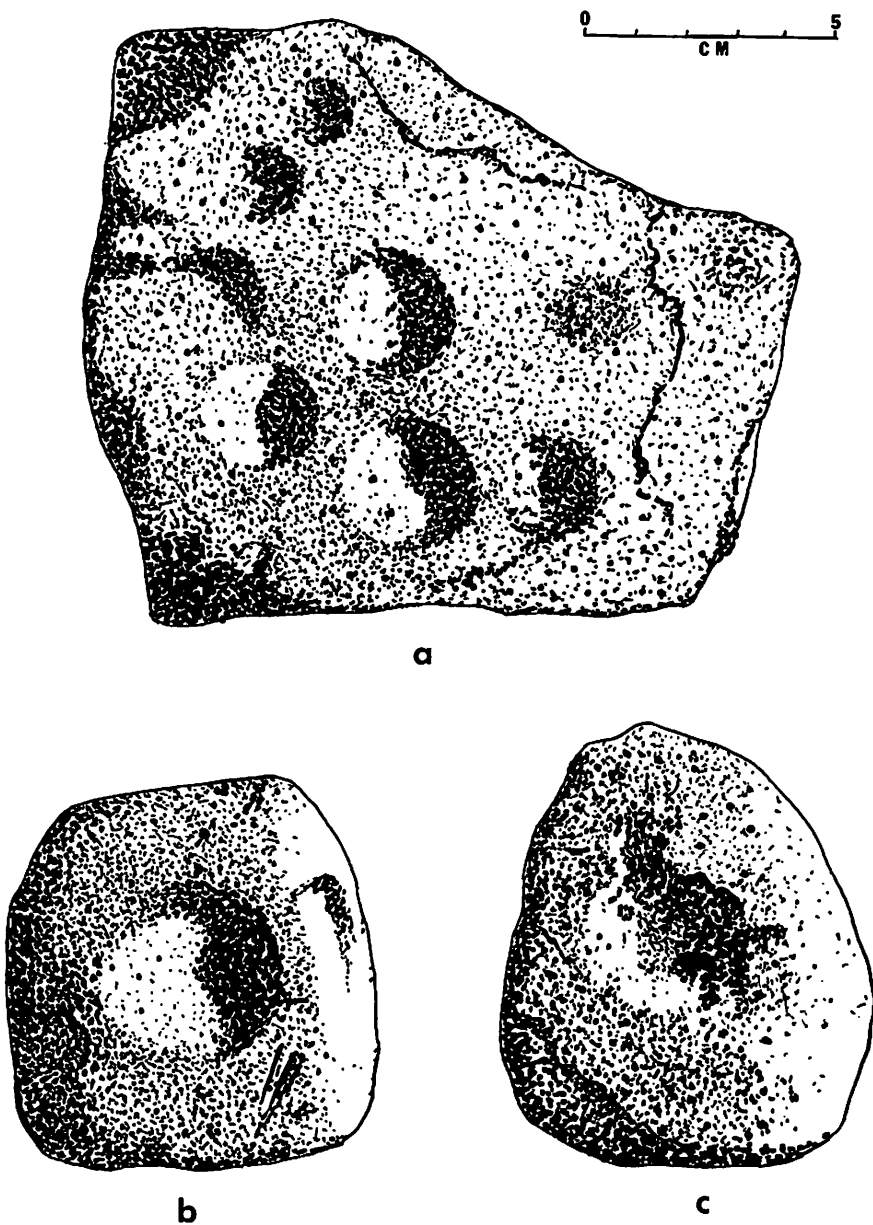


Figure 21 . Cup Stones or Pitted Stones

## Cup Stones or Pitted Stones

A common stone artifact found throughout most of Oklahoma is the cup stone. These are usually unshaped stones, commonly about the size of one's fist, with rather flat surfaces which have small cups or pits on the flat areas. They are usually made of sandstone, limestone, or some sedimentary type of rock. There is much variation in cup stones, however, with the presence of the cupped area being about the only common characteristic. They range from small stones with one or more cups, usually on opposite surfaces of the stone, to larger blocks or slabs of stone that may have several cups present. There is also much variation in the shape of the cups themselves. Some are shallow bowl-shaped cups, others are almost conical in form, while others may be irregular and not so well defined in outline. There is also much variation in the cup size although most examples will fall between 20 mm and 30 mm in diameter. The depth of the cup is partly a function of the diameter but is normally less than 10 mm (Figure 21).

Similar cups or pits are often found around the margins of milling slabs or on bedrock outcrops close to habitation areas. The cups may also occur on broken stone artifacts such as manos or mullers where the broken specimen was retained for service as anvils or hammerstones. Many cup stones were also used as hammerstones as indicated by crushed or battered surfaces around the sides and edges.

The purpose of the cup stone remains uncertain in many instances. Most of them, however, are the result of using the stone for an anvil, the cup having been formed by attrition of the anvil stone as a consequence of utilizing the same spot continuously over a period of time. A cup would have been produced on the anvil in this manner, for example, in the bi-polar knapping process in which pebbles were split or broken, or in the cracking of hard shelled nuts such as walnut or hickory nuts. In either case, the cupped anvil would have helped to stabilize the object of impact. Experiments with bi-polar knapping and nut cracking on an anvil will produce pits or cupped areas similar to many of those present on prehistoric cup stones.

Not all cups found on stones can be accounted for in this manner, however, as some specimens have smoothed cups which would not result from having been used as an anvil. Some of these may have been used as a small mortar for crushing herbs or mixing pigments. An occasional specimen is stained as if it had been used for preparing a red paint.

It seems probable that the cup stone served different purposes; most of them were the result of attrition from use as an anvil stone, but some were purposely produced for some other function. They are clearly a utilitarian artifact which is present from Archaic times onward and are most abundant in the woodland sections of Oklahoma.

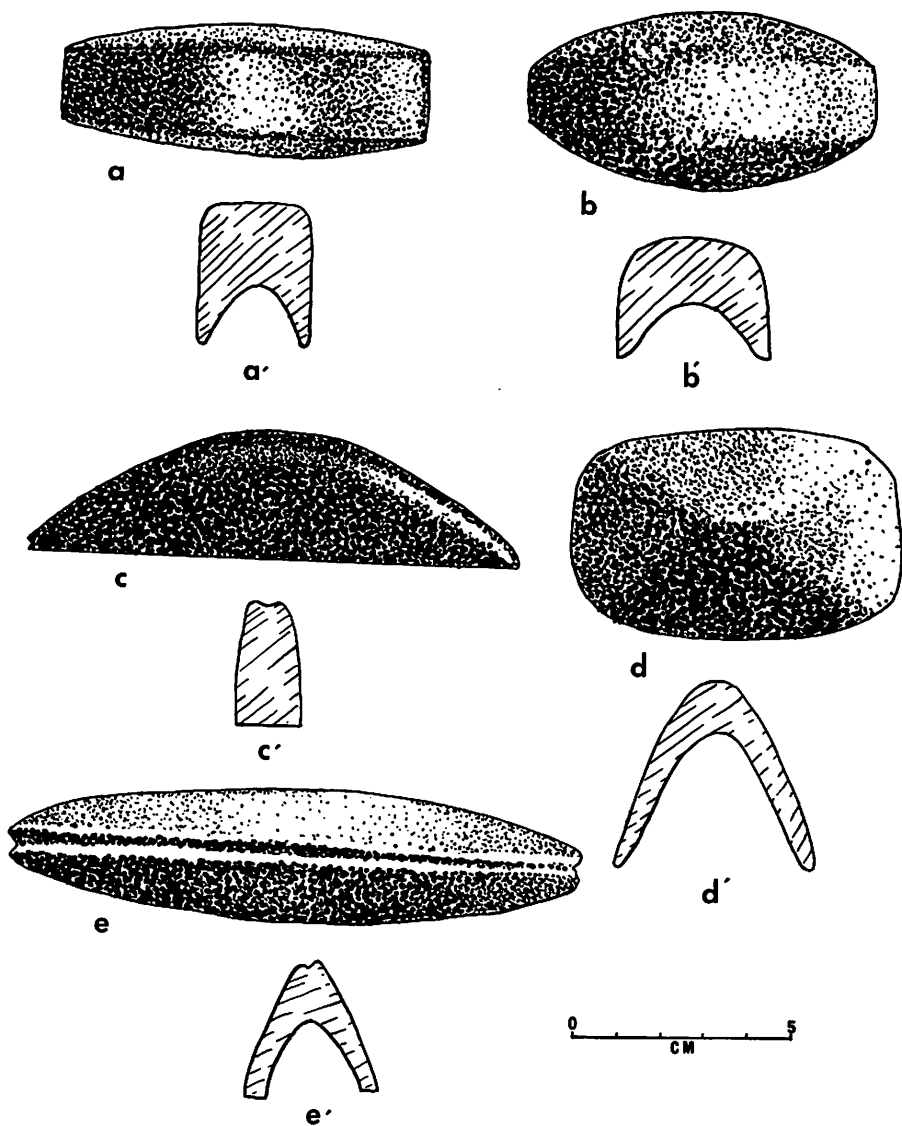


Figure 22. Boatstone Atlatl Weights

## **Boatstone Atlatl Weights**

The boatstone atlatl weight is a fairly common artifact found in Oklahoma, especially in the eastern woodland sections of the state. It is more rare in the central and western areas although occasional specimens are found widely distributed throughout the state, including the Oklahoma Panhandle.

The term "boatstone" which is commonly used to identify this artifact comes from the general boat shape of the stone. The boatstone served as a weight and charm for an atlatl or throwing stick. Similar stones have been found still attached to wooden atlatls in the Southwestern Basket Maker sites. The boatstone was tied or lashed to the throwing stick between the handle and the hook end which held the base of the spear or dart at the time of launching the weapon. The boatstone presumably served as a weight to increase the efficiency of the throwing stick although this could have been accomplished merely by increasing the size of the atlatl or using a heavier type of wood. The amount of labor expended on the boatstone and the fact that many of them have been carefully hollowed out to form a cavity which would be hidden by the atlatl shaft suggest that other functions were involved; perhaps some weights served as a charm to improve hunting success.

Boatstones vary considerably in their form, size, and material. Some Oklahoma examples are illustrated in Figure 22. They are generally boat-shaped with one flat side which was placed against the throwing stick. The form varies from rather long cigar-shaped types to more oval, elliptical, rectangular, or circular types. Sometimes the boatstone is deeply hollowed out with rather thin walls, and other times it is flat based with no attempt to hollow the interior at all. The more slender forms are likely to be flat rather than hollow, perhaps because of the difficulty in hollowing out the stone. A common feature on Oklahoma specimens is the presence of a string groove cut along the "keel" of the boatstone. This string groove is often present on boatstones having a narrow or V-shaped cross section and it held the string or cord which tied the weight onto the atlatl shaft. Some boatstones have perforations, usually two, for attachment, but the perforated boatstone is very rare in Oklahoma, if it occurs at all. Occasional specimens are sometimes incised with a simple design on the outside surface.

There is also much variation in size with the range being from small examples 50 mm or less in length to large specimens measuring 130 mm or more in length. Most specimens, however, will have a length between 70 and 100 mm.

All types of materials were used for making boatstones. They were most often made from metamorphic or igneous rocks although hematite, quartz crystal, and other stones were sometimes used. They were manufactured by a pecking, grinding, and polishing process;

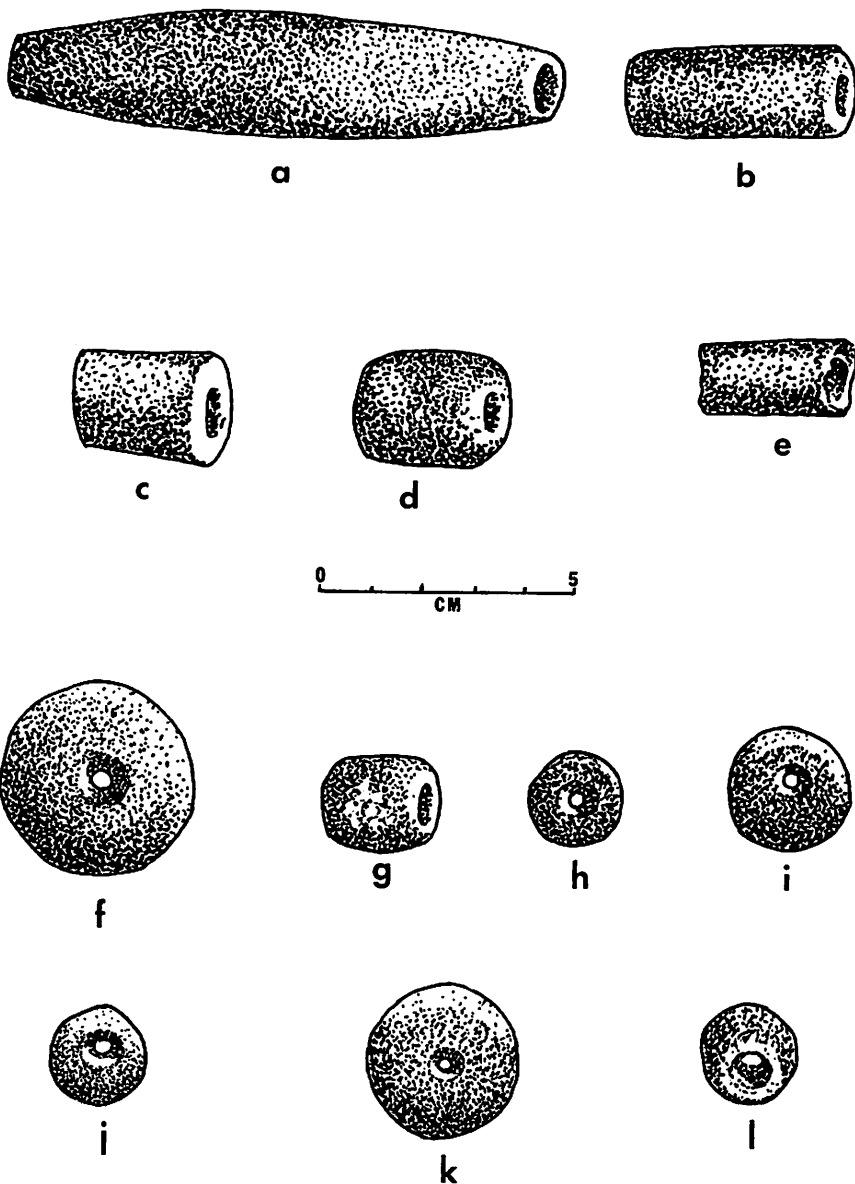


Figure 23 . Stone Beads

the greatest difficulty was encountered in hollowing out the central section.

The boatstone is an old artifact which was popular during the Archaic period. It apparently continued in use with the atlatl after the appearance of the bow and arrow, but it finally became more and more rare. In Oklahoma, it is most commonly associated with the Late Archaic and Fourche Maline phase of Caddoan times.

## Stone Beads

Stone beads are found in the early Caddoan occupations of eastern Oklahoma, especially in the Harlan phase. They are typically made of black phosphate nodules which have been shaped and perforated, but stone beads are also made of fine grained sandstone, limestone, cannel coal, pipestone, and other materials. Several examples are illustrated in Figure 23.

The stone beads show variation of form and size although they can be roughly grouped into a tubular form and a more globular, barrel or disk-shaped form. They range in size from small washer-shaped beads about 7 mm in diameter to larger globular beads over 35 mm in diameter. The more tubular-shaped specimens may have a length up to 108 mm (Figure 23a).

The beads have been made by a grinding and polishing process which often took advantage of the phosphate nodule form to economize in labor and keep the bead size as large as possible. Grinding facets are commonly present on many specimens. The perforations were made with stone drills for the most part with the hole begun from each side and the drilling continued until the two holes met, forming an hourglass-shaped cross section. Some of the longer tubular beads, however, have holes with an even bore suggesting that they were drilled with a cane or stick using sand as an abrasive material.

Beads, which may be stone beads, are shown on some of the conch shell engravings as being worn on the hair forelock over the forehead. Aside from the small sized washer-shaped beads that appear as necklaces, the stone beads are limited in number when found as if they were worn singly or in a small group of two to four specimens. The typical burial association at the Harlan site which contained stone beads, for example, would have from one to four beads present.

Small washer-shaped stone beads of turquoise or other exotic material have been found in Oklahoma. These are apparently trade goods derived from the Southwest and continued in service as a necklace. It should be noted that beads similar in form to the stone beads were also made of conch shell. Rare examples are made of copper and galena.

The tubular specimen illustrated in Figure 23c is of special interest

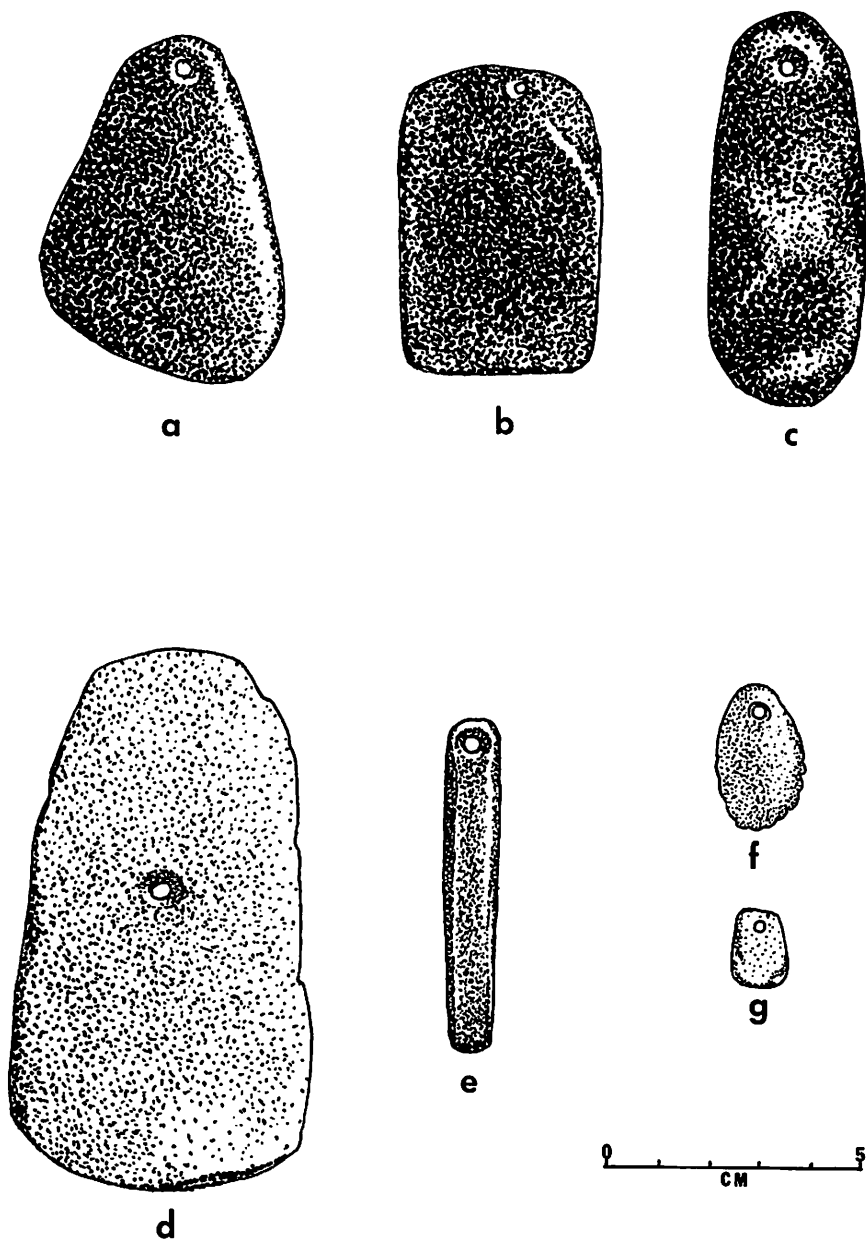


Figure 24. Stone Pendants

as it has been made from the stem section of a stone pipe. The pipe was broken but at least one section of the stem was salvaged by grinding off the damaged edges and producing a stone bead.

## Stone Pendants

Stone pendants are not common in Oklahoma although occasional specimens are likely to be found in almost any section of the state. Stone ornaments having more than one hole (gorgets) are much more common. Sometimes a broken gorget would be salvaged and converted into a pendant but this is usually evident upon examination of the specimen.

Stone pendants are flat tabular pieces of stone with a single perforation for suspension. The smaller specimens were apparently worn as ear pendants while the larger examples were worn around the neck either by themselves or as part of a necklace. They are usually made of shale or slate but many other stones, such as turquoise, microcline, phosphate nodules, or various igneous rocks, were also used. These ornaments were made by a grinding and polishing process and then were perforated with a stone drill for suspension.

Pendants vary a great deal in their form and size. They are generally oval or rectangular in outline with the perforation placed toward one end. Examples are shown in Figure 24. Figures 24a-b are from the Harlan site (Ck-6) in Cherokee County, Oklahoma. They were found together and are made from large phosphate nodules. Specimen Figure 24c was not purposely shaped but represents a flat nodule that was collected and then perforated for a pendant. Figure 24b has been roughly shaped from a split section of a phosphate nodule by rubbing the edges to obtain the rectangular form; the flat surfaces are but slightly smoothed.

The example illustrated in Figure 24d has been reworked from a larger ovate-shaped gorget which had been broken. The broken edge has been smoothed over and rounded out to produce a pendant from the remaining portion.

The two smaller examples (Figure 24f-g) are ear ornaments which were found at Wd-12 in Woodward County, Oklahoma. These must be imports from the Southwest as they are made of exotic materials from that area. Figure 24f is made of microcline and has been decorated with a series of notches arranged around the edges of the pendant; Figure 24g is made of turquoise and is similar to ear pendants worn by the Pueblo Indians today.

Stone pendants were used over a long period of time from the Archaic period up to the present. The illustrated specimens represent Late Archaic, Harlan phase Caddoan, and Plains Village occupation.

It should be noted that stone pendants, as well as gorgets, sometimes have notches or "talley marks" cut into the edges. Occasionally lightly engraved designs were cut on the flat surfaces but the significance of these decorations remains unknown.



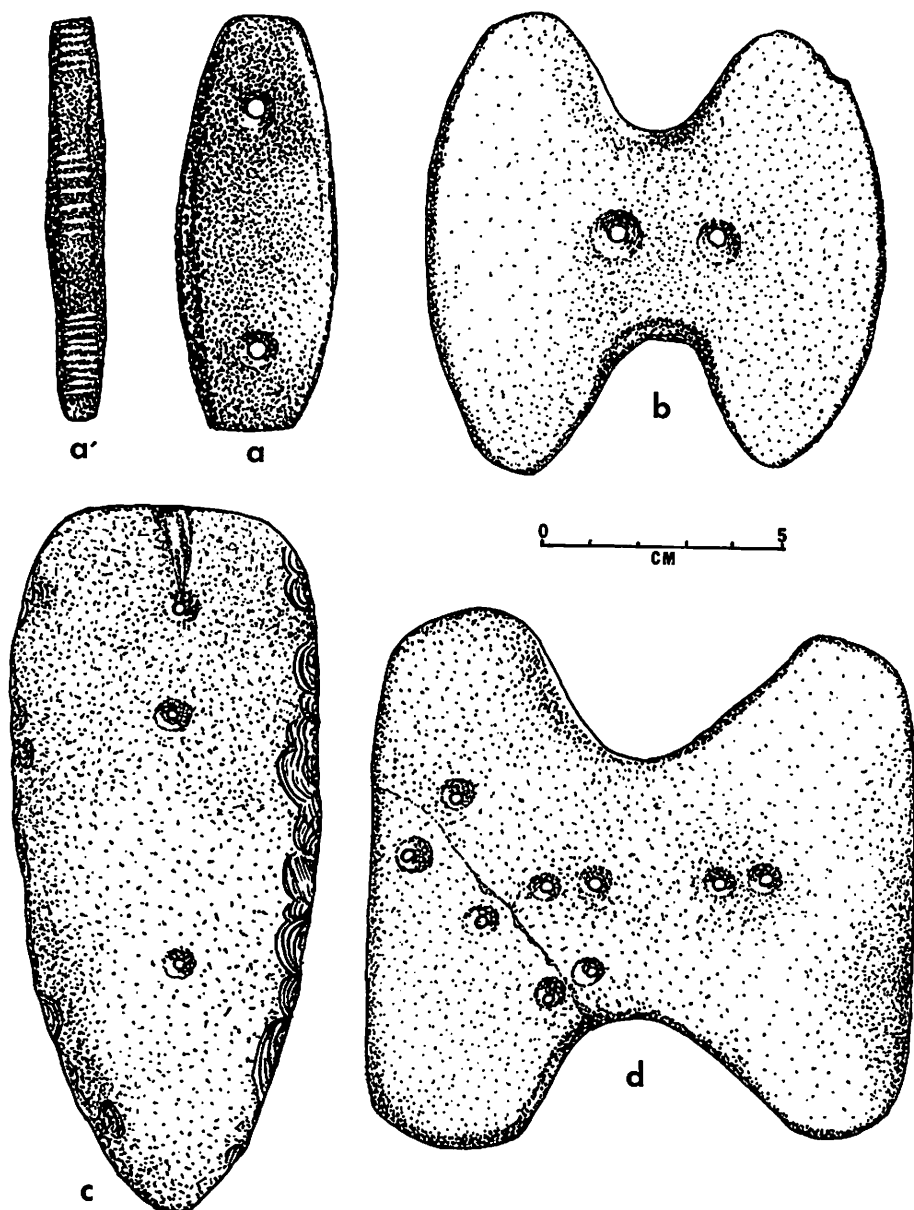


Figure 25. Stone Gorgets

## Stone Gorgets

Stone gorgets are found chiefly in the eastern sections of Oklahoma, although occasional specimens may be found in almost any part of the state. They are not common artifacts at any site, but sufficient numbers of them have been found that they would not be considered rare. This artifact is much more common in the Great Lakes region where it is associated with the Archaic and Woodland periods. Oklahoma appears to lie on the western periphery for the distribution of these artifacts.

The term gorget is used for items which are perforated with two or more holes. The term itself implies that the object was worn around the throat or suspended on the breast. They are commonly called "ceremonial stones" by collectors, and it is most likely that the stone gorget had some social significance. Exactly what this was still eludes us, and it is probable that it differed from group to group.

The stone gorgets are usually quite thin in cross section and were made from a flattened piece of shale, slate or similar material. Although some styles tend to be thicker than others, most specimens fall between 8 mm and 12 mm in thickness. The gorget was manufactured by a grinding and polishing process. In preparing the initial preform, it was sometimes roughly shaped by percussion and the use of a hammerstone, which is still evident on Figure 25c. These initial shaping scars, however, are usually ground out with smoothing and polishing of the surface. The perforations were usually drilled after the final shaping of the gorget, and the placement of the two holes usually depends upon the outline of the specimen. The bow-tie and reel-shaped forms, for example, have the holes placed close together at the center (Figure 25b and d); long oval-shaped forms have the holes placed far apart toward the ends (Figure 25a). The perforations often show wear from a cord suggesting how the object was suspended. Talley marks are sometimes present on the edges (Figure a').

Gorgets that were broken were commonly salvaged or repaired. Breaks often occurred at the perforation and in such a case the broken edge was smoothed over and a new hole drilled. The specimen shown in Figure 25c was initially a longer elliptical shaped gorget with three holes. When one end broke off, the break was ground down, smoothed, and then perforated once again. While the original symmetry of the gorget is lost, the major portion was salvaged and retained.

The specimen shown in Figure 25d well illustrates the use of lacing holes for the repair of a broken gorget. Five extra holes were drilled along the broken edge for lacing a thong to bind the fragments together. Since one of the original central perforations had to be used for the sixth lacing hole, two additional central perforations were made for symmetry and balance.

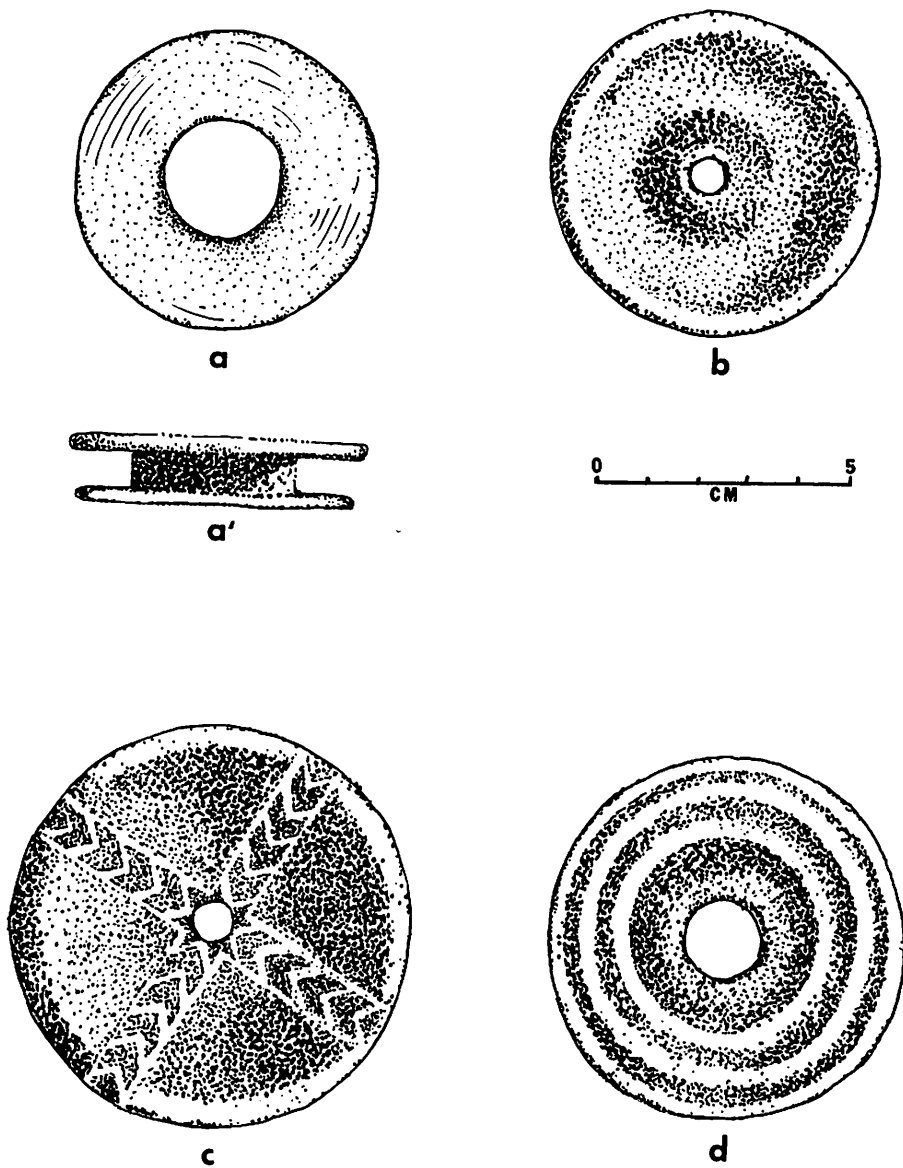


Figure 26 . Stone Ear Spools

Foster type, lack the central perforation and have a wide groove which extends across the central portion of the inner face, dividing it in two sections.

The pulley-shaped stone ear spools were in use in Oklahoma during the period from approximately AD 1100 to AD 1400.

## Stone Pipes

Stone pipes are found throughout all parts of Oklahoma although they are not common artifacts. They appear most frequently on sites which date after the appearance of agriculture and pottery with most of the recorded specimens being associated either with the Caddoan or Plains Village occupations. The earliest appearance of stone pipes in Oklahoma remains uncertain at the present time.

Stone pipes appear in a great variety of forms including self-stemmed pipes, elbow-shaped pipes which require a separate reed or cane stem, effigy pipes representing various animals or human figures, and rare unique pipes such as the double-bowled pipes found at Spiro, Oklahoma. The effigy forms and other unique styles of pipes are not included here. Only the more common types found in the state are described and illustrated here.

Stone pipes were made by a grinding and polishing process. The initial roughing out of the pipe was done with a pecking hammer to minimize the amount of grinding that would be necessary. This pipe preform was then ground and polished to the final form at which time the bowl and stem hole were completed. Some unfinished specimens indicate that the perforations were sometimes started before the final finishing stage of the pipe, apparently to avoid labor loss in case of difficulties in making the bowl and stem holes. The preparation of the pipe bowl and the drilling of the stem section frequently created difficulties, especially in long stemmed forms. Examples are available in which the drill hole went to one side and broke through the side of the stem; also there are pipe bowls with holes in the sides from either errors in hollowing out the bowl or in the grinding down of the outside bowl surface. The larger pipe bowls were drilled with a cane using sand and water as an abrasive. This produces an even bore but leaves a small core in the center which must be broken off to complete the bowl. The stems were usually drilled with a flint drill although other techniques must have been used as some pipe stems from Spiro have lengths as great as 250 mm.

Various stones were used for making pipes; these include sandstone, limestone, siltstone, red shale, pipestone, steatite, and other materials.

The specimen illustrated in Figure 27a represents an example of the T-shaped pipe from Caddoan times, a pipe form especially characteristic of the Arkansas river valley area. Figure 27b is a varia-

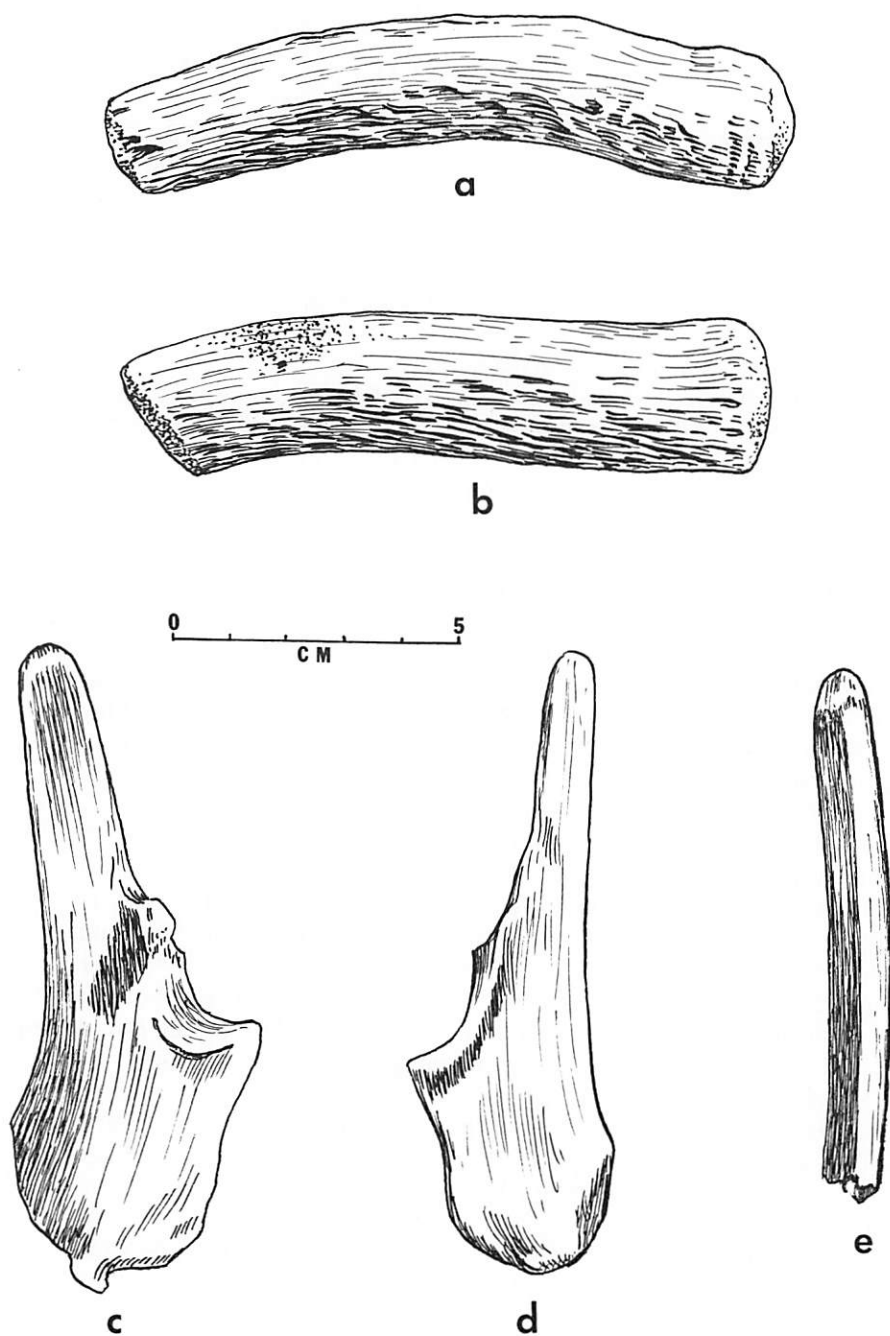


Figure 28. Flint Knapping Tools

tion of this type with a more flattened base and a different shaped bowl profile. This specimen has a shortened stem projection as it has been broken, but was smoothed over and modified for continued usage. The two specimens shown in Figures 27d-e are typical elbow pipes from the Plains Villages of central and western Oklahoma. Some examples have the stem at a right angle to the bowl and are less V-shaped in outline; the expanded bowl with the flaring lip is quite typical. The specimen shown in Figure 27f is sometimes termed a Wichita pipe but this identification requires further documentation. This pipe form is typical of the late Caddoan Fort Coffee phase occupations in eastern Oklahoma.

# Bone Artifacts

## Flint Knapping Tools

Artifacts which were used in the manufacture of chipped flint items are often found on archaeological sites. Other than hammerstones, the most common items include antler batons or billets for percussion chipping, and bone or antler tools for pressure chipping. These are found throughout most sections of Oklahoma and may occur from any time period.

Flint knapping generally involves two methods which are termed percussion chipping and pressure chipping. In percussion chipping the core or block of flint is hit with a hammer-like blow to detach the flint flake. This is usually done with a stone hammer to rough out a preform or quarry block that may be made into some specific artifact. This rough preform will later be thinned and shaped by the use of a bone or wood baton or billet which will produce a thinner and flatter flake than a stone hammer would produce. A heavy section of deer or elk antler makes a suitable baton or bone hammer for percussion chipping and such specimens are often found on archaeological sites. These sections of antler, sometimes called "tapping tools" should show evidence of wear from use as a striking hammer for knapping. Since the Indians often used antler for other purposes, in making handles, for example, evidence of wear is important in identifying knapping tools. Examples of such tools made of deer antler are illustrated in Figure 28a-b.

In the case of pressure chipping, the flake of flint is detached by applied pressure or force rather than by the use of a hammerstone or billet. This is usually done with a piece of bone or antler which serves as an applicator for applying the pressure. The bone tool is placed on the preform edge which serves as the striking platform,

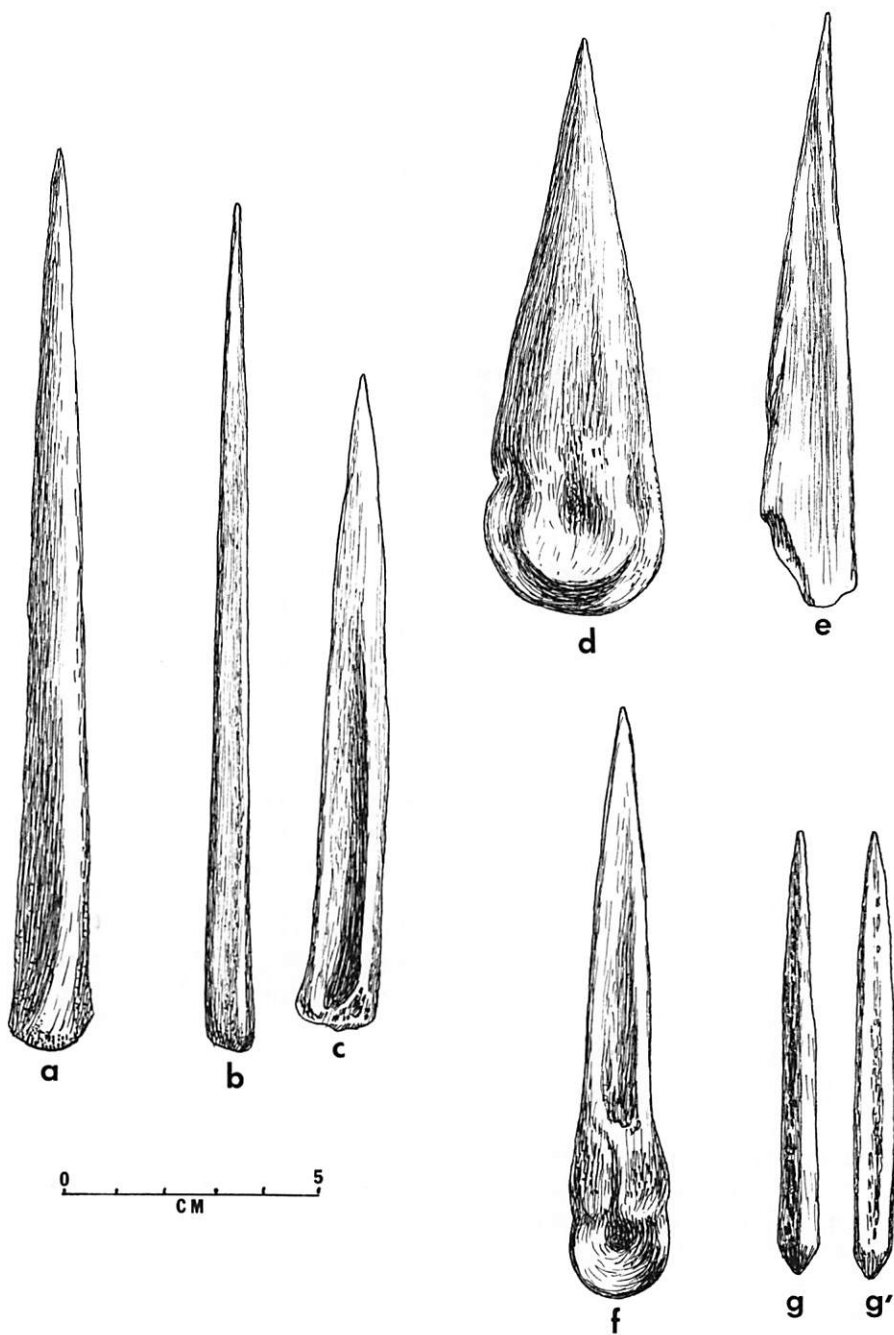


Figure 29. Bone Awls

and pressure is applied by hand to remove the flake. Since the bone pressure tool is placed at the exact point where one wants to remove the flake, it provides better control over the flake removal than is possible with a hammerstone or baton. Pressure chipping is normally used for making arrow points, sharpening edges, cutting notches, producing serrations, or similar fine flaking that may be desired.

Pressure flaking tools are commonly termed “flakers” or “flaking tools” when reported from excavations. One common form is a flaker made from the ulna of the deer (Figure 28c-d). The U-shaped socket of the ulna provides an excellent finger hold when using this tool for chipping. Other flakers were made from deer antler tines, for they are ready for use as a flaker without modification. The tips of the antler will display wear and abrasions when they were used as flaking tools. Flakers were also made from various portions of cut bone or antler and often resemble bone awls except for the blunted tip. The tool became blunted and marred from contact with the flint in use as a pressure applicator, and this should be evident for proper identification of the flaking tool (Figure 28e).

## **Bone Awls**

Bone awls or perforators are found at most archaeological sites and were in use throughout all prehistoric periods. They were used for punching holes in skins or leather for sewing garments or other articles of clothing. Bone awls could be used for perforating most softer materials and many of them were probably also used in the manufacture of basketry, matting, or similar woven materials. As a consequence of usage, the awls became highly polished, not only from handling the awl but from contact with the working material.

Awls are essentially pencil-shaped pieces of bone which have been tapered at one end to form a pointed tool. The point exhibits the greatest care in workmanship, and the other end, or handle portion, may be without modification or it may also have been carefully shaped to make it easier to hold for actual use. There is considerable variation in any assortment of bone awls, not only in the amount of polish from wear but in the amount of preparation in forming the awl and in the actual size. Some appear to be sturdy with strong tips for heavy work while others are finely shaped to produce delicate needle-like points. The average length of specimens falls between about 75 mm and 150 mm although both smaller and larger specimens are fairly common (Figure 29).

Classification of bone awls is not standardized among writers, but there is a general trend to classify them according to the characteristics of the bone of which the awl has been made. For example, awls made on bones in which the joint end remains complete and unmodified, awls made on bones that have been split in half or sectioned into smaller pieces but which retain portions of the joint,



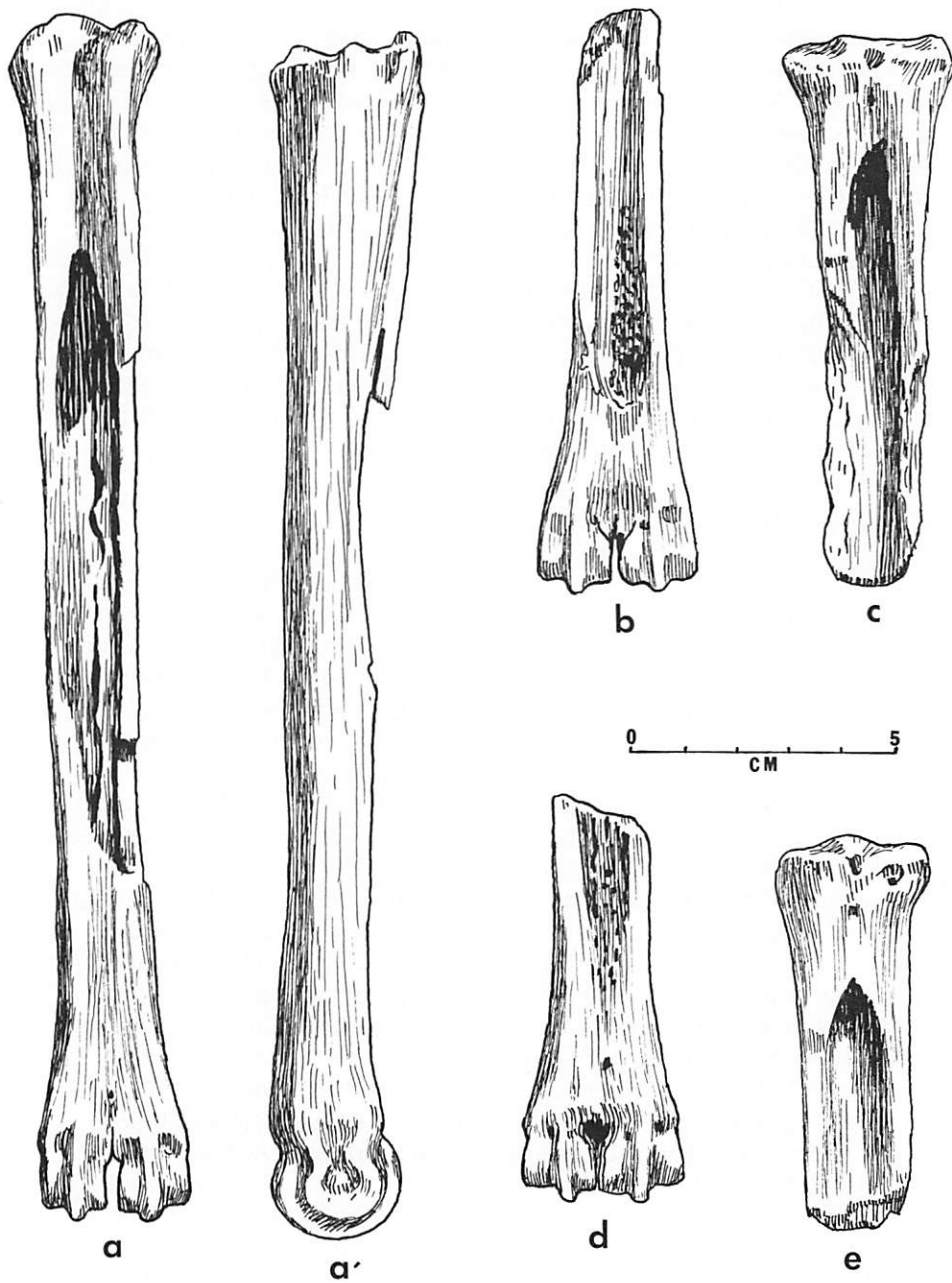


Figure 30. Bone Beamers

awls made from a split section of bone in which the joint end has also been removed, awls made from bone splinters which were sharpened at one end but remain otherwise without modification, etc. One also finds awls made from sharpened sections of bird bone, awls made from split sections of animal ribs, or other variations.

One type of awl that is commonly found on the Southern Plains and in Oklahoma is termed a "rib-edge awl." This is made from the rib-edge or vertebral spine edge of the bison and can be identified by the triangular shape in cross section and the presence of the spongy or cancellous portion of the bone along its length. Rib-edge awls tend to be short in length and the base end is blunted by grinding to form a short conical-shaped tip. The rib-edge awl is characteristic of the Plains Village occupations and may have served some special purpose. Many specimens are so short that they were probably mounted in a wooden or bone handle (Figure 29g).

A popular bone awl found on the Washita River focus sites is a split bone awl made from the deer cannon bone. Examples found in various stages of manufacture indicate that the cannon bone was first split in half by cutting a lengthwise groove along both sides and then snapping the bone in two halves. The half section of bone was then grooved in a similar way, snapped in two and the resulting quarter section of bone was shaped down with a point at one end, leaving the other joint end of the bone serving as the handle. In this fashion, four similar awls could be made from a single cannon bone.

Awls were sometimes decorated around the handle or basal section with incised lines or simple designs. Most recovered examples, however, are plain and undecorated.

## **Bone Beamers**

The bone beamer is found at a number of Oklahoma archaeological sites, especially those representing the Washita River focus in central and western Oklahoma. The beamer was used during the hide tanning process to scrape the skins or hides which were laid over a small pole or similar support. The tool was used in a fashion similar to a modern steel draw-knife by holding one end in each hand and then scraping the hide in a pushing or pulling motion.

Most of the beamers which have been found were broken in half because of strain on the weak mid-section of the implement. Unbroken specimens or broken ones that can be fitted together give some indication of the manufacturing process. Most beamers are made from the cannon bone of the deer, which is well suited for this tool. In making the beamer, a groove or elliptical slot was rubbed into the bone shaft from the dorsal side until about one-third of the central part of the bone shaft had been removed. The interior edges of the bone shaft were then beveled on each side of the remaining portion of bone to form two sharp edges. These edges provided the

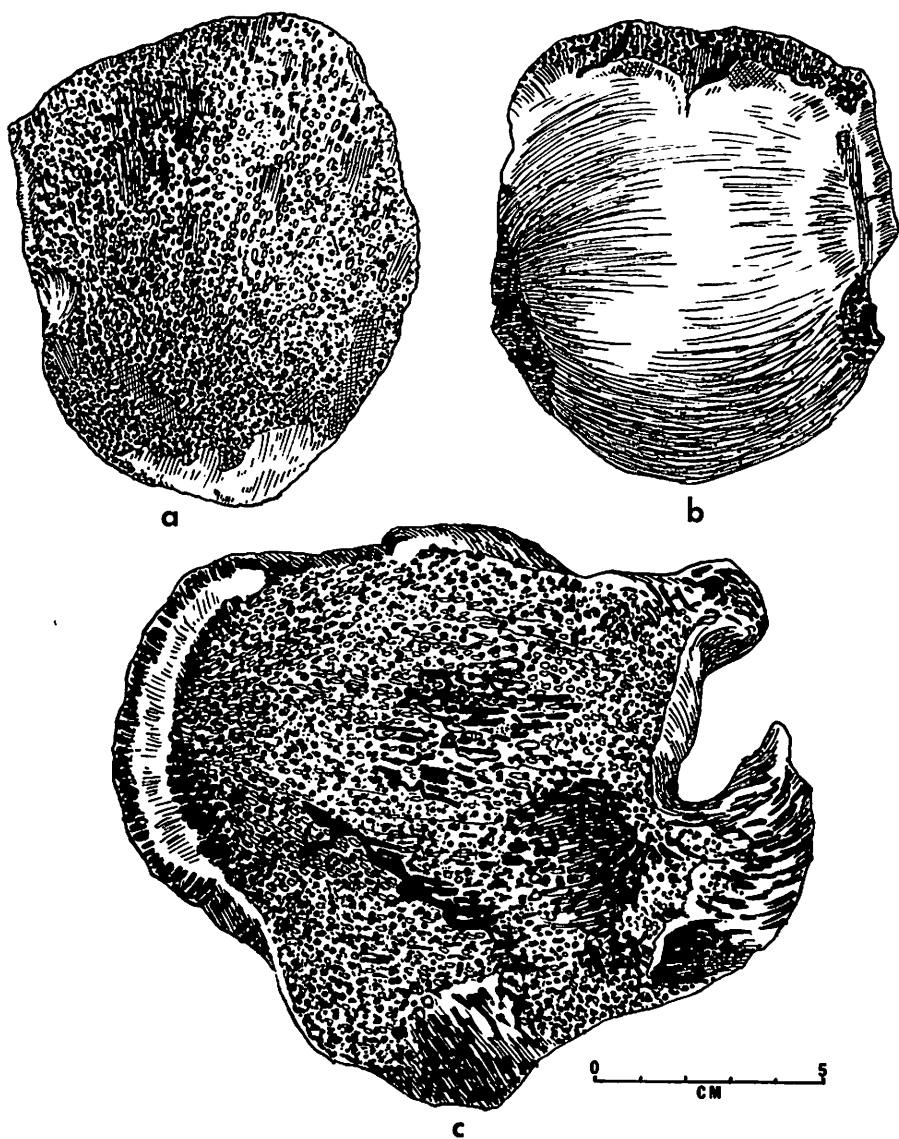


Figure 31 . Hide Grainers

scraping portion of the beamer which became more and more concave at the center with continued usage. Resharpener of the scraping edges was done by grinding with an abrader or they were sometimes trimmed with a small hammerstone. Extensive wear and resharpener of the beamer edges reduced the amount of the shaft area available, and the beamer would eventually break in two as a result of this weakness. Examples of bone beamers are shown in Figure 30.

The beamer is sometimes confused with unfinished bone awls, especially on Washita River sites where the deer cannon bone was also used for making bone awls. In making bone awls, the cannon bone was grooved lengthwise and then snapped in half; this half section was then quartered so that four awls could be made from a single bone. Some specimens, either unfinished or perhaps broken during manufacture, especially half sections, may resemble beamers. The unfinished awl sections, however, will not display the concave outline, the beveled scraping edge, or evidence of wear and polish of the working surface.

## Hide Grainers

Bone hide grainers are found on proto-historic Wichita sites in Oklahoma. They are represented by flattened pieces of cancellous bone which have been used in the tanning process for hide or skin preparation. Several examples have been found at the Bryson-Paddock site in Kay county, Oklahoma, but they have not been reported elsewhere in the state.

The hide grainer was made from the joint end of a large bone, usually the large leg bone of a bison, which was trimmed or abraded so that a large flat area of the cancellous portion of the bone was exposed (Figure 31). This flat spongy surface was used like an abrader to rub and smooth the surface of hides which were being prepared for bedding or other purposes. The hide grainer with its abrasive surface could be used to smooth out irregularities in the thickness of the hide or to remove hair or fatty tissues during the tanning process.

It is suspected that these artifacts were more common than the present archaeological record suggests. The cancellous portion of the bone is more subject to weathering and erosion than the harder parts of the shaft and outside surfaces; consequently, unless the specimens are well preserved they may not be recognized as artifacts but may be considered as bone refuse.

In other sections of the plains, the cancellous portions of bones were sometimes used as paint applicators. These artifacts, however, are usually smaller in size, show more careful shaping, and still have pigment imbedded in the spongy pores of the bone. As far as is known, the cancellous bone paint applicators have not been found in Oklahoma.

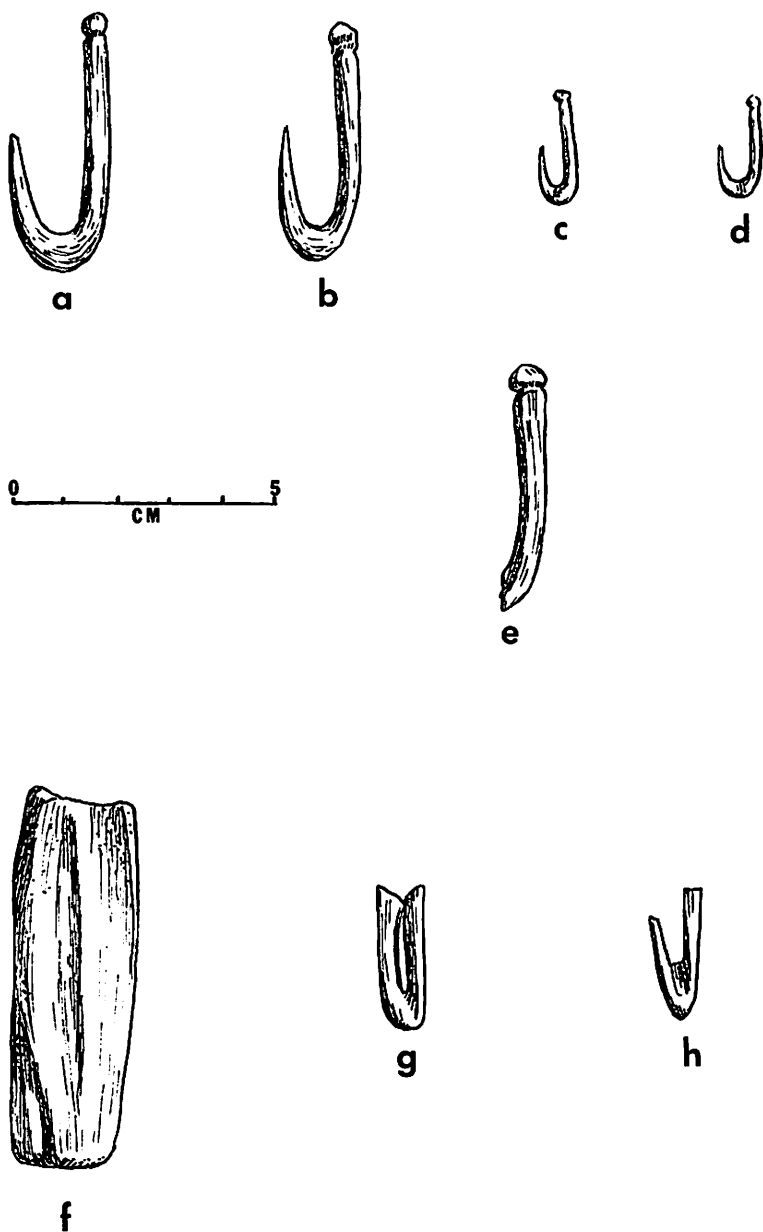


Figure 32. Bone Fishhooks

## Bone Fishhooks

Bone fishhooks are rare artifacts in Oklahoma although several examples are known. They have been found in sites of the Washita River focus and at Lt-11, the McLaughlin-McCutchen site in Latimer county. The specimens from Lt-11 in eastern Oklahoma, which were just recently recovered, date approximately 2000 years ago.

There are two sizes of bone fishhooks represented: a small one measuring about 20 mm or less in length, and a larger one measuring about 45 mm in length. Examples of these are illustrated in Figure 32. None of these have barbs, but this lack of barbs is typical of Indian bone fishhooks. The fishhooks are alike except for the difference in size.

The Lt-11 fishhooks have a groove or string-tie cut in the top of the hook shank. One of the small specimens (Figure 32c) appears to lack this groove but the hook shank is slightly expanded at the top to make attachment of the line secure. The known examples of fishhooks from the Washita River focus sites do not have this grooved shank and are more similar in size to the larger examples from Lt-11.

Some unfinished specimens from Lt-11 suggest the method of manufacture. The large sized fishhooks were apparently made from a flat rectangular section of bone. This was roughly shaped to form the rectangle bone preform which was then rubbed and abraded in the center on both sides to remove an oval shaped perforation in the center. The bone was then cut on each side of the perforation so that two fishhooks could be made from the single preform. The hooks were then ground and shaped into the desired final form by scraping or the use of an abrader.

The smaller fishhooks appear to have been made from bird bone following a similar process. Examples of fishhook preforms in the various stages of manufacture are shown in Figure 32f-h.

Broken specimens are normally more common than whole specimens. The fishhook usually breaks at the curved section (Figure 32e) which is the weakest part of the bone. On specimens illustrated, this area has been purposely made thicker than the bone shank to strengthen this section.

The presence of bone fishhooks indicates hand-line fishing, which was probably more common than we realize. Fishhooks were also made of shell, especially along the Pacific coast, but shell fishhooks have not been found in Oklahoma. Chipped flint fishhooks can be seen in many artifact collections, but to my knowledge they have never been found in excavations. The flint fishhook has been a popular "fake" since 1890.

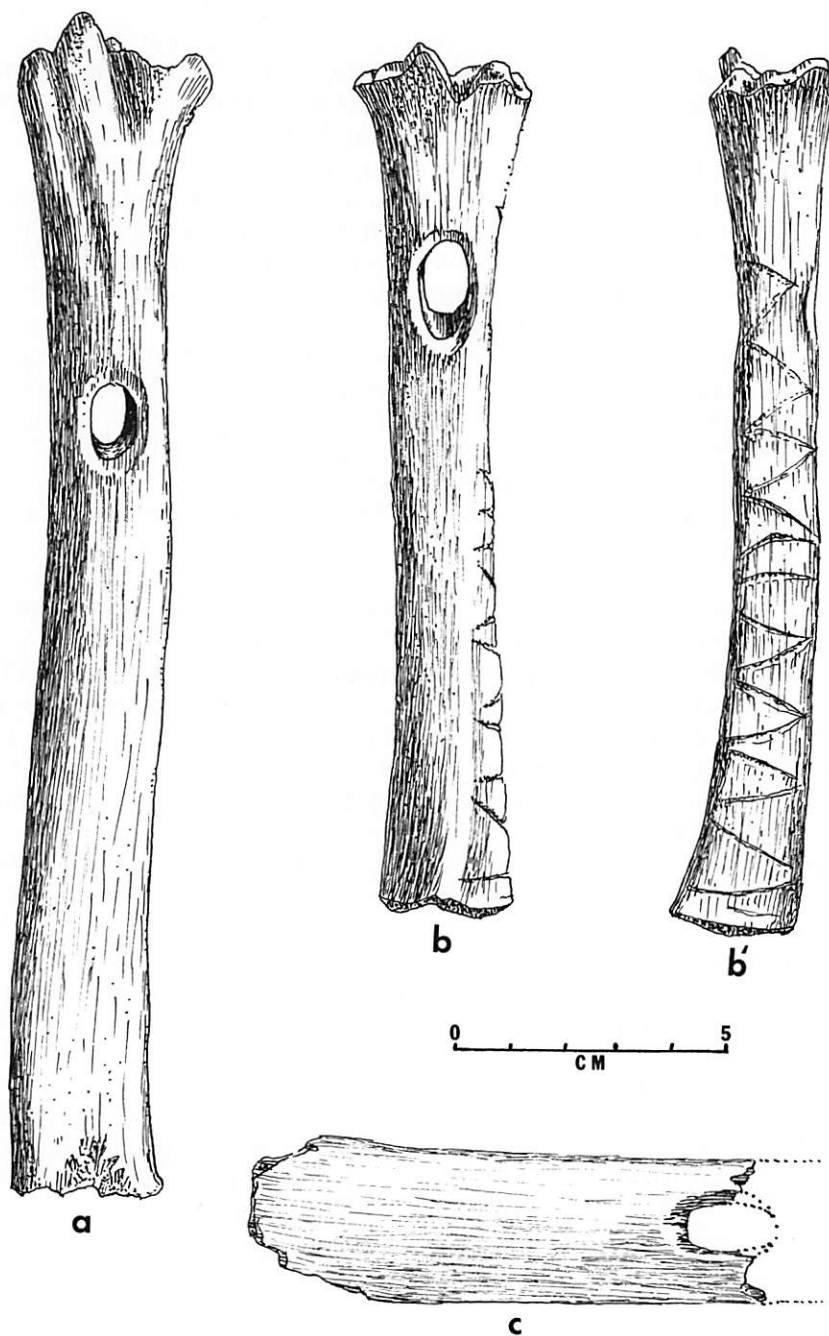


Figure 33 . Bone Shaft Wrench

## Bone Shaft Wrench

The bone shaft wrench is a common tool found in Plains Village sites in central and western Oklahoma. This implement is especially typical of the Washita River focus in the central part of the state.

The shaft wrench is believed to have been used for straightening arrows in which the wood of the shaft was heated. The shaft wrench was used to hold the hot arrowshaft while pressure was applied to straighten the shaft. The arrowshaft would be passed through the hole in the bone which served as a handle or wrench while shaping the arrow. The shaft wrench was a popular tool among bison hunting groups throughout the Great Plains.

Two varieties of shaft wrenches are found in Oklahoma. One is made from a deer bone, usually the ulna from the foreleg, and the other is made from a wide flat section of rib bone from the bison. Examples of both types are shown in Figure 33.

The deer bone shaft wrench was made using the whole bone for the most part although occasional trimming of one joint end was done. The bone shaft which is tubular and hollow in cross section was perforated with a hole that passes through both sides of the bone. This circular perforation initially was between 9 and 11 mm in diameter but as the wrench was used, wear from the arrows enlarged the hole and produced an oval-shaped perforation with the length of the perforation parallel to the length of the bone shaft. The wrench hole was placed toward one end of the bone so that the remaining section could serve as the handle. Most specimens when found in the field are broken across the perforation and show much wear. Use of the shaft wrench caused wear at the hole section so that it became weaker and weaker and eventually broke and was discarded. Examples showing various stages of wear as well as initial preparation of the implement have been found, however. Many specimens have a high polish from handling the wrench, and an occasional specimen has been decorated by incisions on the bone shaft (Figure 33b').

The bison rib shaft wrench was made from a section of bison rib which was perforated in a fashion similar to the deer bone wrench (Figure 33c). The bison rib wrench, however, is more rare in Oklahoma and appears to have been associated only with the proto-historic Wichita Indians. This type of shaft wrench is more commonly associated with cultures of the central and northern plains, whereas the deer bone shaft wrench is associated with the southern plains.



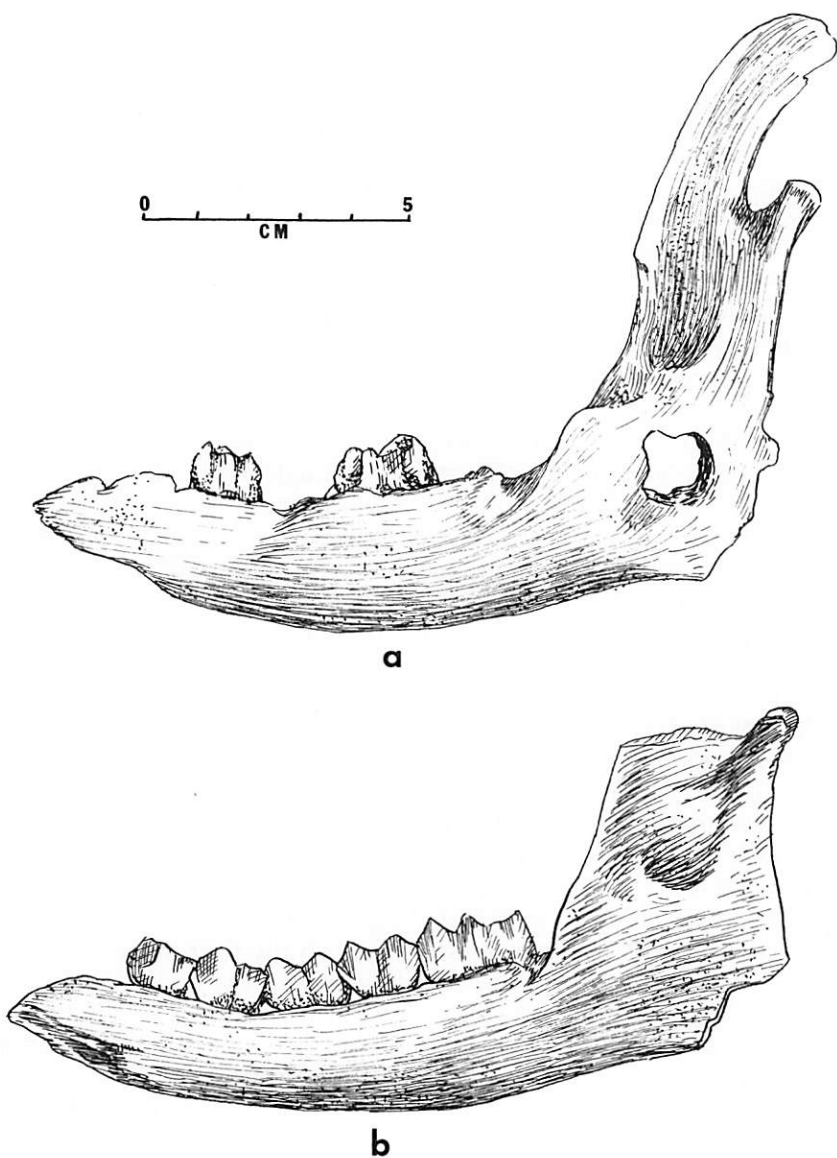


Figure 34. Deer Jaw Sickles

## Deer Jaw Sickles

Bone sickles for cutting grass, made from the lower jaw of deer, are found most commonly in central and western Oklahoma. Only one side of the jaw was used and this was lashed onto a wooden handle for service as a grass cutting tool. Actual examples of mounted specimens have been recovered intact from dry caves or rockshelters in the Ozarks area of Arkansas.

This tool was probably much more common than we realize for the bone was not modified or altered before being used as a sickle. It was merely mounted on a handle and placed in service; consequently, a specimen that has not been used very much appears indistinguishable from unutilized bones that were discarded as refuse. There are probably numerous examples of deer jaw sickles contained in faunal collections which do not show sufficient use wear to identify them as sickles. Many specimens, however, are well worn and highly polished from usage and these artifacts can be identified without difficulty (Figure 34).

The irregular surface of the adult deer's teeth provided a saw-like cutting edge for collecting tall grasses such as swamp grass that could be used for covering grass houses or thatching a house roof. Utilization as a sickle is indicated by wear and polishing, on the tooth-bearing portion of the bone, which was produced by contact with the plant materials, or by worn grooved areas produced by cordage or lashings used in mounting the sickle. The ascending ramus or articulating section of the jaw is usually not polished but sometimes it shows wear from the lashings.

Wear polish from usage is sometimes present on the teeth, but this is frequently difficult to see because of the enamel and natural attrition that takes place. The area of the jaw around the teeth, however, is usually highly polished on both sides of the bone. The incisor portion of the jaw is usually broken off back to the premolars leaving a crude pointed end which is well worn and smoothed over the irregular breaks.

Wear from lashings is usually represented by grooves rubbed into the bone and sometimes across the teeth with one groove immediately behind the last molar and a second one about 50 mm away by the premolar teeth. The lashing grooves are frequently very pronounced and deeply cut, not only on the bone, but sometimes on the teeth.

The deer jaw sickle is commonly represented on Plains Village sites such as Washita River focus as well as on Caddoan and other late pottery bearing sites in Oklahoma.

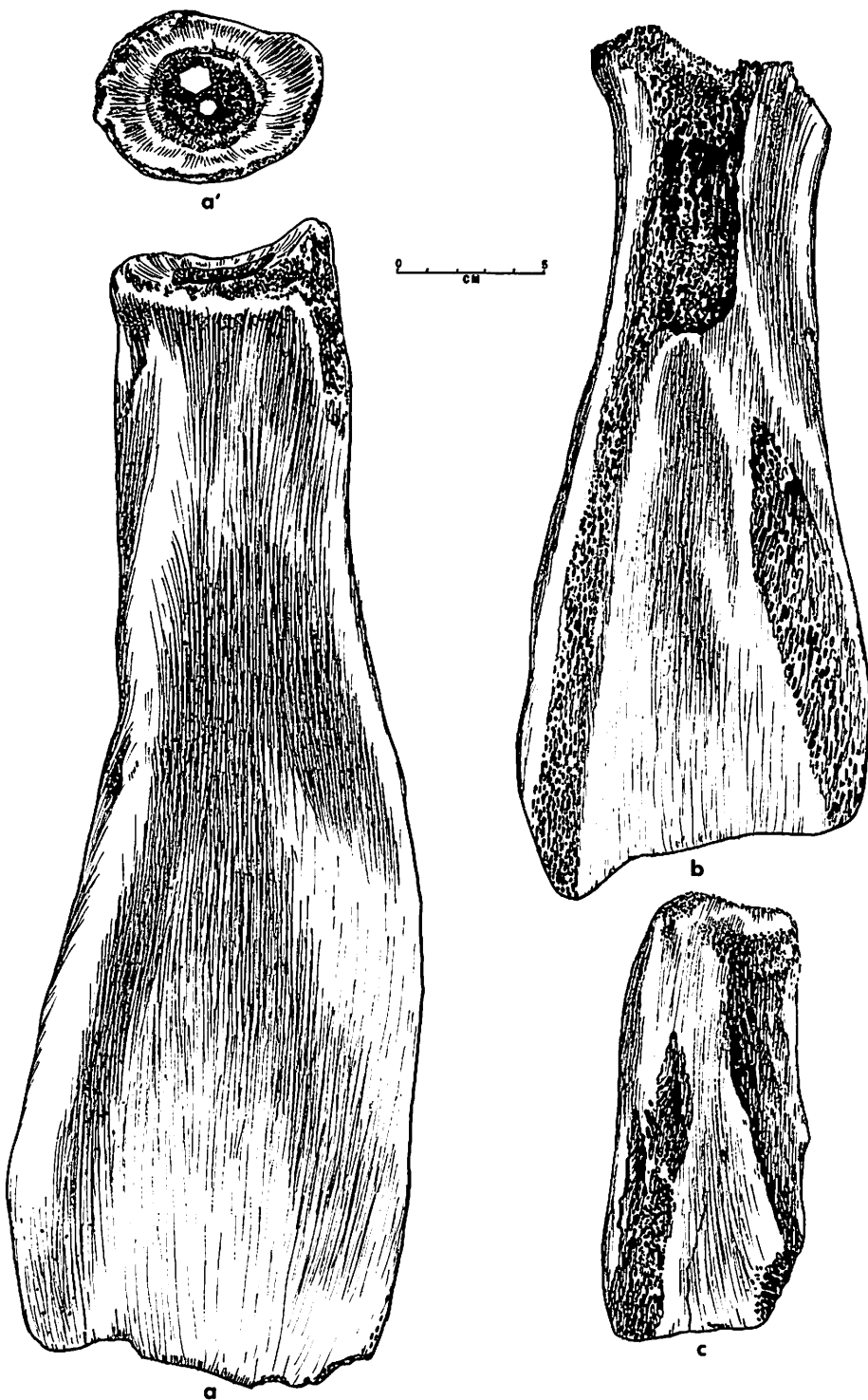


Figure 35 . Bison Scapula Hoes

## Bison Scapula Hoes

The bison scapula hoe was a common cultivating implement among the Plains Village Indians. It was used for cultivating small garden crops such as maize, beans, and squash. The bone hoe continued in use until iron hoes became available from French traders during the 18th century.

The scapula hoe was made from the large flat shoulder blade of the bison. The shoulder blade or scapula was trimmed to remove the spine and rough sections along one face to form a large and fairly flat piece of bone. This trimming was done with a hammerstone to break away parts of the blade and then this surface was rubbed with a sandstone abrader or hone to smooth and flatten the surface. The end of the scapula was also trimmed and sharpened by grinding to provide a better chopping edge. This sharpening was frequently done to remove nicks or damaged edges or to resharpen the hoe so that the length of the tool became smaller and smaller with usage. Some of the larger scapula hoes recovered measure as much as 400 mm in length, while heavily used and worn specimens measure as little as 150 mm in length. Most specimens recovered from excavations are broken or badly worn and were probably discarded as no longer useful. The blade of the hoe became highly polished with use in the soil, and small fragments can often be identified. Hoes that were broken, however, were sometimes salvaged and converted into another type of tool.

The scapula hoe was mounted onto a wooden handle for actual use. The Oklahoma examples are represented by two kinds of mounting treatment of the joint area. The most common type has a deep groove or half-socket running from the joint (acetabulum) towards the blade (Figure 35b). In some examples the surrounding area of the acetabulum has been slightly abraded or altered, but the grooved area for seating the wooden handle received major attention. The hoes were apparently mounted on an L-shaped stick or handle which was secured to the half-socket and lashed into place by cords or thongs. This style of mount is most typical of the plains groups in central and western Oklahoma.

The other type of mounting preparation is one in which a large hole has been drilled or cut directly into the acetabulum to form a complete socket for the wooden handle (Figure 35a-a'). Rough areas of the joint section were sometimes smoothed or trimmed, but usually the socket was the only part that was produced by modification. The wooden handle was then inserted into the socket and bound in position for actual use of the scapula as a hoe.

The complete socket variety of this implement is found in the Arkansas River valley area of eastern Oklahoma associated with the Fort Coffee focus sites. This style of hafting is also characteristic of the central plains while the half-socket type is more typical of the southern plains.

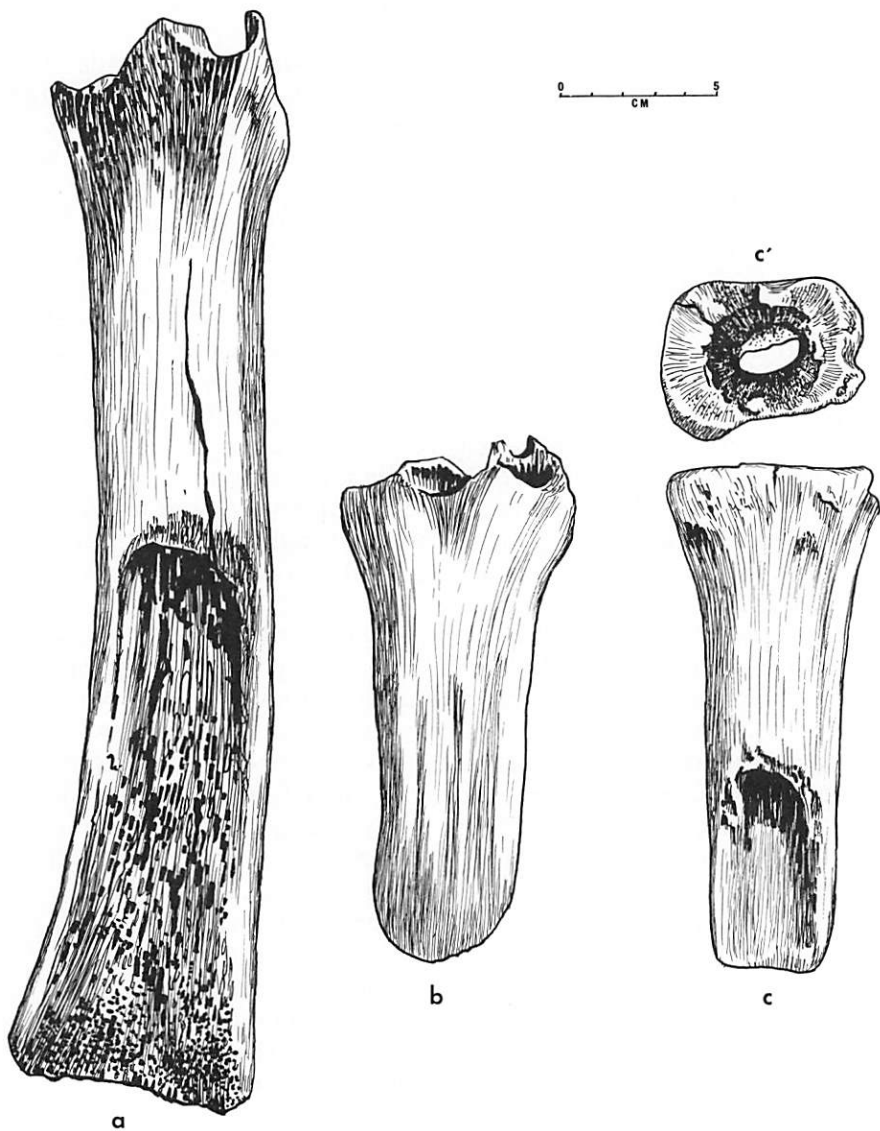


Figure 36 . Bison Tibia Digging Stick Tips

## Bison Tibia Digging Stick Tips

The digging stick tip made from the tibia of the bison is a common artifact on sites occupied by the Plains Villages, especially of the Washita River focus. This artifact is similar to the serrated flesher, however, and may have been used as a hide flesher rather than as a digging tool. The specimens were mounted on wooden handles and exhibit a glossy polish from usage, but this could have resulted from use as either a flesher or a digging tool.

The artifact is traditionally made from the tibia or lower leg bone of the bison. This is a large and massive bone especially suited for this implement. In making the tool, the bone was trimmed to remove one joint end plus one half section of the shaft leaving a flat spade-like portion of the shaft (Figure 36a). This trimming was done with a hammerstone to provide the initial shaping of the implement. The cutting edge and final shaping of the bit section of the tool was done by rubbing and grinding with a sandstone abradar. For mounting, a large perforation was made in the unmodified end of the bone to form a socket for a wooden handle (Figure 36c'). One specimen found at the Stamper site in Texas county still contains the charred remains of the wooden handle in the socket. It is about the diameter of a broom handle but it is not possible to tell if it was a straight or an L-shaped handle. As these implements were used, they were frequently resharpened to maintain the cutting edge. Consequently, the tools became shorter and shorter with continued usage. Specimens were sometimes broken or split in half, apparently from stress to the socket caused by the wooden handle or by strain during usage. Such broken fragments were often salvaged for making other types of bone tools.

The digging stick tip and bison scapula hoe are two of the more common bone tools on the Washita River focus sites. Examples of various stages in their manufacture and usage have been recovered from excavations. The tibia and scapula of the bison were saved as raw materials for making these tools and were preserved for future use. A cache pit found at the Brown site in Grady county contained several scapula and tibia bones which had been partly trimmed for later production of these digging tools.

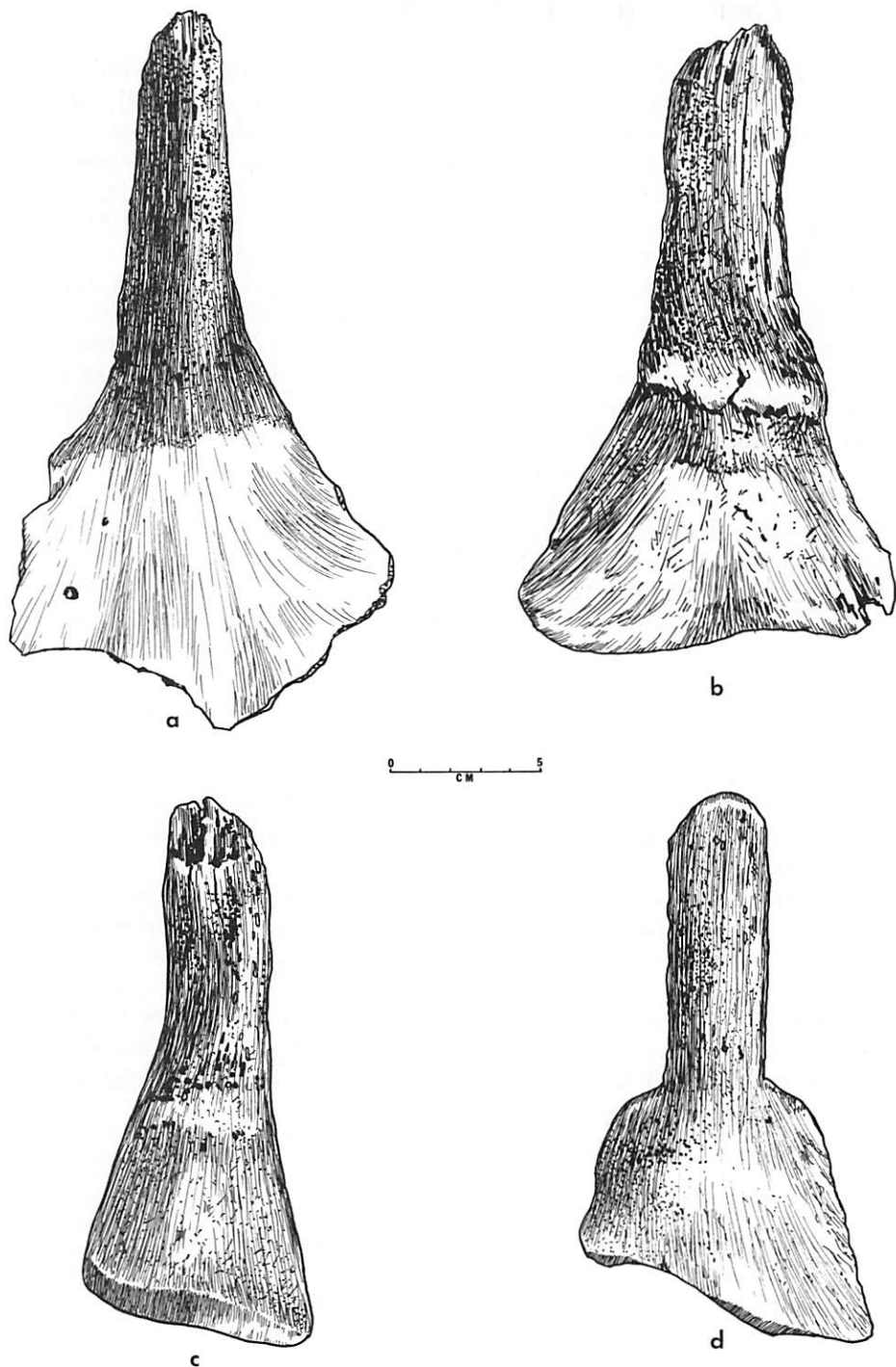


Figure 37 . Horn Core Digging Tools  
or Squash Knives

## Horn Core Digging Tools or Squash Knives

A fairly common artifact present on sites of the Plains Villages in Oklahoma is the bison horn core hoe, digging tool, or squash knife. This tool is also called a "horn core scoop" in other localities on the plains. It is perhaps best represented in Oklahoma on sites of the Washita River focus although it does occur elsewhere.

The artifact is made from the skull of the bison. The horn core was used for the handle and the adjoining rather flat portion of the skull was used for making the fan-shaped cutting edge (Figure 37). An unfinished specimen found at the Lee site in Garvin county, Oklahoma, indicates the initial preparation stage. The horn core was split or cut in half and was removed along with a large portion of the joining part of the skull which served as the blade of the tool. The cutting edge was then shaped by rubbing with an abradar to form a sharp edge. Additional smoothing to eliminate rough areas on the horn core handle as well as on the interior part of the skull portion was also done.

Finished specimens display use polish on both sides of the blade usually accompanied by the fine striations at a right angle to the cutting edge which suggest utilization as a hoe or digging tool. Many specimens show beveled cutting edges from resharpening the bit which becomes reduced in size with continued use. It is not clear if this tool was mounted in some manner on a wooden handle or if it was held in the hand. Some specimens have a flattened area on the inner face of the horn core as if it may have been lashed onto a handle. Some specimens, however, have a high polish at the base of the handle suggesting that it was held in the hand. No indications of cord wear or notching on the handle are present.

Wichita Indian informants identified these items as "squash knives" and stated that they were used to cut squash and pumpkins into strips which were dried and woven into "mats" for food storage.

Most specimens have a length falling between 150 and 200 mm although the size is dependant on the size of the bison skull from which it was made and the amount of resharpening that has taken place.



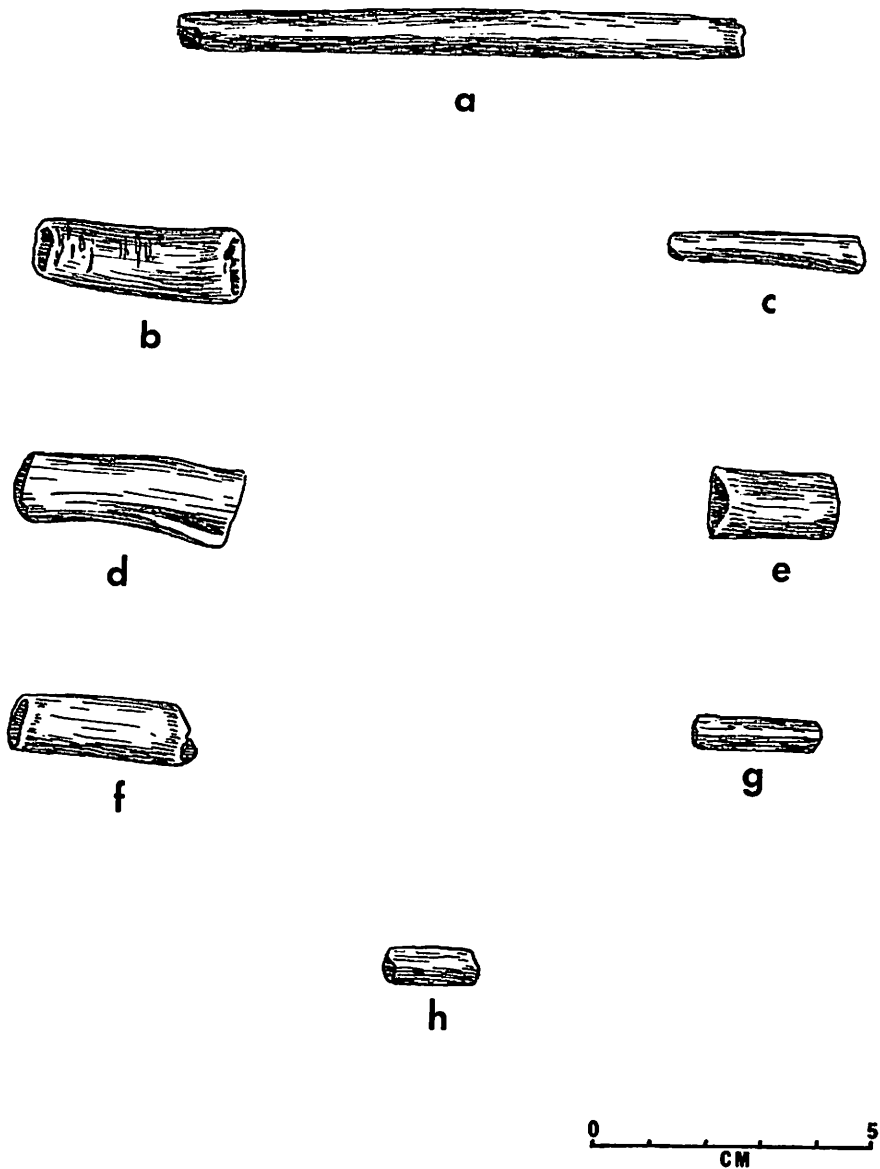


Figure 38. Bone Beads

## **Bone Beads**

Bone beads are fairly common artifacts found on Oklahoma archaeological sites. They are never abundant but several examples are usually found on sites representing the Plains Villages where they are very characteristic. Specimens occur elsewhere, however, in different contexts.

The bone beads are normally made from a section of hollow bird bone which is already perforated and light in weight. In making beads from the bone, the joint ends were cut off and the shaft of the bone was cut up into sections forming individual tubular-shaped beads. They were cut by sawing a groove with a piece of flint around the bone and then snapping the bone in two. Several beads could be made from a single bone depending upon the bead length and the bone size. The end of the beads were usually ground smooth to remove the rough edges resulting from the snap break, but this was not always done and some specimens still exhibit these irregular ends.

There is considerable variation in the diameter and length of the bone beads. The diameter depends upon the size of the bone from which they were made and it varies from less than 5 mm to more than 12 mm. The length also ranges from short beads measuring 15 mm or less up to long beads measuring as much as 100 mm. The most common size, however, falls between 20 mm and 35 mm in length (Figure 38).

Many of the bone beads exhibit polish from being worn as a necklace or from having been handled. Others appear without polish as a cut section of bone. It is likely that the bone bead served as "spacers" which separated other types of beads suspended on a necklace.

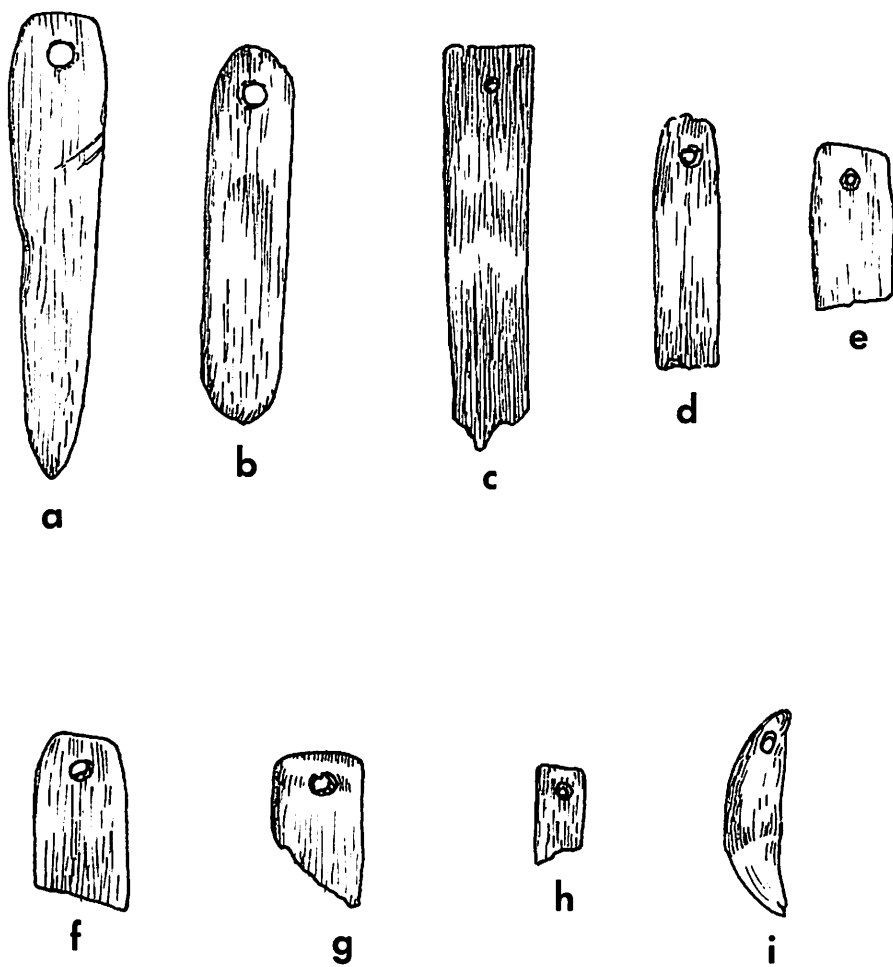


Figure 39 . Bone Pendants

## Bone Pendants

Perforated bone ornaments are not common artifacts in Oklahoma although several examples have been recovered from different sections of the state. The bone ornaments discussed are here limited to bone pendants, which are ornaments with a single perforation or suspension hole. Several examples are illustrated in Figure 39.

The bone pendants are typically small in size and were probably worn as ear ornaments or as pendants on a necklace. They fall into two broad groups: 1) pendants made from a flat section of bone with a small perforation placed at one end, and 2) pendants made from animal teeth.

The bone pendants tend to be rectangular in outline and less than 20 mm in width. The length remains uncertain as recovered specimens are mostly broken and incomplete. One whole specimen from the McLemore site in Washita county measures 82 mm in length and 16 mm in width (Figure 39a), and it seems doubtful if other broken specimens exceeded 100 mm in length. The pendants have been shaped from sections of bone, commonly the flat portion of a split animal rib which provided some curvature to the rectangular form or from some other flat piece of animal bone. Some specimens appear to have been made from turtle shell plates. The specimen illustrated in Figure 39a has been roughly sharpened at one end and may have functioned as a perforator.

The perforated animal tooth pendants are made from the canine tooth of a carnivore, probably from a dog, a fox or a similar sized animal. The tooth has not been altered except for drilling a hole through the root section close to the end (Figure 39i).

The flat rectangular type of bone pendants are found in the Washita River focus sites and proto-historic Wichita sites in Kay county, Oklahoma. The perforated animal teeth pendants are present in the Archaic and probably in later time periods as well. Our current information on bone pendants of either style is quite limited because of the small sample.

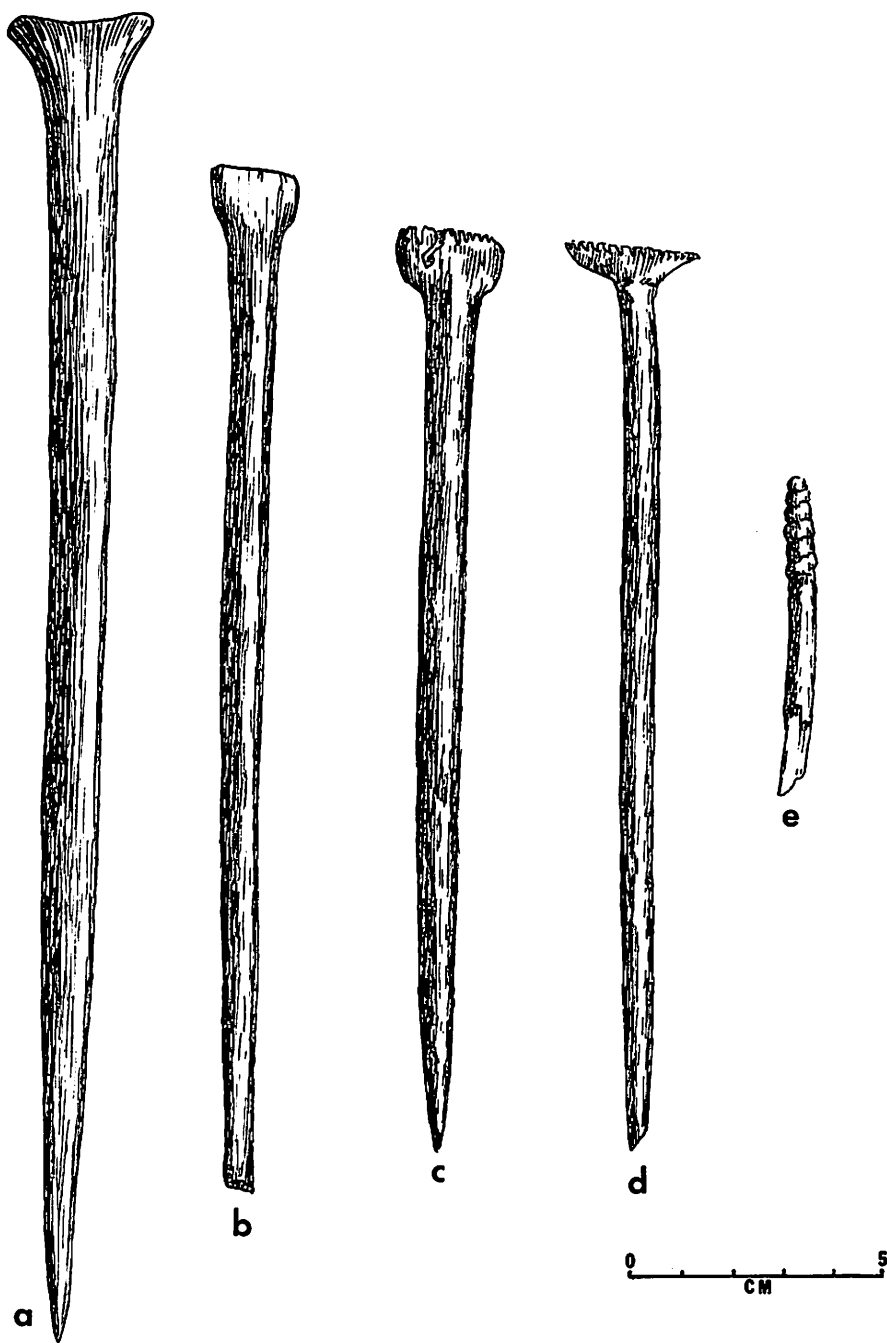


Figure 40. Bone Hair Ornaments

## Bone Hair Ornaments

Well made ornamental pins are found at a number of archaeological sites in eastern Oklahoma. These resemble bone awls in that they are usually pointed and could have served for making holes in skins, but they are carefully made and have some decoration or special treatment on the handle. They are here classed as hair ornaments or hairpins because they are usually found associated with burials close to the head of the individual as if they had been worn in the hair.

The bone pins are pointed pencil-shaped forms which commonly range from 150 mm to 250 mm in length, although both shorter and longer specimens are known. They usually have a round cross section and have been carefully shaped with some decoration or elaboration of the base or head of the pin. Most commonly the head is enlarged or expanded forming a ball or crutch-shaped pin head (Figure 40a). This is frequently decorated with incisions cut into the pin head (Figure 40d). One example has the basal portion decorated with a series of cut grooves which encircle the shaft (Figure 40e). The pins are normally well polished from usage all along the shaft rather than just around the tip section which is more typical of bone awls. Some pins, although generally tapering to a point, have the tip purposely blunted and would not serve as an awl without sharpening of the point. There are also some hair ornaments that are made of flattened pieces of bone with more ornate treatment of the head section, which indicates considerable variation in these ornaments.

The bone hair ornaments appear to be associated with the Caddoan occupations ranging from Fourche Maline to Harlan and Spiro phases. It should be noted that similar hair ornaments were also made of copper and wood, and the latter often were coated with a thin copper veneer or sheath. Some of the wooden pins also have ornately carved heads. There is the suggestion that the bone hair ornaments were gradually replaced by copper coated wooden pins and finally by solid copper pins during the Caddoan occupation.

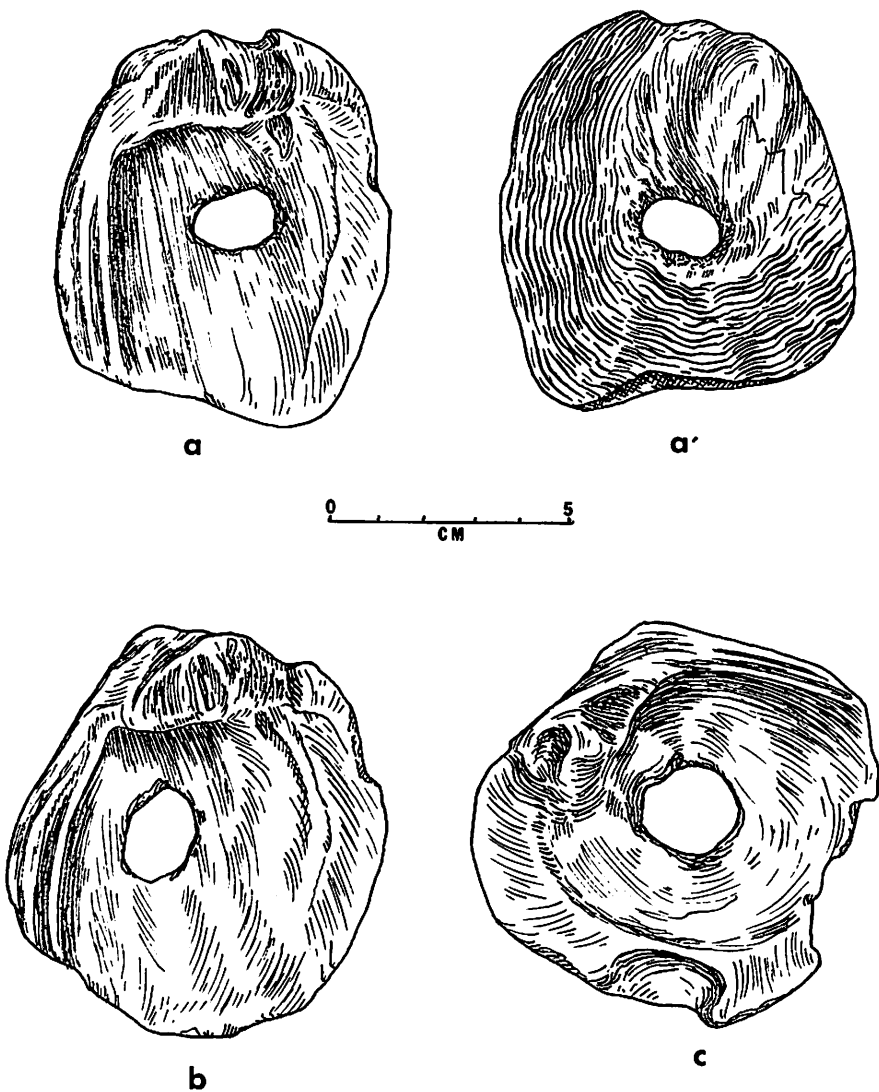


Figure 41 . Shell Hoes

# Shell Artifacts

## Shell Hoes

Shell hoes are found on many Oklahoma archaeological sites. They were apparently simple and useful tools which were used by many groups and throughout a long period of time. Examples are found in sites ranging from the Archaic to late Caddoan times.

The shell hoes are perforated mussel shells which were used as digging or grubbing tools, possibly also as scrapers. They are made from mussel shells, which were apparently about as large as one could find; these were perforated in the center towards the thicker hinge end with a large hole. This perforation was punched through the shell from the inner side, apparently with a pointed stone as the outside surface is scaled and irregular from this perforating process. The perforation is irregular in outline and not symmetrical as it would be from a drilling method. The diameter of the perforation is generally around 20 mm in maximum width although there is some variation depending upon the size of the shell. Apparently this hole served to mount the shell on a stick which became the handle for using the tool as a hoe or digging tool. The end of the shell served as the cutting edge, and this edge commonly shows indications of breakage and sharpening by grinding (Figure 41).

Specimens which show grinding along the cutting edge frequently display use polish on the ground edge as well as on the outer face of the shell close to the cutting edge. Whether this wear has been produced from digging in the soil or using the tool as a scraper for hides or some soft material has not been determined. Some specimens have been found in burial pit fills as though they had been used as digging tools for excavation of the grave pit and then was discarded when the pit was refilled.

It seems likely that the shell hoe may have been used for several tasks as it was easy to make wherever the mussel shells were available. Most archaeological specimens, however, are badly weathered and the shell tends to flake off so that areas which would have shown previous wear from utilization are damaged.



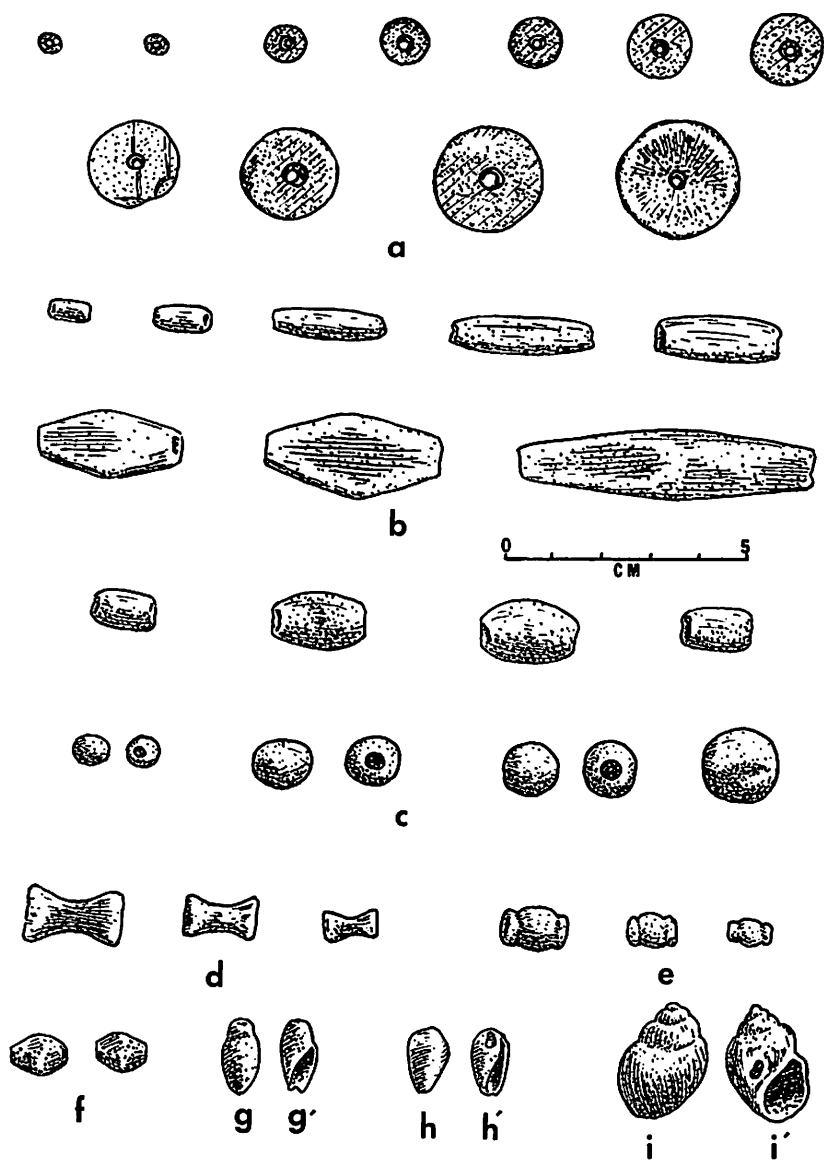


Figure 42 . Shell Beads

## Shell Beads

Shell beads are common artifacts on many archaeological sites in Oklahoma. They are associated with Archaic, Woodland and later occupations, but are most plentiful after the appearance of pottery and agriculture. They are usually made from pieces of conch shell although many other shells were used. Sometimes the whole shell was used or the shells were broken or cut into pieces and shaped into beads. The largest cache of shell beads known was recovered by the commercial diggers at the famous Craig mound near Spiro, Oklahoma, in 1935. It contained approximately 14 bushels of shell beads of many different kinds. The specimens in Figure 42 are all from this mound.

The most common type of shell bead found in Oklahoma is a flat washer-shaped disk bead, usually ranging between 5 mm and 10 mm in diameter. The variation in size, however, is considerable with smaller specimens under 5 mm and larger specimens over 25 mm being known. The smaller beads appear to have been made using the method still in use by the Pueblo Indians of the Southwest. The piece of shell was roughly shaped into a disk and then it was perforated with a stone drill. After perforation the beads were strung tightly together and rubbed or rolled on an abrader to finish the edges and produce beads with a similar diameter. In some examples the flat sides of the bead were also ground smooth and flattened, but in others the flat sides of the natural shell were left without alteration (Figure 42a).

Another common shell bead is the tubular-shaped bead. The more common examples range in size from less than 10 mm in length to about 25 mm in length, but both shorter and longer examples are known (Figure 42b).

While the flat disk and tubular bead are the most common types, there are many other bead styles represented: ball-shaped beads (Figure 42c), hourglass-shaped beads (Figure 42d), biconical-shaped beads (Figure 42f), compound-shaped beads (Figure 42e), etc.

In addition to beads which have been cut from pieces of shell, small whole shells were often used for making beads. In these cases, the shell was slightly modified by grinding off part of the shell to produce a hole or perforation so it could be strung on a necklace. Figure 42g is the *olivella* shell which has been ground off on the spiral end; Figure 42h is the *marginella* shell which has been ground on one side of the spiral end, and Figure 42i is the *campeloma* shell which has been perforated through one of the spirals, near the center.

Normally shell beads were worn as necklaces although there is some evidence to suggest that they were sometimes sewn or attached to garments. They were also worn as ear ornaments, and shell carvings indicate their use on hair forelocks, around the arms both at the wrist and above the elbow, and around the legs at the ankle and just below the knee.

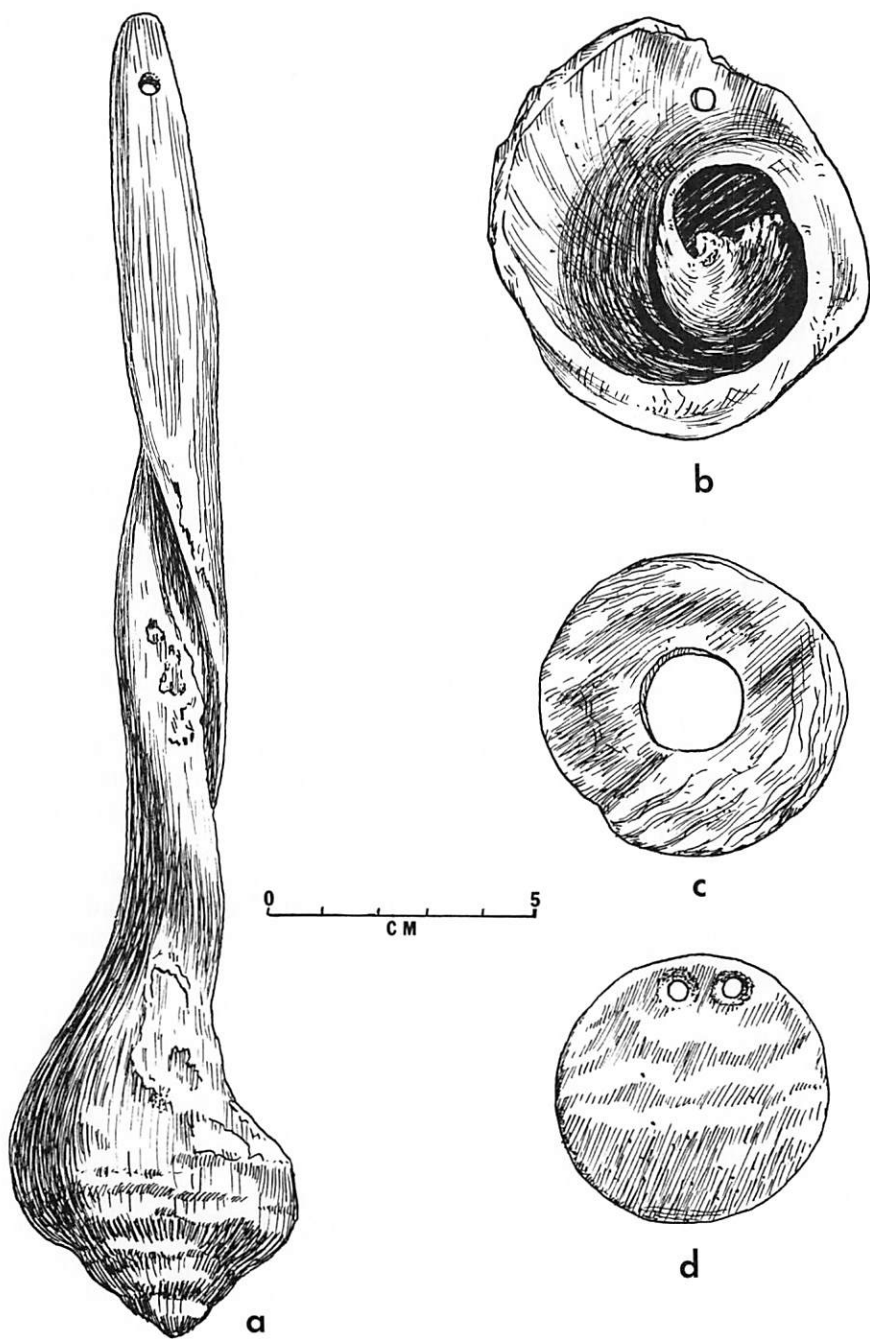


Figure 43 . Shell Ornaments

Occasionally shell beads will have some incised decoration present (Figure 42a). The incised disk beads appear to have been cut from pieces of shell which had been previously decorated as the designs appear incomplete. Decorations done on *olivella* shells, however, were purposely incised on single shells.

## Shell Ornaments

The use of shell for making various types of ornaments was practiced by various prehistoric Indian groups in Oklahoma. Besides using shell for ornaments, shell was also used for many other purposes such as drinking cups, spoons, scrapers, shredders, small containers, hoes, beads, inlays, and in combination with other materials such as wood or stone in composite artifacts. The most commonly used shell for ornaments was the conch shell, a salt water shell that was derived from the Atlantic ocean along the Florida or Gulf coast. The sea shells were obtained in trade, probably as whole shells which were used for making various kinds of artifacts according to local custom. Fresh water mussel shells were also used for some artifacts; these were primarily more utilitarian items such as hoes, spoons, scrapers, etc., but the conch shell was preferred for ornamental or ritual items.

The shell was worked in a fashion similar to working bone. The shell was cut by making a deep groove or slot with a piece of flint or sharp stone to separate the desired portion of the shell. The edges of the shell were then ground, smoothed, and shaped by use of an abrader. The flat sides of the shell were left in their natural condition without alteration.

The use of sea shell for ornaments is characteristic of the Caddoan occupations, especially the Spiro phase. Such items also occur elsewhere, however, and are not restricted to this time period.

Four examples of shell ornaments are illustrated in Figure 43. Figure 43a is a pendant made from the columella portion of a large conch shell which has been perforated for suspension. This style of pendant is shown on many shell engravings of human figures as being worn around the neck on the chest. Figure 43b is a simple pendant cut from the spiral end portion of the conch shell. Figure 43c is a small shell ornament cut from the outer shell of the conch. This type of ornament, with the large perforation in the center, varies considerably in diameter. It is found widely distributed in eastern United States. Similar ornaments are shown in many photographs or paintings of Indians made during the 19th century. Figure 43d is a small shell gorget with the typical paired perforations placed at one edge. Such gorgets range from this small sized example to larger specimens with elaborately engraved designs measuring over 150 mm in diameter. Some of the finest Indian art work is represented by engravings done on this style of shell gorget.

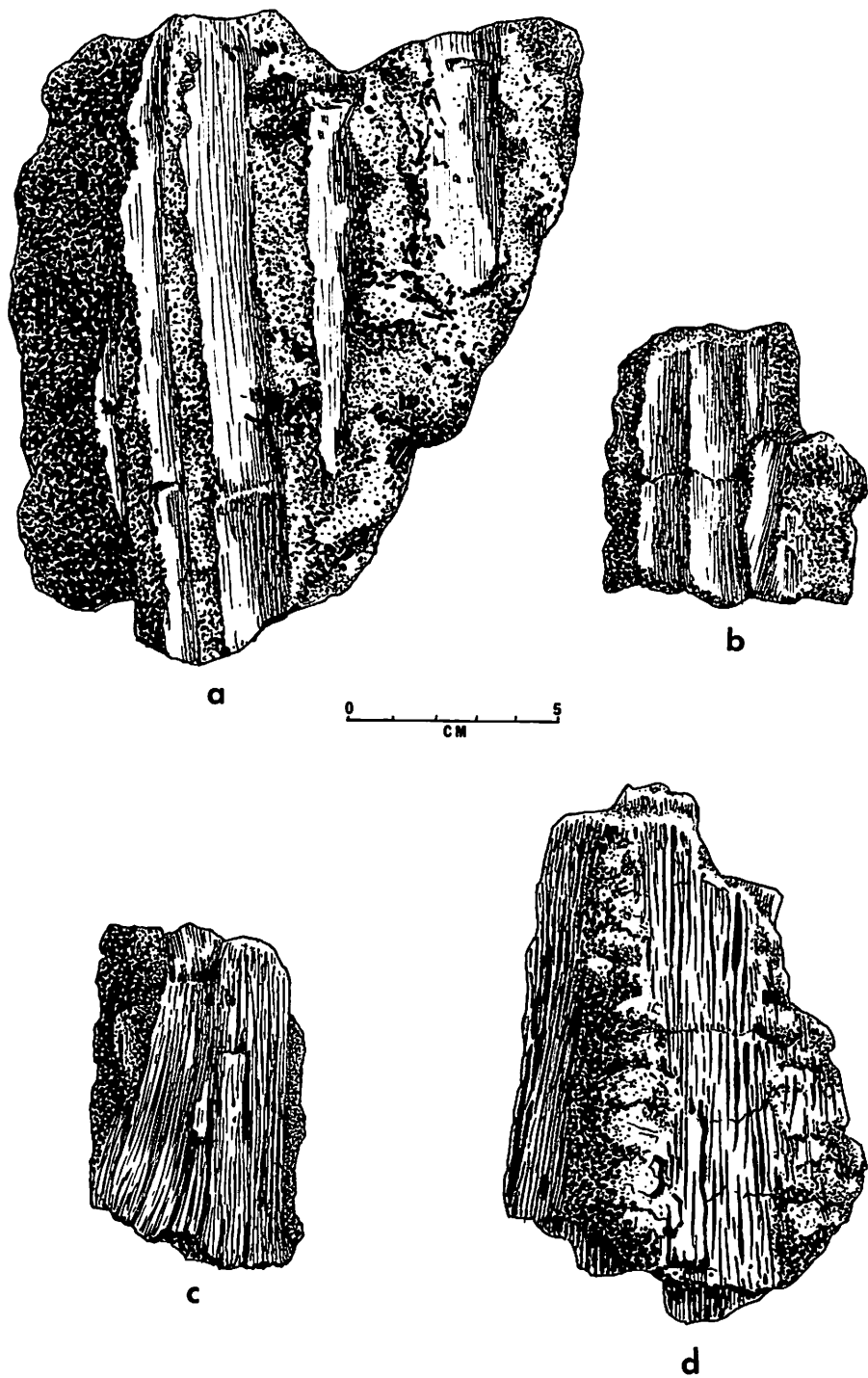


Figure 44 . Baked Clay Daub

# Clay Artifacts

## Baked Clay Daub

Pieces of baked clay are commonly found on many archaeological sites, not only in Oklahoma but elsewhere. Very often such pieces of burned clay are hard to identify as they could come from fire hearths, clay floors, daub, or almost anywhere on the site where fire had baked the clay hard enough to survive over the years. It is common to refer to all pieces of baked clay as "daub" but this term should be used only for baked clay that was used as daub in the "wattle and daub" method of house construction.

In this wattle and daub method of construction the walls of the structure were formed of wood, sticks, vines, or various materials which provided the framework. This framework or "wattle" was then covered with clay or "daub" which formed the walls of the structure. Roofs were commonly grass thatch placed on top of a wooden framework of poles and cane. The roof structure was supported by interior roof posts or merely rested on the wattle and daub walls.

This construction was common in Oklahoma with upright wooden posts placed a few inches apart providing the reinforcement for a wattle type of wall. This wall was then coated with daub to form a satisfactory wall. The use of daub was somewhat analogous to the chinking that is done in log cabin construction. Daub, consequently, should show the impressions of the wattle in order to be certain that it was used for this purpose.

Two general kinds of daub are found on sites in Oklahoma (Figure 44). The earliest type is chiefly clay and displays stick or cane impressions; some plant material, small stones, or other debris may be included. The impressions are from 10 mm to 25 mm in diameter and are most commonly from cane as the joint section is often imprinted in the daub. From impressions on daub specimens, it appears that the canes were placed close together, probably touching each other, and served to support the clay daub which was packed around them in the wall. This cane or stick impressed daub is typical of the early Caddoan village sites in the Arkansas valley.

The later type of daub is marked by the abundance of grass stem impressions present in the clay. The grass stems lie parallel to each other giving the impression that the daub was built up by placing a layer of grass, covering it over with clay, and then repeating this process over and over again to form the wall. Although wattle impressions sometimes occur, the methods of handling the clay daub appear to be different from earlier times. The grass impressed daub appears to be more typical of late Caddoan times.

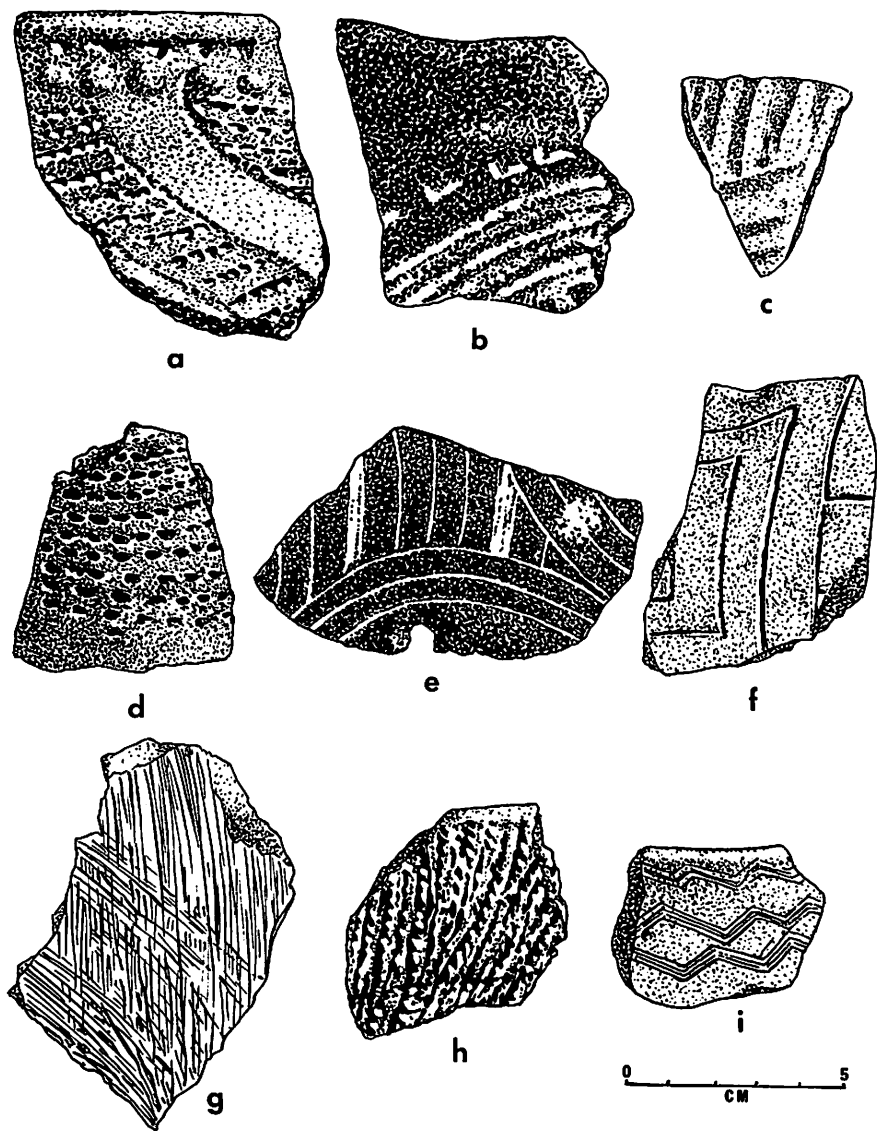


Figure 45 . Pottery Sherds

The presence of daub indicates the former existence of a house or structure of some type and is a useful clue in survey or site assessment.

## Pottery Sherds

Broken fragments of pottery, or pot sherds, are found on many archaeological sites throughout all parts of Oklahoma. The first appearance of pottery making in Oklahoma is unknown but the pottery was probably being made for roughly the past 2000 years and is most plentiful on the late prehistoric sites.

Pot sherds are important to the archaeologist because they are usually present in large numbers and are sensitive to both time and areal differences. The pottery sherds display so many different characteristics such as the variations in color, thickness, hardness, tempering material, vessel form, decorative treatment, etc., that they are extremely useful to establish the general time period for the site where they were found. These various characteristics of the pottery change through time and space, and specific characteristics are to be associated with certain areas and certain time periods. Consequently, the pottery wares, such as Spiro Engraved or Stamper Cordmarked, like antique glass or china can be identified by specific combined characteristics much in the same way that you would differentiate between a Ford and a Chevrolet.

There are perhaps 100 to 120 identified pottery types known in the state: some are quite common while others are rare and may represent trade vessels from surrounding localities. The identification of sherds is easiest when dealing with rim sherds that have some kind of decoration present. Plain sherds require greater consideration of the paste, tempering material, vessel form, etc., and are more subject to identification errors.

Figure 45 illustrates examples of different types of surface decoration such as cordmarking, incising, brushing, etc. Different methods may be combined on single vessels, and other decorative techniques such as painting, excising, applique, etc., may be used. These examples are shown to illustrate specific techniques of pottery decoration.

Figure 45a is an example of dentate stamping placed within zoned areas outlined by trailing. The rim shows triangular stick punctates and raised bosses produced by pushing a stick from the inside of the vessel to form the boss. Figure 45b is a rim sherd decorated with trailing and with triangular punctates produced with a small stick impressed into the clay at an angle. Trailing is produced by dragging or trailing a blunt stick across the clay surface. Figure 45c has been decorated with a thong-wrapped or carved wooden paddle. Figure 45d is an example of punctate decorations arranged in rows. This was probably done with a small stick. Figure 45e is a bottle sherd that has been decorated by engraving. The design was cut into the vessel surface after the clay had been dried to provide a hard sur-



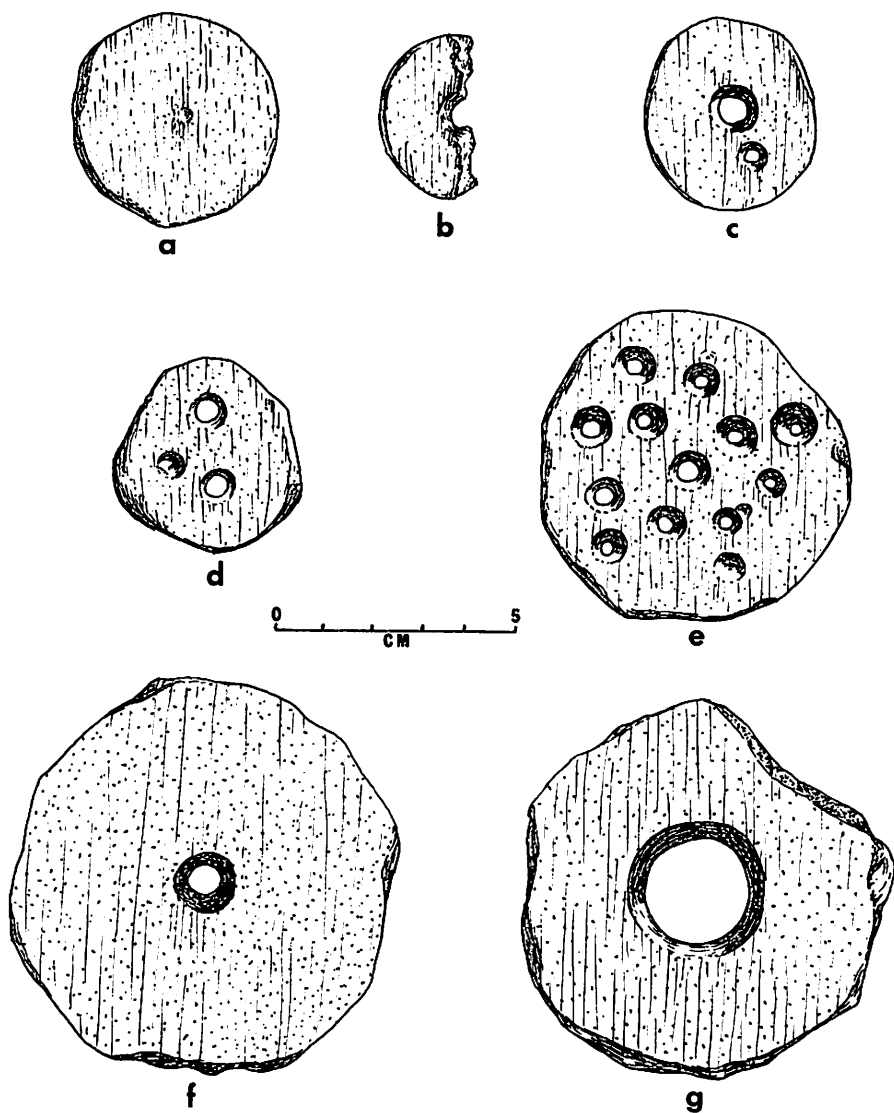


Figure 46 . Pottery Disks

face. Figure 45f represents an incised type of decoration. Incising was done when the clay remained soft so that the clay was pushed aside by the incising tool rather than being cut away as in the case of engraving. Figure 45g is an example of a brushed surface. The soft clay was brushed or wiped with a bundle of coarse grass stems or similar material. Figure 45h represents a cordmarked rim sherd. The surface has been marked by cords or strings which were wrapped around a wooden paddle which was used in shaping the vessel. Impressions of the cords can usually be seen through careful examination of the sherd impressions. Figure 45i is an example of Historic Choctaw ware which has been decorated with a toothed comb-like tool.

## Pottery Disks

Perforated pottery disks are a rather common artifact in Oklahoma. These are often termed "spindle whorls" because of their similarity to wheel-shaped clay or stone weights used on spindles in Mexico and elsewhere. While some of these may have been used as weights on spindles for spinning threads or cordage, many of them are not suitable for this purpose and must have served some other function.

The disks are made from a broken piece of pottery. The sherd is roughed out to form a disk and then the edges are rubbed smooth on a stone or abrasive material. The smoothed disk is then drilled and perforated through the center to produce a flat washer-type bead or artifact. While many specimens have a central perforation that is well centered, many examples have the hole offside or askew so that the disk would be unbalanced for service as a flywheel on the spindle. In addition, the disks often have two or more perforations, sometimes as many as ten or more. There is also considerable variation in the diameter of the perforation as well as in the diameter of the disk. Several Oklahoma examples are shown in Figure 46.

Some of the multiperforated specimens may have served as strainers. There are known examples of pottery water bottles from Arkansas in which similar perforated sherd disks with several perforations have been incorporated into the bottles at the juncture of the bottle neck with the globular portion of the bottle; obviously these disks serve as a strainer or protective device for the contents. The presence of strainers in bottles, however, is very rare and there are hundreds of bottles which do not have this device present. In addition, many of the perforated disks, especially those with multiple holes, are to be found on sites where the bottle form was not used.

Some specimens from McCurtain county, Oklahoma, have an unusually large central perforation and may have functioned as a jar cover.

It is likely that the perforated pottery disks may have served

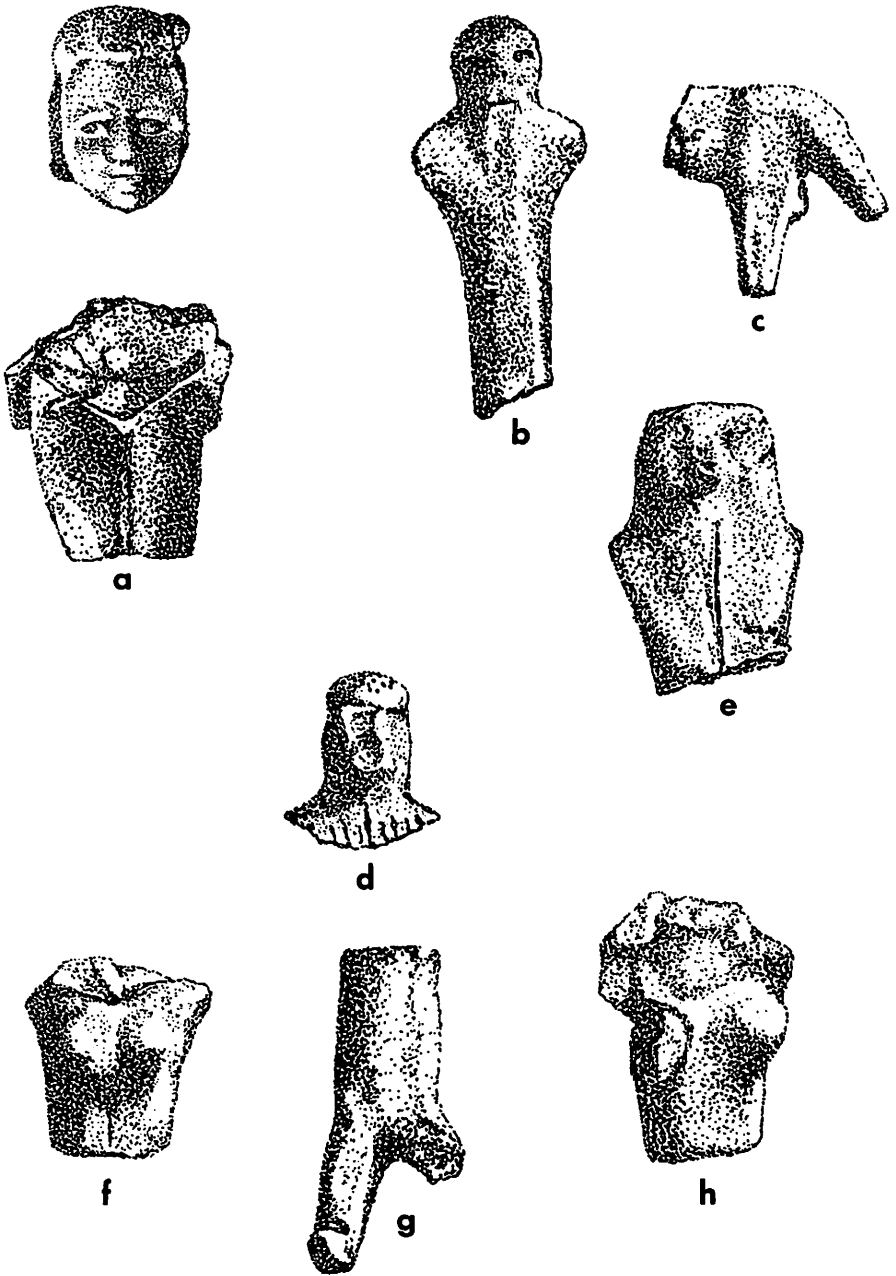


Figure 47 . Clay Figurines (not to scale)

various purposes with different cultural groups or even within the same population. They are characteristic of the Washita River focus in central Oklahoma, and some other ceramic assemblages within the state.

## Clay Figurines

Clay figurines are found on a few Oklahoma sites but they are not very common. In general, they are crude and poorly dried; in fact, they appear to have been sun-dried and not baked as they are quite fragile and become broken easily. No visible tempering material has been added to the clay.

Figurines are found associated with the Middle Woodland, the Washita River focus, and the proto-historic Wichita sites.

One specimen discovered at the Cooper site in Delaware county was in association with Middle Woodland pottery. Although incomplete, the fragments indicate a carefully made human figurine and depict some features of body dress and hair styling (Figure 47a). This figure resembles some of the clay figurines recovered from Hopewellian sites in the state of Illinois.

The clay figurines associated with the Washita River focus sites are more plentiful although they also are represented chiefly by fragments. They are crudely shaped for the most part and are commonly a stick-like roll of clay with crudely defined shoulders and head section (Figure 47b). The head is stylized and almost bird-like on some specimens, but others may depict features of the face such as the eyes, nose, and mouth or a detail of the hair style (Figure 47d). The torso is often marked by incision or punctates, probably to represent body tattooing, decoration, or clothing. Both females and males are represented, and the females are marked by prominent breasts which are sometimes decorated with punctates. The legs are usually not indicated although some fragments found at the Brown site near Alex, Oklahoma, suggest that this was sometimes done. Most fragments suggest small figurines measuring between 50 mm and 80 mm in length although some crude and larger examples have been recovered.

The purpose of the small figurines remains unknown. One female burial found at the McLemore site in western Oklahoma had the remains of several figurines lying adjacent to the lower leg as if they might have been in a small bag or a similar container. Generally, however, figurines are found in the village midden area or in refuse pits.

Crude figurines are also found on proto-historic Wichita sites in Oklahoma and northern Texas. These figurines, however, mostly represent animal figures rather than human figures. Although damaged, many of the animal figures appear to represent horses. These are roughly shaped with "stick legs." Hollow impressions in

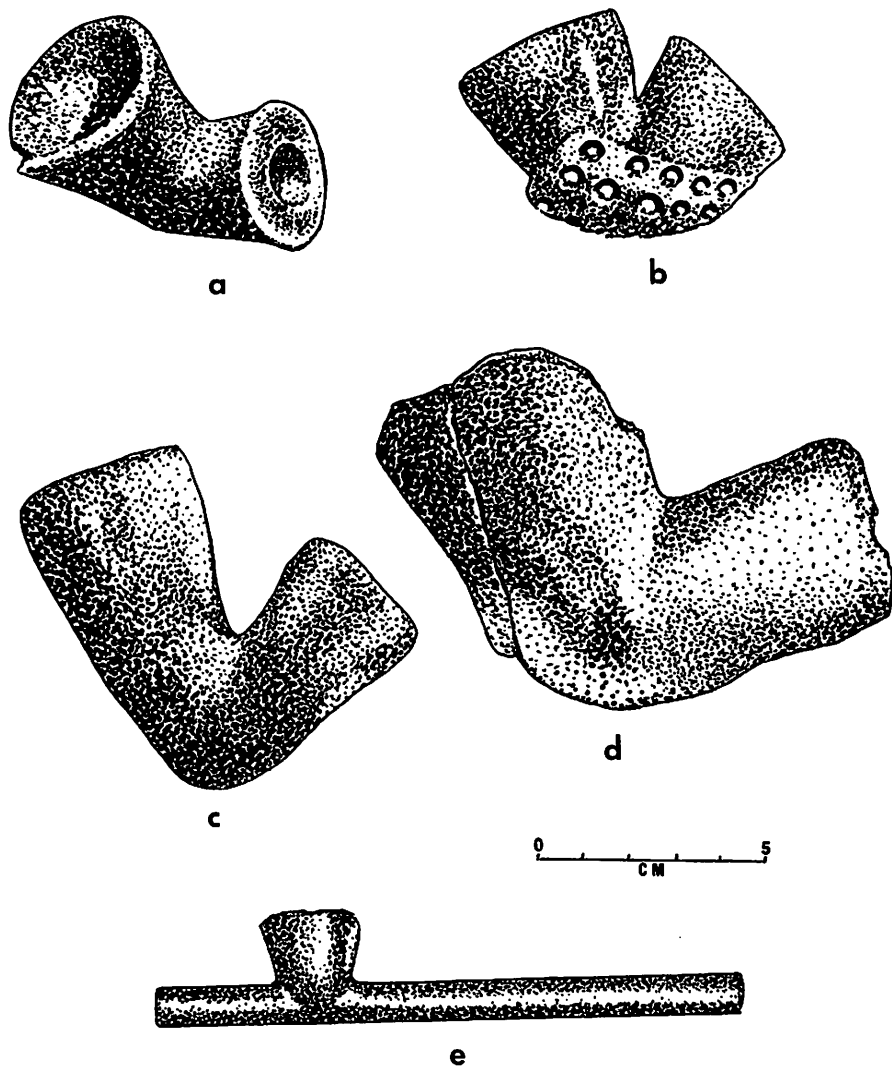


Figure 48 . Clay Pipes

the figurine legs or the torso of the animal indicate that small sticks were once present to represent the legs of the animal. Another type of small figurine present appears to represent owls or bird figures.

Our information about figurines is quite poor as most examples recovered are fragmentary and incomplete. They become broken easily and when surrounded by damp soil in the ground are not recognized and are frequently discarded along with the soil matrix. With the exception of the Cooper site figurine, many of the specimens appear as though they were made by children in playing or possibly by adults for children's toys.

## Clay Pipes

Ceramic smoking pipes are found in Oklahoma although they are not as common as pipes made of stone. They are found chiefly in the eastern parts of the state associated with Caddoan occupations. They also occur on proto-historic Wichita Indian sites occupied during the 18th century. They are more abundant here, which suggests changes in the associated ritual or smoking habits.

The most common clay pipe found in Oklahoma is the simple elbow-shaped pipe which required the use of a cane or reed stem for smoking. There is much variation in these clay pipes, but the bowl and stem are commonly of about the same size and length. Often it is difficult to know which portion served as the stem and which was the bowl although the stem is normally the shorter section. The bowl is likely to be more conical in form and with thinner walls than the stem section. In addition, the bowl will often show stains and charred residues from smoking similar to the "cake" which accumulates in present day pipes. These pipes are sometimes decorated by incisions, punctates, or sculpturing the clay to add some additional features. Figure 48b illustrates one example in which the elbow area has been decorated by the addition of a clay overlay which has been marked with reed punctates.

Less common are clay pipes in which the stem is an integral part of the pipe. The T-shaped stone pipes in which there was a projection extending beyond the pipe bowl was also made in clay. Another form known as the Red River pipe (Figure 48e) is essentially a long cylindrical tube or stem with the pipe bowl placed toward one end. These pipes are typically very fragile and are usually broken in several pieces when recovered. The tobacco bowls are small in size and exceptionally thin walled. Actually there are two varieties of this Red River pipe, based on the stem diameter. The earlier form has a small sized stem and bowl whereas the later type has a larger diameter stem and bowl size.

The use of tobacco for smoking in various forms such as cigarettes, cigars, and pipes was developed by the American Indian long before European contact. Pipe smoking was a ritualistic or

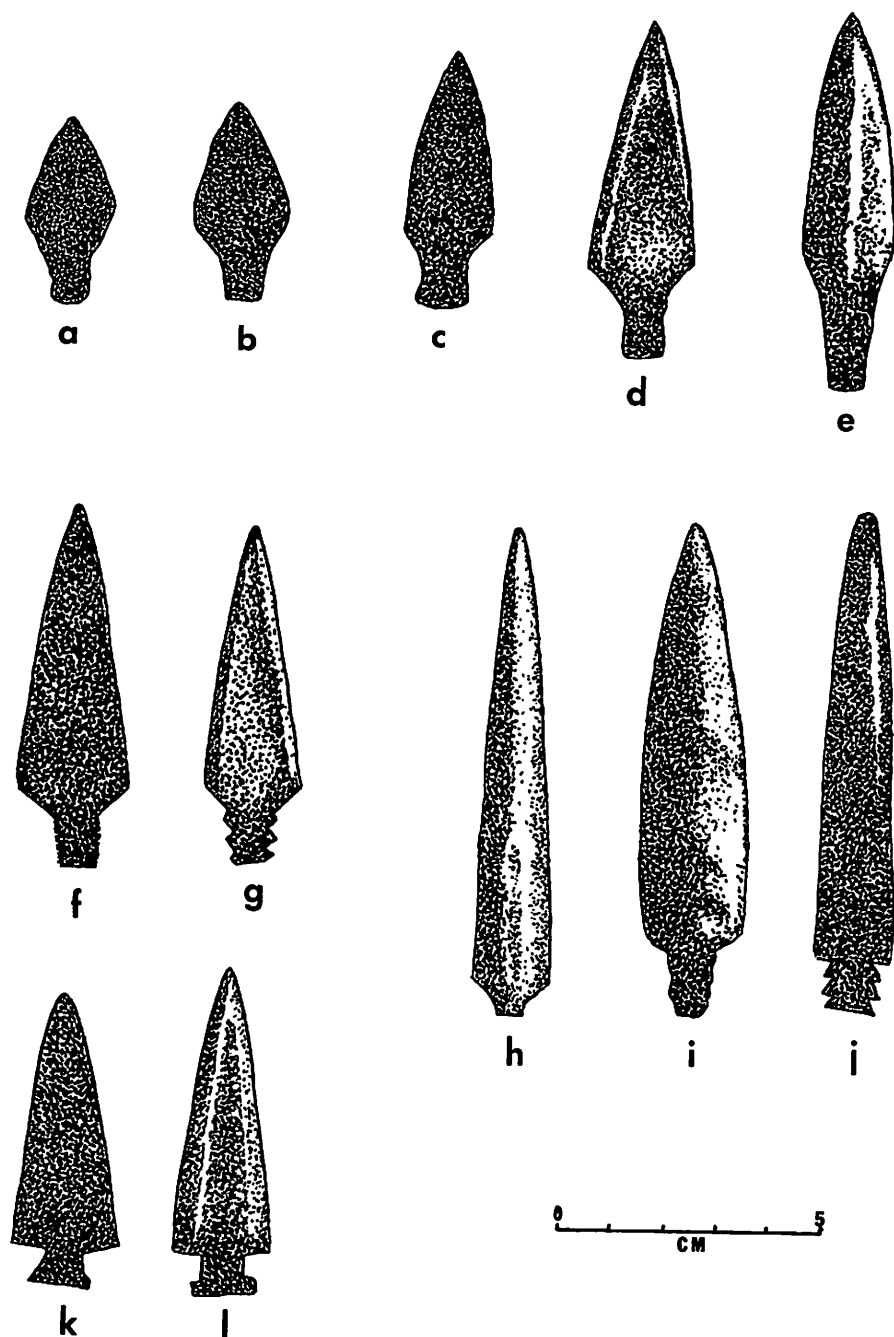


Figure 49 . Metal Points

ceremonial activity as many early accounts of the “calumet ceremony” will attest. After European contacts, the use of native-made clay pipes was eventually abandoned and replaced by manufactured clay pipes obtained from white traders.

# **Metal Artifacts**

## **Metal Points**

Metal arrowheads are found in Oklahoma although they are much less common than flint projectile points. They are found more frequently in the western half of the state but do occur occasionally at some eastern sites. The metal points are indicators of historic times, for the metal from which they were made was obtained from Europeans. In general, the metal arrow points date after AD 1750 and they were commonly used for perhaps 100 years or more after that date. Although firearms were being obtained by the Indians through trade, the guns were not always servicable, and gunpowder was expensive and often in short supply.

There is considerable variation in the outline and size of the metal arrow points. The size range tends to fall between 35 mm and 95 mm with most examples measuring around 60 mm. The greatest variation occurs in the stem section for mounting and this is frequently notched or serrated to provide a more secure mount on the arrow shaft (Figure 49g). Some of the early metal points associated with proto-historic Wichita sites in southern Oklahoma and northern Texas are almost diamond-shaped in outline with a poorly defined stem section. The stem portion, however, soon became more clearly defined by concave sides and a reduction of stem length (Figure 49a-b). Both of these styles are known as Benton points. In later times, the stems became even more distinct and were frequently modified by notches and serrations.

Many of the metal points were made out of scrap pieces of metal that were cut and shaped by the Indians. They are commonly of iron or steel although scraps of brass from gun parts were sometimes used. The metal iron hoops from barrels were especially useful for making points as they were thin and required less effort in their manufacture. In later times, metal arrow points were being manufactured and sold by Indian traders.

Our information about metal points is limited as only a small number have been found in excavations. They occur on proto-



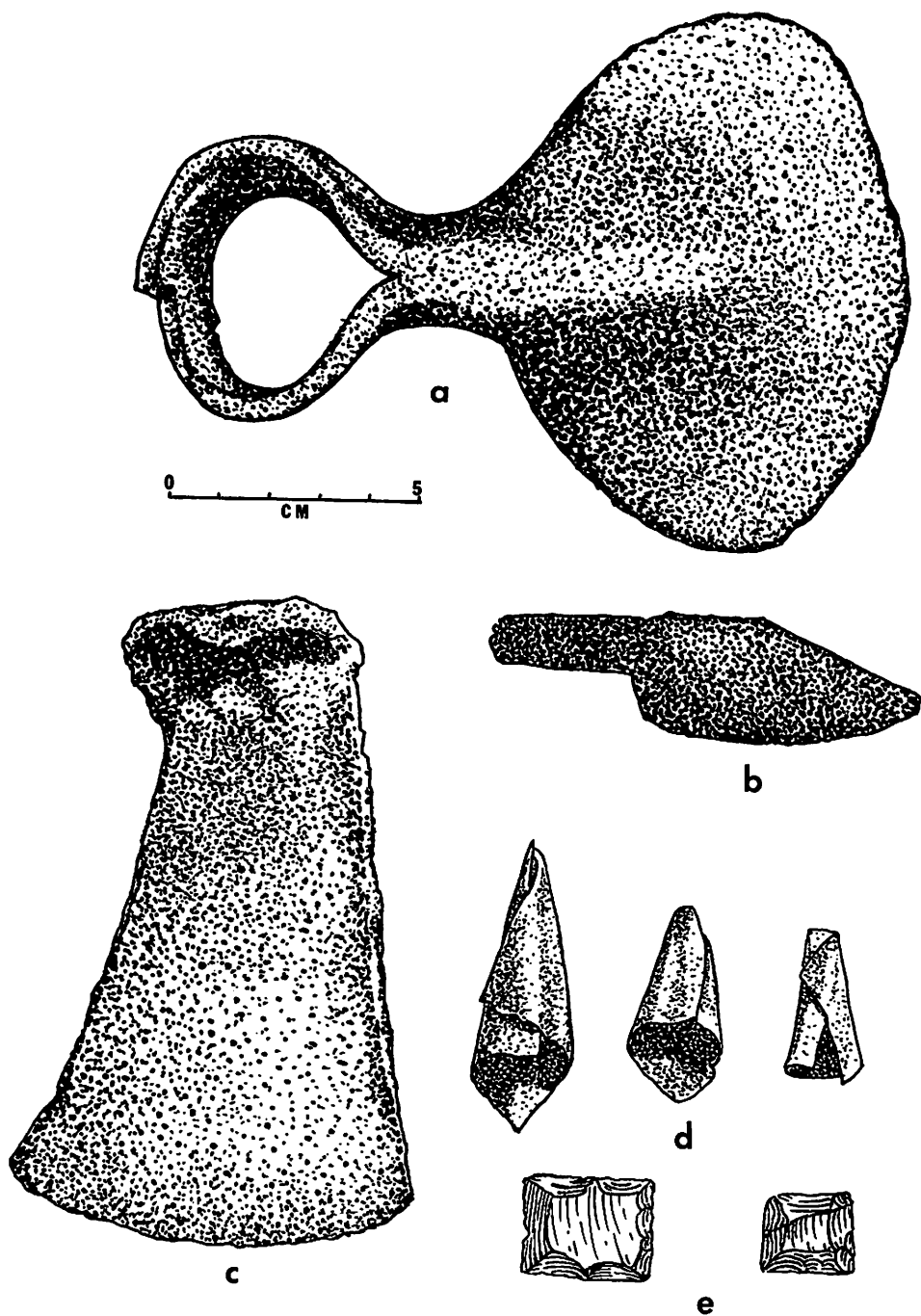


Figure 50 . European Trade Items

historic Wichita sites, especially along Red River and appear to have replaced flint points during the latter half of the 18th century. Some examples have also been found at historic Creek Indian sites in eastern Oklahoma. Most of the metal points that are found, however, appear to be isolated finds, and probably these points were lost during hunting or by accident.

## **European Trade Items**

European trade goods are found on a number of Oklahoma archaeological sites and provide help in establishing the age of the occupation. The earliest possible contact items would be materials obtained from the Coronado Expedition into the plains in 1540. Although artifacts believed to represent this early contact have been found in Kansas, nothing of a similar nature has been found in Oklahoma.

At the present time, the white trade materials found within the state tend to fall into two broad time periods: 1) trade goods that was obtained from the French and Spanish during the 18th century, and 2) trade goods associated with various Indian tribes that were removed to Oklahoma from elsewhere. This later period is primarily represented by the early half of the 19th century.

Our information is best for the French trade materials that were being traded to the Wichita Indians living along the Arkansas river in Kay county, Oklahoma. Items which have been found on these sites include various metal parts of trade guns including gun barrels, vise jaws, vise screws, tumblers, tumbler bridles, triggers, main-springs, frizzens, frizzen springs, trigger plates, side plates, butt plates, ramrod guides, lead bullets, and gun flints. Other metal items include sheath and clasp knives, hoe blades, axe blades, iron scrapers, iron awls, kettle fragments, kettle bails, copper wire, sleigh bells, hawk bells, rivets, metal tinklers, a variety of glass beads, mirror fragments, and miscellaneous pieces of iron and brass. Examples of an iron hoe, axe, knife, tinklers, and gun flints are illustrated in Figure 50. There are some aboriginal artifacts found in association with these trade items: these include pottery sherds, clay pipes, flint arrowheads, flint scrapers, abraders, grinding stones, and a variety of bone items including hoes, awls, and pendants.

Sites which were occupied after Indian removal are frequently difficult to identify as the materials found are similar to those in the households of early white pioneers. The Indians cultural inventory of this time period was essentially composed of white manufactured materials with little native material being present. Some groups, such as the Choctaw, Creek, Seminole, and Chickasaws still produced a little pottery but specimens are not plentiful. An occasional glass bead or metal arrow point is sometimes found, but these also are scarce.

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## Figure Captions

### Figure 1 — Preforms

- a) Ck-39/129, Cherokee County, Morris site
- b) OK-59, Oklahoma, John J. Culbertson collection
- c) OK-63, Oklahoma, John J. Culbertson collection
- d) OK-63, Oklahoma, John J. Culbertson collection
- e) OK-63, Oklahoma, John J. Culbertson collection
- f) OK-72, Oklahoma, John J. Culbertson collection
- g) OK-59, Oklahoma, John J. Culbertson collection
- h) OK-50, Oklahoma, John J. Culbertson collection

### Figure 2 — Projectile Points

- a) LfCrI, B189-3d, Spiro mound, LeFlore county
- b) No number, George T. Wright collection
- c) Ak-7/35, Marked Tree, Arkansas
- d) Wa-3/4, Washita county, Franklin site
- e) LfCrI, B99-13, Spiro mound, LeFlore county
- f) Cn-2/2, Canadian county, Weil site
- g) Ck-44/440, Cherokee county, Smullins I site
- h) B1-0/3, Blaine county
- i) No number, George T. Wright collection
- j) No number, George T. Wright collection
- k) D1-30/39, Delaware county, Copeland I site
- l) OK-1, Oklahoma
- m) MO-74, Missouri
- n) CK-44/286, Cherokee county, Smullins I site
- o) OK-58, Oklahoma, Culbertson collection

### Figure 3 — Flint Knives

- a) Ck-39/92, Cherokee county, Morris site
- b) Ck-43/190, Cherokee county, Brackett site
- c) Bv-14/331, Beaver county, Roy Smith site
- d) Ck-39/572, Cherokee county, Morris site
- e) OK-90, Oklahoma, Culbertson collection

### Figure 4 — Corner Tanged Knives

- a) No number, Cimarron county, Ralph W. White collection
- b) OK-239, V. Dale collection
- c) Ma-2/77, Marshall county, Buncombe Creek site
- d) Br-11/110, Bryan county, James site

### Figure 5 — Drills or Perforators

- a) LO-12, Louisiana
- b) OK-72, T-type drill, Oklahoma, Culbertson collection
- c) Bv-14/99, Beaver county, Roy Smith site
- d) Cross section of hourglass drilling
- e) Bv-14/565, Beaver county, Roy Smith site
- f) Ck-32/134, Cherokee county, Vanderpool site
- g) LfMrIII, B67-1b, ensiform drill, LeFlore county, Moore site
- h) OK-245, Oklahoma, Culbertson collection
- i) Lf-42/29, LeFlore county, Bowman I site
- j) Ck-32/538, Cherokee county, Vanderpool site

### Figure 6 — Flint Scrapers

- a) Ci-0/15, Cimarron county
- b) Ka-5/46, Kay county, Bryson-Paddock site
- c) OK-72, Oklahoma, Culbertson collection
- d) No number, Texas county, Optima site
- e) Lf-42/23, LeFlore county, Bowman I site
- f) TxSt-1, 167/9, Texas county, Stamper site
- g) TxSt-1, 185/1, Texas county, Stamper site
- h) TxSt-1, H7-3f, Texas county, Stamper site
- i) OK-1, Oklahoma, Culbertson collection
- j) OK-50, Oklahoma Culbertson collection

### Figure 7 — Clear Fork Gouges

- a, a', a'') Top, back and side view, Ma-9/3, Marshall county
- b) Ma-10/1, Marshall county, Limestone Point site
- c) Ma-1/195, Marshall county, Boat Dock site
- d) Ma-8/2, Marshall county, Breeding site
- e) Cd-177/1, Caddo county, Dead Woman Creek C site
- f) B1-0/3, Blaine county
- g) B1-0/3, Blaine county

### Figure 8 — Pulping Planes

- a, a') Top and side view, Br-135/1, Bryan county, Doyle Harrel #1 site
- a, b') Top and side view, Ma-1/197, Marshall county, Boat Dock site

### Figure 9 — Choppers

- a, a') Front and back view, Cd-11/1, Caddo county, Duncan-Wilson site
- b, b') Front and back view, Cd-41/5, Caddo county, Log Cabin site

**Figure 10 — Chipped Double-Bitted Axes**

- a) Ck-32/538, Cherokee county, Vanderpool site
- b) Ck-32/470, Cherokee county, Vanderpool site
- c) Ck-32/134, Cherokee county, Vanderpool site

**Figure 11 — Flint Spades or Hoes**

- a) Ck-39/225, Cherokee county, Morris site
- b) Ck-32/342, Cherokee county, Vanderpool site
- c) Ck-32/74, Cherokee county, Vanderpool site
- d) Ck-32/139, Cherokee county, Vanderpool site

**Figure 12 — Stemmed Hoes**

- a) Lf-20/755, LeFlore county, Copeland site
- b) Lf-20/713, LeFlore county, Copeland site
- c) Lf-20/717, LeFlore county, Copeland site

**Figure 13 — Pecking Hammers**

- a) Ck-32/559, Cherokee county, Vanderpool site
- b) Ck-32/559, Cherokee county, Vanderpool site
- c) Ck-39/421, Cherokee county, Morris site
- d) Ck-39/66, Cherokee county, Morris site

**Figure 14 —Stone Celts**

- a, a') Side and cross section view, Ck-32/448, Cherokee county, Vanderpool site
- b, b') Side and cross section view, Ck-6/362, Cherokee county, Harlan site
- c, c') B1-0/3, Blaine county
- d, d') Gd-2/1, Grady county, Scribner site

**Figure 15 — Grooved Axes**

- a) Lf-28/1677 LeFlore county, Sam site
- b) OK-23/2, Oklahoma, E. E. Dale collection

**Figure 16 — Stone Abraders**

- a) WgNrIII, B19-5, Wagoner county, Norman site
- b) Bv-14/441, Beaver county, Roy Smith site
- c) Gv-2/207, Garvin county, Grant site
- d) Wa-/157, Washita county, McLemore site
- e) Lf-62/450, LeFlore county, Choates site

### **Figure 17 — Milling Stones**

- a) Wa-5/514, Washita county, McLemore site, 750 mm in total length
- b) Cu-27/32, Custer county, Heerwald site, 520 mm in total length
- c) Bk-4/1, Beckham county, Hubbard I site, 355 mm in total length

### **Figure 18 — Manos and Mullers**

- a, a') Top and cross section view, Gv-2/599, Garvin county, Grant site
- b) Lf-62/177, LeFlore county, Choates site
- c) Ck-39/244, Cherokee county, Morris site
- d, d') Top and cross section view, Lf-24/1266, LeFlore county, Williams I site

### **Figure 19 — Net Weights**

- a) Mc-104/34, McCurtain county, Woods Mound site, weight 224.3 grams
- b) Mc-42/44, McCurtain county, Lamas Branch site, weight 87.2 grams
- c) Mc-104/111, McCurtain county, Woods Mound site, weight 105.4 grams
- d) Mc-42/12, McCurtain county, Lamas Branch site, weight 48.4 grams
- e) Br-140/1, Bryan county, Hart site, weight 30.1 grams
- f) Ma-4/14, Marshall county, Island #1 site, weight 57.9 grams

### **Figure 20 — Paint Stones**

- a) Ma-0/22, Marshall county
- b) Lf-24/2187, LeFlore county, Williams I site
- c) Ck-6/338, Cherokee county, Harlan site
- d) Ck-43/97, Cherokee county, Brackett site

### **Figure 21 — Cup Stones or Pitted Stones**

- a) Ma-16/2, Marshall county, Keaton Creek site
- b) Ck-39/467, Cherokee county, Morris site
- c) Ck-24/94, Cherokee county, Tenkiller #22 site

### **Figure 22 — Boatstone Atlatl Weights**

- a, a') Top and cross section view, LfAk-I, B45-1, LeFlore county, Akers site
- b, b') Top and cross section view, LfAk-I, B128-3, LeFlore county, Akers site



- c, c') LfSml, A2-1, LeFlore county, Sam site
- d, d') LfWl-I, B94-5, LeFlore county, Williams site
- e, e') LfMa-I, R5, LeFlore county, Mackey site

**Figure 23 — Stone Beads**

- a) LfCrI/D35, LeFlore county, Spiro mound
- b) LfCrI/D315-1, LeFlore county, Spiro mound
- c) Lf-40/588, LeFlore county, Spiro site
- d) LfCrI, B68-4, LeFlore county, Spiro mound
- e) Lf-58/53, LeFlore county, Ward Mound #1 site
- f) Ck-6/318, Cherokee county, Harlan site
- g) Ck-6/1208, Cherokee county, Harlan site
- h) Ck-6/278, Cherokee county, Harlan site
- i) Ck-6/863, Cherokee county, Harlan site
- j) Ck-6/1248, Cherokee county, Harlan site
- k) Ck-6/133, Cherokee county, Harlan site
- l) Ck-6/1239, Cherokee county, Harlan site

**Figure 24 — Stone Pendants**

- a) Ck-6/317, Cherokee county, Harlan site
- b) Ck-6/317, Cherokee county, Harlan site
- c) LfCrI, B167-6, LeFlore county, Spiro mound
- d) GTW-1001 (17), McCurtain county, George T. Wright collection
- e) Lf-58/46, LeFlore county, Ward Mound #1 site
- f) Wd-12/5, Woodward county, Fred Loomis site
- g) Wd-12/4, Woodward county, Fred Loomis site

**Figure 25 — Stone Gorgets**

- a, a') Top and side view, Lf-18/8, LeFlore county, De Hart I site
- b) Lf-18/1, LeFlore county, De Hart I site
- c) Lf-18/4, LeFlore county, De Hart I site
- d) LfWl-I/R43, LeFlore county, Williams site

**Figure 26 — Stone Ear Spools**

- a, a') Ck-6/375, Cherokee county, Harlan site
- b) WgNrIIa, B39-1b, Wagoner county, Norman site
- c) LfCrI, B31-1B, LeFlore county, Spiro mound
- d) Lf-40/692, LeFlore county, Spiro site

**Figure 27 — Stone Pipes**

- a) Ck-6/314, Cherokee county, Harlan site
- b) Lf-58/12, LeFlore county, Ward Mound #1 site

- c) Ma-23/14, Marshall county, Wheeler site
- d) Wa-5/475, Washita county, McLemore site
- e) Wa-5/457, Washita county, McLemore site
- f) LfBoIII, H1-1, LeFlore county, Bowman site

#### Figure 28 — Flint Knapping Tools

- a) #185, Kay county, Bryson-Paddock site
- b) #724, Kay county, Bryson-Paddock site
- c) #191, Kay county, Bryson-Paddock site
- d) Ck-44/926, Cherokee county, Smullins I site
- e) TxSt-I/270, Texas county, Stamper site

#### Figure 29 — Bone Awls

- a) Wa-5/325, Washita county, McLemore site
- b) Bv-14/88, Beaver county, Roy Smith site
- c) Wa-5/438, Washita county, McLemore site
- d) Wa-5/209, Washita county, McLemore site
- e) TxSt-1/280/2, Texas county, Stamper site
- f) Bv-14/482, Beaver county, Roy Smith site
- g, g') #69, Kay county, Bryson-Paddock site

#### Figure 30 — Bone Beamers

- a, a') Gv-5/1, Garvin county, Lacy site
- b) Gv-2/76, Garvin county, Grant site
- c) Gv-2/381, Garvin county, Grant site
- d) Gv-2/76, Garvin county, Grant site
- e) Gv-2/422, Garvin county, Grant site

#### Figure 31 — Hide Grainers

- a and b) Front and back view, #65, Kay county, Bryson-Paddock site
- c) #65, Kay county, Bryson-Paddock site

#### Figure 32 — Bone Fishhooks

- a) Lt-11/620, Latimer county, McCutchen-McLaughlin site
- b) Lt-11/1122, Latimer county, McCutchen-McLaughlin site
- c) Lt-11/284, Latimer county, McCutchen-McLaughlin site
- d) Lt-11/297, Latimer county, McCutchen-McLaughlin site
- e) Lt-11/1406, Latimer county, McCutchen-McLaughlin site
- f) Lt-11/898, Latimer county, McCutchen-McLaughlin site
- g) Lt-11/431, Latimer county, McCutchen-McLaughlin site
- h) Lt-11/1211, Latimer county, McCutchen-McLaughlin site

**Figure 33 — Bone Shaft Wrench**

- a) Wa-5/390, Washita county, McLemore site
- b, b') Top and side view, Wa-5/292, Washita county, McLemore site
- c) #293, Kay county, Bryson-Paddock site

**Figure 34 — Deer Jaw Sickles**

- a) Wa-5/690, Washita county, McLemore site
- b) Wa-5/453, Washita county, McLemore site

**Figure 35 — Bison Scapula Hoes**

- a, a') Side and socket view, MS76-21/5, Muskogee county
- b) Cd-2/5, Caddo county, Sayler Bluff site
- c) Wa-5/539, Washita county, McLemore site

**Figure 36 — Bison Tibia Digging Stick Tips**

- a) Gd-1/73, Grady county, Brown site
- b) Wa-5/520, Washita county, McLemore site
- c, c') Side and socket view, Wa-5/438, Washita county, McLemore site

**Figure 37 — Horn Core Digging Tools or Squash Knives**

- a) Gv-3/166, Garvin county, Lee site
- b) Gv-5/22, Garvin county, Lacy site
- c) Gv-5/1, Garvin county, Lacy site
- d) Gv-3/165, Garvin county, Lee site

**Figure 38 — Bone Beads**

- a) #124, Kay county, Bryson-Paddock site
- b) Wa-5/449, Washita county, McLemore site
- c) Wa-5/128, Washita county, McLemore site
- d) Wa-5/628, Washita county, McLemore site
- e) Gv-3/152, Garvin county, Lee site
- f) Wa-5/341, Washita county, McLemore site
- g) Wa-5/652, Washita county, McLemore site
- h) Wa-5/522, Washita county, McLemore site

**Figure 39 — Bone Pendants**

- a) Wa-5/340, Washita county, McLemore site
- b) Gv-3/36, Garvin county, Lee site
- c) #123, Kay county, Bryson-Paddock site
- d) #290, Kay county, Bryson-Paddock site
- e) #123, Kay county, Bryson-Paddock site
- f) #290, Kay county, Bryson-Paddock site
- g) #290, Kay county, Bryson-Paddock site
- h) #123, Kay county, Bryson-Paddock site
- i) Lf-11/151, LeFlore county, Scott site

#### **Figure 40 — Bone Hair Ornaments**

- a) LfMa-I, B5-1, LeFlore county, Mackey site
- b) LfAk-I, B123-4a, LeFlore county, Akers site
- c) LfWl-I, R50, LeFlore county, Williams site
- d) LfSm-I, A2-4a, LeFlore county, Smith site
- e) LfWl-I, R56, LeFlore county, Williams site

#### **Figure 41 — Shell Hoes**

- a, a') Front/ back view, Lf-31/257, LeFlore county, Moore site
- b) Lf-31/257, LeFlore county, Moore site
- c) Lf-62/204, LeFlore county, Choates site

#### **Figure 42 — Shell Beads**

- a) Disk type beads, Spiro mound
- b) Tubular type beads, Spiro mound
- c) Ball-shaped beads, Spiro mound
- d) Hourglass type beads, Spiro mound
- e) Compound-shaped beads, Spiro mound
- f) Biconical beads, Spiro mound
- g) Olivella beads, Spiro mound
- h) Marginella beads, Spiro mound
- i) Campeloma beads, Spiro mound

#### **Figure 43 — Shell Ornaments**

- a) Lf-40/692, LeFlore county, Spiro mound, Henry W. Hamilton collection
- b) LfWl-I, B87-1, LeFlore county, Williams site
- c) Lf-18/6, LeFlore county, De Hart I site
- d) Wa-5/456, Washita county, McLemore site

#### **Figure 44 — Baked Clay Daub**

- a) Ck-6/57, Cherokee county, Harlan site
- b) Ck-6/59, Cherokee county, Harlan site
- c) Gv-1, Garvin county, Braiden site
- d) Gv-1/235, Garvin county, Braiden site

#### **Figure 45 — Pottery Sherds**

- a) 5.33.166, Copper Zoned Stamped, Delaware county
- b) 5.29.22, Neosho Punctate, Delaware county
- c) #300, Deer Creek Stamped, Kay county, Bryson-Paddock site
- d) Lf-40/858, Punctated sherd, LeFlore county, Spiro site
- e) No number, Spiro Engraved, LeFlore county, Spiro site
- f) 3-34-400, Incised sherd, LeFlore county, Akers site
- g) Ps-52/1, McIntosh Roughened, Pittsburg county
- h) Cu-1/109, Stafford Cordmarked, Custer county, Goodman I site
- i) Lf-74/10, Chickachae Combed, LeFlore county

**Figure 46 — Pottery Disks**

- a) Wa-5/494, Washita county, McLemore site
- b) Wa-5/302, Washita county, McLemore site
- c) Wa-5/78, Washita county, McLemore site
- d) Wa-5/218, Washita county, McLemore site
- e) Wa-5/494, Washita county, McLemore site
- f) Mc-9/5, McCurtain county, Clement 2 site
- g) Mc-8/1337, McCurtain county, Clement site

**Figure 47 — Clay Figurines (not to scale)**

- a) DXCO-I, Delaware county, Cooper site
- b) Cd-41/1, Caddo county, Log Cabin site
- c) LfBoIII, Cl-9, LeFlore county, Bowman site
- d) Wa-5/439, Washita county, McLemore site
- e) Wa-5/4, Washita county, McLemore site
- f) Wa-5/757, Washita county, McLemore site
- g) LfBoIII, Cl-6, LeFlore county, Bowman site
- h) Wa-5/757, Washita county, McLemore site

**Figure 48 — Clay Pipes**

- a) #679, Kay county, Bryson-Paddock site
- b) McCl-I, B3-28, McCurtain county, Clement site
- c) Lf-69/70, LeFlore county, Skidgel I site
- d) Ck-43/428, Cherokee county, Brackett site
- e) WgNrII, B51-6, Wagoner county, Norman site

**Figure 49 — Metal Points**

- a) Tx-0/105, Texas county, Vincent Dale collection
- b) Tx-0/103, Texas county, Vincent Dale collection
- c) Ki-1/6, Kiowa county
- d) Tx-0/103, Texas county, Vincent Dale collection
- e) Tx-0/104, Texas county, Vincent Dale collection
- f) Tx-0/107, Texas county, Vincent Dale collection
- g) Tx-0/102, Texas county, Vincent Dale collection
- h) Tx-0/102, Texas county, Vincent Dale collection
- i) Tx-0/103, Texas county, Vincent Dale collection
- j) Tx-0/107, Texas county, Vincent Dale collection
- k) Tx-0/102, Texas county, Vincent Dale collection
- l) Tx-0/707, Texas county, Vincent Dale collection

**Figure 50 — European Trade Items**

- a) #96, hoe, Kay county, Bryson-Paddock site
- b) #684, clasp knife, Kay county, Bryson-Paddock site
- c) #574, axe blade, Kay county, Bryson-Paddock site
- d) #54, tinklers, Kay county, Bryson-Paddock site
- e) Lf-74/6, gunflints, LeFlore county





