

CHAPTER XII

GROUND STONE ARTIFACTS

Primitive man produced for his use as tools or ornaments a great variety of stone artifacts usually designated by the term "ground implements" in which, as the name implies, the process of grinding was used in their manufacture. While in most cases this was all that was necessary to produce the desired form, yet in many cases before grinding could be begun, the stone must be chipped into the approximate shape, this step being very important in determining the final size and shape of the implement. Grinding and polishing took place after the approximate shape or form was wrought out, although in some cases much of the final polish may have come by actual use of the implement if we may judge by the fact that the portion having most use obtained the highest polish. This hammering into rough form is usually called "pecking" to accomplish which a special form

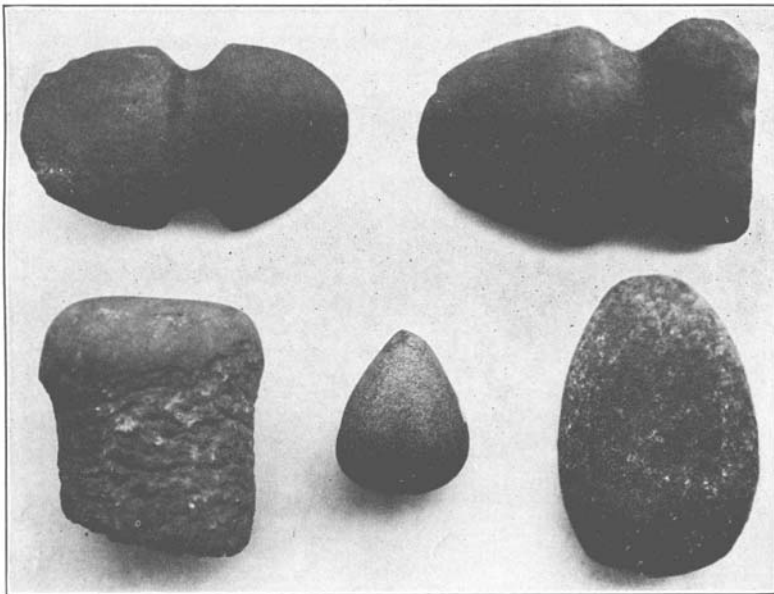


FIG. 129. THE FIRST STEP IN GRINDING.

Artifacts roughly "pecked out" ready to be polished. The specimen in the upper left-hand corner is a double-bitted ax.

of hammerstone was often used. Such hammerstones were of very hard material and were somewhat eggshaped with one rather sharp end which was used to do the pecking. Figure 129 shows a granite pebble rough-pecked into a form suitable for the manufacture of an axe or celt. It will be noted that much of the original water-worn surface of the pebble still remains, the pecking showing only on the edges. In this figure is shown also a typical pecking hammerstone showing considerable use and a portion of a roughed-out pestle. This pestle, made from a block of stone almost square in cross-section, was being converted into a rough cylinder at one end when it broke in the process and was discarded. The original square end was left to be the grinning end of the pestle but shows no signs of actual use; it was, therefore, never part of a finished object.

Such findings would seem to indicate that primitive man, in working stone, brought the implements by rough pecking to practically the final form before beginning to grind or polish them. We know but little of his method of grinding, which must have been crude at best. Doubtless he learned the use of sand, sandstone, and water, but even under the most favorable conditions the process must have been laborious and very slow. His artifacts therefore testify to patient effort and great industry in their manufacture.

For the purpose of our discussion, we may classify the ground implements found in Kentucky, including all those rough-pecked, polished, and drilled, as follows:

- | | |
|---------------|------------------|
| a. Axes | j. Plummets |
| b. Celts | k. Net sinkers |
| c. Chisels | l. Cones |
| d. Pestles | m. Banner-stones |
| e. Mortars | n. Gorgets |
| f. War clubs | o. Pendants |
| g. Play balls | p. Drill heads |
| h. Pipes | q. Whet-stones |
| i. Discoidals | |

The most important implement made by pecking and grinding was the stone ax. In discussing the various forms of axes one is forced to include the celt, as many celts, both large and small, were attached to handles and used as axes or hatchets. For the

purpose of this discussion axes will be divided into four classes as follows:

1. Groove extending completely around ax
2. Groove on three sides—one edge flat or concave
3. Double-bladed—center groove
4. Celt-like form, ungrooved

The full-grooved ax appears in Kentucky as elsewhere in the United States in a great variety of forms and sizes. Some are not more than two inches in length and weigh only four or five ounces while others are quite large. Recently a stone ax was reported as having been found near Ashland which weighed thirty pounds. Figure 130 shows a number of forms of the full-grooved ax. Generally this type of ax has a rather flat poll, and

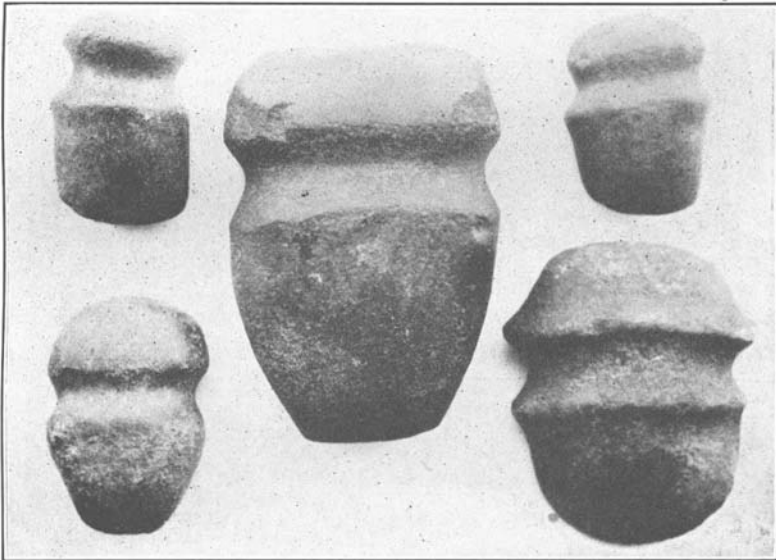


FIG. 130. FULL-GROOVED AXES.

Various types of axes in which the groove extends entirely around the stone.

the bit or blade is usually much smaller in width than the body of the ax. These general characters are well illustrated by the central specimen in Figure 130 which shows also that in the manufacture of grooved axes, even the groove was rough pecked, before polishing. In as much as the groove could have been only

for attachment, it was probably left unpolished in most cases, and such polish as it acquired was due to actual use. The full-grooved ax was attached to a handle by lashing to the side of a straight limb of some pliable wood. Several have been found with handles still attached. In particular one such hafted ax was found on a shelf of stone in Hines Cave, Wayne County, Kentucky.

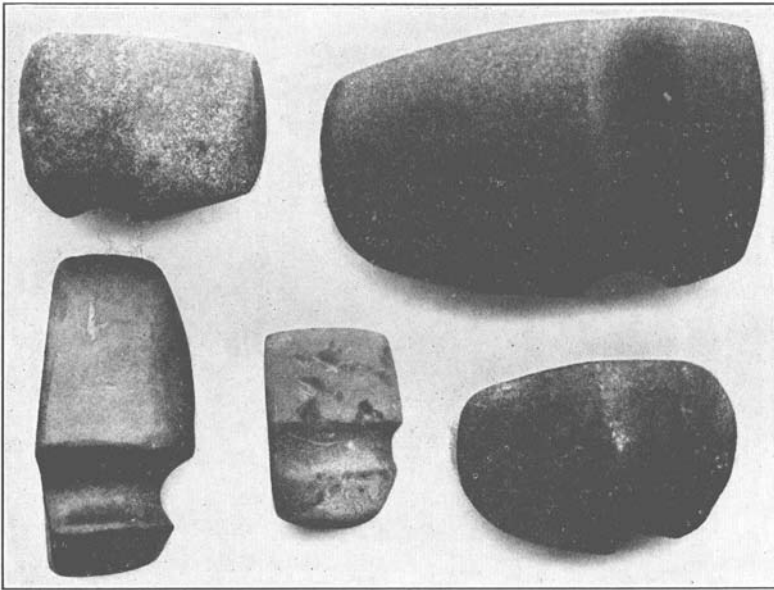


FIG. 131. PARTLY GROOVED AXES.
Grooved on three sides with one side flat or convex.

Specimens of the ax grooved on three sides are shown in figure 131. In general this is a larger type of ax than the full grooved form. There appear to be a very few small specimens that are not full grooved. It is generally assumed that the flat edge, left ungrooved, was placed next to the end of the handle. After the ax had been lashed to the end of the handle, rather than to the side, a wedge was inserted between the end of the handle and the flat side of the ax, and upon being driven in, the lashings were drawn tight. While there are many very highly worked full grooved axes, there appear to be also many quite

carbonate. It was worked down to the desired form, having a full groove and sharp bit. When discovered in the field it was covered by a coating of limonite, 3.5 mm. thick. This coating is the same thickness in the groove as over the rest of the specimen. The whole of this coating must therefore have been formed after the ax was finished. If this coating was produced by weathering of the carbonate the very interesting question is raised as to how long it would take a specimen of this kind to develop a coating 3.5 mm. thick. Clearly the great thickness of this coat might argue a very great age.

In the consideration of axes it is necessary to include stone celts, as in many cases they were hafted, and used as hand hatchets and axes. The celt which is ungrooved has quite as great a range of variation in form and material as the grooved ax. Many celts are but one inch broad by 1½ inches long, the largest shown in figure 133 is 9¾ inches long and weighs 5½

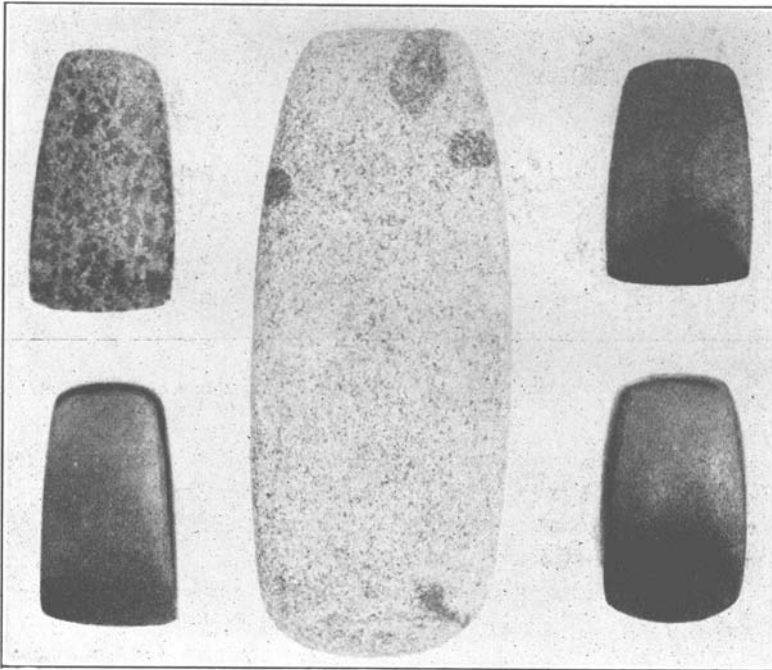


FIG. 133. CELTS.
Various types of stone celts from Kentucky.

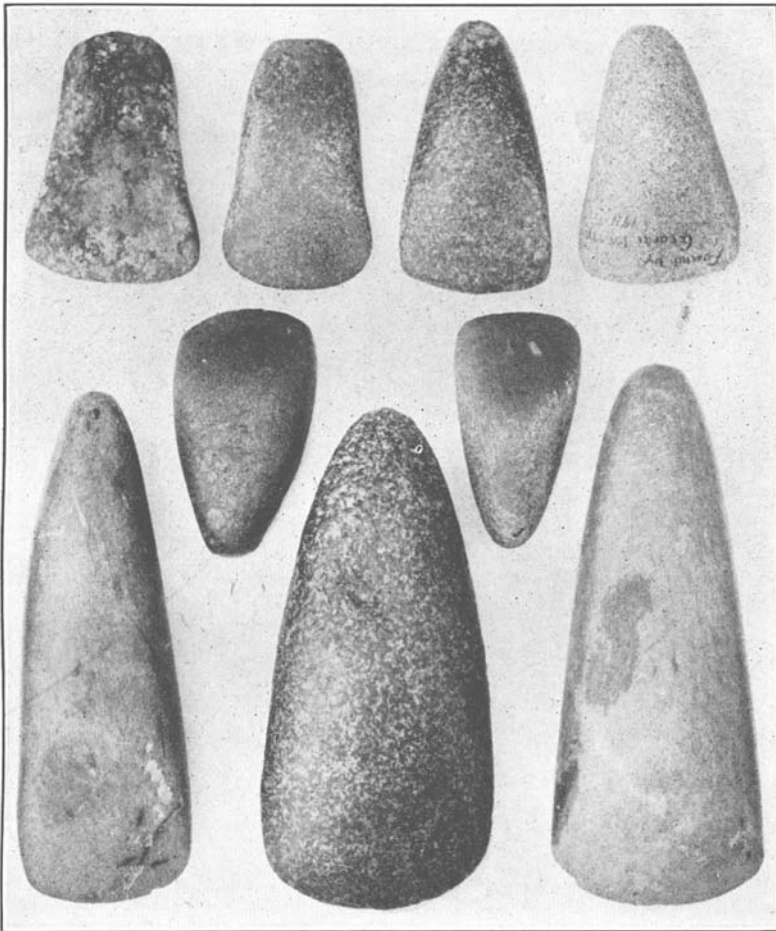


FIG. 134. STONE CELTS.
A variety of highly polished celts.

pounds. Celts were rough pecked into shape, and then polished. Being made of granite and other hard stones, they often took on an exceptionally high polish. Celts have been classified generally as to form. The outstanding types are (1) oval form, (2) flat on one side, pole pointed, (3) straight sides, pole flat, (4) flared bit, pole rounded. Figures 133 and 134 show specimens of each of these types. Many stone celts, like the flint celts already mentioned were doubtless used as scrapers, for dressing skins,

but many apparently were hafted. One very interesting type of very small celt is the form made of hematite. These are usually quite small, from 1¼ to 2 inches long and 1 to 1½ inches broad. They are highly polished and have quite sharp edges.

The pole of these small celts is also quite smooth, and the body is quite thin. It is commonly supposed that they were set in a large piece of wood, used as a war club. Such a club studded

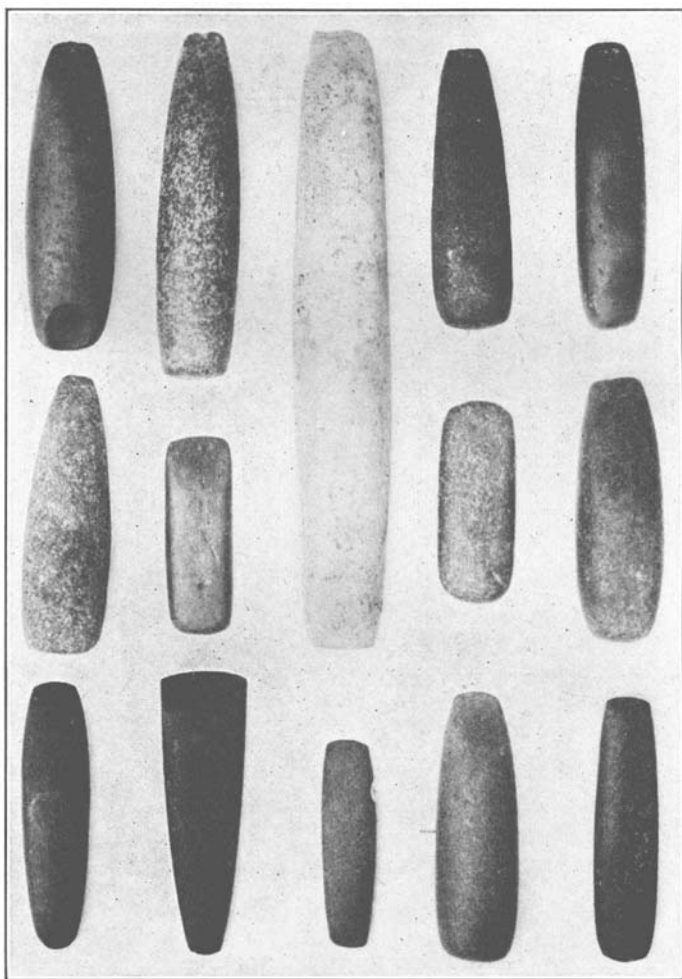


FIG. 135. CHISELS.

In the lower row are shown two of the peculiar "double-bitted" type.

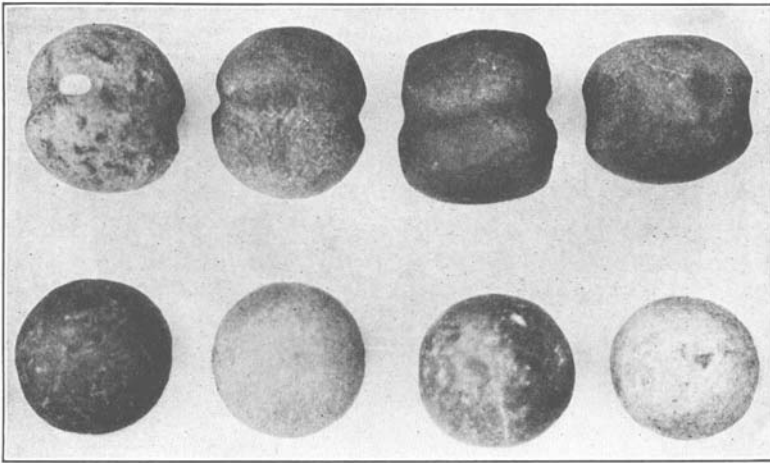


FIG. 136. WAR CLUBS AND PLAY BALLS.

The war clubs in the upper row are grooved for attachment; the playballs in the lower row are spherical and highly polished for rolling.

with these small celts would be a very effective weapon. This supposition is based on the known practice of historic tribes to insert pointed objects in their war clubs, holding them in place by the use of asphaltum, and also from the fact that these small hematite celts are often found in graves in groups of 3 or 4 or more together.

Closely related to the stone celt, is the chisel. These artifacts show great care in manufacture, being made of granite, greenstone, and even of limestone. Many show the effect of being buffeted with a hammerstone, the basal end being chipped. Chisels are often found in graves and seem to have been highly regarded as mortuary offerings. The longest specimen in figure 135 is $8\frac{3}{4}$ inches long, of limestone, and was taken from the left hand of an extended skeleton in Fox Field by the authors. The same figure also shows a number of beautiful chisels which are double bitted. It is difficult to understand how such chisels could have been used unless they were hafted. The blades show no damage by use as would naturally be expected if they had been struck with hammerstones. It has been suggested that many of the more highly finished chisels were not utility implements but rather were ceremonial. These chisels certainly could have been

used in splitting and working wood. It is well known that they were used in the soapstone quarries to cut out blocks of soapstone from which stone vessels were made.

From the blunt form of grooved ax, it is a very simple transition to the so-called war clubs. These are of cylindrical, or spherical form, of heavy stones, rough pecked into form, and having a groove about the center. Like the axes, they are ploughed up in the fields, and occasionally found in village sites, but never with burials. It is supposed that the club was made by passing a thong about the groove, the thong wrapped on itself forming a pliable handle. Many very true stone balls, of a size quite similar to the so-called war clubs are commonly found on village sites. These balls have no groove and usually are formed by rough pecking, but rarely is one found polished. Two explanations have been offered for their manufacture. One idea is that they were sewed in a section of buck-skin to form a club, and carried and used similarly to the grooved club. Some writers affirm that they are "play balls" used by Indians even up to historic times to play a game similar to the game of "chunkee" played by the Choctaws with disks and crooked sticks.

Next to the ax in importance as an implement made by rough pecking is the stone pestle. They appear in five distinct types in Kentucky, though two of them are by far the most numerous. These types might be described as:

1. Bell-shaped pestles, base flat
2. Bell-shaped pestles, round oval base
3. Bell-shaped pestles, pointed base
4. Cylindrical
5. Ellipsoidal boulder

These different forms are shown in figure 137. Each was evidently designed to serve as a pestle, but in a very different way. The bell shaped pestle, with the flat base, was used to grind grain, and parched corn, on any flat surface. They are usually well made and are polished by long use. They appear in both circular and square base forms, and all have well constructed handles. This is not an accident, but a necessity. Where the grinding was done by hand, the handle was a necessity and well made.

Reference has been made elsewhere to the "hominy holes" of the cliff dwellers. The pestles used in connection with these hominy holes were also bell shaped, but were used in a very different way. These holes were conical in form, and are often three feet deep, or more. They usually are about nine inches in diameter at the top. It is believed that they were started in the rock ledge under the cliff by grinding out a hole only a few inches deep. By using one of the bell shaped pestles found in association with them, with the small end down, the operation

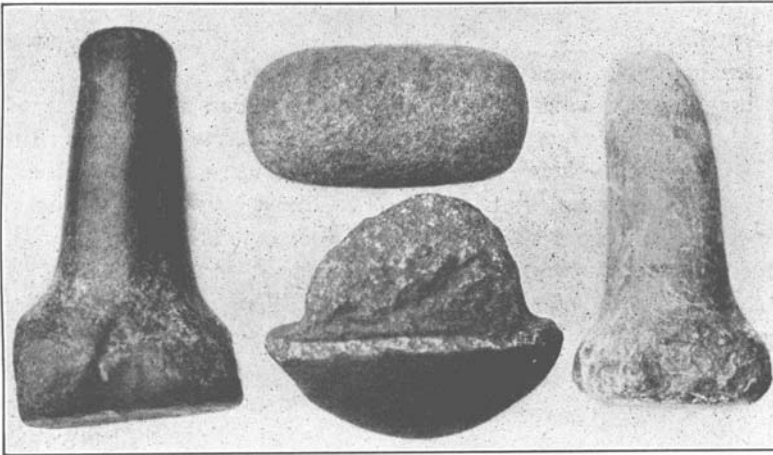


FIG. 137. PESTLES.

Left-hand specimen with flat base for grinding on a flat surface; right-hand specimen used in a "hominy-hole;" upper central specimen cylindrical for rolling; lower central specimen a river pebble fashioned to work in a groove.

of grinding corn could be made very simple. It required only that the pestle be raised and dropped into the hole, pointed end down. At least one hominy hole with pestle remaining in it has been found by the authors in Hart County which gave a clew as to the use of this type of pestle for grinding.

As the grinding of grain continued year after year the hole got somewhat larger and very much deeper, so that the pestle passed completely into the hole. Then it was lashed to a billet of wood, perhaps several feet long and the operation could be continued till the hole became so deep it was difficult to withdraw the meal from it. When this occurred a second and even

a third hole was started in the vicinity, often in the same large boulder or cliff ledge in many cases only a few feet from the old hole. Thus hominy holes are often found in groups. The group contains the "worn out holes" too large for further use, the holes still in use when the site was abandoned, and often a small hole just started. In particular, the large boulder with the "hominid hole" found under the cliff in Hart County and removed to the University of Kentucky has been drilled completely through and when found had the bottom of the hole plugged with a broken pestle. The right-hand specimen shown in figure 137 was found under the Cow Cliff, 12 miles from Howe's Valley, Hardin County, at a depth of five feet in the accumulation of earth about a large sandstone boulder which has in it three hominy holes, two large ones and a small one just started.

In another such boulder under a cliff dwelling in Hardin county, the boulder contained three hominy holes, but in addition thereto some eight or ten well defined grooves, some nearly two inches wide and about an inch deep extended from the edge of the same surface of the boulder, almost vertically downward along its sides some three or four feet. This particular boulder was some eight feet higher than the present level of the cliff floor, and had on one side a large stone mass some four feet thick lying against it. The adjacent rock enabled one to gain the top of this boulder with but little difficulty. It is probable that the original floor level of this cliff when inhabited by the makers of these hominy holes was much lower than at present. Investigation seemed to show that it was at least four feet deeper if not more.

An attempt was made to discover if possible what these vertical grooves in the side of this boulder could mean. The suggestion which seems most plausible was made by Prof. A. M. Miller, who with the authors investigated this cliff dwelling. It would seem that here the pestle working in these extra large hominy holes had been attached to a billet of wood in the usual fashion. The suggestion is that this pestle and attachment, instead of being raised and lowered by some one on the top of this large stone, was raised and lowered by a young sapling being bent over it from the cliff side above. The motion of the sapling and its attached weight being controlled by a person at

the base of the boulder on the floor level, through a rope or wild grape vine attached to the sapling. Such a rope, by long usage, hanging over the edge of the large boulder would certainly be able to cut grooves in the stone similar to those described.

While this explanation may appear as fanciful to some, yet the size of these hominy holes, being the largest seen by the



FIG. 138. LAP STONES.

Showing the deep indentations made by long use. From Marshall County.

authors, seems to argue that here was an ancient mill of more than ordinary capacity for grinding, probably serving the whole community living under the cliff. Whether the explanation is correct or not, the grooves testify to long wear by some object sliding up over the rounded dome of this boulder, perhaps ten feet above the original floor level of this cliff and on that side of the boulder where access to its side is most difficult, and where the footing is most uncertain.

Cylindrical pestles are found sparingly in Kentucky, and were used as simple rollers to grind grain on smooth flat stones called lap stones, from the known custom among historic tribes for the women to hold such stones in the lap when grinding. Figure 138 shows such a pestle and lap stone.

Specialized pestles made from small river worn boulders, are also sparingly found in this state. Figure 137 shows a red granite boulder, rough pecked, over half of its surface, to form a handle. The remaining portion is the grinding surface. Such pestles were usually used in grooved stones, worn into a trough some two feet or more long, the grinding being accomplished by sliding the stone back and forth in the groove.

The small bell shaped pestle, having circular base and convex basal surface, is quite common in Kentucky, being usually associated with a simple form of lap stone with which it is used. These occur over the whole state in small numbers, generally, but are very common in the western portion in the Cumberland and Tennessee River region, and westward. These pestles, rough pecked, and just large enough to give a grip to the hand, are found in large numbers on known village sites. The lap stone used with it is generally a large flat river pebble, though sometimes a square block of sandstone is used.

The lap stone required no process of manufacture beyond actual use. The woman of the tribe selected the stone, and with pestle began grinding. In time the stone became worn down till it could tell its own story. In this grinding the motion of the hand holding the pestle was a circle of only a few inches radius. The pestle being small, there was thus worn in the lap stone a circular depression from one to three inches deep, and from four to seven inches at its widest point. This method of grinding was an individual or family affair, and doubtless every Indian woman had her own pestle and lap stone, to judge by the number found in village sites.

In Marshall County, on the bank of Jonathan Creek, at its entrance into the Tennessee River, the authors with the Hon. W. J. Curtis and accompanied by Mr. Homer Sirls as guide, investigated the ancient village site at that place. The ground was cultivated in corn and covered with grass and weeds. Into this tangle of vegetation which almost precluded investigation of the surface, the party passed back and forth down the corn rows. They were rewarded by finding four beautiful specimens of lap stones in perfect condition. Several others were discovered broken, which were not removed. Figure 138 shows these stones,

with their pestles, together with one presented by Mr. Robert A. Shepherd, found by him on this same site.

Some of these lap stones were used on both sides for grinding, the amount of wear being about the same. Other specimens have in the reverse side one, two, or even three pits, about an inch in diameter and an inch deep. It is suggested that these pits may have been formed when the lap stone was used to hold a nut while being cracked.

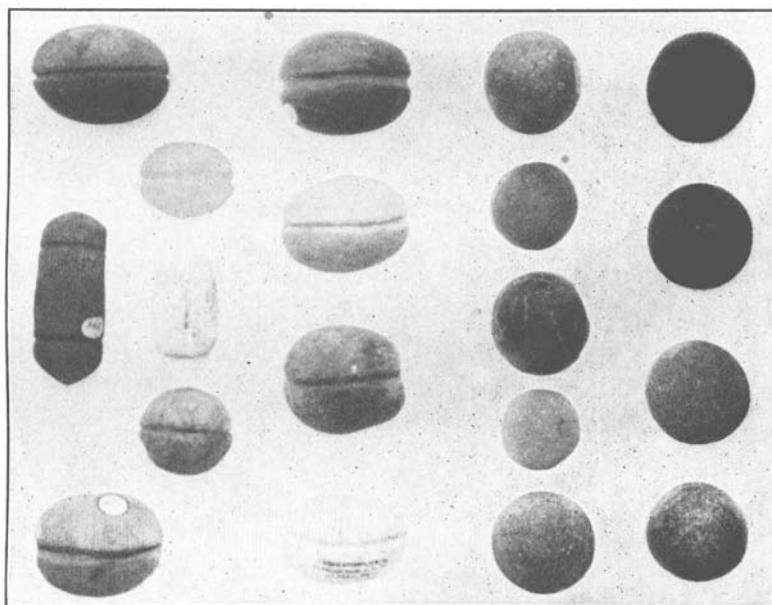


FIG. 139. NET SINKERS AND CONES.

Highly polished artifacts usually with grooves for attachment.

The stone artifacts previously discussed in this chapter were generally but little polished in manufacturing except by actual use. To this group might be added "net sinkers" and "cones" shown in figure 139. The so-called net sinkers made of granite, hematite, dense phosphate and other heavy materials are usually flat on one side being in general semi-ellipsoidal in form. Many have a well cut groove over the curved surface, as if they were to be attached by a string to some object against the flat side. A suggestion as to possible use in connection with drills has been previously made. The use to which the so-called

"cones" were put is very uncertain. They have been called polishing stones from the idea that they were used to polish other implements. Many are made of hematite, or from carbonate of iron, which has a hematite shell over it. Granite cones are fairly common, and of high polish.

Of all the ground and polished implements made and used by primitive man, perhaps the most highly prized and carefully preserved was his pipe. This is not difficult to appreciate, when we understand that for him smoking was not a habit to be indulged at pleasure, as in our day, but was a custom; practiced only at certain times and for a specific purpose. By primitive man, smoking had a religious as well as a ceremonial and social significance. He smoked when he sat in council with his tribe. He concluded peace and confirmed treaties by smoking, and declared war or took other important steps only after the ceremony of smoking. Friendships were sealed by the persons smoking together, and writers of the historic Indian assert that he smoked for purposes of divination and to cure disease.

It is therefore easy to understand that, for a custom so full of meaning and deep significance for him, primitive man would expend his greatest effort and best skill in the manufacturing of his pipe. Except for such religious or ceremonial occasions the pipe was not used. The custom of smoking as an individual pleasure grew up in the 16th Century among white men both on this continent and in Europe after tobacco and the custom of smoking had been introduced into Europe. Even then the Indian of early historic time did not to any considerable extent adopt the white man's custom of indiscriminate smoking for pleasure.

After contact with white men, who learned to smoke, and made "trade" pipes, which were sold to the Indian, individual smoking became general. Certain it is that for prehistoric man, his pipe was an object of great veneration, because of its association, and because of its supposed power as a great medicine maker. It was natural that in selecting objects of veneration to be buried with the dead, the pipe would not be neglected. McGuire in attempting to fix the boundaries for the occurrence of certain large distinct forms of pipes, places Kentucky within

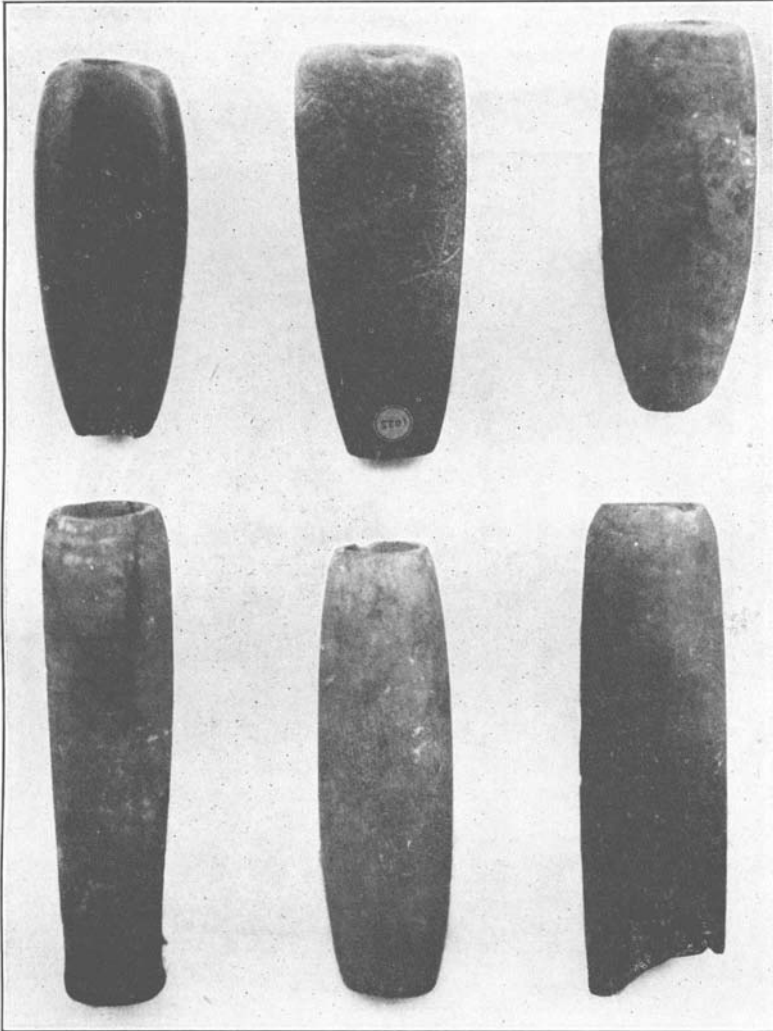


FIG. 140. TUBULAR PIPES.

The middle specimen in the upper row is engraved with pictorial writing.

the area of distribution of many forms. It is therefore to be expected that a variety of pipe forms should be found within the state. McGuire, Moorehead, West, and other writers on aboriginal pipes prefer to classify pipes as to their form and material, rather than assign to them tribal or cultural classifications. The

reason is one of necessity except in relatively few cases, the racial or cultural association of the pipe being unknown.

In the discussion presented in this chapter pipes will be discussed under the following groups. It is not pretended that this is a complete classification, but it is believed that it covers the forms most numerous in Kentucky.

- | | |
|--------------------------|----------------|
| a. Tubular | g. Ovoid |
| b. Heavy animal and bird | h. Vase shaped |
| c. Monitor | i. Elbow pipe |
| d. Micmac | j. Totem |
| e. Disk | k. Siouxian |
| f. Double conoidal | |

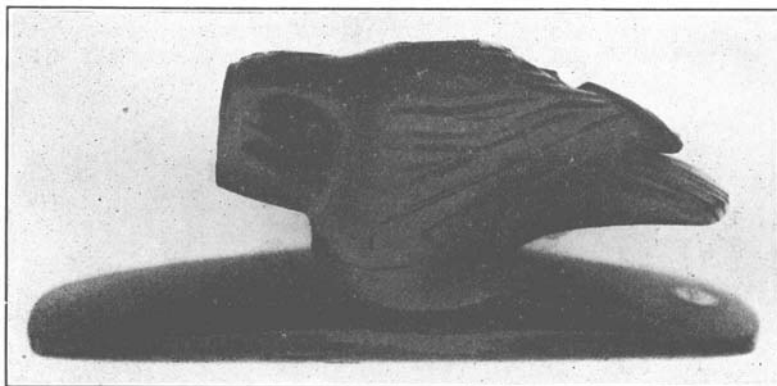


FIG. 141. BIRD PIPE.
A fine specimen of a zoomorphic form.

The tubular pipe appears to be one of the oldest forms. It occurs east of the Mississippi, through Ohio and Kentucky, southward and westward to the Pacific Coast. It is thought that it is the most primitive and its form probably developed naturally from the known custom of the tribes in the Southwest and Mexico, who when first seen by white men, used for smoking a roll of leaves, rolled out and twisted together to form a cylinder many inches long.

Tubular pipes usually have a large capacity in the bowl, the stem hole being smaller. Figure 140 shows one type of tube evidently presented directly to the mouth in smoking. Others may have had a separate stem. While most tubular pipes are of sandstone, one specimen shown in figure 140 is made of

highly polished banded slate. And another is engraved in a manner suggesting pictorial writing.

In the large area south of the Ohio River and east of the Mississippi there are quite often found large pipes of the form shown in figure 141. These pipes are usually quite large, and heavy, some being of several pounds weight. They are engraved to represent a great variety of birds and animals, the execution of the engraving being usually of a high order. Many of these beautiful pipes from Kentucky are figured by Moorehead. The collection of Col. Bennett Young contained many and McGuire represents two very interesting specimens found near Lexington, Kentucky.

A pipe of this type now in the possession of Dr. N. D. Stigall, of Burnside, Kentucky, is shown in Figure 142. This

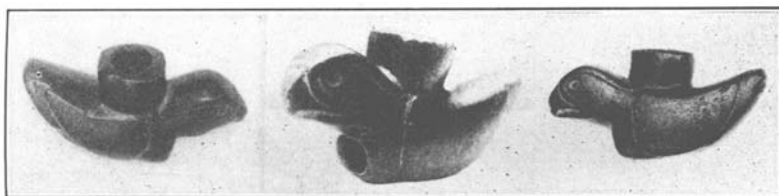


FIG. 142. ANIMAL PIPE.
Three views of an interesting pipe found in southern Kentucky.

pipe has been in his family several generations, being found in 1820 at "Double Head Spring," two miles west of Burnside, down the Cumberland River. The spring was named for an old Indian chieftain known to the early settlers as Double Head, who lived in a cavern near this spring for a time after white men began to settle the surrounding country.

The pipe shown in figure 141 was found according to the record of Mrs. Charles Bolinger of Maysville, about 1890 by Miss Helen McKinney, who was then secretary to J. C. C. Mayo. The pipe was found under the cliff at the Jenney Wiley Ford, near Mudlick, 8 miles from Paint Lick. This cliff and ford according to "Ely's History of the Big Sandy Valley" were named for a girl captured by the Indians in the early settlement days, and left tied under the cliff. She escaped by creeping under a small stream of water from the cliff, and by getting the cords wet that bound her, she released herself.

A specimen of the Monitor Pipe, which is not very common in Kentucky, and also a good example of the Micmac type are shown in figure 143. These types are found along the northern boundary of the United States and into Canada and are particularly numerous in the Great Lakes region. The finding in Kentucky of Micmac pipes is unusual, and it would seem that they are to be regarded as strays, here by the accident of trade or travel. In figure 143 is also shown a very beautiful specimen

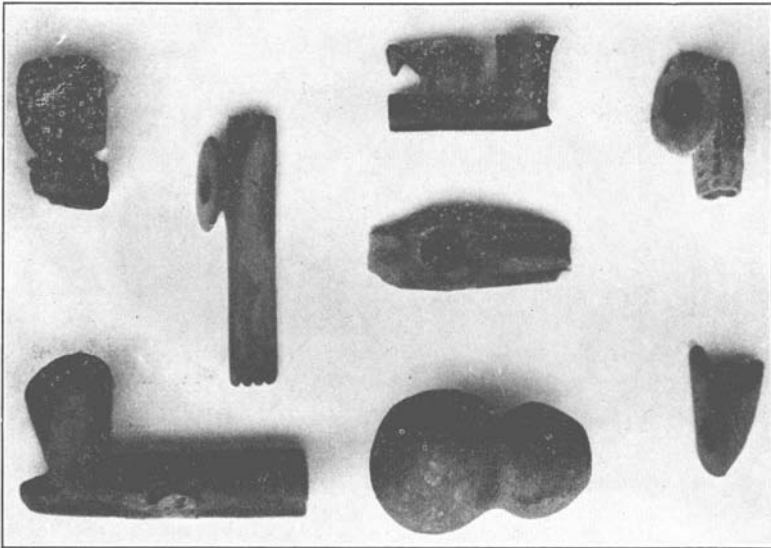


FIG. 143. INTERESTING FASHIONS IN PIPES.

Showing in the upper left-hand corner a micmac pipe, in the upper row a Cherokee pipe with animal design, in the center a monitor pipe and a disc pipe, and in the lower right-hand corner a pipe made from a concretion.

of disk pipe ploughed up in a field in Bourbon County, Kentucky. This type of pipe is very interesting, in as much as it was designed to be and is without a stem. The hole in the disk is in effect a stem hole. The pipe was smoked by pressing the lips of the smoker against the disk holding the pipe by the long handled bowl. This specimen is made of catlinite, or the red pipe stone of Missouri. It has on one side of the handle pictographs of two human figures apparently in combat. On the other side is a very well executed figure of an alligator extending the entire length of the handle.

The double conoidal pipe generally regarded as a very ancient form is well represented in Kentucky. The name is given because of the characteristic bowl and stem holes, being each a cone, usually of the same size, reamed out at right angles to each other, so the tips of the cones intersect. This produces a stem hole the same size as the bowl, and would require a specially adapted stem for service. Figure 144 shows three very handsome specimens of this form. The middle specimen was found in Franklin County and is made of a block of carbonate of iron

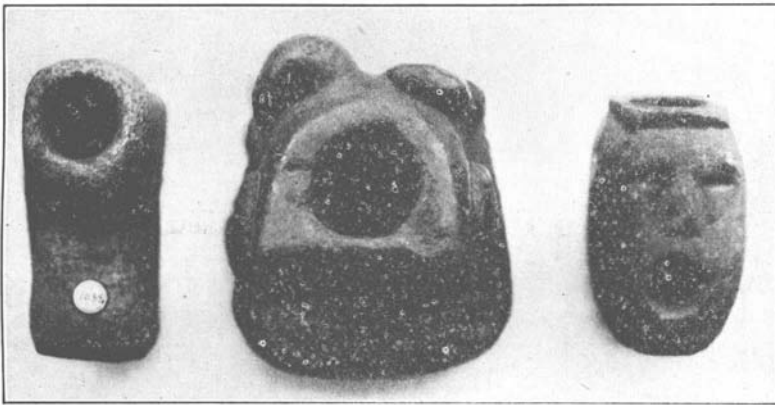


FIG. 144. DOUBLE CONOIDAL PIPES.

The bowl and the stem-hole are both cones which meet each other at their tips.

weathered to hematite on the outside. The right-hand specimen is of sandstone, and shows a human face carved on opposite faces of the pipe. While Col. Bennett H. Young reported double conoidal pipes found in graves and in mounds, the authors' records on such pipes show that they are usually ploughed up in fields showing no apparent connection with any prehistoric grave or dwelling site.

The ovoid pipe made of limestone is shown in figure 145. There is also shown a number of small ovoid pipes, a very common form on sites known to be of the Fort Ancient Culture. These small ovoid pipes are usually of sandstone, and have little or no decoration. They are usually found in very similar association with the vase shaped pipe also shown in the center of the figure and with the small elbow pipes, also typical of the Fort

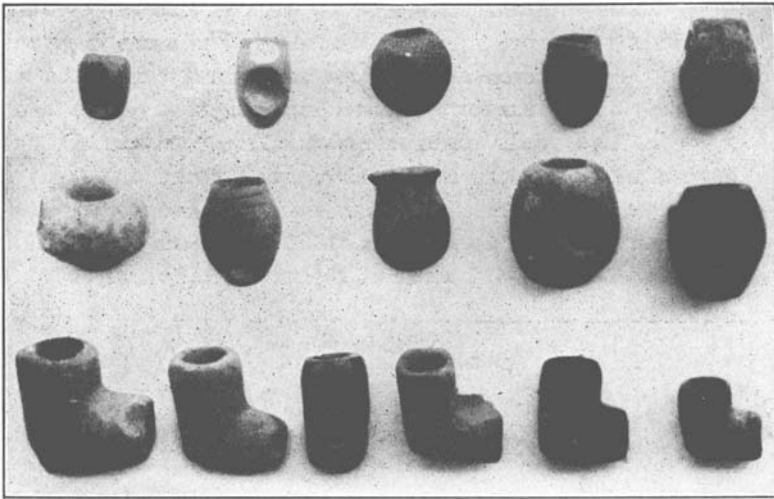


FIG. 145. OVOID AND ELBOW PIPES.
Usually of sandstone and without decoration.

Ancient Culture. Many of these small ovoid and elbow pipes are quite small, holding only a very small quantity of tobacco. The authors have taken these pipes from graves and mounds where

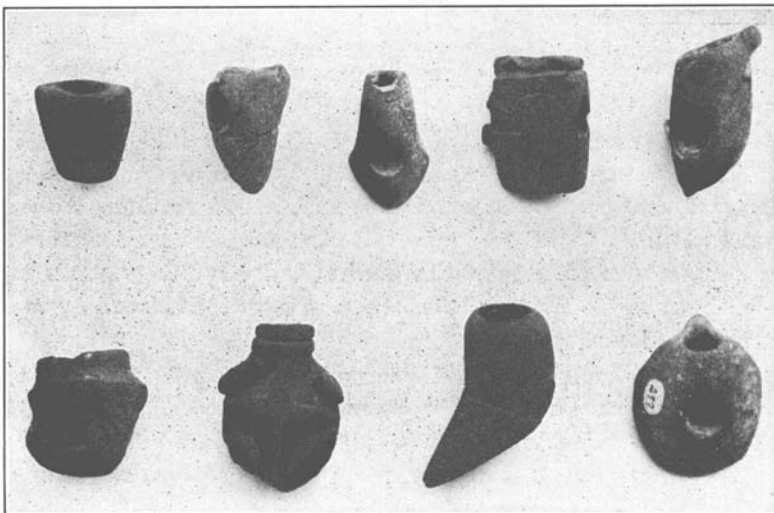


FIG. 146. TOTEM PIPES.
Showing a headless frog, a deer foot, a turtle, a snake head, and other tribal or individual designs.

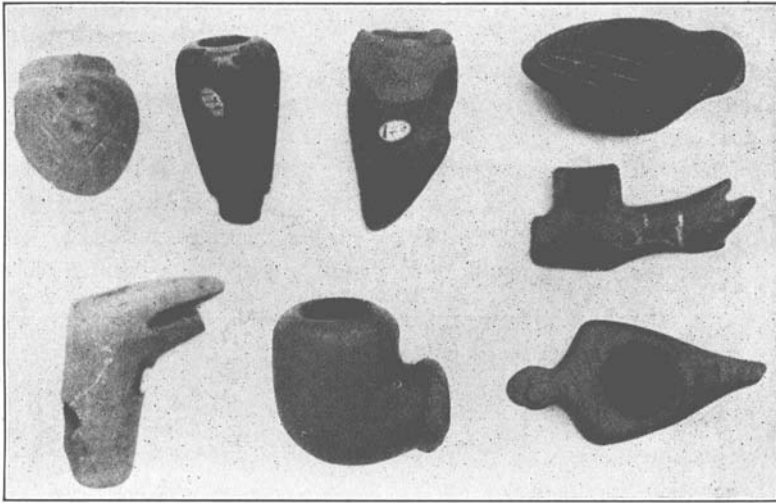


FIG. 147. TOTEM PIPES.

Showing a turtle, a deer foot, a quail, an owl and a fox.

the ashes and charred remains of the smoking material still remained in the pipe and the odor of nicotine was quite pronounced.

There is a type of pipe often found in the fields of Kentucky, small in size, representing the figures of birds, animals, human faces and other objects which are very different from the heavy animal and bird pipes of the South. These pipes the authors have called totem pipes for the lack of a better term, upon assumption that the carved figure may represent a totem or tribal or private symbol. In figure 146 there are shown a

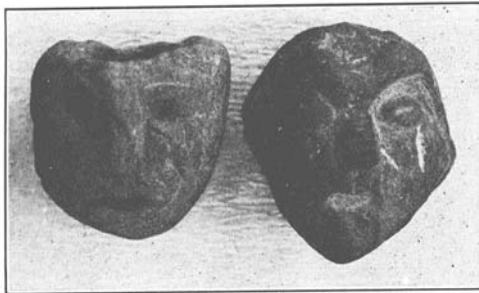


FIG. 148. FACE PIPES.

From the collection of Mr. W. J. Curtis.

number of these pipes. The frog is quite a common representation in these pipes, and several have been found representing the deer foot particularly well executed. Figures 147 and 148 show additional totem pipes all from collection of Hon. W. T. Curtis.

It is quite a common occurrence to find in mounds where burials are located, and in other burial sites, unfinished pipes of a variety of forms. It would seem that these unfinished pipes are presented as offerings to the dead, perhaps with the notion



FIG. 149. UNFINISHED PIPES.
Which give clues as to how they were made.

that the deceased would finish them in the Spirit World. A study of such unfinished forms gives a clue as to how the finished specimens were made. In general they were rough pecked into form, and then drilled or reamed out. The polishing was usually done after the drilling. This would seem to indicate that the drilling was rather a crucial test of the material of the pipe, and that if it broke while being drilled before polishing, the work of polishing was thus not lost.

The large elbow pipe shown in figure 149 was taken from the general digging of a mound in Montgomery County by Mr.

Clell Cockrell of Mt. Sterling, and was seemingly not in association with any burial. An inspection of the specimen seems to indicate that the material developed a flaw, and broke while being bored. It was then discarded, perhaps on the village site, and when the mound was built it was gathered up along with other camp rubbish and incorporated in the mound.

There is occasionally found in Kentucky pipes of the general Siouxian type, made of catlinite, and seemingly indicating by their engraving that the maker had contact with historic civilization. Figure 150 shows two of these pipes. It is interesting to note that one specimen in figure 143 having all the ear marks of a rather old Siouxian pipe was broken half in two at the stem. The two portions were carefully matched, and a lead

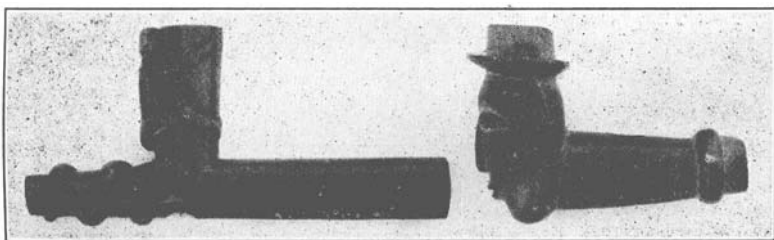


FIG. 150. SIOUXIAN PIPES.
Shapes and designs which suggest contact with the white man.

band placed about the break. It was driven into the notches and so holds the pieces together. It is believed that this mending as well as the pipe is prehistoric, and if so, shows to what extent prehistoric man would go to save his pipe after damage.

In concluding this brief statement on early pipe forms, it should be remembered that as smoking merely for pleasure was a custom introduced by white men, so we should expect to find many individual pipes showing contact with white civilization. Many such pipes while unquestionably made by very primitive means, and doubtless made by Indians, are of such form as to clearly indicate white contact. Again many specimens show in their manufacture the use of a metal file, indicative of relatively late manufacture, when it was possible for even Indians to be in possession of metal tools obtained from white traders. In early Colonial days, "trade pipes" of pottery, metal,

and other materials were supplied by English, French and Spanish traders, in large quantities, to the tribes with which they were in contact. Such pipes are often found today in known village sites and in cemeteries where burials took place during the early Colonial period. Two such pipes are figured in the chapter on miscellaneous artifacts.

A class of artifacts showing very considerable skill in manufacture is the so-called discoidal. These are circular disks varying in diameter from one inch to eight inches and from one-fourth inch to two inches in thickness. They are made of a great variety of material, and are generally very highly polished. The surfaces though sometimes plain, are generally concave. In a few cases the surfaces are convex. In many of the concave forms there is a secondary depression at the center. The symmetry of some discoidals, the high polish of the surface, and the concavity of the faces would in certain cases suggest

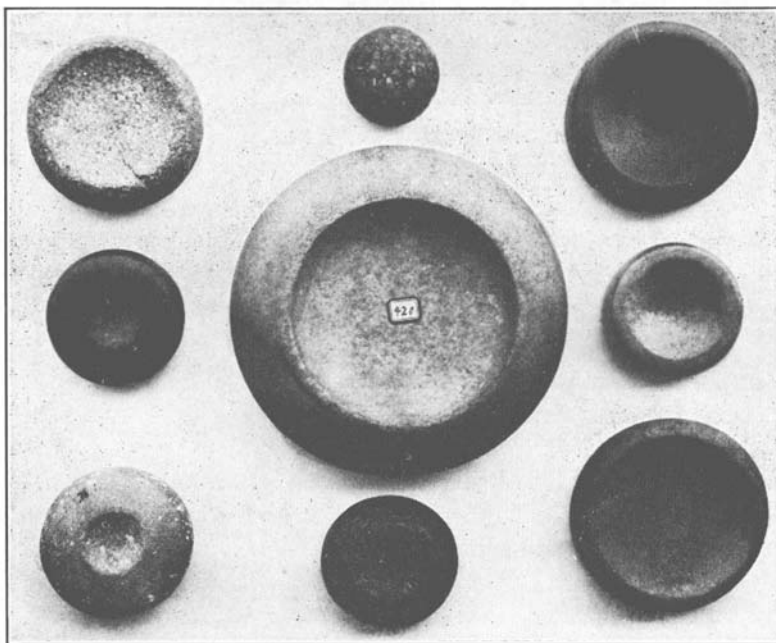


FIG. 151. DISCOIDALS.

Well made and highly polished artifacts which are supposed to have been used in playing "Chunkee."

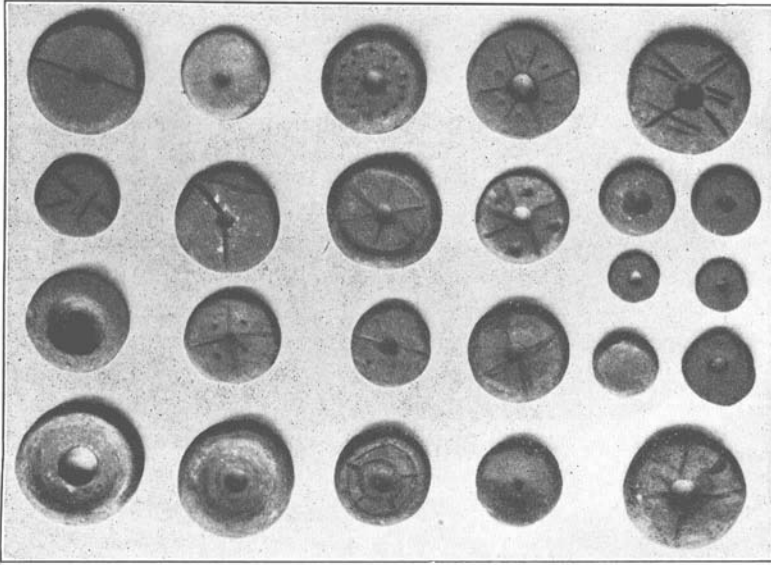


FIG. 152. GAME STONES.

Believed to have been used in some ancient form of gambling.

that their makers had some manner of rotating the specimen while grinding it into shape.

The curvature of the concave surfaces of the discoidals varies greatly in different specimens. Some are nearly two inches thick at the outer edge, and are hollowed out on both faces so that the center is quite thin. In some specimens made of quartz, the center is so thin as to be translucent; in a few cases the disk has been drilled through the center. Figure 151 shows a number of different forms of sandstone, quartz, quartzite, greenstone, granite, limestone. The larger discoidals, while not numerous in any locality, are found on old village sites, in Southern Kentucky. The counties along the Cumberland River have yielded more of these large specimens than all the rest of the state.

It is generally supposed that these large discoidals were used by the Creeks, and related tribes, in the game called "Chunkee." This name was used by the early traders to describe a game played by all the tribes in the Gulf States. The game consisted of rolling a discoidal stone on the ground and sliding or throwing forward a stick having a crook at one end. The object was

to so throw the stick that when disk and stick came to rest, the disk would lie within the crook. Early traders among the tribes of the Southeastern United States report that every Indian village had an area cleared and prepared within or adjacent to the village for playing this game. This area was called the Chunkee yard. While it is doubtless true that some discoidals were perhaps used in the game of Chunkee, yet there is such a wide variation in diameter, thickness, and material that it is difficult to believe that all discoidals were used for anyone purpose.

Besides the discoidals of a wide variety of form and material, particular attention should be called to the so-called "game stones" quite common in Kentucky, on known sites of the so-called Fort Ancient Culture. These game stones are made of sandstone, and vary from three-fourths of an inch to two inches in diameter, and are all about one-half inch thick. They are usually thicker at the edge, the center being hollowed out, and engraved. This engraving takes the form of concentric circles, radial lines, and dots, or various combinations of these. In rare cases figures of animals and human figures are engraved on these disks. It is supposed that the engraved circles, dots, and lines, served to designate the value of the disk in the game played, the disks serving the purpose of counters.

In general two faces of the game stone are engraved identically, having the same number of lines, dots, or circles. However, in one specimen in the author's collection, containing several hundred game stones, the face of the disk is divided into four quadrants, the opposite face being divided into five parts. Because the vast majority of such stones are identical on both sides, it is thought this specimen represents a deliberate attempt to produce an unusual type, perhaps to cheat as a counter in the game. Very rarely these game stones were made of limestone. Usually when so made a very compact stone was selected. In some 300 stones in the author's collection there are five made from very white marble.

Closely associated with the engraved stones, as a type, similar in size and material, not engraved and often drilled through the center, and on sites revealing game stones of sandstones, in any great number, there are usually to be found a few made

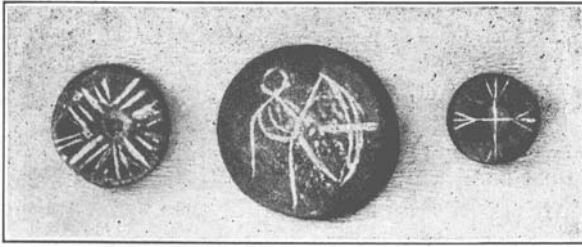


FIG. 153. DECORATED GAME STONES.
Inscribed with designs of unknown significance.

from shards of broken pots. The pottery disks are usually much thinner at the center. The fact that the pottery shard was curved and not flat seems not to have hindered its use in the manufacture of a disk.

In addition to various ground stone artifacts, made by primitive man, as already described, which were all of utilitarian value, there is to be found a vast array of very beautiful ground stone objects, the actual purpose of which in many cases is not surely known, and in a number of cases is only conjectural. By early writers these artifacts were classed as ceremonial forms and present day usage assigns to all the artifacts the term problem-

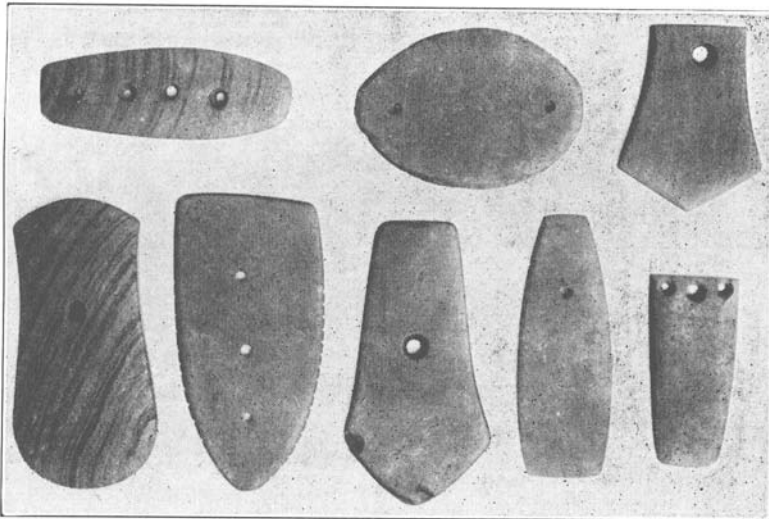


FIG. 154. SLATE GORGETS.
The second specimen in the lower row is believed to be a "record" gorget.

atical. This term is certainly more descriptive and indicates that our knowledge of the use of many of these forms is yet a problem to be solved. Only the most common of these forms will be discussed here, certain of the rarer and unusual forms will be considered in the chapter on miscellaneous artifacts.

There are several forms of stone artifacts occurring in large numbers in Kentucky which seem to belong to the problematical class, namely, gorgets, pendants, plummets and banner-stones. As has been pointed out by other writers, these artifacts vary so greatly in form and so gradually, that it is possible to pass from one form thought to be a type form to another of absolutely different type, by steps so gradual that the transition seems quite natural. In attempting to discuss gorgets, no fixed line can be drawn separating them from pendants on the one side and banner stones on the other.

Figure 154 shows a few of the type forms of gorgets usually made of brown and black banded slate or other relatively soft materials. They are highly polished, and drilled with one, two, up to even five or more holes. In many cases these holes seem to have served the purpose of suspension, yet in other cases of similar form there are no drillings. In figure 154 is shown a gorget of dark slate, containing notches carefully cut in the edge. These notches are not regularly placed and are not apparently decorative. It is conjectural, that this may be a record gorget, and the notches serving as the record of events. It is generally assumed that gorgets were worn as ornaments, having in some cases a ceremonial significance.

Many pendants, used as ear ornaments, are quite similar in form to gorgets, though somewhat smaller. We have found a number of pendants made from river pebbles, banded slate and one from a stone similar to that found occasionally in the stomach of cattle. Such stones were thought by some to possess virtue in extracting the virus in the case of mad dog bite, and are called by some "mad stones." Perhaps this stone was found by an Indian in the stomach of a deer or buffalo. If such was the case it could not fail to attract the attention of primitive man who would certainly regard it as great medicine" mystery" and this may explain why he converted it into a gorget or pendant.

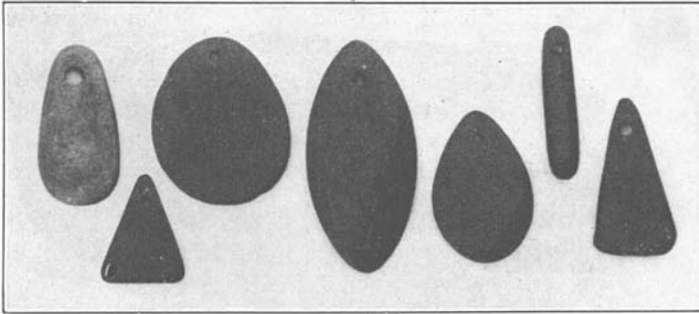


FIG. 155. EAR ORNAMENTS.
Often found with the skulls of prehistoric individuals.

While banded slate was greatly used for gorgets, a variety of other material, soft enough to be drilled was also used. There are also gorgets of soap stone, some of an ore of iron and others made from flat limestone water worn pebbles. This last kind was found by the authors in one of the Reed caves, in Hart County.

Beside the flat pendant type of gorgets, the long thick bar shaped gorget, heavier in the center, sometimes drilled with two

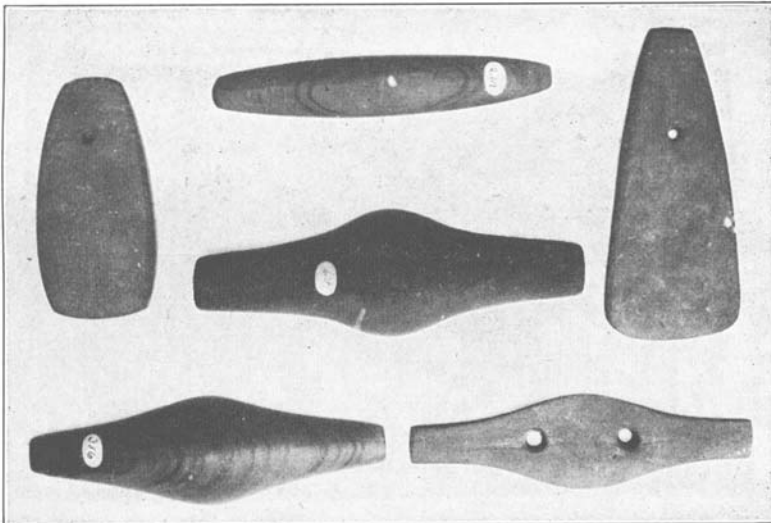


FIG. 156. BAR GORGETS.
Unusually thick in the center and drilled with conical holes.

holes and sometimes undrilled, is a fairly common form in Kentucky. Figure 156 shows a number of these.

It is worthy of note that while some of these highly polished gorgets were not drilled, without exception those that were drilled have only the conical hole, indicating the use of flint drill or reamer. This would seem rather remarkable, for banner stones, usually found associated with gorgets, and made in gen-

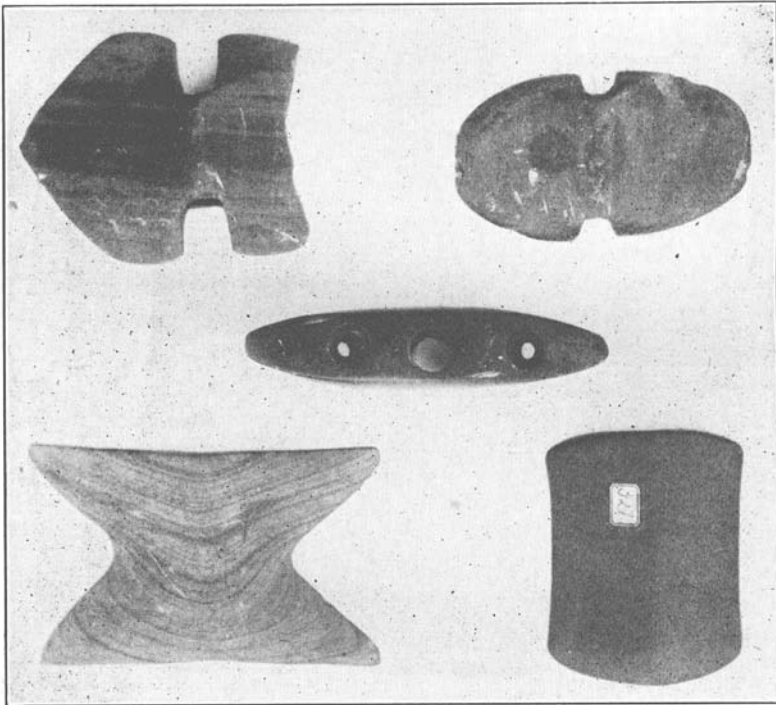


FIG. 157. BANNER STONES.
Supposed to indicate the rank or office of the owner.

eral of the same material are always drilled with the reed drill, and have therefore only cylindrical drillings.

In as much as these bar shaped gorgets, heavier in the center, are flat on one side, and convex on the other, it has been suggested that they were worn on the left wrist, serving as a protection to the wrist in the use of the bow. The gorget would ward off the blow to the wrist of the bow string when the bow

was released, and because of its smooth surface and high polish would do no injury to the bow string.

The grinding and polishing of stone reached its highest perfection in the manufacture of banner stones. These beautifully wrought artifacts have been the subject of much discussion as to their purpose and use. The name suggests that they were mounted on a pole and carried as a standard. It has been suggested that they were emblems of authority, and denoted rank and position. It is supposed they were carried only by those entitled to this privilege, and may have been borne into battle, serving as a standard, to indicate the presence of the one in command, and in time of disaster might become the rallying point of the group.

Others have suggested that they had a ceremonial significance, and were not for individual but rather for tribal use.

Moore found at Indian Knoll, in Ohio County, a peculiar form of banner stone in considerable numbers, and concluded that in weaving fish nets they were used as net spacers.

Some writers profess to see in certain wing types of banner stone an attempt to represent the outstretched wings of the "Thunder Bird," a mythological creature held in great veneration by the very early historic Indian. They assert their belief that the banner stone, carried on a pole, was decorated with tail feathers below and head and skin of a bird above, to complete the representation, the whole staff being used by the medicine man in certain ceremonies.

Whatever else may be said, the banner stone remains a problematical form. Its varied form, and exactness of manufacture, testify to the high esteem in which it was held. Its wide spread distribution argues an important place held by it in the life of primitive man over a great area. The beauty of the stone, as well as the skill shown in its manufacture, are at once both the admiration and the despair of the student of pre-history.

Another problematical form, regarded by many as showing as skilled workmanship as the banner stone, is the so-called plummet. The plummet obtains its name for a similarity in form to the plumb bob of the mechanic. They are made from a great variety of materials, quartz, granite, hematite (being common) and rarely of banded slate. They are usually highly polished

and the small end furnished with either hole or groove for suspension. Many have considered them as ornaments, to be worn as pendants. There seems to be some reason to believe they may have had a ceremonial significance and were worn as charms. They are often found associated with burial, usually a single plummet in a grave. However, if they were ceremonial charm stones, or personal ornaments, it is difficult to understand why in certain rare cases a large number of plummets have been discovered in one place. These discoveries seem to indicate that the plummets found represented cache or storage of a supply.

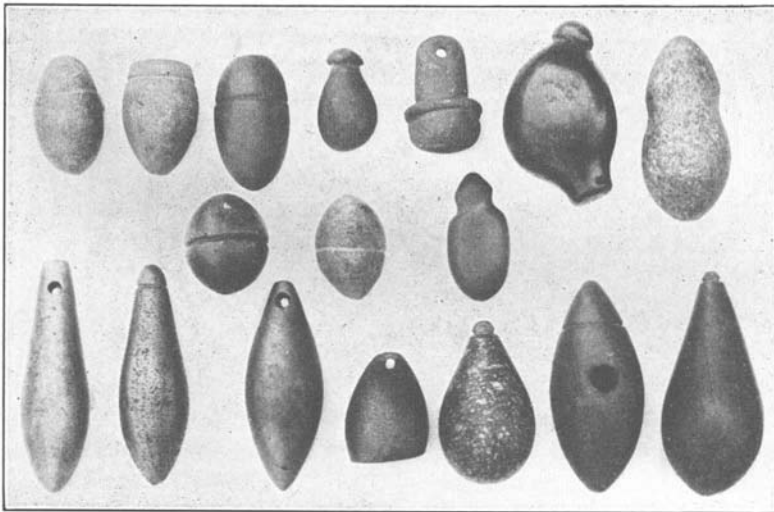


FIG. 158. PLUMMETS.

Artifacts of problematical use which are named from their resemblance to a modern plum-bob.

One very interesting theory which has been advanced to account for the association of a large number of these implements is that they were used in the process of weaving. It is thought that the warp straws in a crude loom were each attached to a plummet, which kept the straw under uniform tension during the weaving. Being so well made and highly polished it was well adapted to such use, and did not entangle itself in the fiber, as a rough and unpolished stone would do. Upon this theory, such a cache of plummet represents the remains of an ancient loom, the number of plummets being in a measure indicative of the

number of warp straws used, or the width of the cloth or blanket woven.

Plummets are plentiful in New England and along the Atlantic—also in California. They are found infrequently along the Ohio River Valley, those found in Kentucky being the very highly polished type.

Some have suggested that plummets were used as sinkers on fish lines and nets, but such would seem to be unable to account for the high finish on most Kentucky plummets. Some evidence seems to point to a possible use of plummets as the South American tribes use bolas. Two plummets tied together by a leather thong could, by being thrown, aid in the capture of wild ducks and geese when they were plentiful on the shore of shallow water. The basis for this suggestion is that in certain areas in the West, cultivated fields recovered by draining shallow lagoons, have yielded an exceptionally large number of plummets.

In conclusion when one contemplates the work necessary to cut from a block of hematite, a plummet, to fashion and polish it, and drill or notch this very hard material, and when one remembers that primitive man had no metal tools with which to work, and was acquainted with but few of any materials harder than hematite, one can but admire his skill as shown by the product, and his patience as is evidenced by the time and effort expended.

In thus viewing plummets we are rather driven to conclude that in general it is probable that the highly polished, well finished plummets found in Kentucky were not for utilitarian purposes, as weaving weight, line sinker, bolas, etc., but rather were charm stones worn as ornaments, and regarded with great veneration as "good medicine." This last would seem to account for the high finish, comparative rarity in Kentucky, and their association singly with graves.

Finally in the manufacture of ground artifacts, primitive man produced a great variety of implement, ornament, and problematical form, from a very great variety of material. So skillful was he that on one hand he could drill holes of half-inch diameter longitudinally through soft banded slate but very little thicker than the diameter of the hole, without damage to the specimen, and then polish the surface and work the whole to sharp edged winged banner stones, or on the other hand he could

drill and polish hematite, quartz and granite into celts, and plummets producing specimens of high polish and perfect symmetry, a task not easy for civilized men today, even with modern tools.

