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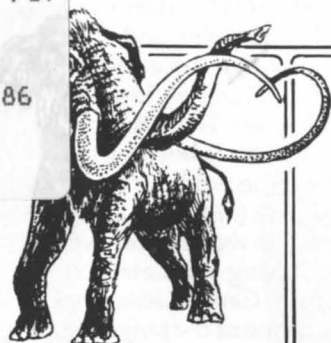
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# Museum Notes

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## Prehistoric Chipped Stone Tools of Nebraska

Thomas P. Myers, Curator of Anthropology

Prehistoric Nebraskans used stone, bone, or even wooden tools for most tasks of everyday life that ranged from cutting a tree to making weapons to preparing foods. Bone and wooden tools are seldom found, but debris from the manufacture and maintenance of chipped stone tools is the most common evidence of human activity at prehistoric villages and camp sites. Some kinds of stone tools, such as end scrapers and bifacial knives, were perfected more than 10,000 years ago. Others, notably projectile points, were subject to continual refinements as revealed by changes in shape and size.

To understand the evidence of chipped stone tools, we must understand something about their manufacture and use. Not any kind of stone will do. A homogeneous, fine-trained stone with good fracturing properties is required. Common names for such stone include flint, chert, jasper, and chalcedony. Even fine-grained quartzites were used. Often people had to travel hundreds of miles to find the stone they required. Sometimes they traded for special varieties.

The manufacturing process begins by striking a piece of raw material with a hammer made of stone, antler, or wood. The force from this blow radiates through the original piece, or core, just as ripples radiate outward from a pebble thrown into the water. Properly struck, a flake of the desired size and shape will be detached from the core. More flakes may be removed from the core until it assumes the desired shape, or the flake itself may be trimmed to shape. Archaeologists commonly distinguish between unifacial tools, made from a flake, which are flat on one side and bifacial tools which are flaked on both sides. A flake may be trimmed on its flat side and appear as a bifacial tool, but often the curve of the original flake will be retained, betraying its origin. In talking about stone tools, archaeologists often refer to the proximal and distal ends of the tool, i.e., the ends that are closest to or farthest from the person using them. Thus, the handle of a knife is its proximal end, and the point is its distal end.

Once finished and ready for use, stone tools were not neglected. Often they had to be sharpened or repaired. Sometimes resharpening took place so many times that it is diffi-

cult to recognize the form of the original tool from the resharpened and repaired remnant that was finally tossed onto the trash heap to be found hundreds or thousands of

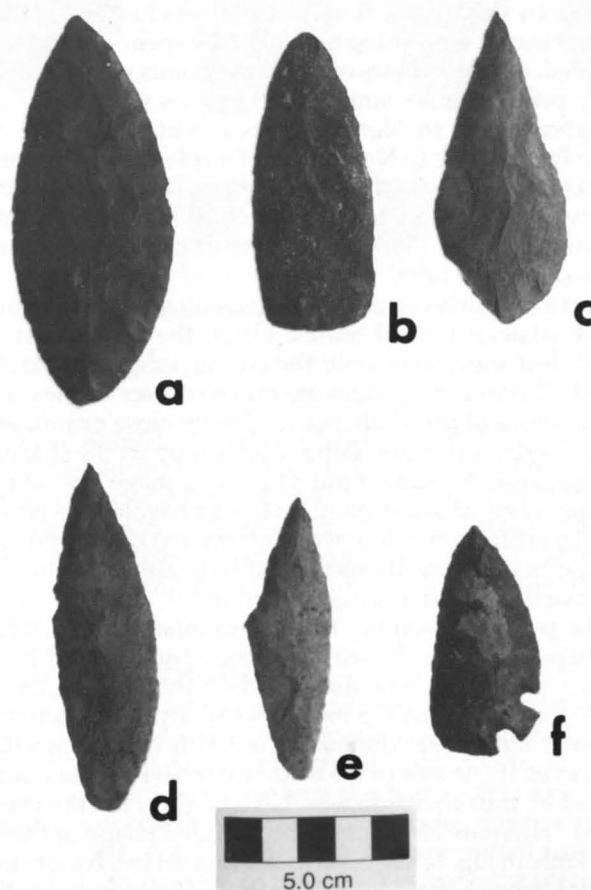


Fig 1. Bifacial knives of the Plains Village Period (A.D. 950-1,300).



Fig. 2. Early Archaic "drills" from Illinois (8,000-5,500 B.C.). Wear patterns suggest that they may actually have been knives.

years later. Some prehistoric cultures employed unusual and distinctive patterns of resharpening which are characteristic of those cultures.

Spear points and arrow points are easily recognized by most school children. They were also the subject of careful attention by prehistoric flint knappers. As hunting methods and the means of attaching a point to the spear or arrow shaft improved, different styles of projectile points were produced. At any point in time, similar point styles were being used throughout eastern North America which suggests that people from Maine to Nebraska to Florida may have been in some kind of contact with one another. The most important point types commonly found in Nebraska were discussed in *Museum Notes* No. 58. Other forms of chipped stone tools will be discussed here.

*Knives* are fairly common on archaeological sites throughout the eastern United States. Often they were carefully shaped, but sometimes only the cutting edge was carefully formed. These cutting edges are much coarser and less regular than those of projectile points. Under close examination, they often show some evidence of crushing on the sharp surfaces. Because the same kind of edge damage also appears on some forms of spear point, many archaeologists now believe that artifacts that once were interpreted as coarsely made spear points were really used as knives, although they may also have been used as projectile points.

Like projectile points, knives are bifacial tools, usually leaf-shaped (Fig. 1a, b) with a rounded or pointed base in their basic form. At least this was their initial form, but that changed gradually as the tool was resharpened. Sometimes the resharpening was done from one side only to produce a steep bevel. If one side of the blade were beveled, then turned over before the other side was beveled (Fig. 1c), the result is termed "alternate beveling." The rounded shape of the base of the knife in Fig. 1c suggests that it was set in a handle much like our kitchen knives. In historic times, Plains Indians sharpened their metal knives on only one side of the blade, a prac-

tice which may be derived from their pattern of sharpening a stone knife. Sometimes both the point and the base of the knife were alternately beveled to produce a four-blade knife (Fig. 1d), sometimes called a "Harahey knife" which may approach a diamond shape (Fig. 1e). These may not have been set in handles. Or, the knife may have been turned around in the handle so the base became the point.

A *tanged knife* or *stemmed knife* (Fig. 1f) is a special variety of bifacial knife characteristic of westernmost Nebraska and the rest of the High Plains during the Late Plains Archaic period (1,000 B.C. to A.D. 500). Careful examination of the artifact reveals that the basic shape of the tanged knife is similar to the knife in Fig. 1b and that two notches have been made to create a stem. If the stem were created to facilitate hafting, as we believe to have been the case with projectile points, then the handle for this knife would have been about 1/4" in diameter. The edge opposite the tang is steeply beveled suggesting that it was the working edge. How would such a knife have been used? Such a handle would seem to have been a poor means for exerting leverage, and leverage would have been necessary to cut something.



Fig. 3. Drills of the Central Plains Tradition, about A.D. 1,150.

*Drills* are identified by the shape of their blades which are narrow and have a nearly circular to diamond-shaped cross-section (Fig. 2, 3) produced by beveling. The name of the artifact suggests that it was used with a circular motion. It may have been attached to the end of a stick which was rotated rapidly between the hands or with the use of a bow drill in which a string, attached to a stick, was looped around the drill shaft which could then be twirled back and forth much more rapidly than between the hands. If this rotating motion were the characteristic mode of use, then we might expect to see (under magnification) traces of this circular motion revealed as tiny striations on the stone where a bit of sand had intruded.

The fine tips on the tiny drills in Fig. 3 seem to exhibit the striations expected of a rotary motion. About 800 years old, they come from a site in central Nebraska. Though similar in appearance, the crushing on the edges of the so-called drills



Fig. 4. Early Nebraska Phase end scrapers (about A.D. 1,200) made on long, narrow flakes (blades) showing the initial stage and two stages of resharpening.

in Fig. 2 suggests that they may have been knives which had been resharpened by beveling several times, then discarded at the last stage of resharpening. They are from Illinois and probably date to Early Archaic Period (8,000-5,500 B.C.).

*End scrapers* are one of the most common tools found on Nebraska archaeological sites throughout prehistory. They are made on flakes with the working edge opposite the point of impact made when the flake was detached from the core. Flaked on just one side, they range from Nebraska Phase (A.D. 950-1,300) end scrapers, which may be several inches long and nearly an inch wide (Fig. 4), to protohistoric Pawnee end scrapers, which may be only 1/2 inch wide and 1 to 1 1/2 inches long (Fig. 5). Like other tools, end scrapers were often resharpened during their useful life so that a tool that was three inches long when it was new might be only 1/2 inch long when finally discarded (Fig. 3). The smallest of these scrapers are sometimes called "thumbnail scrapers." Though end scrapers are common in Nebraska sites of all periods, they are infrequently found in most of the eastern United States after the Middle Archaic Period, which ended about three thousand years ago.

End scrapers were almost certainly set in a handle for use. There is very little archaeological evidence to tell us what kinds of handles were employed. The familiar L-shaped elk antler scrapers (Fig. 6c) were not used until historic times on the central plains although they seem to have been used in eastern South Dakota as early as A.D. 1,100. A curved elk antler handle (Fig. 6a) was used by the Wichita of central Kansas and the Apache of western Nebraska around A.D. 1,700 but there is no prehistoric evidence for the use of such scraper handles. In prehistoric times, end scrapers may have been hafted in the socketed ends of bison ribs that are sometimes found at Nebraska archaeological sites, but none have been found in place. Perhaps prehistoric Nebraskans preferred to use wooden handles for their scrapers as did the Eskimo of more recent times (Fig. 6b).

Steep, beveled edges were also made on the sides of flakes so that the long axis is parallel to the beveled edge (Fig. 7). These are called *side scrapers*. Their function may have been similar to the beveled edges of knives. Side scrapers are much less common on Nebraska archaeological sites than end scrapers. Apart from the sharpened edge, they are often irregularly shaped, which suggests that they were not formed to fit into a standard handle as were the end scrapers. They may have been held in the hand, protected by a piece of leather, or they may have been set into non-standard handles. Side scrapers may have been used in preparation of hides, or, more likely they were used to carve wood like a small spokeshave or to remove the skin from coarse tubers.

The great majority of chipped stone tools found at archaeological sites do not fall easily into any of the distinctive categories mentioned above. Although the working edges were carefully shaped, apparently for a specific need, they were not shaped into a form like a projectile point or an end scraper. The flake might be retouched to form a gouge, an awl, a spokeshave, or any of a dozen other shapes which might facilitate the task at hand. Only the working edge was carefully shaped. The rest of the artifact retained the original form of the flake. Such tools, on which only one edge of a flake was simply retouched to provide a satisfactory working edge, are called



Fig. 5. Pawnee end scrapers, about A. D. 1,750.

*retouched flakes*. Sometimes a flake was simply put to use in its existing form. Such *utilized flakes* can be identified because, in the act of using it, tiny chips were removed from the working edge to reveal the manner of use. After use, retouched flakes and utilized flakes were simply tossed away as being not worth saving since little time had been spent in their manufacture.

## Sources of Stone

For many years archaeologists had little concern with the origin of the stone from which prehistoric peoples made their tools. It was, of course, recognized that a particular kind of stone was common in one area and that another kind of stone was popular elsewhere. Archaeologists recognized that a distinctive kind of stone must have been imported from a long way off. In the last ten or fifteen years, we have become very concerned with the sources of stones utilized by prehistoric



peoples because they provide a great deal of information about the movements and relationships of prehistoric peoples.

A substantial amount of planning and effort must have been devoted to acquiring the stone from which tools were made. Most prehistoric Nebraskans lived far from any flint outcrops. They either had to make special trips to the quarries, stop there during the course of their hunting expeditions, or trade to get the raw materials or finished tools. In southeastern Nebraska, gray cherts from the limestone hills were most frequently used for the manufacture of chipped stone tools. In northeastern Nebraska, brown or green quartzites from the Bijou Hills are common. In south central and southwestern Nebraska, the brown to yellow-brown to greenish jaspers from the Republican River Valley are characteristic. In the Panhandle and north central Nebraska, agates from the Hartville Uplift in eastern Wyoming are typical. Research by UNSM archaeologist Steve Holen has shown that in early historic times, the Pawnee living on the Loup River included within their hunting territory the source areas of Republican River jaspers. Great quantities of these jaspers were carried to their Loup River villages. At the same time, the hunting territories of Pawnee living farther to the east included the Flint Hills of east central Kansas, which produce gray cherts. Not surprisingly, these gray cherts acquired on bison expeditions predominate at their village sites. Did prehistoric peoples acquire their cherts in the same way? How will we find out? These are continuing questions that archaeologists must ask as they continue to seek a greater understanding of the past.

Other kinds of stone were also used in Nebraska, some imported from as far away as North Dakota, the Texas Panhandle, and northeastern New Mexico. Did prehistoric Ne-

braskans make special trips to acquire these scarce and valuable stones, or were they acquired through trade? If so, what did the Nebraskans give in exchange? Salt is often highly valued, and salt from the saline lakes near Lincoln in Lancaster County may have played a role in the exchange network. Red ocher, found in a few parts of Nebraska, may also have been valued in exchange. We are only now beginning to investigate such questions.



Fig. 7. Nebraska Phase side scraper, about A. D. 1,200.

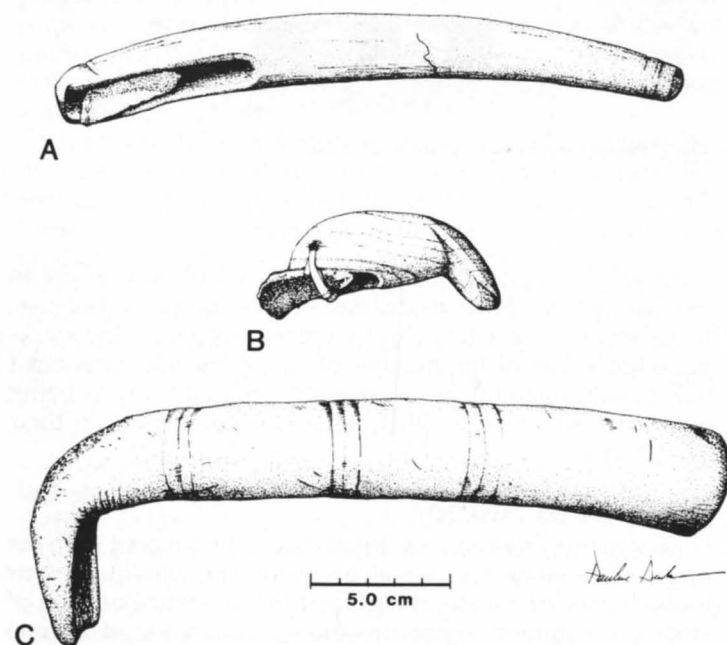


Fig. 6. End scrapers in their handles.

- a. Curved elk antler tine end scraper.
- b. Eskimo end scraper with wooden handle.
- c. L-shaped elk antler tine scraper.

## The Importance of Keeping Records

Without data, the best artifact is just a pretty stone. With data, it becomes a scientific record. Responsible amateur archaeologists realize that their collections include important scientific information. Professional archaeologists need the help of amateurs to learn about Nebraska's prehistory. Amateurs can be collecting after every rainstorm and flood. They know where the sites are. Most important sites have been discovered by amateurs who recognized the importance of their discovery and sought the help of professionals. Private collections are of great importance if records are kept. At a minimum, these collections provide information about the periods of occupation, the location and function of sites, and the sources of stone utilized. The best collections are normally made from plowed fields and sand bars in a river. Digging destroys contextual evidence from which we can learn a great deal more about prehistoric peoples than from artifacts alone. Keeping a notebook and maps, numbering the artifacts, and keeping the artifacts from each site separate enhance the scientific value of a collection.

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