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## Article Title: Ancient Nomads, Big Game Hunters

Full Citation: "Ancient Nomads"; John R Bozell, "Big Game Hunters," *Nebraska History* 75 (1994): 82-93

URL of article: [http://www.nebraskahistory.org/publish/publicat/history/full-text/NH1994Time4\\_Hunters.pdf](http://www.nebraskahistory.org/publish/publicat/history/full-text/NH1994Time4_Hunters.pdf)

Date: 7/12/2013

Article Summary: In the Pleistocene Epoch nearly 12,000 years ago, Clovis people hunted mammoths on the plains, leaving behind beautifully-crafted stone lance points. Some archeologists who have looked at recent finds speculate that even earlier groups may have made tools from bone.

### Cataloging Information:

Names: Robert Blasing, Steven Holen, Bill Hudson, Albert Meng, Larry Agenbroad

Geologic Time: Pleistocene Epoch (Ice Age)

Nebraska Archeology Sites: La Sena and Medicine Creek sites (Frontier County), Jensen site (Dawson County)

Keywords: Clovis people (New Mexico), Beringia, Folsom people, Paleoindians, lance points, taphonomy, geomorphologists, loess, mammoths, bison, flutes (on lance points)

Photographs / Images: Clovis and Folsom points, image of big game hunters attacking a mammoth mired in a marsh, late Paleoindian points, Alberta spear point, archeologists excavating the La Sena mammoth site, shattered leg bone of the La Sena mammoth, stone-tipped foreshaft used in Paleoindian composite weapons, Paleoindian points found in Nebraska, image of Paleoindian hunters scouting a herd of *Bison antiquus*





## PART FOUR

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# ANCIENT NOMADS

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*The Ice Age still prevailed when Clovis people hunted mammoths on the Plains nearly 12,000 years ago, and scientists debate whether or not other humans were here even earlier. Clovis people were succeeded by ancient bison hunters, then by others who lived on big and small game, fish and plants gleaned from the wild.*

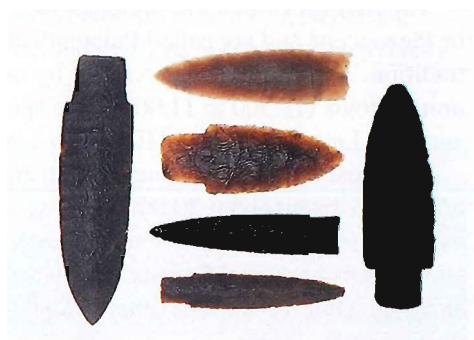
Clovis (right) and Folsom points served the earliest big game hunters.



## CHAPTER EIGHT

# Big Game Hunters

## The Ice Age and the First Immigrants



Late Paleoindian points

**By John R. Bozell, Curator of Anthropology  
Nebraska State Historical Society**

THE DATE HUMANS ARRIVED in the New World is among the most fascinating mysteries in archaeology today. Discoveries near Clovis, New Mexico, and elsewhere on the southern Plains in the 1920s and 1930s had suggested that people migrated to the continent about 12,000 years ago, and that early date was the focus of years of lively debate among archaeologists before its acceptance.

That dating remained largely unchallenged for decades until recent finds from Alaska southward to Chile — including finds in Nebraska — offered tantalizing evidence of human presence in the Western Hemisphere 20,000, 30,000 and even 70,000 years ago. However, evidence from those discoveries has not been widely accepted by archaeologists.

Beautifully crafted stone lance points were the trademark of the Clovis people. They lived by following and hunting the mammoth and could not carry many possessions with them nor stay in one place very long. In fact, Clovis campsites excavated in neighboring states yield little besides charcoal from campfires, bones of the game they killed and, of course, their fine lance points. But there is no evidence of the development and refinement of the Clovis point. It simply appeared suddenly in the archaeological record some 12,000 years ago, suggesting that it was developed rapidly by newly arrived people.

However, archaeologists arguing in support of human presence in North and South America earlier than 12,000 years ago suggest that those early groups possessed a technology based not on stone, but on bone. They speculate that knives, choppers and scrapers were crudely fashioned from the bone of mammoth, bison and other large mammals. Those who take issue with the early arrival theory argue that much of the chipping, flaking, breaking and wear seen

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**Big Game Hunters attack a mammoth mired in a marsh.**



**Late Paleoindian people produced a variety of spear point styles. This Alberta point is approximately 9,500 years old.**

on those bones could have been caused by predator and scavenger chewing, trampling by other members of the herd, erosion or other natural processes.

The Ice Age began several million years ago and lasted until about 10,000 years ago. The episode saw prolonged periods when massive ice sheets, glaciers up to a mile thick, covered large portions of the Northern Hemisphere. Many periods of glacial advance occurred separated by warm interglacial events during the Ice Age. Along the ice-sheet margins in Europe and Asia, the Ice Age was a period of dramatic cultural evolution. It was the time of Neanderthal “cavemen” and, by about 50,000 years ago, the development of fully modern humans. Northern Asiatic Ice Age hunters were likely the ancestors of Paleoindians who migrated to the New World.

The first confirmed immigrants to the New World came during the Ice Age or Pleistocene and are called Paleoindians or members of the big game hunting tradition. The tradition, as accepted by most scholars, is subdivided into three units: Clovis (11,500 to 11,000 years ago), Folsom (11,000 to 10,500 years ago) and Late Paleoindian (10,500 to 8,000 years ago).

The most recent ice advance began about 90,000 years ago, reached its maximum extent about 20,000 years ago, then gradually retreated. At that time two ice sheets covered portions of North America. The largest ice sheet stretched from central Canada southward to the central Plains and eastward along the Ohio valley. The other extended from Alaska’s Aleutian Islands to the northwest coast.

The gap between the two ice sheets formed an ice-free corridor from Alaska along the Rocky Mountains and into the interior of the Great Plains. The corridor opened and closed several times. During glacial advances, enormous amounts of the earth’s water became locked in ice sheets, lowering sea levels. That phenomenon left a part of the Bering Strait between Alaska and Siberia dry. That land bridge, called Beringia, was more than 1,000 miles wide and allowed the migration of animals and, eventually, humans to the New World.

A diverse array of animals lived on the North American continent during the Ice Age. Most important to prehistoric cultures were the large mammals called “megafauna.” Those large animals successfully adapted to the cool, moist environment of the ice-sheet margins, and North America abounded with camels, horses, sloths, giant bison and members of the elephant family called mammoths and mastodons.

Pollen records prove much of the Great Plains was covered with pine forest during the Ice Age. As the Ice Age drew to a close between 10,000 and 11,000 years ago, the lush vegetation diminished, and most of the large plant-eaters became extinct. An exception was the bison, which survives today in a smaller form. Some archaeologists believe that Paleoindian over-hunting also may have contributed to the extinctions.

## *The Pre-Clovis Debate*

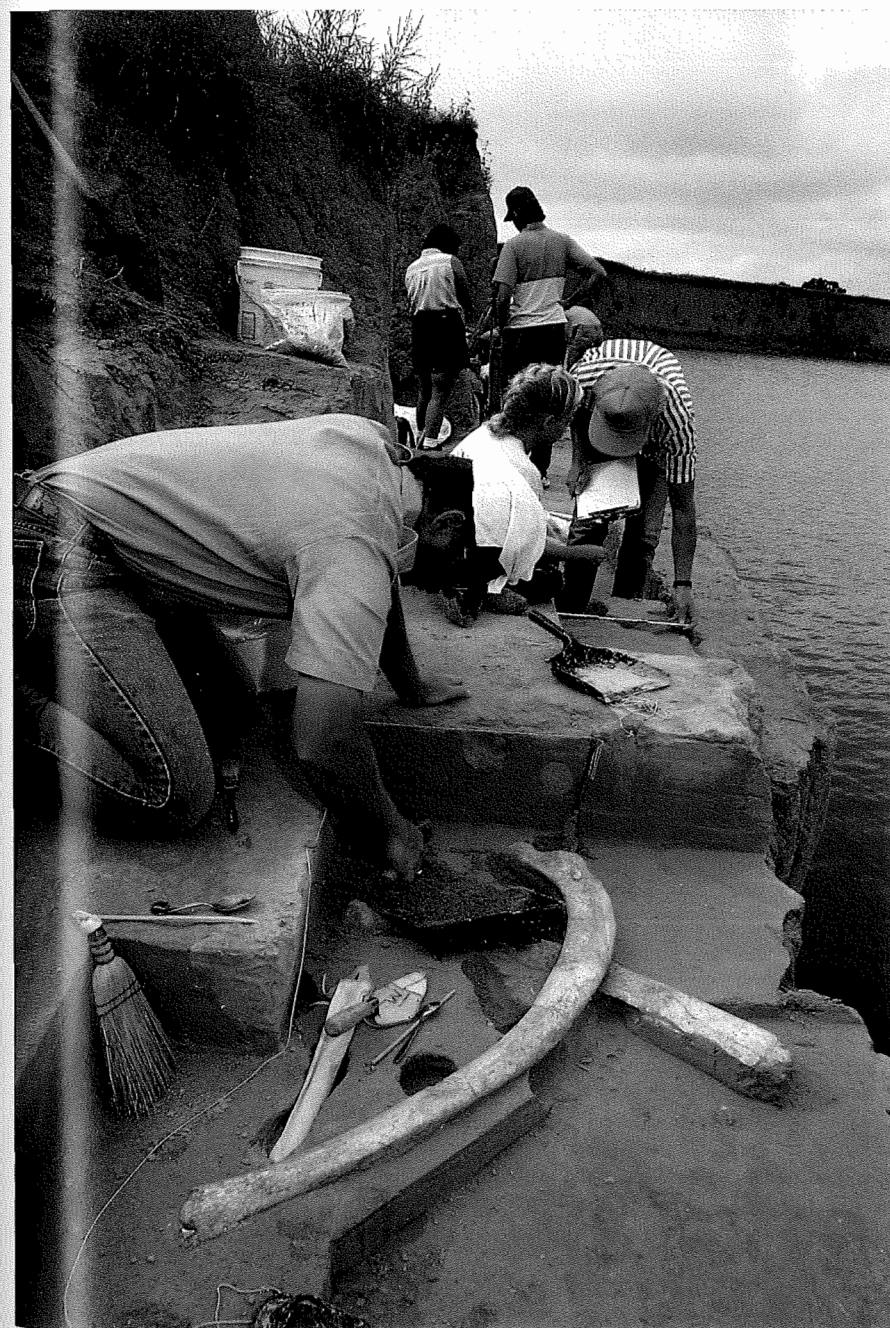
Most North American sites purported to be older than the appearance of Clovis people (11,500 to 11,000 years ago) have scant but tantalizing clues of human activity. In most instances, however, critics have marshalled arguments against a human association. Explanations advanced for denying the evidence suggesting human presence at pre-Clovis sites include contaminated radiocarbon samples, natural origins for proposed artifacts and natural movement of real artifacts into older, non-cultural deposits.

Research on early humans in the New World involves not only archaeologists but scientists from many other fields working together. For early human research, archaeologists have enlisted the assistance of geologists, paleontologists, zoologists and climatologists.

Taphonomy, the study of cultural and natural processes that might be responsible for the particular arrangement of objects found in archaeological sites, is one important multidisciplinary approach that has gained worldwide acceptance. Observing the trampling behavior of modern elephants or carnivores feeding on large mammal carcasses are taphonomic studies that help determine whether marks on big-game animal bones resulted from the actions of humans or nature. Such data helps archaeologists interpret the pattern of food-refuse bones found in archaeological sites.

Another example of the multidisciplinary approach involves geomorphologists, scientists who study how soils developed and how particular landscapes formed. They often are able to examine valleys, stream terraces and floodplains to determine which are likely to contain ancient archaeological remains. In Nebraska, Paleoindian sites normally lie deeply buried and many have been discovered only with the help of geomorphologists.

Archaeologists from the University of Nebraska State Museum and the Bureau of Reclamation excavate the La Sena mammoth site in a sheer loess bank at Medicine Creek Reservoir in Frontier County. Unusual fracture patterns in the 18,000-year-old mammoth bones suggest they may have been broken by humans. Two mammoth ribs have been exposed in the grid square in the foreground.



# DID SOMEONE EAT THE LA SENA MAMMOTH?

By Steven R. Holen, Research Archaeologist, University of Nebraska State Museum

Among the most controversial topics in American archaeology for the past 100 years has been dating the arrival of humans in the Americas.

We know that between 11,500 and 11,000 years ago, people of the Clovis culture were living on the Great Plains, hunting the now-extinct mammoth and mastodon and probably other now-extinct large mammals. Mainstream archaeologists believe the Clovis people were the ancestors of modern Indians, but a few controversial sites, possibly dating from before Clovis, have been proposed as representing the first humans in the Americas.

Monte Verde, a remarkably preserved village site in southern Chile with stone, wood and bone artifacts, food scraps and even human footprints, may date back to 13,000 years. Other notable sites include Meadowcroft Rock Shelter in Pennsylvania and Bluefish Cave in northwestern Canada. Any of those could displace the Clovis culture as the New World's first people, when the archaeological community has the evidence it demands. A site in Nebraska, the La Sena mammoth site, is also among those that may prove humans were here before Clovis.

The La Sena site, which archaeologists have been excavating since 1988, suggests people were processing mammoths during the last glacial maximum, when the ice sheets were as far south as the South Dakota-Nebraska border along the Missouri River. The site was located by Bureau of Reclamation archaeologists Bob Blasing and Brad Coutant during a routine shoreline survey of Medicine Creek Reservoir in Frontier County.

In fall 1988, David May, a geomorphologist with the University of Northern Iowa, and I conducted preliminary research there. Excavations took place in 1989, 1990, 1991 and 1993, funded by the Bureau of Reclamation, an agency of the U.S. Department of the Interior.

The site is situated in wind-blown loess soil deposited during the last glacial period when the climate was cooler and drier than it is now. We are now excavating at a depth of 11 feet below the surface, although there may have been as much as 20 to 25 feet of loess over the mammoth at one time. Radiocarbon dating of soil and bone dates the site to between 18,000 and 19,000 years ago.

During the preliminary investigation, we did not know whether this was a mammoth that had died by natural causes, making it a paleontological site, or a mammoth that had been killed and/or processed by humans, which would make it an archaeological site. After a test excavation we began to think it was an archaeological site based on the highly fractured nature of the limb bones. Later ex-

cavations supported this interpretation.

La Sena is unusual in that no stone tools have been found. The evidence that humans processed the mammoth lies in fracture patterns on the mammoth bone itself, two types of which appear to have been made by humans. First, the limb bones were broken open by high velocity impacts on the thick shaft of the bone. Based on the angle of the fractures we can tell that the bone was still fresh when they were made. To better understand high-velocity impact fractures, think of the kind of fracture caused by a small rock or BB impact on glass, which causes a cone-shaped fracture that appears as a larger crater on the reverse side. The impact points on the limb bones also show such cone-shaped fractures caused by something hard hitting the bone at high speed. Experiments using large rocks on modern elephant bones produce the same type of high-velocity impact fractures.

The second type of fracturing is flaking. Prehistoric peoples had learned the art of flaking stone into tools hundreds of thousands of years ago in the Old World. They also appear to have learned the art of working thick limb bone, which flakes very much like stone. After the shaft of the La Sena mammoth limb bone was fractured, pieces of the bone were further processed by striking long thin flakes from the exterior, or cortex. Experiments with modern elephant bone flakes indicate their sharp edges are suitable for cutting meat.

I believe the La Sena mammoth site is the result of human activity for two reasons. First, bone marrow is highly nutritious and has been eaten by hunting groups for thousands of years. The La Sena bones were probably broken open using a large rock on a long handle to expose the marrow. Then the broken bones were flaked to make tools that were made, used and discarded at the site.

The La Sena mammoth bones are not the only ones to exhibit such fracture patterns. An 11,000-year-old Clovis site in South Dakota includes mammoth bones showing the same high velocity impact fractures and bone flaking found at La Sena. There, stone tools were found in association with the two mammoths.

In Nebraska, the Jensen mammoth site, in the same glacial-age loess but probably about 13,000 years old, has the same fracture patterns, again with no stone tools found as yet. Thus the argument for human association at the La Sena and Jensen mammoth sites is based on the fact that Clovis people in South Dakota actually did break and flake mammoth bone in this manner 11,000 years ago. It is also based on the fact that people in Africa still break elephant bone for the marrow. Finally, the argument is based on the fact that the fracture patterns could not have been caused

by any known natural process.

Critics of the idea that humans processed the La Sena and Jensen mammoths argue that natural processes could have caused the fracture patterns. They suggest that trampling by other mammoths or gnawing by carnivores might be involved. All other natural processes, such as the bone being tumbled in flooded rocky streams, can be eliminated because literally thousands of small bone fragments are lying on what was once a nearly level surface now buried in a high terrace of Medicine Creek in fine-grained, wind-blown silt. The fragments have not been moved since they were broken shortly after the animal died.

Mammoth trampling can be eliminated as a cause of bone breakage for two reasons. First, at both the La Sena and Jensen sites there are unbroken ribs lying near the broken limb bones. The large, thick limb bones are broken into small pieces, but the lighter rib bones remain intact. If trampling mammoths had been involved, the ribs would have broken much sooner and to a much higher degree than the limb bones. Second, the fractures were caused by something about two inches in diameter impacting the bone. The impact points are clearly visible. Mammoth feet were much larger than two inches in diameter and could not have caused the cone-shaped fracture patterns, which are impact points caused by a hard object hitting at high speed.

Carnivores also can be eliminated as a cause of the breakage patterns. Again the presence of intact ribs and vertebrae at both sites indicates that little carnivore action took place. Carnivores usually attack the limb bones from the joints, working their way into the main shaft of the bone. At both sites, the articular ends are intact but the limb shafts are heavily broken. Moreover, no carnivore of the glacial period could get a mammoth femur (upper hind leg bone) into its mouth and crush it at midshaft. Even if there had been carnivores that could break bones of this size, they would not have left impact points two inches in diameter. Carnivore teeth are not that big, particularly on the working surfaces.

Thus all known possible natural causes of bone breakage have been eliminated. We know that people broke and flaked mammoth bones 11,000 years ago and that experiments with elephant limb bones show the same patterns of breakage and flaking can be reproduced today. We also know that bone flakes have been demonstrated to be good cutting tools during butchering experiments on modern elephants. The only plausible explanation remaining is that the ancestors of the modern Native Americans were processing mammoths on the Great Plains of North America at least 18,000 years ago.



### *The La Sena Mammoth Site*

Nebraska archaeologists became involved in the pre-Clovis debate with discovery and excavation of a mammoth skeleton in Frontier County on the bank of Medicine Creek Reservoir. Bureau of Reclamation archaeologist Robert Blasing and University of Nebraska archaeologist Steven Holen found the La Sena mammoth in 1987, when shoreline erosion cut into a thick layer of Ice Age soil. Radiocarbon dates and the depth of the skeleton prove the elephant died about 18,000 years ago — at least 6,000 years before the arrival of Clovis hunters.

Pre-Clovis proponents argue that humans scavenged and may have actually killed the La Sena mammoth, based on the condition of the skeleton. The bones are scattered in an apparently random fashion. More important, many bones are severely fractured and appear to show evidence of human butchering and use. For example, several bone flakes have been discovered at La Sena. These are identical to the long, thin slivers of flint unquestionably documented as byproducts in the human manufacture of stone tools. The archaeologists also point out that the thick mammoth long bones could only have been split by a heavy blow such as that provided by someone smashing them with large cobbles to retrieve the nutritious marrow. Experiments with modern elephant trampling behavior failed to duplicate the fracture pattern seen on the bone from La Sena and similar sites.

Skeptics say La Sena could simply be a dead mammoth not associated with human hunters. They argue science lacks conclusive data from taphonomic studies focusing on bone chemistry and decay, elephant trampling and geologic processes. Another nagging question persists. Why does La Sena not yield convincing evidence of human association such as fire hearths, stone tools or stone debris from the manufacture of stone tools?

Contemporary and possibly related Paleolithic populations in northern

**The shattered leg bone of the La Sena mammoth shows a cross section of the cone-shaped crater characteristic of a high-velocity impact. Before it was broken, the bone was more than four feet long and six inches in diameter. The wall of the bone in the fractured area is an inch and a half thick.**

Europe and Asia practiced a sophisticated stone tool technology, and their sites are not difficult to recognize. One possibility for the absence of stone at La Sena is that geologic sources of flint were deeply buried 18,000 years ago and not available to those early hunters, forcing them to develop a bone tool technology in certain areas of the continent.

### *Clovis and Folsom*

To date, intact Clovis or Folsom sites have not been discovered in Nebraska. However, weapons related to those cultures have been found isolated in fields and stream beds across the state and prove Ice Age hunters roamed this part of North America.

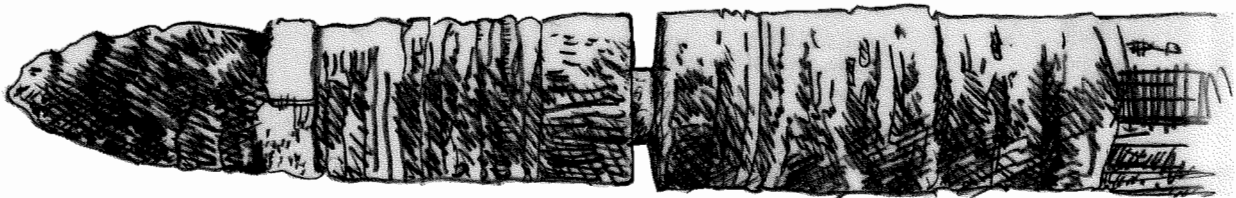
Clovis- and Folsom-age sites (11,500 to 10,500 years ago) have been excavated in eastern Colorado and Wyoming, southern South Dakota and western Kansas. They offer the most complete picture yet of how people of that time must have lived in Nebraska. The hallmark of those early cultures was their finely crafted lance points. A typical Clovis point is three to four inches long and leaf-shaped with a large flake removed from both sides from its base forward about half its length. Folsom points resemble Clovis points but are shorter, thinner and the central flake scar normally extends nearly the entire length.

Clovis and Folsom points were components of a weapons system. Points were sometimes fastened to a short foreshaft, which was then inserted into a slotted lance. The weapon was probably not thrown but thrust, leaving the detachable point and foreshaft in the mammoth. Big-game hunters also used the spear-thrower or atlatl.

Clovis hunters were nomadic Ice Age people who specialized in mammoth hunting, but they also sought smaller game on occasion. Archaeological digs and taphonomic studies of modern elephant behavior indicate Clovis groups were small and keenly aware of mammoth behavior. They did not try attacking herds but focused on solitary individuals. Clovis hunting strategies included chasing, miring the mammoths in bogs or trapping them in gullies. They also scavenged dead animals.

By the time of the Folsom people, mammoths apparently had become extinct in North America, and hunters developed sophisticated bison-hunting strategies. As a rule, they traveled in small groups, like the Clovis people, but isolated Folsom bands also periodically joined to form larger groups to hunt big herds communally. Bone and antler projectiles, probably used for hunting pronghorns and smaller animals, have been found at Folsom sites.

**Folsom and Clovis points were used in Paleoindian composite weapons. The short stone-tipped foreshaft was inserted in the end of the lance shaft. When it was thrust into a game animal, the point and foreshaft remained.**





**Paleoindian points found in Nebraska include (from left) Clovis, Folsom, Agate Basin, Angostura, Alberta, Eden and Scottsbluff. They range from 8,000 to 11,500 years old and apparently represent distinct cultural groups.**

The finely crafted weapons produced by the Folsom people represent a climax in Paleoindian chipped point technology. The pressure flaking on Folsom points is among the highest quality produced anywhere in the world. The most distinctive element of Folsom points is the large flutes that cover much of the surface of both sides of the point. Preparation and striking of the flutes required a great deal of skill. Archaeologists do not agree on the purpose of the flutes. Some suggest they were ritualistic, others argue the flutes were for fastening to the spear or some other functional component of the weapon.

### *Late Paleoindian*

Life in Nebraska changed dramatically with the end of the Ice Age. Grasslands, a climate and an assortment of smaller animals similar to those of today replaced the cool, damp climate, the boreal forests and the large animals of the Ice Age. Gone, too, were the Folsom people, replaced by various Late Paleoindian cultures that occupied the Plains from 10,500 to 8,000 years ago.

Late Paleoindian people produced a variety of spear point styles possibly representing distinct cultural groups that archaeologists have labeled Agate Basin, Hell Gap, Scottsbluff, Eden, Alberta, Cody and Frederick. Their projectiles, while remaining a high-quality lanceolate shape, no longer had flutes. Sites abandoned by some of those Paleoindian cultures have been excavated in western Nebraska.

### *The Hudson-Meng Site*

In the 1960s, artifact collector Bill Hudson and rancher Albert Meng found a buried bed of bison bone between the Pine Ridge and the Badlands in extreme northwestern Nebraska. It turned out to be one of the most important Late Paleoindian sites in North America. Dr. Larry Agenbroad, then of Chadron State College, supervised six seasons of excavations at the site in the early and mid-1970s.

The Hudson-Meng site, between 9,800 and 9,000 years old, yielded Alberta

points and the remains of more than 600 bison, making it the largest recorded Paleoindian bison kill and processing site. Archaeologists studying the site have shown that the bone bed represents, amazingly, a single kill episode or several episodes spanning only a short period — perhaps one month. Agenbroad reported that virtually all the bison carcasses were thoroughly butchered and little meat was wasted. So many bison were killed and processed that the Paleoindians devised a system for storing jerked meat for later retrieval.

Hudson-Meng offers critical data for understanding Paleoindian communal bison hunts. Agenbroad and his colleagues recognized the importance of their find but also realized that new analysis techniques might someday yield even more data from Hudson-Meng. Accordingly they left much of the bison bone bed intact for future study, and in 1991 the U.S. Forest Service reopened the site, reworking it using a taphonomic approach.

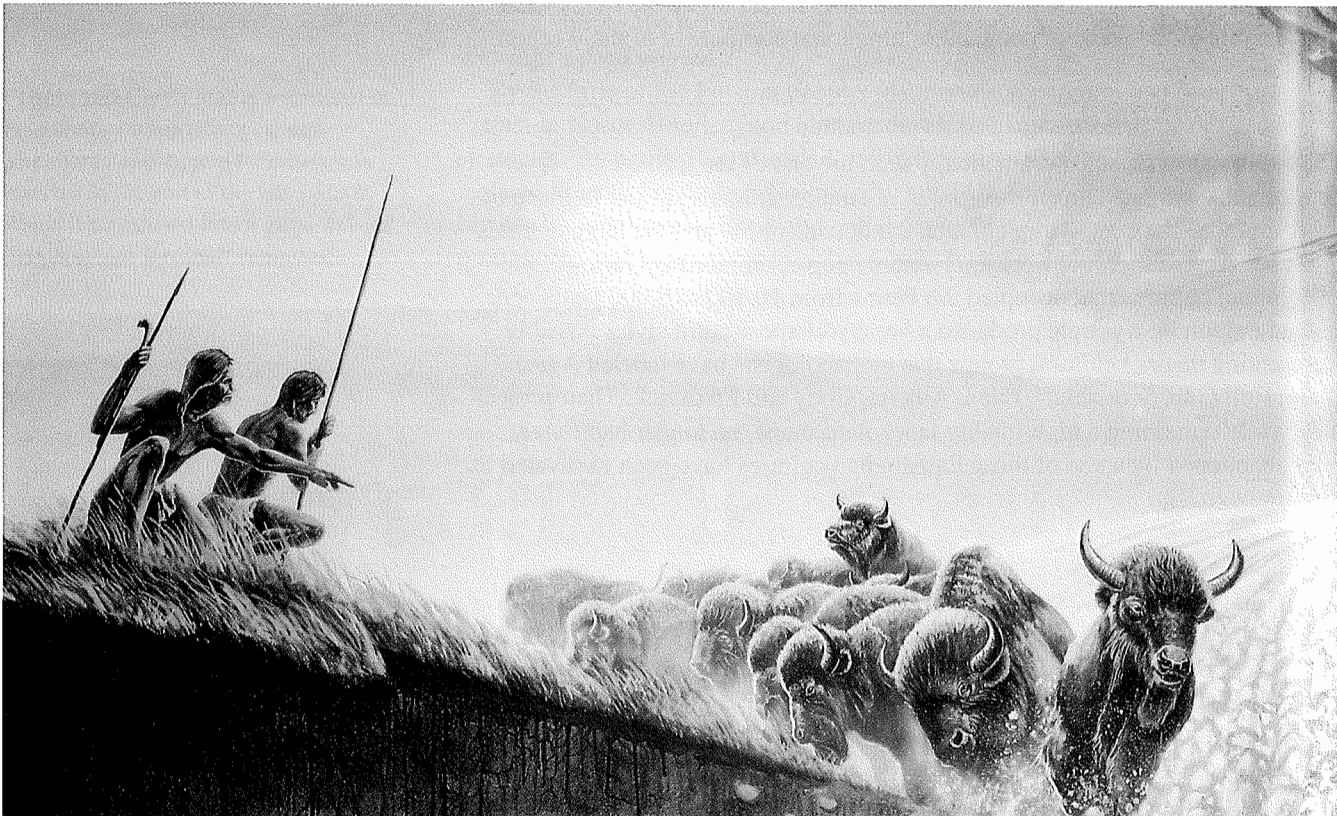
One curious discovery of the 1970s excavation was the absence of skulls at the bone bed. The 1990s efforts show that the skulls were not carried away by Paleoindian hunters as was originally assumed, but natural processes of erosion are responsible for their absence. Investigators also are entertaining the notion that the bison at Hudson-Meng died naturally and were scavenged by the Paleoindians.

#### *The Medicine Creek Sites*

The oldest known living areas in Nebraska are three deeply buried Late Paleoindian sites along Medicine Creek in Frontier County. They are evident as hearths and compact concentrations of domestic debris. The sites, Lime Creek, Allen and Red Smoke, are stratified. That is, each has several layers of material, one on top of another, that date to the second half of the Paleoindian period, 8,000 to 10,000 years ago.

Food-bone samples form one particularly interesting aspect of the Medicine

Paleoindian hunters scout a herd of *Bison antiquus*, a large-horned, extinct relative of the modern bison. Hunters often killed large numbers of bison by driving a herd over a cliff.



# HOW OLD IS IT?

By John R. Bozell and Michael R. Voorhies

To understand past human and animal life, scholars must be able to place the things they find in accurate chronological sequence. Several techniques help them do this.

## Written and Oral Documentation

Consultation with written accounts, such as dated journals, records and maps, helps archaeologists date events in the relatively recent past. Oral accounts can also help date past events, although verifying their accuracy is sometimes difficult.

## Dendrochronology

Dendrochronology, which was developed in the southwestern United States, involves measuring annual rings formed in trees and comparing their thickness, which is controlled by year-to-year climate shifts. Local sequences of tree rings have been organized into master keys that can be compared with wood recovered from archaeological sites. Although the method is seldom used in Nebraska, where wood is usually not well preserved, dendrochronology dates are more precise than radiocarbon readings when sites yield good wood samples. The tree ring calendar in the Southwest extends back several thousand years.

## Obsidian Hydration

When a piece of obsidian (volcanic glass)

is flaked to make a point or tool, the new edge begins to absorb water, and a hydration ring is formed. The ring, visible under a microscope, becomes thicker at a known rate as the piece absorbs more water. The thickness of the ring indicates approximately when the tool was made or sharpened.

## Radiocarbon

This procedure, developed in the field of physics, measures the degree of radioactive emission from organic material, such as wood charcoal, bone, seeds and mussel shell, found in archaeological or paleontological sites. All living things accumulate the radioactive isotope carbon-14 during life, but upon death the carbon-14 begins decaying at a constant rate. The amount of carbon-14 remaining in a piece of wood charcoal found in a prehistoric house, for example, tells approximately when the tree was cut. Specimens up to 50,000 years old can be dated with this technique.

## Cross-Dating and Stratigraphy

Artifacts, such as pottery and arrowheads, change in form and style through time and sites can be assigned to a time period through comparison of these tell-tale items with collections from sites previously dated by one of the other methods. Fossil plants and animals also changed irreversibly through time. Their

pattern of appearances and disappearances can be used as a calendar. The position of a site within a sequence of sediment layers (strata) can sometimes be used to estimate its age, as well.

## Potassium-Argon

Crystals in volcanic ash contain the radioactive isotope potassium-40 along with traces of argon gas produced by the slow radioactive decay of the potassium. Laboratory measurements reveal how much time elapsed since the crystals first formed. The youngest material that can be dated with this technique is about 500,000 years old, and the oldest material has been moon rocks at more than 4 billion years.

## Fission Tracks

Tiny amounts of uranium trapped in volcanic minerals cause microscopic damage to crystals as the uranium decays. Minerals fresh from a volcano have no damage spots or "fission tracks" as they are called, but the tracks increase in number at a steady rate as time passes. The age of a volcanic rock can be determined very accurately by counting the fission tracks produced by a given amount of uranium. Ash beds from about 100,000 years to hundreds of millions of years old can be dated with this method.

Creek sites. Several levels contained large amounts of small animal remains at a time when bison were the predominant food elsewhere on the Plains. For example, pronghorn antelope and beaver remains dominate the bone sample from one Lime Creek level, a pattern unique among Great Plains Paleoindian sites. Allen site hunters practiced an even more diverse hunting strategy. In addition to hunting bison, deer and pronghorn, they sought coyotes, rabbits, mice, beaver, prairie dogs, fish, reptiles, birds and mollusks.

Most stone tools and weapons found were made from locally available jasper, while most other Paleoindian sites yield artifacts crafted from stone sources originating hundreds of miles away in several directions. The Medicine Creek sites also produced a wide assortment of sophisticated bone tools and ornaments including needles and awls used in hide working, fish hooks and a variety of bone butchering tools.

The Medicine Creek sites, excavated by the University of Nebraska between 1947 and 1952, have proved exceedingly important to scholars interested in the way Paleoindians adjusted to Great Plains conditions. The predominance of local stone raw material suggests these Late Paleoindians were somewhat more sedentary than earlier groups. They tended to remain in one place for long periods of time, and the variety of animal bone samples confirms this belief.

By 8,000 to 10,000 years ago, Nebraska Paleoindians no longer were bison-hunting specialists, and the Medicine Creek sites reflect the gradual shift from the Paleoindian hunting specialists to those that followed, the Archaic Foragers.