THE BURNHAM SITE: POSSIBLE PRE-CLOVIS EVIDENCE FROM OKLAHOMA

The skull of a long-extinct bison is seen here as it was found, lying upside-down. Although considered a paleontological site when it was first excavated, laboratory technicians carefully examining the sediment removed from the Burnham site later discovered several minute stone flakes, possibly made by humans. (Photo courtesy of D. Wyckoff)

Initially investigated as a paleontological locality, the Burnham site (31W072) in northwestern Oklahoma, has also produced evidence that suggests very early human activity. A scraper, nine small flakes, and a butter-cobble with one flake removed have been recovered from the same deposit as that containing a partial Bison antiquus skeleton, a species of bison that became extinct 20,000 years ago.

The site was discovered during the spring of 1986 by landowner Keith Burnham, while building a pond in the upper end of a gully. The large bones that were exposed prompted his son, Vic Burnham, a member of the Oklahoma Anthropological Society, to report the find to the Oklahoma Archaeological Survey. At the time, Dr. Donald Wyckoff, of the Oklahoma Archaeological Survey, was planning a trip to a late Wisconsin elephant site along with Dr. Larry Martin and Dr. Wakefield Dort, of the University of Kansas. The Burnham site was consequently added to the itinerary and visited in June 1986.

INSIDE...

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The pond excavation had exposed an ancient stream channel which had cut into the Permian sandstone and been subsequently filled with sediment. On the west side of the pond, the bottom of the old stream channel was buried under nearly 6 m of sediment. Contained within the channel were the bones of Pleistocene animals, including mammoth, horse, and turtle. On the east side of the pond, the ancient stream channel was less deeply buried, lying beneath approximately 4 m of sediment. Upon closer examination of this area, the researchers noticed a large bison skull protruding from the exposure. Martin, a paleontologist, identified the skull as belonging to an extinct species of bison that died out about 20,000 years ago, before the peak of the last major Wisconsin ice advance.

Little is known about the local climate and environment in this part of Oklahoma during the last Ice Age. Martin therefore suggested that the Burnham site discovery had the potential to yield important paleoclimatic information, as well as that pertaining to rare Ice Age fauna.

As a result, Wyckoff made plans to return to the site in the fall when cooler temperatures would make fieldwork more pleasant and hoped-for rain would make the hard soil easier to excavate. In October of 1986, Wyckoff and the Survey Laboratory Director, Peggy Flynn, assisted by two avocational archaeologists, set up a metric grid over the site and began the excavation of a 2 meter square surrounding the bison skull. Although Wyckoff and Martin then regarded the site as a strictly paleontological one, it was excavated archaeologically in 10 cm levels to provide good vertical control for the expected paleoenvironmental data. All of the sediment within the square was water-screened through 1/16-inch mesh to recover climatically sensitive snails and small mammal remains, plus any charcoal or artifacts that might be present.

As the excavators exposed the bison skull, they observed that it was lying face down with the right horn core against the south bank of the stream channel. The horn cores were very large, 18 cm in diameter. Because the left horn core was damaged by the bulldozer during pond construction, the horn core tip to tip measurement was estimated at 1.25 m. Beneath the skull were additional bison bones, including a mandible fragment, several ribs, a right scapula, and a vertebra. Twenty-five cm below the skull, the excavators found a large angular flint cobble that appeared to be slightly battered. Although the cobble was of a local flint that could conceivably have gotten into the watershed naturally, it seemed out of place due to the lack of gravel channel fill in any of the observed exposures. At this stage in the investigations, the cobble was the only hint of human presence, and was not conclusive by itself or even particularly suspicious. The 1986 excavations were suspended for the season before the end was reached.

Interview with Niede Guidon

LA RECHERCHE DU TEMPS PERDU

Rockshelter in Brazil is 32,000 years old... and still counting!

It was 25 years ago that Niede Guidon first learned of the enormous complex of archaeological sites in northeastern Brazil. Presently affiliated with the Ecole des Hautes Etudes en Sciences Sociales in Paris, Guidon was then working as an archaeologist for the Paulista Museum of São Paulo. In 1965, the mayor of the village of São Raimundo Nonato paid a visit to the museum. After carefully perusing the archaeologi- cal exhibits, he asked to speak to the director of the museum. He wished to report the existence of a series of rockshelters situated within the high cliffs located in the vicinity of his village. Later research has revealed that over 240 of these shelters harbor paintings and engravings which date back as far as 17,000 yrs B.P., the oldest art and earliest evidence of human symbolic capacity in the Americas.

Because of prior commitments in France, it took Guidon until 1970 to make her way to the area. When she arrived for an initial survey, she found herself staring at hundreds upon hundreds of paintings and rock engravings. Most of the figures were painted in red, primarily ochre, although colors of yellow, black, grey, and white were also present. These paintings depicted animals, people, natural objects, and abstract symbols, organized into scenes representing both everyday and mythical events. By the time Guidon completed her longer surveys in 1973 and 1975, she had identified more than 100 shelters covered with rock art. The total number of figures in the caves now exceeds 20,000.

But the most momentous news recently from Guidon’s combined French-Brazilian investigation concerns the levels beneath those containing the rock art. Guidon, who originally specialized in Brazilian coastal archaeology developed an interest in rock art after (Continued on page 5)
We at the Center for the Study of the First Americans join with her many friends and colleagues in mourning the death of Dr. Emma Lou Davis, who passed away peacefully October 19, 1988. Dr. Davis leaves a legacy of significant contributions to the field of Early Human Studies. But Emma Lou Davis was far more than an archaeologist. An individual with wide-ranging interests, Davy, as she was known to her friends, was truly a woman of the 20th century.

Emma Lou Davis was born November 26, 1925, in Indianapolis, Indiana. Following her graduation from Vassar College in 1947, where she received a degree in Fine Arts, Davy went on to a highly successful career as a sculptor. She traveled widely, living for a time in the Caucasus Mountains of Soviet Russia during the 1930s, and later in China. Returning to the United States, Emma Lou Davis worked in the Whitney Museum, and the Museum of Modern Art in New York City. In 1958, she sculpted the bow relief which ornamens the Social Security Building in Washington, D.C. During World War II, Emma Lou Davy was employed as an aircraft designer and draftsman for Douglas. Following the war years, she became a designer of contemporary furniture at the West Coast and, later, an art instructor at the University of North Carolina at Chapel Hill.

It was not until a move to New Mexico in the early 1950s that Emma Lou Davis began pursuing an interest in anthropology. Initially taking beginning courses at the University of New Mexico in Albuquerque, she eventually entered the graduate program at UCLA, receiving a master's degree for ethnographic research on the Kazakhdka Paiute. Davy's doctoral dissertation, which focused on migration and culture change at Wetherill Mesa in Mesa Verde, became one of the pioneering efforts which unlocked the mysteries of this region. In 1964, at the age of 58, Emma Lou Davis received a Ph.D. in anthropology from UCLA.

She was the Curator for the Museum of Man in San Diego from 1960 through 1971. In 1975, Dr. Davis founded the Great Basin Foundation, an organization in which she remained active until a year before her death. Like in founder, the Great Basin Foundation has a wide scope of interests. The Foundation has been instrumental in advancing the state of archaeological knowledge, sponsoring archaeological excavations and documents, and producing numerous publications.

In the area of Early Human Studies, Emma Lou Davis is best known for her work in the Great Basin. In addition to a controversy regarding discovery of a Clovis component in the Mojave Desert. Dr. Davis published extensively, authoring over 70 books, papers, and articles regarding her archaeological research.

Never mean-spirited, Emma Lou Davis was forever a frank and forthright individual who minced no words in pursuing truth. She was an ardent feminist long before feminism was fashionable, a supporter of the San Diego Zoo, a contributor to the arts, and a member of Greenpeace, the environmental group Cal Ping, and Amnesty International. Throughout her life, Emma Lou Davis continued to explore new avenues and remain open to new ideas. Some people merely exist. Others live. Davy lived her life to the utmost, and the world is richer for it. We pay tribute to a great woman.

My thanks to the friends and colleagues of Dr. Davis—Dr. Clark Brot, Dr. James Winkler, and Robert Brennan—for their generous assistance in providing information on Emma Lou Davis' life.

FACULTY POSITION IN QUATERNARY SCIENCES

The Institute for Quaternary Studies of the University of Maine invites nominations and applications for a new tenure-line, academic-year faculty position at the Assistant or Associate Professor level in Quaternary Studies. We are particularly interested in candidates who will complement our established groups in archeology, paleoecology, glaciology, and glacial geology. Examples of complementary fields include geochronology, geomorphology, paleoclimatology, stable isotope geochemistry, and vertebrate paleontology.

Candidates should have a strong research and teaching record. The successful candidate will be expected to obtain extramural research support and to develop a research program. Although the primary emphasis is on research, the position will have an undergraduate and graduate teaching component. The successful candidate will have a joint appointment between the Institute and an appropriate academic department. Salary is competitive. The deadline for applications is March 1, 1989.

Please send applications along with a resume and names of three references to Search Committee, Institute for Quaternary Studies, 301 Boardman Hall, University of Maine, Orono, ME 04469.

THE UNIVERSITY OF MAINE IS AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

YES, SUBSCRIBERS, THERE IS A CONTEST WINNER

Yes, there was a winner of the ‘Find That Quote’ Contest we held last summer. We are pleased to award a free ticket to the Awards Banquet at the First World Summit Conference on the Peopling of the Americas to Darrell Crawford of Brewer, Maine. He diligently hunted down every single quote and recorded it by volume, issue, page, and article title—a truly scholarly effort! Congratulations, Darrell. See you at Summit '89.

CENTER FOR THE STUDY OF THE FIRST AMERICANS

The Center for the Study of Early Man recently became the Center for the Study of the First Americans, a change which we feel better reflects the goals and objectives of the Center. Only our name has changed. We are still located at the same address and phone number, ready to serve you, our readers.
THE BURNHAM SITE: POSSIBLE PRE-CLOVIS EVIDENCE FROM OKLAHOMA

(Continued from page 1)

bottom of the ancient stream channel was reached. Nearly a ton of sediment had been water-screened. Although the crew observed many snails and a number of small animal bones while water-screening, actual sorting of the screened material under the microscope would require many months of laboratory time.

The discovery which shifted attention at the Burnham site from a palaeontological to an archaeological context occurred during the tedious work of sorting the water-screened materials. In the first month and a half of laboratory work, nothing unusual turned up. In May 1987, however, Peggy Flynn found a small re-touch flake made from restropolishing a unifacial tool. The flake, which had an intact platform and was of a bluff flint material, came from the same depth as the bison bone. The angular cobble which had been discovered earlier immediately came to mind, and it was washed and inspected more closely. On it, the researchers noticed a single unpatinated flake scar that produced a sharp edge. A few days after the first re-touch flake was discovered, a second broken pressure flake turned up. This flake was made from brown chert, probably Niobrara Jasper, which is exotic to the Burnham site watershed.

The discovery of human presence at the site was "entirely to Peggy Flynn and the laboratory work-ers. We certainly didn't think there was any archaeology there," observes Wyckoff. "At that point, we had to get a date.

Wyckoff initially submitted bone samples and the darkest, most organic-looking sediment samples for radiocarbon dating. Unfortunately, neither yielded enough carbon for a date.

With two flake and the bison skull provisionally identified by Larry Martin as an example extinct by 20,000 years ago, we simply had to get a date. The only set of dates we had was snail shells. We submitted about 70 grams of snails from the top 10 cm levels that the flake had come from. They were at the same depth as the bison bones," Wyckoff explains. That date, received in October 1987, was a surprising 31,150±270 yrs B.P. (Beta 29345). Snails tend to date older than their actual age because they can absorb ancient carbon dissolved in ground water as they man- ufacture and maintain their shells. Even so, the date is not out of line with the known temporal range of Bison athletus.

We were still somewhat reluctant to believe that we had people at the site, but there was not much other way to look at it," notes Wyckoff. "The geologic context looks good." The ancient stream channel is about 2 m deep and 3 m wide as observed in three exposures along the edges of the pond. A deposit of coarse sand at least 50 cm thick lies at the base of the channel. Above the red sand, and infilling the channel, is a gray fine loamy sand. The bison skull was at the bottom of the fine gray sand, whereas the other bison bones and angular flint cobble were within the coarse red sand. The bones are about 160 cm to 210 cm below the top of the stream channel.

Because a carbonate layer 40 cm above the bison bones extends completely across the stream deposit in the areas excavated, the lower part of the stream deposit appears undisturbed by any recent cut and fill activity. This carbonate deposit is a limy material that may contain silica, as well as carbonates. Dr. Brian Carter of Oklahoma State University is currently ana-

This bison, with horns cores reaching to a breadth of over a meter, has been dated to 20,000 years. Small retouch and pressure flakes and a scraper (shown below) were found in the same stratigraphic levels as the bison bones.

lyzing the soil chemistry of this deposit, as well as that of a higher caliche layer that is about 2 m above the bison bones. "The upper caliche extends across part of the stream channel," Wyckoff indicates, "but excavations are needed to confirm that it extends completely across the channel." The lower caliche is below the shallow zone disturbed by the bulldozer tracks. Consequently, it was observed intact. "When you observe a caliche layer two meters above the bones and flakes, then a thick deposit of soils above that, you can say this site is old," remarks Wyckoff. A layer of pebbly sediments lies above the caliche. Several flint flakes on the slope indicate a more recent campsite there during the period when sediments were accumulating in the pond.

The lack of gravel in the stream deposit eliminates the possibility that rocks could have hit the bison to remove the flake, or produced the small pressure flakes. The snail species, which malacologist Dr. James Theler from the University of Wisconsin-LaCrosse is analyzing, indicate a sluggish stream not capable of "bumping rocks together" if any rocks were there, to create the flakes," Wyckoff notes.

The evidence of pre-Clovis human activity was tantalizing, but more excavation was needed to verify the early date and the human association with the site and the Pleistocene fauna. To accomplish this, Dr. Wyckoff put together an interdisciplinary research team to work on various aspects of the site analysis. Dr. Larry Martin would analyze the large and small mammals and their contribution to paleoecological reconstruction. Dr. Larry Todd, Boston University, would study the bison bones for butchering marks and other taphonomic evidence. Dr. Wakefield, Dow and Brian Carter would analyze the geology and soils. Dr. James Theler had already begun preliminary work on the snails, and McKenney, a Ph.D. candidate at Southern Methodist University, working to refine the Uranium-Thorium dating process on tooth enamel, tried using this procedure on one of the Burnham bison molars. Although this technique has thus far been unsuccessful when applied to bison teeth, McKinney's work provided new insights into this process.

In August 1988, Wyckoff learned that a research proposal to fund more extensive work at Burnham had been rejected because there was not enough evidence of human presence to conclusively identify the site as an archaeological one. Meanwhile, however, the laboratory crew had found three more flakes in the sediment water-screened from the bison bone levels. "One was a beautiful, almost intact little stone hammer retouch flake that has an overhanging lip and a distinct platform," the flake is from resharpening a biface and is made of gray chert from an unknown source. The other two flakes are from resharpening unifacial tools.

Wyckoff decided to excavate a few additional squares to obtain more conclusive evidence. With no funding available, he wrote to the Bureau of Indian Affairs and received a grant from the Oklahoma Anthropological Society requestng help. Twenty-seven of them donated time and energy to the excavations, which were conducted September 14-30, 1988.

The volunteers excavated the last few levels of the two meter square begun in 1986 and opened up an additional one meter square nearby. Seven of these were north of the bison bone cluster and one was to the south. Within the original 2 meter square, the excavators uncovered three more bison ribs, 2 thoracic vertebrae, a right scapula fragment, and an unidentified leg bone. The leg bone is in the east wall of the excavation trench and attests to a different bone beyond the area excavated.

The most exciting finds, however, were a stone tool and four flakes recovered during the excavation. The tool, a scraper, was about 1.5 m north of the bison bone and was in the bottom of the fine gray sand at the same depth as the bison skull. The scraper exhibited overlapping scars that may have resulted from the prehistoric individual. The site is not quite in situ—"it was flipped out, but we know within 3 cm where it came from," observes Wyckoff.

All four of the flakes recovered during the 1988 excavations were unweathered about a half meter north of the bison bones, in the red sand deposit. They are small, the result of reworking tools. Two of the flakes were found in place. Another important result of the September 1988 excavations was the recovery of charcoal flecks from the top of the red sand and also from the fine gray sand. These samples will be sent for radiocarbon dating. Wyckoff received a grant from Oklahoma Museum of Natural History, through the efforts of Museum Director Dr. Michaela Mares, who had recently donated $2,000 towards this end. Four charcoal samples, one bone sample, and one small sample have been submitted to Doug Donahue at the University of Arizona Radiocarbon Lab. Results are expected in mid-January. "When the G-I-H micromegas comes back, it should confirm whether the snail date is erroneous or not," Wyckoff points out. Researchers tend to "accept a snail date if they like it or run it out if they don't. We definitely need a better handle on the chronology," notes Wyckoff.

"I'm incredulous about it. I really am. I'd have been quite happy to have Clovis be the earliest thing."

The finds so far "closely parallel Paleolithic bison kills of 10,000 years ago, in which bison were trapped in steep-sided gullies where they could be killed and butchered." Wyckoff continues, "I'm incredulous about it. I really am. I'd have been quite happy to have Clovis be the earliest thing. I've always taken a conservative viewpoint about the peopling of North America. I feel comfortable with the geologic situation at the Burnham site. The alignment of the bones suggests some stream action was involved," Wyckoff explains, "but this redeposition took place before the lumply carbohydrate layer was laid down, sealing off the channel deposits.

More excavation is needed at the Burnham site to confirm the possible early date for human activity there. Previous commitments have thus far taken priority. Wyckoff is currently examining and distributing his detailed analyses, such as the taphonomic study of the bison bones and small mammal study have not yet been started. Even though it takes time to get adequate funding, "if this is

(Continued on page 8)
HAUNTED BY THE PHANTOM OF ANTIQUITY

For over 180 years, researchers have been occupied with the controversy surrounding the origin and entry of the first people into the western hemisphere. Archaeologists agree that a bifacial projectile point-making, megafauna-hunting population known as Clovis was widely distributed throughout North America 11,500 years ago. What is not clear is where these people were first to colonize the New World or were others here before them?

As late as the late 1900s, American history was allowed to pass over a very shallow time depth. Serious scholars declared the New World to have been occupied for less than four thousand years. By the 1880s, European archaeologists and geologists had demonstrated that human ancestors did not arrive in North America with the Clovis culture. pile on the "Old Stone Age" paleolithic in Europe, American investigators began an earnest attempt to find similar tools in the New

A similar attitude toward the followers of the phantom of antiquity should be rigidly maintained by all conservative students of the history of man in America.

World. Antiquarians maintained that once humans had achieved the ability to make tools, they would have spread to all habitable environments. Therefore, it was expected that evidence of Paleolithic age tools made with the "glacial period" to be found in the New World as well as the Old.

One of the most enthusiastic advocates for the existence of an American Paleolithic was a physician named Charles Conrad Abbott. In 1872, Abbott announced he had found Stone Age implements on his ancestral farm near Trenton, New Jersey. Other enthusiasts were similarly inspired. Shortly after Abbott announced "Paleolithic" artifacts began appearing in Ohio, Indiana, Minnesota, Delaware, and Washington, D.C. By the late 19th century, an extensive literature existed describing North American Paleolithic-type implements. But in 1892, the controversy that the case for "Glacial Man" had been established beyond doubt came under severe criticism. William H. Holmes, Curator of Anthropology at the United States National Museum, led the opposition to the then generally-accepted belief in an American Paleolithic.

Holmes began his career as an artist with the U.S. Geological Survey under John Wesley Powell. He later succeeded Powell as director of the United States Bureau of American Ethnology. In a series of papers, Holmes argued that Trenton artifacts were similar to numerous Potomac Basin and Atlantic materials, concluding that a more likely explanation for the apparent association of flaked stone with ancient deposits was that the artifacts from later times were intruding into older geological strata. Reinvestigations undertaken elsewhere by Holmes and his colleagues produced similar announcements. As a result of these investigations, Holmes concluded there had been no good reason to assume that the "Paleolithic" materials were anything other than the work of recent Indians, claiming that these finds had been "prematurely announced and unduly publicized."

In the early years of the 20th century, Holmes was joined in his opposition to an early North American occupation by Alex Hrdlicka. Hrdlicka, a Bohemian physician and surgeon employed at the National Museum by his director, W.F. Pumpan. In 1903, Hrdlicka joined the Smithsonian Bureau of Ethnology, where he became the editor of the Smithsonian Miscellaneous Collections.

Hrdlicka's primary argument against an early date for human in North America was osteological morphology - the shape of human bones. The concept of morphological convergence, where a shared environment would cause the bones of an animal to become more similar, was closely linked to that of evolution. Similar to Holmes' assessment of the age of lithic artifacts, Hrdlicka took the position that bones that looked ancient were an indication of convergence and reflected the varied linguistic, social, and cultural differences between the various American Indian groups as demonstrating not-diversity, but unity, and continued to seek "primitive" physical types of human remains in the archaeological record.

Irving Wissler of the American Museum of Natural History attempted to inject a note of reason into the morphological arguments of Holmes and Hrdlicka, noting that "while the presence of a distinct morphological difference would be one good argument for a distinct species, the absence of such differences would not be equally good evidence against it."

Wissler's cautionary comments were largely on deaf ears. By this time, Holmes and Hrdlicka had become extremely personal in their attacks. Holmes, for instance, at those sites where the artifacts could not be dismissed as intrusive, developed the tendency to cast aspersions on the collector. Despite inaccuracies and inconsistencies in the arguments of Holmes and Hrdlicka against an early human presence in the New

In the summer of 1895, excavators under the direction of S.W. Williston of the Paleontology Department, University of Kansas, Kansas, discovered skeletons on Twelve-Mile Creek near Russell Springs, Kansas. Upon removing the largest skeleton, the group discovered a projectile point lying beneath the right scapula, embedded in the matrix, and touching the bone itself. Although the point was unfortunately stolen soon after its discovery, drawings and a photograph show a broad, relatively short projectile point exhibiting bifacial flaking and a possible flute.

Williston was entirely satisfied with the find as demonstrating the contemporaneity of humans and extinct fauna. Brief notices of the site were published soon after its discovery; detailed accounts appeared in geological and anthropological publications soon after the turn of the century. Despite these publications, but in keeping with the conservative spirit of the times, the discoverers of the artifact with late Pleistocene fauna had no effect on the archaeological community.

In 1924, paleontological excavations under the direction of J.D. Figgins, Director of the Colorado Museum of Natural History, resulted in a discovery on the Wolf Creek, Texas, which closely paralleled that made 30 years previously by Williston. Again, projectile points were found under and in contact with the bones of extinct bison.

Scores of years after Holmes' caustic comments on the Vero and Melbourne sites appeared in Science, Harold J. Cook, a colleague of Figgins, published a preliminary report on the Wolf Creek Bison Kill site in the November issue of that same journal. Holmes remained silent. Hrdlicka, however, was clearly unimpressed, noting that "they [humans and extinct fauna] will be found in such associations even more frequently in the future, if excavations extend, is certain. But such association alone is of doubtful value. It is not yet known how late some such animals survived, but regardless of their antiquity, the presence with them or even beneath some of them, of human remains does not necessarily mean contemporaneity. Here is where many are misled."

Hrdlicka's words, similar in tone to the position taken by Holmes a few months earlier, again proved strangely prophetic. In the spring of 1925, George McJunkin, a cowhand searching for a lost cow near Folsom, New Mexico, noticed bones eroding from the bank of a dried up stream bed. Descending from his horse for a closer look, McJunkin climbed across the arroyo, and began prying at the bones with his knife. What struck him at once was the discovery of a flint projectile point lying amid the bones of extinct bison.

In early 1926, J.D. Figgins and H.J. Cook visited the site, beginning excavations in the summer of that

If you ever find evidence of human life in a context which is ancient, bury it carefully, but do not forget about it.

the two Florida sites, Holmes concluded it was...a duty to hold and enforce the view that the evidence of Pleistocene man recorded by Loenius at Melbourne, as well as those obtained by Sellards and others at Vero, are not only inadequate but dangerous to the cause of science. A similar attitude toward the discoverers of the Pharaoh of Antiquity should be rigidly maintained by all conservative students of the history of man in America.

In the same 1925 article, Holmes went on to state, "If there was a Pleistocene man there can be no question that in good time the evidence of his association with Pleistocene animals will accumulate until overwhelming."

Ironically, the sarcasm of this statement became a prophecy which undermined the very basis of Holmes' objections to a Pleistocene human presence in the New World. Although Holmes wrote, it had actually been discovered some 30 years previously. (Continued on next page)
What compulsion or exuberance motivated these people, over many centuries, to proliferate their drawings on the walls of every eligible cave in sight remains unknown.

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certain amount of political controversy, C.B. Schultz, University of Nebraska, recalls that John C. Merriam, Director of the Carnegie Institute, once cautioned him, saying, "Schultz, don't do what your colleagues tell you to do every time you find an artifact, take a geology hammer and break it all to pieces and don't report it." Just keep on reporting."

Rejection of the intuition theory was not universally conceded until 1956, when a Folsom point was found embedded in the vertebrae of an extinct bison at Lintzenheer, Colorado.

Following the Folsom finds, Holmes and Hrdlicka, if not converts, at least ceased going on the offensive against claims for early humans. Holmes, who was over 90, simply dropped the matter. When confronted, Hrdlicka continued to point to the absence of human skeletal evidence.

On a trip, Holmes and Hrdlicka won the battle but lost the war. In terms of their specific arguments against an American Paleolithic, they were correct; the North American fluted point technology in no way resembled the Paleolithic of the European Paleolithic. On the other hand, the unequivocal association of humans with extinct megafauna conclusively proved that humans had inhabited the New World during the Pleistocene.

Despite the excesses of Holmes and Hrdlicka, their contributions to the field of archaeology were many. "Their merciless exposures of careless field tech-

eties and insistence on scientific caution spurred the development of many of the field strategies and analytical techniques which are used today. If Holmes' and Hrdlicka's authoritarian and negative tactics ob-

(5) Ibid.
(6) Hrdlicka, A. 1926. The Race and Antiquity of the American Indian: There is No Valid Evidence That the Indian has been in the New World. Scientific American 105-7-9.
LA RECHERCHE DU TEMPS PERDU

January, 1989

A panoramic montage of photos shows the vast extent of the excavations at Pedra Furada. The large rocks (center) fell from the outer lip of the rockshelter; the white area (lower right) is the present-day rock face. Charcoal, possibly ancient hearths (found at the same level as the rock-car in this photo) was radiocarbon-dated to 40,000 years B.P. Uniform rates of deposition of sediments suggest that artifacts found below this level are likely to be more than 50,000 years old! (Photo by Rob Benachon)

If the rock art of the Pedra Furada phase, beneath the Serra Talhada, has survived only in tantalizing traces, stone artifacts remain in abundance.

Hunt itself! At present, no human bones have been discovered in association with the site. Looking for burials will be difficult precisely because the people did not live in the rockshelters. A major task in the next two years will be extensive excavations of the nearby calcareous caves, where conditions are more favorable for bone preservation.

Another possibility is determining which of the villages on the plain were the permanent homes of the rockshelter artist-hunters. It is known that thousands of people inhabited the area 10,000 to 7,000 years ago. Before that it is difficult to say. Few village sites do have tools similar to the older levels at Pedra Furada, but it is as yet impossible to date them or to construct a chronology based on typological comparisons between sites alone. As Guidon puts it, up to now the excavators have been constructing the vertical frame; they are just beginning to construct the horizontal frame of Pedra Furada's relations with the outside world.

The vertical frame has certainly been enough to hold anyone's attention. If the rock art of the Pedra Furada phase, beneath the Serra Talhada, has survived only in tantalizing traces, stone artifacts remain in abundance. Made of quartz and quartzite, the collection includes retouched and double-edged flakes, burins, decantiles, notched pieces, pebble tools, and hammerstones. These artifacts are usually clustered about large/medium hearths constructed from fragmentary rocks fallen from the cave wall. Coal samples are plentiful: a series of 12 produced a neatly ordered span of dates between 40,000 and 17,000 years B.P. A certain type of fairly primitive laminocore tool is present from about the 25,000 year level to the current base of the excavation.

In addition to Pedra Furada, Guidon now has several sites yielding dates in excess of 11,000 years B.P. One of these is the rockshelter Toca do Sítio do Meio, which was actually opened before Pedra Furada but where progress has been halted by a series of large fallen blocks over the lower levels. Before reaching this impasse, archaeologists discovered a layer at the 8,000 year level containing the same kind of tools as the comparable level at Pedra Furada, and further layers at 12,000 and 15,000 years B.P. Although these layers are not as numerous as those at Pedra Furada, it is also a much smaller site. Another small site, Toca do Calheirão dos Rodrigues, has produced a date of 18,000 years B.P. Yet another site, the Serrote da Bastiana, appears to contain paintings of extinct animals, although it is difficult to identify the species because of the thick calcite layer which blankets many of the figures.

As often happens, such obstacles as rugged terrain, harsh climate, and fallen blocks have proven less insurmountable than the human obstacle known as bureaucracy. In 1979, the government set aside the 100,000 hecta-acres comprising the most important sites as a national park. Unfortunately, the very ordinance that protects the rockshelters is hampering the research. According to Brazilian law, research cannot be done inside national parks, unless the area is a special one. At present, Guidon is working with the park authorities to determine which areas will be free for research inside the park. Plans have been drawn up for a 2,700 square meter complex with laboratories, offices, exhibition, an auditorium, and an educational program for the local people. Construction is currently underway on this project.

—Michel Delzani

New references and resources


CONFERENCES

Plains Conference

The 46th Annual Plains Conference was held in Wichita, Kansas November 2-3, 1988. The conference featured 21 sessions. Conference seminars were divided into topical and geographical themes and included seminars on skeletal biology, faunal and floral analyses, and geomorphology, as well as those focusing on regional Plains archaeology and ethnohistorical studies.

A seminar on Paleoindian archaeology was of particular interest to Mammoth Trumpet readers. Six presentations on Plains Paleoindian studies were delivered by six participants.

Don Wyckoff, Oklahoma Archaeological Survey, spoke on the results of a joint collaboration on the Burnsite site, an archaeological and paleoecological site located in northeastern Oklahoma. The site has yielded the remains of an ancient bison in apparent association with late artifacts. A radiocarbon date of 11,510+470 B.P. has been obtained from a sample collected from a 10-meter deep peat profile in the Monahans Sibley State of western Texas. Over 400 Folsom stone tools and 4500 pieces of chipping debris have been collected from the site. Folsom artifacts and weathered bone are eroding out from a 1 meter thick stratified deposit, overlain by a massive dune.

Lawrence Todd, Boston University, summarized new information from the Lipcomb Bison Quarry, Nebraska, where recent study of collections and additional field work have led to an expanded documentation of the site. The site has produced over 50 Folsom artifacts and the remains of 50 bison. Eric Ingbar, University of Wisconsin, discussed the results of debitage analysis from the Hansan Site, Wyoming, a Folsom workshop locality.

SUGGESTED READINGS

On The Burnsite: Possible Preclovis Existence from Oklahoma


On the Recherche du Temps Perdu

Goldstein, N. 1987 Cliff Notes: Nature 86-12.


On The Mammoth Springs Site: 9,000 Years of Occupation in Central Ohio


On The Phenomenon of Antiquity


GLOSSARY

Archaic—A term used by archaeologists to indicate a temporal stage of development by the occupants of prehistoric North America. This period followed the Paleoindian period, and was in effect until approximately 2,500 yrr B.P., although the duration varies greatly geographically. The Archaic is characterized by ground stone woodworking tools specialized in pounding and grinding stones, an emphasis on stemmed, corner-notched, and side-notched projectile points and in making which the bones occurred.

Burin—A flake or blade tool with a small, angled chisel edge or a sharp, beaked point used for sculpting and engraving stone.

Cacustral—Consisting of, or containing, calcium carbonate or calcium.

Calcium Carbonate—Limestone.

Calk—The heat treatment of ground stone tools used to harden them and make them easier to work.

Friso—A collection of stone tools, bones, animal remains, and artifacts from one area that was used for a single purpose.

Lithic—A material used by archaeologists to indicate a temporal and technological stage of development by the occupants of Africa, Asia, and Europe. The Middle Paleolithic period (also known as the Mousterian in Europe) existed from approximately 700,000 to 35,000 years B.P. The human inhabitants who lived during this period have been termed Homo sapiens antecessor, a subspecies of Homo sapiens, who possessed a tool kit consisting of hand axes and cleavers. The Upper Paleolithic period, which extended from about 35,000-10,000 yrr B.P., is characterized by the presence of modern Homo sapiens. The tool kit of these individuals was dominated by a blade technology.

Permian—the last era of the Paleoecos, 225-280 million years ago.

Planeoconvex—Flat on one side and convex on the other.

Pressure Flare—A flake removed by a method of chopped stone manufacture in which the knapper puts the tip of the flaking tool on the edge of the artifact undergoing manufacture, and then "pushes off" each flake.

Soil Formation—A method of recovering small, fragile particles (e.g., plant remains, snails, and insects) from an archaeological site which might otherwise be lost. Following the excavation of an area, soil samples are put into water; the heavy particles sink to the bottom and the lightweight minerals and debris float on the surface, where they can be removed for further study.

Taphonomy—The study of post mortem events in order to describe and analyze how organisms become fossils.

Thermoluminescence Dating—A dating method based on the decay of radioactive material in objects which produces electrons and other carriers of electric charge. When heated, these particles can be measured and translated into the age of the object.

Unifacial—An artifact on which one edge is created by flaking on a single side.

Woodland—the term used by archaeologists to indicate a temporal and technological stage of development by the occupants of prehistoric North America. The Woodland period began about 2,500 yrr B.P. lasting in some areas until shortly before the arrival of Europeans. The Woodland is characterized by the introduction of ceramics and, in some places, domesti- cated plant remains. In the Northeast, this period is known as the Ceramic.
THE Munson SPRINGS SITE: 9,000 YEARS OF OCCUPATION IN CENTRAL OHIO

"It's one of the most incredible natural areas I've been in," says Dr. Dee Anne Wymer, with a hint of awe in her voice. She is speaking of Munson Springs (also known as the Fig site), a stratified site in central Ohio. Here, researchers have discovered evidence of human occupation ranging from the Paleolithic period to the Late Woodland. Protected from the wind by a horseshoe-shaped ridge, the site forms a small hill in a south-facing hollow that receives maximum sunlight. Two perennial springs flow through the hollow, re-mining open even in the dead of winter. "You can't get any better than that," Wymer comments.

With a doctorate in anthropology from Ohio State University, began work at Munson Springs two years ago in her capacity as senior research associate with the Licking County Archaeology and Landmarks Society. Although her previous years of work at the site had made her well acquainted with its Hopewell riches, even Wymer was not prepared for the discovery made one day in late August of last year.

As society volunteers cleared off the walls of a stratigraphic trench, one student accidentally broke a point that was sticking out of the wall. "I asked where it came from," Wymer recalls, "and he pointed clear down to the bottom of the trench, 70 to 80 cm below the surface." I said, "That's impossible, that's down on the glacial till!"

After carefully mapping and recording the location of the remaining half of the point—the distal end—the volunteers excavated it. "It had been an overcast day," Wymer recalls. But just as the student held up the find, "the sun came out and suddenly the fluting showed and I said, 'Oh my God, we have a Clovis point! It was great," she says enthusiastically. "I didn't sleep that whole night. None of us did."

More than once, Munson Springs has revealed its wealth of archaeological evidence in an unexpected way. The site was originally discovered three years ago by members of the Society who were gathering clay out of the spring basin. Intended for use in a ceramics class the clay was found to contain artifacts. As a result of the discovery, a team of researchers from the Ohio State University began test excavations at Munson Springs. These excavations revealed a late Woodland occupation dating from about 1,100 years ago. In addition, the team discovered many more artifacts and an extensive amount of fire-cracked rock buried within the small hill immediately north of the spring basin. During the past two years, Wymer has been focusing on the northern part of the site, where two meter square test pits have revealed "an incredible amount of fire-cracked rock, more than I've ever seen at any site," says Wymer, as well as many artifacts from the Hopewell period, about 1,800 years ago.

These initial discoveries only increased Wymer's curiosity about the hill itself. Measuring only about 25 m in height, it is not fit the surrounding topography. In the summer of 1988, to better understand the stratigraphy of the site, society volunteers excavated the 22 meter long trench that yielded the fluted point. What that remarkable discovery was made, more researchers were called in. "We grabbed a local geologist and others scientists from Denison University, and they concluded that the hill was indeed on a glacial till and the rest of the hill was artificial.

So far, investigation of the site reveals that a meter of the original surface. Contained in that meter is evidence of intensive human occupation, including fire-cracked rock at all levels. "We think we possibly have an intact Paleolithic occupation level that's right on top of the Clovis point and associated with it," says Wymer. "More than just that point I'm sure will come out." There is also evidence of an extremely early Archaic level on top of the Paleolithic level. This layer has produced Hardaway, Kirk, and McCorkle point types, dating to about 9,000 yrs B.P.

Because the discovery of the Clovis point is so recent, little analyses has yet been done. The point itself is still something of a mystery. "It's not a beautiful example of a Clovis point," Wymer says, explaining, "It's not complete, there's only fluting on one side." Although it was never finished, its makers decided to use it as a hand-held tool. One edge of the blade shows use wear: small scars made when the edge was used for a task like cutting meat or scraping leather. It is not certain what type of stone the point, which is white, is made of, although Wymer speculates it may be from a local, flint-rich material.

Among the analyses Wymer plans to perform is radiocarbon dating. She has taken some samples for this purpose and expects to find more in the 22 meter long trench, but she has not yet had the testing done. "I don't want to run anything until I'm exactly sure of the context," she explains.

Wymer also hopes the site will yield extensive environmental information. Since her expertise is in paleoethnobotany, the study of plant remains, she is examining samples carefully for all evidence of plant life. The plant remains already found at the site include nuts, seeds, wood, and pollen. Wymer promises that soil samples will be studied intensively, using a technique called soil flotation. "We're going to float the heck out of this site!" she says cheerfully.

Unfortunately, the soil acidity which has no effect on plant preservation destroys bone. Bones are rarely found in the region, and none have yet been found at Munson Springs.

Although extensive research remains to be done, Wymer and her colleagues have begun to speculate about the origin of the hill. "It's possible that the hill was a burial mound, but at this point it doesn't look like that," Wymer says. Instead, it seems likely that people inhabited the area continuously because of its sheltered location and available water. The large amount of fire-cracked rock seems to suggest that the site was heavily used in winter.

Munson Springs presents almost endless topics for study. "It's got everything from Paleolithic material onwards," Wymer says. "The whole hill is capped with an intact Hopewell midden and possible structure. This site has everything an archaeologist could ever want!" The Clovis point alone is an important discovery, because it was found in place. While Clovis points are not uncommon in Ohio, they are almost always found in plowed fields in which the context has been destroyed. Munson Springs, unlike most areas of Ohio, has never been plowed.

The site is close to a variety of environments including ridges, hills, uplands, and interior hollows. Half a mile away is the Racoon River, with accompanying flood plains and marshes. Theories of the site's origins remain indefinite, pending future investigations by Wymer and her colleagues.

"The site," says Wymer, "presents a unique opportunity to investigate land use by Paleolithic peoples on through to Hopewell. Hopefully, Munson Springs will allow us to look at what types of environments the Paleolithic occupants were living in and what types of resources they were using." What is also exciting, she adds, "is that with the Archaic levels above the Paleolithic, we'll be able to look at human adaptation and culture change in response to the close of the Pleistocene. That's probably of paramount importance.

Wymer's plans include an element of urgency. Munson Springs is owned by a developer who intends someday to build a housing development on it. Although the landowner has been cooperative, allowing the archaeologists to camp at the site, "It is in danger of being destroyed," Wymer says sadly. "The site is not being developed presently, but some day it will be. I'm sure. So it's not something we can just leave either."

A research team consisting of Dr. William Stroud, State University, Paul E. Hooge, Director of the Licking County Archaeology and Landmarks Society, and Dr. Wymer are developing future plans for the site and the surrounding area. The group is presently preparing a proposal to obtain funding for further excavation and research at the site.

Excavations at the site have, thus far, been conducted on a shoestring budget, with extensive help from volunteers. Denison University geologist Tod Frothing and Robert Malcuit, Ohio State University soil scientist George Hall, and Ohio Historical Society archaeologist Brad Lepper are among those whose aid has been enlisted by the society. "We have a real core of people," Wymer says, "but I'd like to get some funding for radiocarbon dating and other types of detail work. Although we've been doing things very carefully, we don't have the money to hire, for example, crew chiefs or experienced field crew."

"Munson Springs," emphasizes Wymer, "is so important I want him to be able to use all available research techniques to properly interpret the site."

—Nancy Allison

THE BURNHAM SITE

(Continued from page 3)

real, it has been in the ground for that long and a few more months will not hurt.

We hope to do 6 to 8 weeks of fieldwork next September. We want to find good evidence in situ and have Vance Haynes and other researchers visit the site to evaluate it," Wyckoff states. The work accomplished so far has been because of "the vigorous avocationalists from the Oklahoma Anthropology Society, Peggy Flynn and her laboratory staff who initially found the small flakes, and the colleagues who have donated time. The University and the Survey staff have also been very supportive." The Burnham site is in the Cimarron River valley, the same drainage system containing the Folsom site. "Folsom got us to realize that the 4,000 year threshold was wrong," comments Wyckoff. "If the Burnham site proves out, it will help us past this threshold of 12,000 to 14,000 years."

—Alice Trutnau

SUMMIT '89

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