"Most people in eastern North America don't really perceive the regions in which they live as being represented in the archaeological record," explains Dr. R. Michael Gransly, Curator of Anthropology at the Buffalo Museum of Science. "So much emphasis has been placed on Paleoindian finds from the High Plains of the American West that people think Paleoindians were confined to that area." He smiles and adds, "We know this is not the case."

Gransly has good reason to smile. This past summer, hard work and careful excavation at the Hiscock site in New York paid off when a Buffalo Museum of Science team recovered a reworked Clovis-like Paleoindian point from beneath a mastodon bone. Last summer's find marked the seventh year of systematic investigations at the site, which is located in western New York, Genesee County, near the small town of Byron. Although previous excavations produced two other fluted points and the proximal end of a scraper, the stratigraphic situation of these tools was such that a true human-mammal association was in doubt, at least until now. The discovery of the point provides incontrovertible evidence linking early human activities with the large proboscids; the only mastodon site east of the Mississippi River and north of Florida to do so.

During the last few years, the stratified site has yielded a profusion of animal remains, including the bones of at least six mastodons. And amazingly, "We can put California condor in the late Pleistocene-Holocene landscape of the Hiscock site." This, Gransly explains, is a very important find because condor bones were known only from the southern region of the United States, prior to this discovery. "Now we know that, at least perhaps seasonally, there were condors gliding in the skies of New York State." Another important discovery consists of "tiny little spheres of feathers." These, when frozen and teased apart by avian paleontologist Dr. David Steadman of the New York State Museum, proved to be the perfectly preserved feathers of a water-loving northern bird. Similar feather balls, recovered from an overlying, more recent layer, were identified as Baltimore Oriole, a bird generally associated with woodlands. "It's a sort of stratigraphy in feather balls," observes Gransly.

Although the Hiscock site is very important for what it tells us about the late Pleistocene-Holocene fauna of eastern North America, Gransly is equally excited about what it can tell us of the people of that time. The fluted point found last summer is extensively reworked, with a grazer on one corner. This, along with reworking observed on the previously recovered tools, leads Gransly to believe that Hiscock was a scavenging site rather than a place where mastodons were hunted and killed. "This," he says, "Opens up a whole new door on site use."

Ironically, but for a passing reference to this locale in an archaeological text, it is unlikely that any of these discoveries would have been made. The Hiscock site began its contemporary existence as a catfish swamp on the farm of Mr. Charles Hiscock. In 1959, while using a backhoe to make a pond from the swamp, Mr. Hiscock found several large bones that were later identified as mastodon. He informed the Buffalo Museum of Science, which responded by sending a small team of excavators to the site. During the ensuing week-long investigation, the researchers discovered additional mastodon bones, as well as those of other animals. Wood which overlaid the bones was subsequently radiocarbon dated to about 10,500 years ago.

Although initially very excited about the wealth of bones at the site, the excavators decided to discontinue the dig because of the apparent lack of human-associated materials. The bones removed during the 1959 excavation sat in the museum until 1961 when, understandably disappointed, Mr. Hiscock asked for their return. He placed the bones in a little shack behind his house—a sort of shrine to the past on a small upstate New York farm.

There matters rested until 1982, when Gransly entered the picture. While rereading The Archaeology of New York State by Dr. William Ritchie, Gransly noticed a reference to the site, which mentioned the dates of the fossil remains. Intrigued, he contacted Mr. Hiscock, who was "very happy we wanted to come out. This was a bit of unsolved business for him."

Mr. Hiscock allowed Gransly and his crew to breach the dam of the spring fed pond he had made, then pointed out the approximate location where the original team had worked. After the water drained, the archaeologists began excavating a test pit, using snowshoe-like devices to walk on the still-inwater. (Continued on page 4)

Mature mastodon task in situ, lying on cobble horizon at base of spring deposit. Its distal (right) end extends 45 cm further into ancient spring vent, at the right edge of which was found the humerus of a California condor. The nearly complete skeleton of a wapiti (probably Holocene) lies within the concave curve of the task, in spring vent deposits. (Photo courtesy of R. Laub).

A VISIT TO THE UPPER PALEOLITHIC SITES OF EUROPEAN RUSSIA: A US - USSR CULTURAL EXCHANGE

by C. Vance Haynes, Jr.
Professor of Anthropology and Geosciences
University of Arizona

Editor's note: Last summer, a group of American archaeologists traveled to the Soviet Union, visiting several Upper Paleolithic archaeological sites. This project marks the first phase of an exchange program between US and USSR archaeological specialists, designed to facilitate better understanding and cooperation between researchers in the two countries.

Dr. C. Vance Haynes, Professor of Anthropology and Geosciences at the University of Arizona, contributed the following account of the Soviet site tour. Professor Haynes is a specialist in geoarchaeology and radiocarbon dating. He is America's foremost authority on the Clovis culture.

On 10 July, nine American archaeologists (J. Adovasio, L. R. Binford, B. Bradley, L. Davis, D. Dietze, G. Prins, V. Haynes, D. Meltzer, and O. Soffer), along with British archaeologist, Clive Gamble, met in Leningrad for a three day conference with Soviet colleagues going into the field to visit their Upper Paleolithic sites. The exchange between the two academies of science is being led by Olga Soffer and George Frison in the USA and V. M. Mansin and N. Praskov (Continued on page 5)
NEW DISCOVERIES AT MAMMOTH MEADOW, SOUTHWESTERN MONTANA

Imagine that one day long ago a jeweler set up shop and began to work. Sitting at a bench near the window, the jeweler hammered precious metals into rings and bracelets and necklaces, and set gemstones in delicate settings of gold and silver. As the jeweler worked, bits of the gemstones fell to the floor. Our imaginary jeweler had no need to sweep up the precious gem stones, because right outside the shop door there was an unlimited supply of them. Therefore, the scrap lay undisturbed.

Now let’s make a few changes to this imaginary scene. Let’s change the jeweler’s shop into a hamlet, and the gemstones into flakes of brightly colored fine-grained chalcedony—layer upon layer of them. Let’s lift away the walls and roof of the jeweler’s small, solitary shop, so that our jeweler-turned-flintknapper works in the open air. Finally, let’s multiply the shop many times over until hundreds of worksheds cover many acres.

If you can imagine this, then you have a pretty clear mental image of the South Everspoon Creek and Black Canyon Quarry and Workshops Complex in southwestern Montana. For hundreds of acres, the hillsides are littered with flakes and significant concentrations of quartz and workshop debris that fall to the ground as flintknappers made their tools. Layer upon layer of debris extends deep below the surface of the ground, reaching back through history to the time of the earliest inhabitants of North America. Throughout the area you can see that the land has been disturbed. Small hollows lie beside mounds of earth, the remains of the prehistoric mines from which the ancient workers dug chalcedony, the raw material of their craft.

What the flintknappers left behind is now being studied by Dr. Robson Bonnichsen of the Center for the Study of the First Americans. The Center has led excavations at the site for the past four summers. “The excavations have uncovered a continuing, 11,000-year sequence of human occupation,” he says.

Bonnichsen chose the site after an extensive search in Montana. He explains, “I wanted to find a research locality in which we could make a contribution to early American prehistory.” In 1985, working with Bureau of Land Management (BLM) archaeologists John Taylor, geologists Mort and Joanne Turner, and archaeologists Dick Reinhart, Bonnichsen looked at 19 different sites. At Everspoon Creek, they found lots of surface material, he says, “and there were terraces, many with artifacts on them. Some of those artifacts looked like they could be typologically old. So we decided to focus there.” Over the ensuing years, the BLM continued to assist Bonnichsen by providing survey and testing money, and, later on, logistical support including trailer houses and other equipment.

In 1986, Bonnichsen went back with a small team and dug test pits, which yielded lanceolate points. One day, while surveying next to the creek, the team came across a fragment of mammoth bone at the mouth of a badger hole. “We dug a test pit there right on top of the badger hole,” Bonnichsen recounts, “in hopes of finding the rest of the mammoth.” Although no further remains were found, the site was named Mammoth Meadow in its honor.

In 1987, Bonnichsen returned to the site, this time with larger teams that included Earthwatch volunteers. The teams dug six new squares beside the original test pit, and began excavations at two other sites. During that summer, “We found out how incredibly time-consuming the project is. We found that Mammoth Meadow was an extraordinarily rich workshop producing up to 24 times as many flakes per 10 cm layer in a two-meter square... It took a lot of time to learn how to work there. We didn’t make any huge advances in ’87 other than to realize what we were up against: long-term time investment and a big project.”

On the last working day of the summer, Earthwatch volunteer Susan Carlson, working in a test pit at a depth of 110 cm, found what appeared to be a Goshen point, although Bonnichsen now hesitates to call it that. In addition, a Cody point had been found earlier in the summer. “We knew we had an important, deeply stratified site,” Bonnichsen recalls.

In 1988, the excavations continued to produce many artifacts and features including “hearth,” flintknapping furniture, and so forth,” Bonnichsen says with a smile. The flintknapping furniture, found at a depth of 80-85 cm below surface, consisted of a stone for the flintknapper to sit on, an abrading stone, and a stone anvil. The 1988 season also uncovered a Cody Complex living surface and drove the initial test pit to a depth of 215 cm. At this depth, the excavation reached a layer of boulders below the groundwater table, and water had to be pumped out of the pit. “We found human-made flakes that went down to 1.6 meters below the surface,” Bonnichsen reports. “What is told us in that, for whatever reason, there were human-made flakes down in the late Pleistocene gravel.”

Finally, during the summer of 1989, the Earthwatch teams finished the six pits of Mammoth Meadow, now called Mammoth Meadow 1, excavating them to a dense layer of clastic pebbles (Continued on page 8).

CORRECTIONS AND COMMENTS

In Volume 5-3, page 2, lower left photo, the man on the right was mistakenly identified as Richard Mortan. This gentleman was instead Mike Johnson, County Archaeologist of Fairfield County, Virginia. We offer our sincere apologies for the mix-up.

Also, due to extraordinary circumstances, the Lubbock Lake 50th Anniversary Celebration has been rescheduled for October, 1990.

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AN OVERVIEW OF SUMMIT '89: INTERVIEW WITH ALAN BRYAN

During a quiet moment at the May World Summit Conference in Orono, we took the opportunity to ask archaeologist Alan Bryan his views on the conference and on the peopling of the Americas question. A Professor of Anthropology at the University of Alberta, Edmonton, Dr. Bryan has devoted four decades to archeological field research, most of it relevant to the question of the peopling of the Americas. He is the author of numerous publications and has conducted excavations at many sites throughout the Americas, including Smith Creek Cave, Nevada; Los Tapiales, Guatemala; Taima Taima, Venezuela; Pre-Kosato site, British Columbia; and Wilson Butte Cave, Idaho, with his wife, Ruth Grubin.

Mammoth Trumpet: Dr. Bryan, what do you think about the Summit '89 accomplished?

Alan Bryan: The conference brought together archeologists from many parts of the Americas who are concerned with the problem of the peopling of the Americas, as well as colleagues from Russia, China, and Japan. This was very important, as the North-East [Asia] is where Native Americans originated.

There was a good representation of researchers involved in the peopling of the Americas question. MT: Would you say there was a general consensus at the conference that there was a pre-Clovis occupation in the Americas?

AB: I think the majority of people came away with that feeling.

MT: Earlier in your archaeological career, what was your opinion on the pre-Clovis occupation?

AB: I guess I have always thought that there was somebody older than Clovis. However, I did for a long time believe that Clovis was probably a later immigration, separate from other immigrations. I now believe that it is an indisputable development in southern North America, and that it is time we examine new models, as well as seriously look for evidence of early humans in North America. MT: What are some of those sites?

AB: The area of the Great Basin and immediately adjacent areas is probably one of the most important. There have been claims, particularly in California, but professional archeologists have largely ignored them as having not yet been properly reported.

MT: As far as I remember, your presentation at the conference was on one of the Clovis sites.

AB: Yes, the Clovis is an early North American artifact that has been found at Santa Rosa Island in California. It is also found at the Charles Brown site in San Diego. According to my understanding, the evidence from Santa Rosa Island is more complete than the evidence from Charles Brown. The site at Santa Rosa Island, in California, has been examined by Dr. Alan Band, and the evidence is consistent with the Clovis culture.

MT: What are some of the major questions that remain unanswered by the Clovis entry model?

AB: Well, the Clovis is an early North American artifact that has been found at Santa Rosa Island in California. It is also found at the Charles Brown site in San Diego. According to my understanding, the evidence from Santa Rosa Island is more complete than the evidence from Charles Brown. The site at Santa Rosa Island, in California, has been examined by Dr. Alan Band, and the evidence is consistent with the Clovis culture.

MT: What is the evidence that the Clovis culture is the earliest in the Americas?

AB: The evidence from Santa Rosa Island is more complete than the evidence from Charles Brown. The site at Santa Rosa Island, in California, has been examined by Dr. Alan Band, and the evidence is consistent with the Clovis culture.

MT: Dr. Guidon suggests that in order to find old sites one must conduct large excavations and dig deeply. AB: This may be the case in certain areas, but I believe that the evidence suggests that people may have been in the Americas a lot longer than most archaeologists have thought. Changing the accepted model is a very difficult process. However, I think that the majority of the conference participants were convinced that it is time to look at alternative models, and to reexamine the evidence from many sites in the light of these models.

SUGGESTED READINGS

On Seasons of Life in Western New York


On New Discoveries at Mammoth Meadow, Southwestern Montana


On a Visit to the Upper Paleolithic Sites of European Russia: A US - USSR Cultural Exchange


On an Overview of Summit '89: Interview with Alan Bryan


The test pit yielded extensive mastodon remains, a section of carbonate ankerite, and some dart bone. "I was very elated about this site," Gramly recalls, "because I knew that if we could get this much bone from a test pit, the idea of what else might lie there was truly staggering. There was a good possibility that this contained a veritable treasure of Pleistocene or early Holocene remains." "It was apparent to me," Gramly continues, "that this was more of a paleontological than an archaeological site. I knew there would be a very high return of bone and a low return of artifacts, so I consulted Dr. Richard Laub, the paleontologist-geologist at the museum, and tried to interest him in the project. He's a specialist in Devonian corals and had never done any strict paleontological digging. To his credit, he shifted gears, won out to the site, and began excavating near the 1982 test pit. And he's been doing it ever since!"

Gramly credits the success they've had at the site to the careful excavation techniques used by the team. All excavated material is screened, with selected samples passed through 1/8 inch mesh. He believes that the human evidence in these large paleontological sites is frequently overlooked, or, in some cases, destroyed by crude excavation techniques. "There have been numerous mastodons and other Pleistocene creatures found in New York State. I've always felt that we've given rather short shrift to these discoveries. One has to approach these sites with caution and apply standard methods of archaeo- logical techniques to their investigations."

One of the reasons behind the large representation of animals in the Hiscock site lies in its location. The site occurs on a neck of land that was likely a thoroughfare between two glacial lakes during the late Pleistocene. Conceivably, this "island" also acted as a natural corridor in channeling seasonal animal migrations north to Lake Ontario. "This is an area," notes Gramly, "where you would expect heavy animal traffic."

The site itself is in a football field-sized hollow surrounded by gravelly knolls. In one portion of the depression, a spring bubbles into a small channel. Even today, the site is perpetually wet, and pumps must be run continuously to permit excavation of the site. In another area, a spring has served as an important source of minerals and water to animals living in the region. "Minerals in the water and anaerobic bacteria," Gramly adds, "probably have something to do with the good preservation of the organic material that we find there. The sulphur environment is inimical to oxidizing bacteria and other organisms that eat bone and wood."

The question of preservation is an important one, since it is so extraordinary at Hiscock and because bone is so often lacking at Northeastern sites. "It's true there is no preservation of organic remains in the high ground situations," Gramly explains, "but we do get preservation in inundated sites. These inundated sites preserve well because bone has an organic fraction to it which is amenable to decay under oxidizing conditions. If you exclude the bacteria that live in aerobic conditions, there is no reason why bone cannot endure, and wood also."

There are, according to Gramly, many other localities similar to the Hiscock site scattered throughout New York. "New York is very low-lying and very well-watered. But we just don't look down into the low grounds often enough. We probably have in New York State as great a potential for discoveries of human-associated material with Pleistocene-early Holocene animals as anywhere else in North America. It's just that we haven't utilized this potential. And now we're beginning to do that."

Stratigraphically, the site is overlain by a sterile, boulder-embayed clay. Immediately above this sterile deposit is a slightly silt-sandy facies, which is where Dr. Laub and his volunteers have found most of the mastodon and other late Pleistocene-early Holocene faunal remains. "It's just that we haven't utilized this potential. And now we're beginning to do that."

The pride that Hiscock felt in the discoveries on his farm is shared by the surrounding community. "Wood falls through the muck and sinks. Early in the excavation, we found, for instance, a very nice fluted point which lay within the sandy facies. Unfortunately, it was covered by a lot of wood which probably is more recent in age." The proximal portion of the end scraper was from the juncture of the woody layer and the underlying sandy facies; a second fluted point came from the upper black muck. "But the third one—the one that was found this year—was recovered from the deeper portion of the site, beneath mastodon remains and in the sandy facies!"

"The interesting thing," Gramly muses, "is that I almost knew what it was going to be. The two fluted points we found previously to last summer's find were both extensively re-worked. The first was used as a knife or graver. The second, the proximal portion of a point, is flaked on the snapped edge with the corners retouched into gravers. These points did not end their life as instruments of death, but as household tools.
The scraper also shows signs of use as a graver. True to his prediction, last summer’s find exhibited extensive reworking.

The site, Granly believes, represents an area frequented by animals that died naturally, with scavenging and then possibly “these exhausted, much reworked fluted points”—used in processing activities. Task studies by Dr. Daniel Fisher of the University of Michigan suggest that the likely season of death for most of the mammoths was in the late winter-early spring, a time when food shortages are most acute. “I don’t see this as a kill site in any classic sense,” Granly says. “It’s something completely different—a scavenging site. Something I’m not sure we even suspected existed!”

The Paleoindians visited these localities—perhaps occasionally, perhaps once a year—he suggests, to take advantage of the resources that these dead animals offered them. These carcasses may have provided bone, ivory, or possibly meat for domestic dogs.

Although the theory that eastern Paleoindians practiced seasonal migrations is difficult to prove, there seems to be some evidence that this was indeed the case. “We know,” says Granly, that in south-central Pennsylvania, along the Susquehanna River, there is a very large archaeological site known as the Hopewell site. Analysis of the stone tools from this site suggest that almost all of them are made from a New York chert. Not far from the Hopewell site, hardly more than 15 miles away, are the Crow Flats, Granly continues, “is a tremendous quarry-workshop site of the same Paleoindian phase as we see represented at Hickock. And, just a few miles south of this workshop site, we have large quarries—encampments—where this chert is obtained. This is the same type of chert that is found on the Hopewell site. We also find, at some of these New York sites, tools made of stone from Pennsylvania sources. If the Paleoindians were seasonally transhumant (practiced a seasonal round), it would seem to me that these people would stop at the Hickock site, for there was great bounty there for the taking.”

Of course, if people were visiting the Hickock site for bone or ivory, one would expect to find tangible evidence—cutmarks or peculiar breakage patterns—on the bones themselves. “Well, we have seen such things. But, we emphasize, we’re very cautious.” Given the huge amount of bone recovered from the site, he says, “there’s always the possibility that natural damage may mimic patterns made by humans.”

The researchers are also examining the bone from the site for traces of canine bite marks. “Dog,” explains Granly, “has been domesticated in the world for at least 12,000 years.” It is inclined to believe that the exploitation of the formerly glazed, rather rigorous areas of northern North America could not have been carried out without dogs. “He adds, “If you have dogs, you have to feed them. The Hickock site would have had a tremendous abundance of animal flesh lying around for the taking. This is all very speculative, but I still feel that one day we’ll find dog was present at the Hickock site.”

Happily, time is on his side. Teams have been digging at the site since 1982 and plan to go on as long as funding continues. “We’re just getting into this,” he remarks enthusiastically. Charles Hickock, who passed away in 1987, bequeathed the land containing the site to the Buffalo Museum of Science; the Museum then purchased some of the surrounding land.

The pride that Hickock felt in the discoveries on his farm is shared by the surrounding community. Nearly all of the work on the site has been done by volunteers, many of whom are local residents. The number of volunteers have even gone on to careers as professional archaeologists. Granly sells of a teenage boy who volunteered and later became a paleontologist major in college, as well as older men and women who left established careers to return to school. “If it’s the first time you’ve ever dug in your life,” Granly smiles, “and you find a mammoth femur, that’s going to affect you for a long time.”

The Hickock site will be affecting Granly’s life and the lives of others for a long time to come. One of the first methodical long-term investigations of a late Pleistocene site to be undertaken in North America, Granly views the site as a sort of laboratory. “It’s going to provide a lot of insight into methods for later investigators who want to dig similar types of sites,” he notes, an idea which pleases him almost as much as those first few bones pleased Charles Hickock.

—Sandra Jacobs

A VISIT TO THE UPPER PALEOLITHIC SITES OF EUROPEAN RUSSIA: A US - USSR CULTURAL EXCHANGE

in the USSR. The Soviet contingent is to visit the USA in 1991. After presenting papers on the archaeology, geology, and paleoecology of sites and cultures on both sides of the Atlantic, we began our tour by visiting the Kostenki-Bor- 

The crowd watches enthralled as the giant ground sloth browses peacefully, its tongue plucking a leaf from the surrounding shrubbery. A small sound from the infant clinging to her side breaks into her feeding reverie. For a moment, the mother sloth gazes down reassuringly at her young one before resuming her endless feeding.

Time travel? Not exactly. But at the Buffalo Museum of Science, prehistory is coming to life as visitors enter “The Big Chill: Return of the Ice Age.” This unique exhibition focuses on the climate and creatures of the Pleistocene—ten thousand to two million years ago. A wonderful blend of education, entertainment, and straight science, “The Big Chill” offers something for everyone.

Return to a time when thick sheets of ice covered much of the Northern Hemisphere and many mammals roamed the earth. Visit a reconstructed caribou-hunting encampment, where “Paleoindians” relate tales of how humans lived during the Ice Ages. Learn how glaciers formed and explore theories of the earth’s future climate. Or view exhibits featuring materials from the Lamb and Hickock sites, two of New York’s oldest archaeological sites.

Undoubtedly, the animated robots, manufactured by Dinamation International, Incorporated, of Los Angeles, California, will fascinate young and old, alike. Modeled after extinct Pleistocene animals, these life-sized replicas move their heads, tails, and even take steps! Triumphant demonstrations of modern technology, the robots are controlled by computer-regulated air cylinders. Changes in the computer program can enable the models to move in different patterns; digitized recordings reproduce the sounds these animals might have made. A short film on Ice Age mammals and explanatory slides on the construction of the robots sets the stage for this spectacular display, which features, in addition to sloth; woolly mammoth, woolly rhinoceros, saber-tooth cat, and glyptodon.

These and many other temporary exhibits are sure to delight viewers of all ages. So if you have the opportunity, step back to the Ice Age and visit “The Big Chill.” The Buffalo Museum of Science is located at 720 Humboldt Parkway, Buffalo, New York and is open daily 10:00-5:00 (Wednesday and Friday 10:00-10:00). For additional information call the Ice Age “Cold Line” (716) 893-BRRR. Exhibition ends December 31, 1989.

Continued from page 5
Ivory, as well as mammoth tusk semi-fabrics. The nearby site of Kostenki 1 has a Middle Paleolithic level with a few bifaces and large classic Levallois cores. Again, show cases were open and we were allowed to take platforms of artifacts outside for photographing. Jim Adovasio, being of Ukrainian descent, was presented with a battlefield find that appears to be a Russian steel helmet.

July 16th, we flew to Donetsk, visiting the bisons (Bison priscus) kill site of Amvrosievka the next day. The site is in a small ravine and buried by reworked loess (Dauphine loess). It is believed that several seasons or events are represented, but not over as much time as three radiocarbon bone dates would indicate (15,220 ± 150 yrs B.P., 20,620 ± 150 yrs B.P., 21,250 ± 340 yrs B.P.).

We returned to Donetsk to fly Aeroflot to Kishinev, traveling by bus northwest to Soroki. July 18th, we visited the stratified multi-component site of Kostenki, situated in slope-washed loess on the first and second terraces of the Don river. Channeled bone radiocarbon dates range from ca. 16,000 to 19,000 yrs B.P. for the main occupation layer, which overlies fluvial sands. Most of the bone is of reindeer.

At the suggestion of Soviet archaeologist Elia Borzyak, two lamps of charcoal were collected from the sand alluvium (unit 6) below the main occupation level. Geologist Andreev explained the terrace sequence of the Don river as having three late Pleistocene and five Pliocene terraces. The flood plain has two levels, the older radiocarbon dating ca. 10,800 yrs B.P. The latest mammoth remains in the region are ca. 14,000 yrs B.P. at the Aktik site, but the cultural remains are bone and ivory artifacts that may have been scavenged or stockpiled at the time of manufacture.

The next day we again spent at the Kostenki site, observing the artifact collections from there and the nearby pre-Paudorf site of Klimaist, located 60 km up-river from Kishinev. (Photo courtesy of C. V. Haynes).

Soviet scientist N. Praslov explains Kostenki 1 to (from left) C. V. Haynes, B. Bradley, L. Davis, G. Frison, C. Gamble, L. B. Binford, O. Sofer, and (far right) J. Adovasio. (Photo courtesy of C. V. Haynes)

Mammoth bone house at Kostenki 11. (Photo courtesy of C. V. Haynes)

Where can we show our colleagues Paleolithic sites with the degree of preservation and protection displayed by some of the Soviet Paleolithic sites?

(Continued from page 5)

The Upper Paleolithic of European Russia represents a relatively high degree of technological sophistication and adaptation to varied climatic regimes over about 25 millennia.

Once again, we had complete freedom to handle, sketch, and photograph any of the artifacts, including very delicate bone tools. That evening the western delegation hosted a dinner to honor our Soviet hosts and colleagues.

In every respect, the trip was an outstanding success and provided us all with many new thoughts and a better understanding of the Upper Paleolithic of European Russia. The Soviet scientists are making important strides in archaeological procedures, and interdisciplinary collaboration at sites appears to be excellent. A minor criticism is that attempts to correlate all of the sites on the basis of radiocarbon dates alone is too imprecise for reliable correlation on the basis of radiocarbon dates alone. Whereas charred bone is considered to be a notoriously poor material for radiocarbon dating by western standards, there simply is no wood charcoal at many sites. The next approach to radiocarbon dating at such sites should be an attempt to obtain specific amino acid dates on well-preserved unburned bone.

Regarding lithic technology, some sites have microblades, some macroblades, and most have both. Pointed blades are common to many sites and shouldered points on blades occur at several sites. Kostenki 1, level 5, and Sungir have similar triangular bifacial projectile points. If the dates of 33,000 yrs B.P. at Kostenki and 25,000 yrs B.P. at Sungir are correct, they imply that this type of projectile point was in use for at least 8000 years. In any case, refined bifacial flaking goes back to at least 30,000 yrs B.P. in this part of the world. The quantity, quality, and variety of worked bone and ivory is outstanding. Pregnancy, female figurines appear to be common, as are decorative designs on bone and ivory tools. Red ochre apparently played an important role in ceremonial affairs, particularly human burials. All things considered, the Upper Paleolithic of European Russia represents a relatively high degree of technological sophistication and adaptation to varied climatic regimes over about 25 millennia. These people appear to have been every bit as advanced as their contemporaries further west in Czechoslovakia and France. A question yet to be answered is where did this sophistication originate?

The organization for the trip was outstanding and the accommodations excellent. The luggage was so well handled that we soon realized there was no need to fear
UPCOMING CONFERENCES

December 27-30, 1989 American Society of Zoologists Annual Meeting, Boston, MA
Contact: Mary Adams-Wiley, Executive Officer, American Society of Zoologists, 104 Sirius Circle, Thousand Oaks, CA 91360 Tel. 805-492-3585

December 27-30, 1989 Archaeological Institute of America, Annual Meeting, Boston, MA
Contact: Joan Bowen, Director, AIA, 675 Commonwealth Ave., Boston, MA 02215 Tel. 617-353-9361

January 13, 1990 Society for Historical Archaeology, Tucson, AZ
Contact: Edward Sackett, Program Chair, Department of Sociology/Anthropology, Box 38V, New Mexico State University, Las Cruces, NM 88003

March 22-25, 1990 Language and Prehistory in the Americas Boulder, CO
The conference will treat current issues in diachrony and phonetic classification of the languages native to the Western hemisphere. Contact: Professor Allan R. Taylor, Department of Linguistics, Campus Box 395; University of Colorado, Boulder, CO 80309-0295 Tel. 303-492-9212

March 29-April 1, 1990 Northeastern Anthropological Association Annual Meeting, Burlington, VT
Contact: Stephen Panter, Program Chair, Department of Anthropology, University of Vermont, Burlington, VT 05405-0166 Tel. 802-656-3884

April 2-6, 1990 International Symposium on Archaeometry, Heidelberg, Germany
Symposium includes: dating of organic and inorganic materials; prospection; provenance studies; technology, mathematical and statistical methods; one-day theme sessions on chronology and environment of early man. Contact: Archaiologisches, Max-Planck-Institut fur Komplexwiss., Postfach 10 39 80, D-6900 Heidelberg, Federal Republic of Germany

April 4-6, 1990 Climate Change on the Great Plains, Lincoln, Nebraska
Contact: Ken Dewey, Center for Great Plains Studies, 213 Oldfather Hall, University of Nebraska, Lincoln, NE 68588-0314

April 16-20, 1990 Materials Research Society Spring Meeting, Material Issues in Art and Archaeology San Francisco, CA
Contact: Pamela Vandiver, Research Physical Scientist, Smithsonian Institution Conservation Analytical Lab, Museum Support Center, Washington, DC 20560 Tel. 202-323-9770

April 18-22, 1990 Society for American Archaeology, 55th Annual Meeting Las Vegas, NV
Contact: SAA, 808 17th St. NW, Suite 200, Washington, D.C. 20005 Tel. 202-223-9770

April 19-23, 1990 American Association of Geographers Annual Meeting Toronto, Ontario, Canada
Contact: AAG, 1710 16th St. NW, Washington, D.C. 20009 Tel. 202-234-1540

Special session: Approaches to Faunal Analysis: Past, Present, and Future; also regular sessions: one- and two-day workshops. Contact: ICAZ, Dept. of Anthropology, MMNH, Smithsonian Institution, Washington, D.C. 20560

May 28-June 1, 1990 Sixth International Conference on Hunting and Gathering Societies Fairbanks, AK
Contact: Linda Ellis, CHAQS, Anthropology Department, University of Alaska, Fairbanks, AK 99775

June 4-6, 1990 First Joint Meeting CANQUA/AMQUA, Watertown, Ontario, Canada
Contact: Alan V. Morgan, General Chairman, Watertown 1990, Quaternary Sciences Institute, Department of Earth Sciences, University of Waterloo, Watertown, Ontario Canada N2L 3G1 Tel 519-885-1211 (X 3231)

July 1-7, 1990 Society for the Study of Evolution Annual Meeting St. Louis, MO
Contact: Dr. Barbara A. Schaal, SSE Executive Vice-President, Department of Biology, Washington University, St. Louis, MO 63130 Tel. 314-889-6822

October 8-12, 1990 Fifth Australasian Remote Sensing Conference Perth, Australia
Contact: Golden West Conventions, PO Box 411, West Perth, Western Australia 6005

NEW REFERENCES AND RESOURCES


MAMMOTH TRUMPET

...Upcoming Conferences
...New References and Resources
...Suggested Readings
...and more

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This volume is concerned with problems of the origins, evolution, and paleogeography of the Arctic Ocean and its coast during the Tertiary and Quaternary periods. Much emphasis is placed on the evolution of modern Arctic flora and fauna, both terrestrial and aquatic. These problems are discussed on the basis of hydrological, palaeontological, biogeographical, climatological, and archaeological data in 84 brief papers originally presented at the All-India Symposium on the Cenozoic History of the Polar Basin and Its Influence on the Development of the Landscapes of the Northern Territories, held in Leningrad in 1968.

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river rocks and clay, at a depth of 120-150 cm. In addition, the team moved the half from Everston Creek. At this location, called Mammoth Meadow II, backhoe dug trenches to expose deep stratigraphy that could be compared with that of the Mammoth Meadow 1 pits.

Perhaps the most interesting find of this past summer was the further excavation of the Cody layer, which was first exposed in 1987 and 1988. Named for a site near Cody, Wyoming, this complex is dated between 10,500 b.c. to 9,300 yrs BP at other sites. The density of the lower component of the Cody layer at Mammoth Meadow — up to 5-10 cm in places — suggests extensive use of the Everston Creek Quarries during Cody times.

There are two major classes of Cody projectile points: Edger points and Cody points. Edger points are long and narrow, with a center ridge, diamond cross-section, and a distinctive pattern of Falwell. These points are 3.5 to 6 inches long. In contrast, Cody points have a wider blade, a small stem, and basal edge grading, but not a diamond cross-section. Some archaeologists believe that Cody points were hafted knives, while Edger points were lanceolate points that were set in a socket andhaft system for hunting large game animals.

In addition to projectile points, the Mammoth Meadow Cody complex yielded large end scrapers, and, Bonnichsen says, something new: "Blade cores and blades. These people made blades reminiscent of those of the Upper Paleolithic in a site where they made thousands of artifacts," Bonnichsen says.

In addition to tools, the excavations of the Cody layer uncovered three patches of red ochre. Ocher, a pigment derived from hematite, or iron oxide, was often used by prehistoric peoples in ceremonial ways. The excavations produced isolated tools covered in red ochre, including two points. Bonnichsen suspects finely made tools were coated with red ochre before they were exported from the quarry. At the Mammoth Meadow II test excavation, one of the trenches contained a concentration of blades and flakes covered with red ochre, while in another, the team found charcoal from a surface fire, with red ochre on both sides of it. Bonnichsen believes people may have been burning red ochre in the hearth. "So I was left wondering whether they were processing red ochre, and that's what the charcoal-ochre association signifies, or if the charcoal and ochre had some how gotten mixed. I suspect that they may have been processing the ochre in some way."

Because there are potential local sources of red ochre, Bonnichsen is going to remove one ochre from the site analyzed chemically to try to trace it back to a given source. "It seems to occur on the site in pockets," he says. "My feeling is that there are little patches where people processed the ochre and then dipped their tools in it. We found a lot on the blades and flakes, but also, we found real concentrations, patches 30 or 40 cm across and 5 to 8 cm thick. My initial hunch is people were giving tools life and color."

Euroxe. The blade cores are 'preformed for the removal of blades up to 15 cm in length. Wide blades were selected for bifacial production. A lot of bifaces made in this fashion are broken, and these were refitted.'

Because Cody and Edger points have been found in a series of bison kill sites, some archaeologists believe the Cody peoples specialized in hunting bison. Bonnichsen notes that the sites found at Mammoth Meadow I and II were recovered in association with deer, elk, and beaver, as well as remains of a large form of bison. This does not disprove the theory that the Cody peoples specialized in bison hunting. "Just because we have these taxa at our sitest doesn't mean they [the Cody peoples] were not primarily bison hunters."

The Cody peoples are especially interesting to archaeologists because they lived right after the extinction of the large mammals — mammoths, horses, camels, giant sloths, and other megafauna. The extinction of these large mammals began approximately 14,000 yrs BP, with some animals surviving until about 10,800 years ago.

Different theories exist to explain the demise of these mammals. While some scholars believe they were hunted to extinction by the prehistoric peoples of America, Bonnichsen believes that, although humans cannot be eliminated as the cause, the extinction was probably caused by a drastic change in the climate of North and South America. This theory took place at the end of the last Ice Age. According to Bonnichsen, the culture of the Cody people was a post-extinction response to the extinction of the bison.

Bison survived the extinction, but their competitors — mammoth, horse, and camel — did not. The development of new grasslands and elimination of competition allowed bison populations to expand. During this time, people developed adaptive strategies — finding alternative sources of food and developing new technologies.

What makes Mammoth Meadow unique is that it is the place where the bison hunters went to use up before they went on bison hunts. This is different from the usual Cody site, where archaeologists may find a handful of tools. "We're looking at a place where people came to be in the spring or fall, and they went out on the communal game hunts, and we're looking at the hunting procedures on bifaces, to see how the scrapers were made, how cores were set up, and compare assemblages from each level with both earlier and later peoples. Ultimately in lithic technology there are hundreds of decisions to be made. A place like Everston Creek provides a record of the history of decision-making and how people made artifacts."

"The question is, 'Do you get changes in decision-making that correlate with major climate changes?' Climate change drives shifts in the biosphere, and you would assume that technology would shift then. That's one of the key hypotheses we're looking at."

Speaking of the Cody layer in particular, Bonnichsen notes that "The Cody complex contains thousands of tools. The lower component of this level will have been laid down in a short period of time. So we're going to get some definitions for Cody in one geographic area in terms of the range of variability in Cody artifact production, and we can compare that with earlier and later time periods. . . . This is the beauty of working with these workshops, because you get big samples of the full range of tool producing behavior from core preparation to the completion of finished artifacts."

As with virtually all archaeological sites, the South Everston Creek and Black Canyon site is vulnerable, and not just to human maltreatment. The site is in the middle of cattle country, and the cattle that roam over the site cause severe damage. Graduate student Diane Douglas took flakes made by Bonnichsen's own modern-day flintknapping and laid them out in ten study plots. In seven of the plots, over 30-40% of the flakes were broken, and some were displaced as far as fifty feet by cows.

Unfortunately, the site is also vulnerable to the damage done by some human beings. "We are working with the Bureau of Land Management to protect the site," Bonnichsen says. "The BLM is ultimately the guardian of archaeological remains on public lands . . . and they're developing a cultural resource management plan to protect the site."

In addition, "The site is not fully protected, that is, mining law takes precedence over cultural resource management law. Because this region is expanding, the Twenty-first Century gold rush, we put mining claims on the site. These claims will protect the site from anyone mining it."

Noting that looters in the past few years have "potted" the site, pulling artifacts from the walls of the pits, Bonnichsen says, "I try to point out how big a job we have to educate people about the importance of archaeology. How else are we going to learn about our human heritage?"