MAMMOTH TRUMPET

Volume 2, Number 4, 1986

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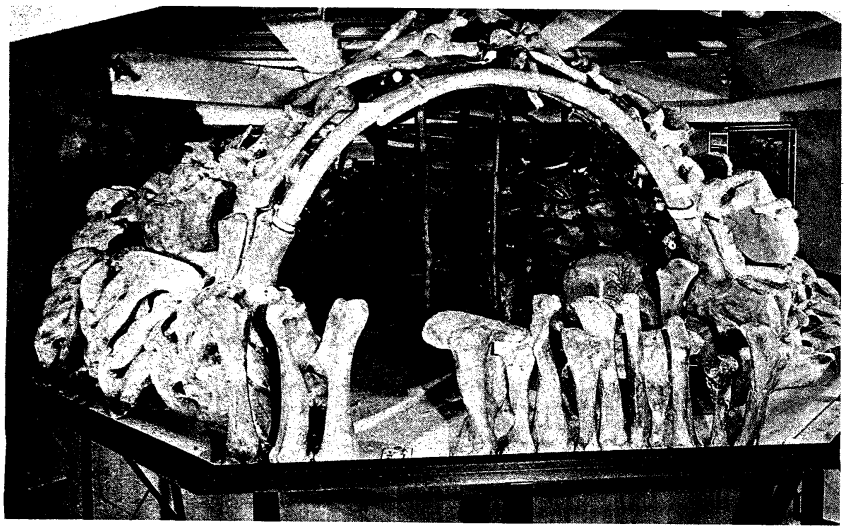

Reconstruction of mammoth bone dwelling #1, from Mezhirich on the central Russian Plain, now on exhibit at the Institute of Zoology, Kiev, USSR. *(Photo courtesy of Olga Soffer).*

Interview with Olga Soffer

"SEARCHING FOR THE HEAD OF THE PALEOLITHIC DOG"

Olga Soffer-Bobyshev, Assistant Professor in the Department of Anthropology at the University of Illinois, Urbana-Champaign, has been involved in the excavation and analysis of mammoth bone dwelling sites in the Soviet Union since 1977. The findings there indicate that Upper Paleolithic peoples who lived in these eastern regions from 26,000 to 12,000 years ago had a more complex social structure than was previously expected. Soffer's book, ***The Upper Paleolithic of the Central Russian Plain,*** *which presents and documents her research on this region was released in November, 1985, by Academic Press.*

Absolutely fascinated with the Upper Paleolithic sites with their mammoth bone dwellings and huge numbers of mammoths, Soffer became interested in doing work in the Soviet Union. "The data base there is so incredibly rich, and other than Richard Klein's **Ice-Age Hunters of the Ukraine**, there was really nothing in the west for our non-Russian reading colleagues." She decided that she wanted to look at these Upper Paleolithic sites, not in terms of objects or features across a landscape, but in trying to reconstruct the systems of behavior, settlement patterns, trade and political relationships, etc. Thus, she wrote a proposal and went to the Soviet Union on an IREX exchange in 1977 to do dissertation research for over a year. With the help of the late Academician Grasimov, director of Moscow's Institute of Paleogeography and a strong advocate of multidisciplinary research, Soffer was allowed to move beyond archival research to field work.

Soffer went to the Ukranian excavation site of Mezhirich, 160 kilometers south of Kiev, that had already yielded three mammoth bone dwellings. Ninel' Kornietz, the paleontologist in charge of the site, had been taking core samples with the assistance of an archaeologist from Kiev. The coring was necessary because the remains were lying about 2½ feet below the surface; thus, coring gave some indication of the limits of the site and some idea of just what was underground before they started moving the enormous amounts of dirt involved. As it turned out, they laid out a two-meter grid, took core samples every two meters, and were able to identify a few "concentration hot spots," as they called them. Then, says Soffer, "we went in on top of one of these hot spots with our earth moving equipment, hoping like mad that we were reading our cores right, and, lo and behold, we got a dwelling."

(Continued on page 6)

INSIDE

Interview with Dr. Russ Graham

STRESSED HABITATS AND PLEISTOCENE EXTINCTIONS

Human fondness for the novel, mysterious and dramatic has made extinctions a favorite subject of popular and scientific speculation. But if Dr. Russ Graham, Associate Curator of the Illinois State Museum, has his way, this speculation will have to encompass the whole pattern of evolution, or retreat to U.F.O.'s. For, Graham maintains, in the history of life forms, "extinction is not the exception; it's the rule." Focusing on extinctions creates an artificial dichotomy, he thinks, between the disappearance of a species and its previous interaction with the environment, whereas, in fact, it is precisely the nature of the species' interaction with the environment which has caused its extinction.

Graham, one of a handful of paleoecologists, has the perfect blend of training for this scientific endeavor. Originally a zoology student, he switched to geology on a sudden inspiration, but found both interests combining when he began work in paleontology with Holmes Semken of the University of Iowa, who specializes in Pleistocene and Holocene mammals.

In recent years, Graham has tended to concentrate on small mammals, but only because he considers them good environmental indicators, easily identified, found in large numbers, and unable to migrate very

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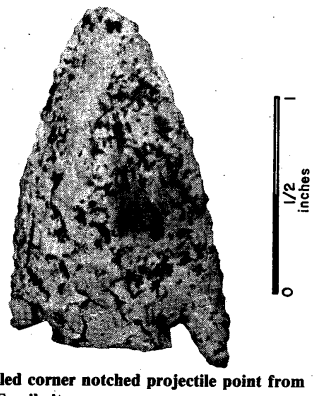


Bolen-bevelled corner notched projectile point from the Cutler Fossil site.

FLORIDA SITE YIELDS HUMAN REMAINS

On October 15, 1985, salvage operations were begun on the Cutler fossil site in Dade County, Florida, 13 kilometers southwest of Miami. The site is located within a solution hole, a geological phenomenon formed when water erodes limestone

(Continued on page 3)

CENTER NEWS

WHAT'S NEW FOR YOU?

A telephone survey of all State Historic Preservation Offices (SHPOs) in the United States was conducted recently by the Center to assess the range of state programs for archaeology, and particularly Paleoindian studies. Seventeen states responded affirmatively to the question, "Do you have any active excavations in your state relating to the Paleoindian period?" These states are: Alaska, Colorado, Florida, Indiana, Maine, Montana, New Jersey, New Mexico, Oklahoma, Oregon, Pennsylvania, Texas, South Carolina, South Dakota, Virginia, Utah and Wyoming.

Half of the SHPOs (25) have formal programs for working with amateur groups, and in those states without formal programs, the SHPO archaeological staff responds on an "ad hoc" basis to requests from the public. In addition, fourteen states have particularly strong programs for amateurs: Arizona, Arkansas, Colorado, Delaware, Idaho, Illinois, Louisiana, Maryland, New Hampshire, North Carolina, South Dakota, Tennessee, Virginia and Washington. Formal certification programs for amateurs in survey, excavation, and/or laboratory work are offered in Colorado, Illinois, Louisiana, New Hampshire, South Dakota and Virginia. Vermont is about to start a certification program and Idaho is "talking about it."

Future issues of the **Mammoth Trumpet** will highlight outstanding public education efforts including Arizona Archaeology Week, the state of Washington's anti-vandalism campaign, Louisiana's "Classroom Archaeology" activity/curriculum guide for teachers, and Texas' Conservation Easement Act and campaign to let landowners known how to arrange protection for archaeological sites. Also included will be Colorado's Program for Avocational Archaeological Certification and Arkansas' summer field school for amateurs, which marks its 24th Annual Archaeological Training Program this summer!

One future **Mammoth Trumpet** feature will be on noteworthy booklets, brochures, posters, and audio-visuals such as "Kansas Rock Art" and "Early Peoples of North Dakota." If your state has such publications or audio-visuals, please send a copy or description to Marilyn Roper at the Center address. You should indicate what the cost would be to an amateur from another state and the address for orders.

And finally, there are quite a few museums in the United States with significant Paleoindian materials and/or exhibits. We need time to follow up on the leads given, and will report on our findings in a future issue of the **Mammoth Trumpet**. If you are part of the professional or volunteer staff of such a museum, please send detailed descriptions of collections and/or exhibits to Marilyn Roper at the Center address.

The staff of The Center for the Study of Early Man thanks SHPO archaeologists across the country for their information and cooperation and for the enjoyable conversations we've had preparing this survey.

Active Paleoindian Sites Reported

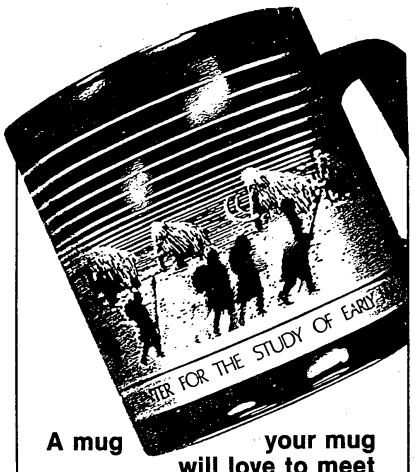
Alaska	Dry Creek and nearby sites
Colorado	Cattleguard
Florida	Cutler Ridge, Interstate 75
Indiana	Potts Creek Rock Shelter
Maine	Michaud Site
Montana	Indian Creek, Milliron, Everson Creek
New Mexico	Blackwater Draw
Oregon	Dietz Site
Pennsylvania	DePue Island
Texas	Lubbock Lake
South Carolina	Nipper Creek
South Dakota	Lange-Ferguson Site
Virginia	Flint Run Complex
Utah	Danger Cave

—Marilyn Roper

LIMERICK CONTEST

The rules are simple. Anyone (member or non-member) may submit as many limericks as he/she desires. Entries will be judged by the Center staff using whatever criteria suits our fancy. The only requirements are that the limerick be related to the general themes expressed in the **Trumpet** and be suitable for publication.

First prize will be a choice of mug or a 1 year gift membership to the Center (includes subscription to the **Mammoth Trumpet**). Runners-up will receive a choice of mammoth stick pin or tie tac. And of course, all winners will have the honor of their limerick appearing in the next issue of the **Mammoth Trumpet**. So, give it a try! Send us your limerick by August 31, 1986.



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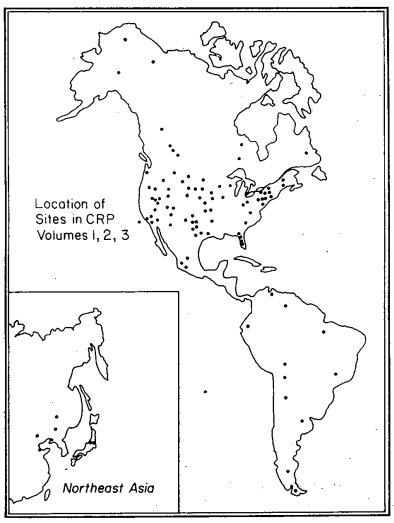
CRP 3 (1986)



If you ordered **Current Research in the Pleistocene** volume 3, or all three volumes as offered in the last **M.T.**, they are now in the mail to you. As you can see from the above map, **CRP** is covering a lot of territory! Subscriptions have been increasing steadily with each issue, and it is very encouraging to us at the Center to know we are providing you with the information you want. Be sure you don't miss out on any of the interesting, sometimes exotic, and always current reports from around the world. Only $12.00 (U.S.) will get your copy of **CRP** 3 on its way to you.

EDITOR'S NOTE

It is renewal time again. This is the last issue of volume 2. If you joined the Center during this past year, you were added as a subscriber of volume 2; thus all current Center members' subscriptions and membership will expire in July. Unfortunately, our costs have increased and the cost of a one-year, regular membership/subscription will be going up to $7.00. Current members, however, can still renew for *three years* at the old rate. Your renewal notice will arrive soon by first class mail.

We made a change which we believe will provide better service for you. We have applied for a second class mailing permit. This should increase the speed of the **Trumpet** to your door; and, all mail will be forwarded for 90 days when people move (and forget to notify us).

A second change which we believe will please our new members is to commence new subscriptions with any current issue—rather than the current volume. This is made possible with our new computer system. We hope you like it.

CORRECTIONS AND BRIEF COMMENTS

Elephant Hunting - Brad Lepper writes to inform us that the poem about mammoth hunting which accompanied the article is by Langdon Smith, and may be found in its entirety in the following reference:

Knox, L. 1953 Arizona excavations prove man hunted prehistoric mammoth. **Ohio Archaeologist** 3(4):13–14.

Elephant Hunting - We apologize for misspelling Clem Coetsee and David Cumming's names. Although unintended, the way it was written made it seem like Zimbabwe was *in* Rhodesia; Zimbabwe, however, is now the official name for what was previously called Rhodesia. Additionally, its national treasury receives the proceeds from the sale of skins, meat, and ivory procured during the culling.

MAMMOTH TRUMPET

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CUTLER SITE IN FLORIDA YIELDS HUMAN SKELETAL AND CULTURAL REMAINS

(Continued from page 1)

such as is typical of the area. When investigators went down into this hole, they found an archaeological "Wonderland"—human remains closely associated with both extinct and nonextinct fauna (yes, including rabbits), and, from an apparent stone hearth, a charred bit of bone whose charcoal has been dated 9670 ± 120 years B.P. Human artifacts have been discovered as well, and there is reason to believe that the area was occupied as long as 10,000–11,000 years ago.

Robert Carr, archaeologist for Dade County, has been directing the salvage operation. He explains that the solution hole has been filled by sediment which formed a dome with a number of levels. The first level, 10–60 cm deep, has been violently disturbed by looters, who showed up between the time the site was made public and the time Carr was able to persuade its owner to permit excavations. A large number of fossil bones of animals were removed from this surfacial layer. Fortunately Carr found out who had vandalized the site and eventually managed to recover almost all of the material. "He had shipped a lot of it to different parts of the country; it took us about a month to get everything back." Luckily, the looters did not discover the levels of human occupation, the more recent of which lies beneath a second level of sandy soil and reddish-brown sediment mixed with increasing amounts of clay as it goes deeper.

The third level lies 90–110 cm below the current surface. There, the excavators encountered a layer of limestone rocks about 20–30 cm thick, many of them burnt, intermixed with burnt animal bones. "There are a few extinct-animal bones associated with this, but analysis just completed indicates that the majority of them are nonextinct animal, and that the most numerous were the rabbit and the deer." A bone sample from this level produced the 9670 ± 120 yr B.P. date which is the only date for the site so far.

Also, "in that hearth area we found a fairly large number of artifacts, including several made out of chert or flint which is not indigenous to this part of Florida. In fact, the nearest quarries would be in the Tampa Bay or central Florida area about 200 miles from here. Most of what we found were scrapers; I think we found one drill, some cores, a lot of flakes, indicating that some tool reworking or manufacturing was going on. And some tools are made out of the native local limestone, which is very unusual because the limestone here is very soft and hard to work. But they came up with a very interesting method: they literally fired the stone—we're not sure whether before or after manufacturing the tools—and that hardened it." Two projectile points have been classified as Dalton-like and Bolen Beveled Corner Notched, the latter incantatory designation linking its bearer with the Early Archaic horizon in northern Florida. No artifacts of the much more recent Tequesta Indians have been found at the Cutler site. A few bone tools have turned up, most likely awls or needles; also at least two shell fragments and a worn coral abrader.

But only one *human* bone fragment has been located within the hearth area, a burned 3 cm piece of distal radius. Most of the human bones have come from a ledge inside the hole; there is a strong possibility, Carr feels, that two, perhaps three individuals were interred there. About 40 human bone fragments have been recovered altogether: a few cranial fragments, no mandibles but a fairly large number of human teeth, as well as humeri, radii, part of a femur but no pelvic bones. Not one bone is intact, and most are pretty fragmentary and broken. Disinterrment by animals might account for this, as well as explain some carnivore teeth marks. Bone analysis is being conducted by George Armelagos, physical anthropologist from the University of Massachusetts; lithic analysis by James Dunbar, Preservation Officer for Florida's Division of Archives and History; faunal analysis by Gary Morgan and Steve Emslie of the Florida State Museum.

Directly beneath the burnt rock layers is a fourth level, consisting of concreted sediment. It took the excavators two weeks to sink their original meter-square pit to this level; when they did, they found part of the cranium and mandible of the now-extinct dire wolf. About 3–4 cm from the dire wolf, on the same horizontal level, they found a human tooth, and, after an hour, a second tooth. But nothing else, no other human bones, no artifacts.

Had the teeth simply worked their way down to the lower level? "I suspect that they're related to the deeper level," Carr replies, "because in the hearth level we found no human teeth and only one human bone . . . The human teeth were very isolated, and definitely part of this concreted bed. I would say that, if I had found other human bones and teeth above it, I could make a good argument for their migrating downward; but I didn't see any evidence of that." Archaeological material is also sparse on this level, but includes several charred bones, one of which may derive from an extinct llama, *Palaeolama mirifica,* discovered in direct association with other extinct faunal bones.

Faunal bones are what the concreted level has disclosed in abundance; many of them are cemented with the associated sediment. Morgan and Emslie have identified over 70 species, a sizable number of them extinct. Their hypothesis, and Carr's, is that this concreted bone bed was originally a carnivore's den, last used about 11,000 B.P. At some point, 10,000–11,000 years ago, humans occupied the abandoned den, and started using it as a shelter. Carr theorizes that "for a period of hundreds of years, maybe even over a thousand, it was used periodically by small groups of people."

The time coincides with the period of great mass extinctions of mammals during the Pleistocene. Paul Martin, authority on those mysterious extinctions, has examined the Cutler site and believes that the shelter or cave—as the solution hole probably was during the occupation period—was used by humans probably during a later stage of the extinction event. Thus he feels that most of the extinct animal remains were *not* associated with the cultural occupation. A plausible scenario, Carr imagines, is that big game hunters first used the site sporadically; as the extinctions progressed, new groups hunting smaller fauna moved in and set up permanent housekeeping.

Perhaps the hardest job has been to save the site itself from extinction, so to speak. The solution hole is located on 35 acres of vacant property, part of a larger 368-acre tract that is one of the last pieces of undeveloped uplands along Biscayne Bay—property worth about 22.5 million dollars in all. The site itself was brought to Carr's attention in 1979 by a couple, John and Wanda Simmons, who collected wood from which to carve knife handles. After two years of actively trying to get the state and county to acquire the property so that the Cutler site and some of the other prehistoric sites in the area could be preserved, Carr succeeded in having it designated an "archaeological zone." This allowed them to go in and do salvage projects without preventing the owner from using the land.

The landowner, James Deering Danielson, was anything but happy initially when Carr's organization, the Metro Dade Historic Preservation Division, moved to designate the land. "What happened was, I took him out to the property—and interestingly enough, he had never been on the property in his entire life, even though it had been in his family for something like 60 years." They went down into the hole, Carr remembers, "and just by putting my hand down into the sand, I picked up fossil bone fragments and teeth."

Excavation in a solution hole at the Cutler Fossil site, north central Florida..

"Suddenly, we had a very cooperative relationship that was even intensified because, about two or three weeks after our meeting, somebody got into the site and," as recounted above, "started intensively vandalizing it, in fact in a week's time moved over a thousand pounds of dirt and removed hundreds of fossil bones. With that, Mr. Danielson moved quickly to fund a salvage excavation, putting the money up through the Archeological and Historical Conservancy, a nonprofit group. "And it is through his generosity, and through the efforts of the Conservancy, combined with our Historic Preservation Division, that we've been able to direct the work on the project."

According to Carr, work is due to continue there until as late as October, 1986, though the land is still scheduled for eventual development. Of the 22 contiguous square meters into which the site has been gridded, 14 have been excavated to date, at a cost of about $50,000; final cost, Carr estimates, will run to something like $90–100,000.

Carr, who grew up in Florida and received his master's degree in anthropology from Florida State University, has worked for the Historic Preservation Division of Dade County since 1978. A five-person agency with an annual prehistoric-projects budget of about $45,000, it has two main purposes: first, to preserve both representative sites and those that are unique resources; second, when preservation is impossible, to ensure that adequate salvage operations are performed on endangered sites. "We in a sense are the local reviewing agency for the State of Florida for any projects within the county."

Carr takes satisfaction in two additional things the Division has accomplished in his time. One is the near-elimination of problems with looters, who plagued Dade County ten years ago and who continue to disturb sites elsewhere in Florida. The other is the establishment of rapport with local archaeological societies. Until the Division came along, the societies were really about the only ones doing any work in southern Florida; unfortunately, they were doing it rather haphazardly. They now coordinate their efforts by conferring with the Division before excavating on any sites in Dade County, and proceed according to its leadership and guidance.

Carr will eventually edit a book collecting the reports of the site investigators and analysts. He has already presented a preliminary report to the Annual Meeting of the Society for American Archaeology last April in New Orleans. The materials excavated from the Cutler Site will eventually be placed in the Florida State Museum and the Historical Museum of Southern Florida in Dade County.

—Michael Dolzani

Jean Auel's Novel Slant on the Past Part II

THE DREAMING OF THE BONES

Editor's note: This is the conclusion of an article started in the last issue (II,3) of the **Mammoth Trumpet.**

The notion of Paleolithic people as subhuman savages of limited mental capacity living at survival level, whose lives were "nasty, brutish, and short," is so inaccurate that it would not be worth bothering to refute if it did not have a residual hold on the popular imagination. In reality, it does not belong to science at all but to the rhetoric of nineteenth-century neo-Darwinism (not to be entirely identified with Darwinism itself).

The mentality behind the stereotype is what is limited, the latter being in fact the same type of projection as occurs in modern racial bigotry. So far as technological capability is concerned, Auel says, remember, the next time you are sewing with a needle, that you are using one of the oldest inventions in the world, and one that you may thank those prehistoric "savages" for. Cro-Magnon people flaked stone knives that are sharper than steel scalpels.

In the Ukraine, where **The Mammoth Hunters** is set, the ruins of semi-subterranean houses have been discovered—even the term "cave man" turns out to be partly inaccurate! Also in the Ukraine, they have found carved mammoth tusks straightened into staves — no one can figure out how they accomplished the straightening. They have found burned bone parts; and it takes a hot, hot fire to burn bone. The speculation is that trenches found running from the hearth to the outside of the dwelling were used to bring air in, creating a forced-air fireplace. There were, anyhow, kilns in Czechoslovakia for the firing of clay figurines.

Dr. Paul Bahn has suggested that Ice Age humans may have domesticated horses: fossil teeth show a phenomenon called "crib bite" that occurs when horses get bored and start chewing on things. Crib bite is found today *only* among domesticated horses, never among wild ones.

So much for technology; what about culture? In some ways, **The Mammoth Hunters** was deliberately designed by Auel to form a contrasting volume to **Clan of the Cave Bear**, Cro-Magnon culture set up against Neanderthal. The first difference Ayla notices is that Cro-Magnons are just plain *noisier*; Neanderthals, as Auel portrays them, speak mostly in sign language. But that is a fictional speculation, based on some studies which suggest that Neanderthals had a more limited vocal apparatus.

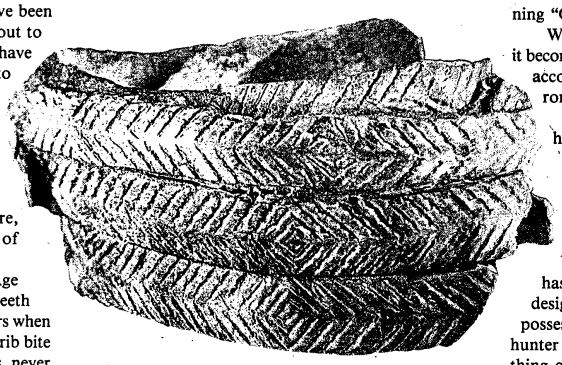
Pollen in a Neanderthal grave indicates that some of their dead were buried with flowers, a concern for the dead paralleled in Cro-Magnon peoples. The most striking *difference* between Cro-Magnon and Neanderthal cultures, to Auel anyway, is that the latter did not have art, or so it would appear. At least, not one single piece of it has turned up so far. By contrast, Cro-Magnon bracelets have been found with triangle, chevron, and zigzag patterns on them. The patterns even suggest the possibility of a rudimentary symbolic notation, so in **The Mammoth Hunters** Auel invented her own meaning for it.

Musical instruments have been recovered too: flutes, pipes, and mammoth-bone percussion instruments, some of them worn with playing. (While on a research visit to Russia, Auel acquired a book about these instruments, which even included a recording.) Perhaps most memorable of all the artifacts Auel examined is a child's outfit with 3000 ivory beads sewed to the clothing. When did they have the time to sew on all those beads? These were not a people living on a survival level, Auel contends; they were people with the leisure time for creation.

The series title **Earth's Children**, as a matter of fact, derives from a passage in philosopher Eric Hoffer suggesting that art arises from the kind of leisure and play that we associate with childhood. Is it painting, music, stories, and fun, Auel muses, that define us as human, and not primarily a developed technology? The two abilities may not be entirely separable in the long run. Cro-Magnon creativeness may not have been confined to the aesthetic realm, but may account for that race's amazing technological inventiveness as well. The Neanderthals invented too; but they tended to be a conservative, unchanging race, and Auel wonders if that is not perhaps what killed them.

Yet that does not mean that the Neanderthal were not also human, were not also "earth's children." There is imagination, but there is also compassion and love. The inspiration for the greatest Neanderthal character in **Clan of the Cave Bear,** Creb the magician, is the skeleton of an old man who died of skull damage suffered in a rockfall. Prior to the accident, however, that man had been blind in one eye. He also had an atrophied arm that had been *amputated* at the elbow.

How did they stop the bleeding of that amputated arm; how did they treat for shock—why did they even bother to try? Who takes care of a young, deformed boy or an old, deformed man? He cannot hunt; how does he get his food? If survival of the fittest is the rule, is compassion then a survival trait? What did this man have to offer in return? Perhaps a large brain, for his cranial capacity was 1700 cc compared to a modern human norm of about 1350 cc.



Mammoth tusk "noisy bracelet" from the Ukraine.

Neanderthals in general had a larger cranial cavity than ours, but its shape suggests that their brain may have been developed in different areas. If they lacked our right-brain inventiveness and creativity, did Neanderthals have other mental capacities more developed than our own—for instance, memory? Perhaps they possessed more than just ordinary memory hyperdeveloped. "Somewhere in the *back* of my head, I think I remember"—many people say this, Auel points out. But the back of the brain may be the seat of another kind of "memory." "A baby 'remembers' how to suckle, a cat how to wash its fur. It's called instinct." In a beautiful phrase, Auel terms it "the memory we are born with," and in **Clan** she stretches it to include a kind of racial memory, capable of making direct contact with a collective unconscious. Less than human, or more?—or perhaps just different.

Earth's Children and Literature

A discussion of Jean Auel and literature must contend with the fact that Jean Auel denies she writes literature. "I consider it, frankly, another genre. Literature I think has its place. But it is often pretentious; it is often purposely obscure, because many people think that the more obscure it is, the more meaning it has. I'd much rather have a story that moves, and have the meanings bubble up."

Yet it would be unfortunate if Auel's readers took her to be saying that she dislikes any art that demands a little thoughtfulness and effort. That would not fit the woman who has speculated that the capacity for art and imagination is what makes us human, and who has put a great deal of thought and effort into the writing of her books. Whatever one thinks of the first three volumes of **Earth's Children**, they are not the type of mass-culture entertainment designed to be read, thrown away, and instantly forgotten. Auel has a vision to share, and genuine meanings to tell.

It is precisely because she *does* have something to say that Auel has instinctively chosen to write in the most universally-communicating type of narrative, the tale of love and adventure that literary critics call the romance, using the term in a technical rather than a popular sense. Along with myth, with which it shares features, the romance is one of the oldest of all types of storytelling, encompassing the ballads and folktales present in all societies. Perhaps that makes it additionally appropriate for telling a story about human origins. Be that as it may, its very basic appeal makes it a natural vehicle for reaching a wide audience. On the one side, Auel has a sophisticated desire to make the latest scientific information about our ancestors more accessible; on the other, she is no different from the first storytellers who sat around the hearths of the Clan or the Others, and told a tale of wonders beginning "Once upon a time."

With the publication of **The Mammoth Hunters,** it becomes clearer than ever that Ayla's life is unfolding according to the archetypal patterns of a myth or romance hero.

The "hero" beginnings are typically humble: his real parents are often unknown, and he is brought up by foster parents of a "lower" order. Thus Ayla, born of the Others but brought up by the Neanderthal Clan, follows a pattern consistent in romantic literature from Oedipus, Moses, and Christ to Dickens' David Copperfield. As Oedipus has a wounded foot, Ayla has her claw scar, designating her as one set apart. As a hero, she possesses special gifts. Already both healer and hunter in **The Valley of Horses,** she turns into something of an inventive genius, discovering everything from the joy of sex to the domestication of animals. All of this is according to the traditions of heroic romance, including the fact that Ayla is on a quest-journey, however leisurely. The original twist, of course, is that Ayla is a woman.

Everywhere Ayla goes, she encounters racism; even her lover, Jondalar, is ashamed of her origins in the Clan. It is at this point that Auel's theme of accepting "difference" intersects with her desire to inform the public about Neanderthal and Cro-Magnon cultures. All the most recent evidence, in her view, supports the fact that Neanderthal, Cro-Magnon, and modern humans are more alike than different, and what differences there are may be positive rather than alienating.

In the end, one's judgement of any particular reconstruction of early human culture, whether in science or literature, depends on one's own view of human nature. Whatever our view may be, Auel's talent leads us to suspend judgement long enough to exercise one distinctive trait of humans, imagination. It is imagination, the ability to say "what if," to *play* with contrasting viewpoints, without mistaking any one of them for an absolute truth or reality, that characterizes earth's children as *Homo ludens,* humanity the player. Through the force of Auel's imagination we play, and are drawn back in time to share, in what we may call, in a phrase of Yeats', "The dreaming of the bones."

—Michael Dolzani

Editor's Note: Jean Auel acknowledges her indebtedness for much of her anthropological information to Dr. Olga Soffer, whom she cites as probably the leading expert in the United States today on the Ice Age populations of Russia. For more information about Soffer's research in the Soviet Union see the article "Searching for the Head of the Paleolithic Dog" in this issue.

STRESSED HABITATS AND PLEISTOCENE EXTINCTIONS

(Continued from page 1)

far, so that they reflect local conditions. By contrast, in his Ph.D. dissertation, he studied carnivore/mammoth interaction in a cave site which was the den of a saber-toothed cat that preyed on juvenile mammoths. The thesis study sparked an interest in obtaining an overall view of the make-up of mammalian communities. In this context, Graham first examined the terminal Pleistocene extinctions, and it is in this context of the functioning of mammalian communities that he has continued to see them.

Actually, the paleoecological slant on extinctions only became a direct research focus after a 1979 paper on ecological models in which Graham criticized Paul Martin's "overkill hypothesis," which holds that human hunters decimated certain species, causing their extinction. Martin challenged Graham to propose an alternative hypothesis and Graham, someone always ready to turn down a new road, set out to do that. The theory he postulated is derived in part, from his understanding of ecological communities.

Graham defines a community as "a group of species brought together in association in a geographic area at a specific point in time." Now, when he looks at such a community, several questions arise in his mind: How stable is the community?; What changes would be manifest in it over a period of 100 years?; What would happen if the environment changed? In response, some might argue that the community is a tightly-structured organization which will change only minimally with time and alteration of the environment. But from Graham's point of view, it is more accurate, at least for some of the mammalian assemblages, to see the community as only a loose aggregate based on individual species needs. Such a community would readily change and regroup as conditions around it changed, so that, following Graham's line of thought, instead of static "community units" of plants and animals moving back and forth, we see dynamic, loosely arranged systems shifting and rearranging ranks.

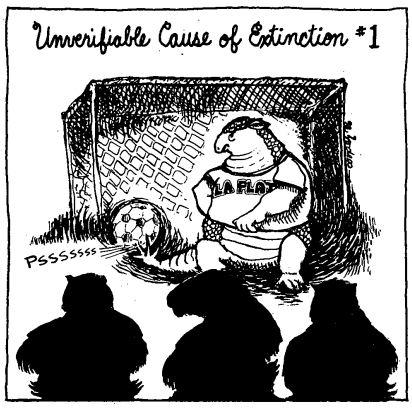
Graham feels that the individualistic model and the increased rate of change it implies, best explain what have been described by Semken as "disharmonious" assemblages, that is, mixed assemblages of species which do not co-occur in present day environments. An example is the New Paris #4 site in Pennsylvania, dated at 11,000 yr B.P., in which lemming, shrew and ground squirrel (which today would be found only in distinct tundra, boreal forest and open grassy environments respectively) are all found in one fossil assemblage. This is clearly not an artifact (artificial or accidental) because such mixed assemblages occur in different types of depositional environments and not only with mammals, but also with insects and vegetation. Although such species mixes would be disharmonious with each other today, there is no indication that they were out of harmony with their Pleistocene environment and each other. Graham proposes to call these "no modern analog" assemblages.

The dynamic model of mammalian communities knocks on the door of modern ecologists with a somewhat unsettling message, i.e., present ecological systems may be relatively new and modern assemblages cannot be regarded as complete analogs for the past. In short, paleoecology is adding a new chronological dimension to ecology important for understanding community evolution.

Russ Graham is ready to move beyond the equilibrium model of evolution. There may be a quasi-equilibrium that appears and reappears, he says, but there is no major universal equilibrium over long periods of time. Therefore, studies of ecological community relationships can only be short-span explanatory models and apparently close associations of plants and animals may have been brief on the geological time scale. As an example of a community's capacity for rapid change, Graham points to the recolonization of the northern part of North America after the melting of the ice mass from 11,000-8,000 yr B.P. Pollen work suggests that this movement reached an equilibrium within a few hundred years. Even after such a major reorganization, although the number of species might remain fairly constant, the community's species composition would continue to be in flux. And, according to Graham, on the time scale of the Pleistocene, climatic oscillations which brought groups in and out of contact must have accelerated evolutionary processes, introducing rapid micro-evolutionary change. Evolutionary rates may have been faster at times than we have tended to think, and also more variable.

Graham compares the contact of one species with others at different rates along its distribution line to a continual shuffling, dealing and reshuffling of cards. During the period of more equable climates which preceded the development of a today's continental climate, the environment probably had a fine-grained pattern of shifting microhabitats, with more of the total land area suitable for more different plant and animal species. Distributions may have been more extensive as plants and animals moved across large areas.

As climatic extremes of hot and cold emerged, Graham pictures a stressed environmental gradient along which species began to sort themselves out.



Ecozones became more clearly defined and vegetation zones more homogeneous, creating ecological "fences." Plants and animals separated out of solution, so to speak.

It is here that Graham's theory emerges as an alternative to the overkill hypothesis, for Graham believes that it was this habitat destruction which stressed species and caused the Pleistocene extinctions. Zonation of Pleistocene species indicates that they had preferred habitats, yet, at the same time, a typical Pleistocene habitat offered more nutritional opportunities to more species than the habitats formed by our modern climate. For example, the Pleistocene boreal forest had a greater mix of plant varieties than today's boreal forest. The Pleistocene vegetational mosaics with their patchiness and intermingling had a significantly higher net nutritional value than the more homogeneous plant associations which replaced them.

This reduction in the carrying capacity of the environment affected large herbivores most severely, Graham believes. He points to observations made in present-day Africa, where environmental change has had an impact on large animal species there and disrupted their feeding strategies. Grazing strategies are attuned, for example, to climatic pattern and competitive interaction, when two species eat different parts of the same plant. Changes in the available flora mean a redealing of cards thus changing foraging patterns and heightening competition. Such stresses may bring one species to extinction or close to it, says Graham, while another closely-related species reacts quite differently. As an example, he refers to two genera of Arctic lemming, both tied to the ecology of the tundra. While the *Lemmus* (brown lemming) has tremendous population explosions and cycles through a crash and recovery, the *Dicrostonyx* (collared lemming) usually maintains itself in low numbers, only rarely having an upsurge in population. (In fact, Graham proposes that there may be an inverse relationship between the numbers of similar species or genera present in one habitat.) Graham does not think it immediately evident that climatic change stresses specialist species, whose diet is limited to a few sources, more or less than it does generalists, if only because he finds the terms specialist and generalist a bit hard to pin down for Pleistocene species anyway, since the details of feeding habits are unknown.

Although such species mixes would be disharmonious with each other today, there is no indication that they were out of harmony with their Pleistocene environment and each other.

The key question for him, as he considers the overkill hypothesis vis-a-vis his own environmental model of the Pleistocene extinctions is, "Why did certain forms, which should have been attractive to predators as a substitute for vanishing species, survive? One would assume, he argues, that the predator having developed a particular strategy for killing large animals would go after *every* species over a certain size threshold before going after smaller animals. Yet animals like bison and caribou survived. The most plausible explanation, he believes, is the environmental model with its stressed habitats. Bison, caribou, and other survivors may have been pre-adapted to the climatic change by blind luck. But, Graham makes a friendly counteroffer to proponents of the overkill hypothesis. If, he says, it can be demonstrated that environmental changes of earlier interglacial cycles were of equal magnitude to that of the last glacial cycle (and yet that these previous eras did not end in extinctions) the environmental impact theory of extinctions would be falsified.

Given the paucity of older sites and the difficulties in dating them, it may be some time before scientists have the last word. At present, it is difficult if not impossible to get absolute dates for the period between 100,000-50,000 yr B.P. Carbon dating does not go back that far; other methods cannot deal with such recent dates. Tandem accelerator dates still go only as far back as 60,000-30,000 yr B.P.; although some researchers may have pushed them as far back as 90,000-80,000 yr B.P., at that point bone deterioration and permineralization pose serious problems to accuracy. Certainly, though, once improved dating methods *are* available for earlier eras, Graham's intriguing challenge is ready and waiting to put them to use.

Graham feels that paleoecological insights into the Pleistocene extinctions are now opening up two major areas of research which have not received adequate attention thus far; these are the impact of the extinctions upon humans and their impact upon the evolution of ecosystems. "Humans were confronted with something like the shrinking of a supermarket to a country store," and ecosystems, too, might have been severely affected by the sudden absence of megafauna who may have controlled vegetation and acted as seed dispersal agents. More closely-spaced, well-dated sites are needed to pursue these studies. Tightly-controlled, county-sized sites would give the best resolution of the data set and the promise of answering detailed questions. "One every 10 miles would be perfect!," Graham chuckles. He favors a regional-intensive approach whereby geographic variation is factored out and the focus is on the temporal scale.

Graham anticipates new techniques in bone chemistry and in the mathematical modelling of communities. And he has high hopes for dynamic computer models where one would first give the computer modern data to see how it predicts present-day species composition, and then alter the parameters to those reconstructed from paleohistory to see what would be revealed about past climates and species. He points out that even modern species are not thoroughly understood. Let's refine our picture of individual species, he urges, so that we can have the most accurate and thorough assemblage of data possible for figuring out what happens when we put two species together, modern or Pleistocene.

—Judy Karamazov

"SEARCHING FOR THE HEAD OF THE PALE

(Continued from page 1)

Discovery of the fourth dwelling quickly attracted international attention, and it was suggested that Mezhirich be considered a world historic site, and a museum building be constructed over the excavation. This has delayed working any deeper on the project—though the horizontal area of excavation has been expanded—but will provide much better research conditions when they are able to resume their efforts.

While Soffer has worked most extensively at Mezhirich, she has also surveyed ongoing excavations at 28 other sites, spread out over the tri-republic area of Byelorussia, the Russian Federal Republic, and the Ukraine. All of these sites fall into two general periods of occupation: a few sites predating the glacial maximum of about 26,000 to maybe 22,000 yr B.P. but the majority dating after the glacial maximum of about 18,000–13,000 yr B.P. The sites are generally about 200 kilometers south of what were then glaciated areas—the northernmost sites as close as about 150 kilometers.

In her collective research of these sites, Soffer began by reconstructing the paleoenvironment of the time period. Then she looked at what was happening in terms of climatic instability and its effects on the distribution and predictability of resources. Next she analyzed faunal and lithic remains as well as art, etc. to establish site types. After determining site types, she worked on settlement patterns and finally on socio-political relationships across the sites.

On the average, the sites on the central Russian Plains contain between three and six dwellings, but there is no standard pattern of alignment. At Mezhirich, for example, the four existing sites form a sort of square pattern in relationship to each other, while at others they are all strung in a line. At still other sites,

"The role of mammoth hunters has been vastly exaggerated."

they have been sort of bunched up in a circle. In addition to the dwellings, there are also storage pits at the sites. These storage pits are dug about one meter into the ground—precisely the depth at which paleogeologists' reconstruction indicates the thaw layer to have been.

The arrangement of these pits gives interesting clues about evolving social patterns. At the early site of Radomyshl', there are four dwellings and one large storage pit central to all of them. Yet at the later site of Dobranichevka, about 50 kilometers from Mezhirich, there are four dwellings and each one is surrounded by two to four storage pits. Apparently, storage was controlled by each household as opposed to the kind of central community control of Radomyshl'. "Then," says Soffer, "you come to sites like Mezin, at about the same time as Dobranichevka, and one dwelling will have six out of the eight storage pits at the site. So you're getting a kind of tantalizing idea that something is happening in the control of resources."

Olga Soffer has come to the conclusion, on a number of grounds "that the role of mammoth hunting has been vastly exaggerated, and that there was a good deal of collection of bones that went on with these people." Bone was a prime collectable, as was reindeer antler. The bone could be used to construct dwellings, to burn as fuel, and to make tools. Some percentage of mammoths of course, were killed, but what percentage is hard to determine. "There are huge numbers of mammoths in our sites. At Mezhirich we are up to 149 individual elephants and counting—that's a lot of dead elephants!"

Some people have objected to the collection hypothesis on the grounds that the bones would weather very quickly where exposed, which is precisely what would happen in Alaska today. But people don't take into account the permafrost conditions that

Rear view of mammoth bone dwelling #1, shown on page 1. ***(Photos are figures 6.4, 6.6, The Upper Paleolithic of the Central Russian Plain by Olga Soffer, Orlando, FL: Academic Press. Reproduced by permission).***

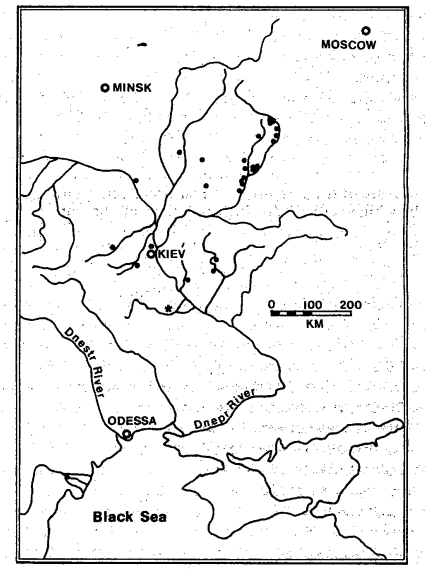
existed in the Pleistocene. In permafrost, "that bone is going to be fresh as a daisy," explains Soffer.

To a large extent, then, what Soffer thinks is happening is that these people were selectively situating their winter camps next to mammoth bone cemeteries. (The winter lasted about nine months then.) They might, for example, go down the river valley to the kind of secluded places where there was a natural accumulation of dead elephants because of a twist in the slow moving water. "They're moving in next to a lumber yard, so to speak, and using the lumber for construction." She assumes that in building their dwellings, they are moving the bone no more than 500 meters. "You've got to make either an assumption that they are sitting next to a bone cemetery or that they are killing them all, because of the distribution of skeletal remains we've found remains of all body parts and all ages, including fetal."

Approximately 16–18 days of work would have been required to construct Mezhirich, due in part to the architectual patterning of the dwellings, an aspect of this site which Soffer finds particularly engaging. "The village itself, if you call it that, did not sort of grow by itself—it was a planned affair." Dwelling #1, for example, was made up almost exclusively of mammoth mandibles. They have found 95 of them stacked in a herring-bone, chin-down pattern, forming the outside wall. Dwelling #2 is almost exclusively long bones. Researchers feel that dwelling #3 was never really up, that they were only in the process of assembling the right parts to do it. Dwelling #4 is most unusual, however, for it sectionally reflects all the other dwellings—there is a mandible section, a long bone section, etc. "In addition," Soffer says, "they are playing games with dwelling #4 in terms of symmetry and mirror imagery. In dwelling #1, the mandibles had all been placed chin-down, but in #4 there are two rows chin-down, one row chin-up, two rows chin-down, one row chin-up. There is even a section where they've got a cranium that is bracketed on both sides by a sequence of scapulae—left scalpula on the left, right scalpula on the right."

Soffer suggests that one think of the site not only as a residential one, but also as a place where construction itself has some kind of ritual significance or symbolic meaning. "This kind of patterning does not happen accidentally; it had to be built according to the master plan, or it might break some sort of ritual taboo."

Aside from construction, another use for the vast amounts of collected bone was for fuel. They had no wood at all, so they burned bone. Soffer says that she has tried this to see how well it would work. She and her colleagues tried to burn the bones of a recently deceased cow from a nearby farm. They had some problem with kindling the fire, but since they were in



Map of central Russian plain showing location of mammoth bone dwelling #1 at Mezhirich * , and other Upper Paleolithic sites ● .

a hurry, they used a few twigs for kindling, though they might have used bone shavings instead. The bones were smokey and smelly for only about five to ten minutes until the fat burned off. She found that the bones had a very long burn with a steady flame and a high heat yield. In constrast to wood, the bone fire did not sputter or spark, so that it would be ideal for inside a dwelling.

The lack of wood at these sites poses a problem for researchers in terms of dating. Radiocarbon dating of bone is less reliable than wood charcoal. In addition, the more dates they obtain at these sites the more "problematic" these dates have become. The inconsistencies in charcoal dates further advance Soffer's suggestion that many of the mammoth bones were obtained from gathering rather than from recent kills.

As of April 26, 1986, however, all radiocarbon dating at these sites has become impossible. Mezhirich sits about 200 kilometers south of Chernobyl where a nuclear reactor recently exploded, spreading carbon isotopes all over Eastern Europe. In fact, all of the sites on the central Russian Plain are very close to Chernobyl and have received a heavy dose of radioactive particles. Thus, any dates on materials which have

OLITHIC DOG"

absorbed these isotopes will give erroneously recent results.

All of the sites reveal, though, that these people did put relatively greater amounts of time and effort into bone as compared to stone technology. They used mammoth ivory and antler as well as the long bones of various fur bearers including the arctic fox, wolf, and marmot. Researchers have unearthed eyed needles, female figurines, and jewelery such as pendants and fossilized marine shells which have been perforated and carried in from 800 kilometers away. At some

"At Mezhirich we are up to 149 individual elephants and counting—that's a lot of dead elephants!"

sites, inventories include painted mammoth crania, scapulae, pelvises, and long bones. They have also uncovered bones with unusual wear and abrasion patterns, which some researchers have suggested are musical percussion instruments. As intriguing as the idea is Soffer maintains the evidence is not conclusive. She feels that the bones could have been used for a number of things that would have given the same kind of wear pattern.

Yet with all of the bones and artifacts that have been uncovered at Mezhirich, no human skeletal remains have been found. In fact, for all of Russia and Upper Paleolithic, they have only seven or eight burials, and these are well east of Mezhirich. These people were not burying each other, Soffer believes, because of the permafrost. "You would really have to be a high-status individual to deserve all that labor." One possibility is that the dead have been buried in cemeteries that are removed from the site. In any case, the people apparently did dispose of human remains, since none have been found at the sites.

The patterned architectural construction, bone tool production, etc., indicates a florescence of complexity over time among the hunters and gatherers of the central Russian Plain. "These people were storing with all the consequences of storage economies. Their mobility had to be reduced for after they had invested all that labor into constructing dwellings and storing food and fuel for winter, they couldn't just pick up and leave."

But then, about 12,000 years ago the whole system collapsed. It moved to a very simple kind of basket foraging as opposed to logistic kinds of storage. According to Soffer's research, there was a little collapse early on and then they tried it again. The big collapse came for a number of reasons, but the primary catalyst was the melting of the glacial icesheet which caused a change in the environment and, of course, a change in resources. The para-glacial steppe environment had supported fairly large animal communities, but as the climate warmed, "a forest environment developed with smaller, solitary animals that could no longer support the mass hunting and storage that had been practiced. They needed to diversify and to become far more mobile." Exactly what happened to these prehistoric people is unknown, but Soffer feels they stayed in the area and just changed with time.

In looking at the 29 sites she has been involved with, a number of issues have arisen which involve a much broader spatial scale than the 180,000 km² the sites cover. Soffer's research on the central Russian plain has increasingly indicated to her that this area was at the "head" of the "Paleolithic dog." "Judging by what we've got on the Central Plain, I would argue that there is a great deal more going on much further east than has been previously recognized." But to answer the questions this hypothesis presents, Soffer feels the whole Eastern European Plain needs to be looked at. At the time of this interview, she was just about to leave for Czechoslovakia, where she will compare Upper Paleolithic sites there to what she has discovered about the central Russian Plain.

—Janis Pendleton

CONFERENCES

The Clovis-Archaic Interface in Western North America

Participants in the recent New Orleans symposium on "The Clovis-Archaic Interface in Western North America" at the SAA meetings heard a series of papers which combined new data with new ideas on the still obscure time period which bridges the late Pleistocene and early Holocene (12,000–7,000 yr B.P.). Human culture of this period begins in the Paleoindian pattern and moves into the Archaic culture, but while the full-blown Archaic pattern is definable in terms of the use of milling stone processing, distinctive features of the very early Archaic have remained frustratingly vague. The stemmed projectile points of the Great Basin area which appear to have followed upon Clovis points are included by some scholars in the Paleoindian pattern; others regard them as marking a new transitional period. To add to the confusion, a variety of regional styles of stemmed points have been found within the Great Basin area, e.g., Lake Mohave, Silver Lake, Haskett.

The New Orleans symposium was organized by Mel Aikins, Judith Willig and John Fagan, all researchers at the bicomponent (Clovis and stemmed point) Dietz Site in south central Oregon. Willig reports that new data included an increasing number of stemmed point sites in association with ground stone slabs and crescents suggesting the gradual development of milling stone use. She feels that the symposium produced a realization of the essential similarity of the Great Basin regional complexes. In addition, says Willig, a new emphasis on the specific paleo-geography of each site emerged at the conference, along with the awareness that each basin may have its own mini-climatic history.

A regional edition of the symposium, entitled "Early Human Occupation in the Arid West—12,000–7,000 B.P.," will be held as part of the Great Basin Anthropological Conference in Las Vegas this coming October.

Papers given at the symposium include:

- C. Vance Haynes (U. of Arizona, Tucson, AZ) Clovis Origin Update
- Alan L. Bryan (U. of Alberta, Edmonton, AB) The Relationship of the Stemmed Point and Fluted Point Traditions in Western North America
- Steven R. Simms (Weber State, Ogden, UT) The Clovis-Archaic Interface in the Eastern Great Basin: A Case of Increasing Subsistence Variability
- Donald R. Tuohy (Nevada State Museum, Carson City, NV) Paleo-Indian/Archaic Culture Complexes from Three Central Nevada Localities
- Robert G. Elston (Intermountain Research, Silver City, NV) Pre-Archaic Assemblage Variability in Grass Valley, Central Nevada
- Jonathan O. Davis (Desert Research Institute, Reno, NV) Two Early Holocene Stratified Sites in Northwestern Nevada
- Judith A. Willig (U. of Oregon, Eugene, OR) Lakeside Settlement Pattern in the Dietz Sub-Basin: Geoarchaeological Context of Fluted and Stemmed Points
- John L. Fagan (Corps of Engineers, Portland, OR) Clovis and Western Pluvial Lakes Tradition Lithic Technology at the Dietz Site in Southcentral Oregon
- Robert R. Musil (U. of Oregon, Eugene, OR) Functional Efficiency and Technological Change: A Hafting Tradition Model for Paleo-Indian North America
- Claude N. Warren (U. of Nevada, Las Vegas, NV) and Carl Phagan (Flagstaff, AZ) Fluted Points in the Mojave Desert: Their Technology and Cultural Context
- William J. Wallace (Redondo Beach, CA) and Francis A. Riddell (Sacramento, CA) Prehistoric Background of Tulare Lake, California
- David A. Fredrickson (Sonoma State U., Rohnert Park, CA) The Borax Lake Basin and Early Complexes in California's North Coast Ranges

MAMMOTH BRIEFS

Daniel Fisher, Department of Geological Sciences and Museum of Paleontology, University of Michigan, reports preliminary excavation and analysis of a new mastodont butchery site in Central Michigan, the Heisler site. The excavated mastondont is an 18-year old male which exhibits butchery patterns somewhat different from those Fisher had seen previously at his Pleasant Lake site (see **Mammoth Trumpet** 1(3):1,7). There are, for example, no apparent limb bone shaft fractures; however there are a series of localized gouges on the top of the head. The gouges, located on the frontal and temporal bones, are rather flat, broad, and subparallel in appearance. The skull roof remained intact and there is no evidence of carnivore modification of the bones. The gouges suggest a chopping process with a sharp tool. Fisher is exploring the idea that people may have been removing a fat deposit (the existence of such a deposit on the top of the head of mastodonts is suggested by comparison to mammoths whose soft tissue has been preserved in a frozen state). It is unlikely the gouges represent an attempt to remove the brain since the brain is easily removed via the base of the skull. Excavation of this pond/peat bog site began in summer of 1985 and is expected to continue for several years.

The **Smithsonian Institute's radiocarbon lab,** directed by **Bob Stuckenrath** faces crippling cutbacks or complete shutdown during the next two years due to the sharp knife of the Gramm-Rudman Law. "Gramm-Rudman," says Stuckenrath, "along with other recent cutbacks in federal monies, dictates that my bureau will be abolished no later than September 30, 1987, and possibly as early as September 30, 1986. Stuckenrath, who has served as the lab's director since 1968, fears that even if the lab is not completely closed, it will not have enough money to operate or will have to be physically moved—a process that is extraordinarily difficult and time consuming. The lab has the reputation of being one of the finest in the world and serves as an invaluable tool for those doing archaeological field work.

SUGGESTED READINGS

On Extinctions

Elliot, D.K. (Ed.) **The Dynamics of Extinctions.** Wiley Press, New York. (In press).

Martin, Paul S. and Richard G. Klein (Eds.) 1984 **Quaternary Extinctions.** University of Arizona Press, Tucson.

Porter, Stephen C. (Ed.) 1983 **The Late Pleistocene** (Volume 1 of series **Late-Quaternary Environments of the United States,** edited by H.E. Wright, Jr.). University of Minnesota Press, Minneapolis.

On Mammoth Hunters

Soffer, Olga 1985 **The Upper Paleolithic of the Central Russian Plain.** Academic Press, Inc., New York.

Gladkih, Mikhail I., Ninel' L. Kornietz and Olga Soffer 1984 Mammoth-Bone Dwelling on Russian Plain. **Scientific American** 251(5):164-175.

On Jean Auel

Bibikov, S.N. 1981 **The Oldest Musical Complex Made of Mammoth Bones.** Naukova Dumka, Kiev. (In Russian).

Smith, Fred and Frank Spencer (Eds.) 1984 **The Origins of Modern Humans.** Alan Liss, New York.

NEW REFERENCES AND RESOURCES

Lewin, Roger 1986 Mountain Goat Horn: A clue to extinction? **Science,** 1986, 232:450.

Telarmachay: Chasseurs et Pastueurs Préhistoriques des Andes I - A synthesis of the work conducted at the prehistoric site of Telarmachay in central Peru, by D. Lavallée, M. Julien, J.C. Wheeler and C. Karlin. Editions Recherche sur les Civilisations, ADPF, 9 rue Anatole-de-la-Forge, 75017 Paris, Tél. 42.27.32.97.

Holliday, Vance T. 1985 Archaeological geology of the Lubbock Lake site, Southern High Plains of Texas. **Geological Society of America Bulletin** 96:1483-1492.

Holliday, Vance T. and Eileen Johnson 1986 Re-evaluation of the first radiocarbon age for the Folsom Culture. **American Antiquity** 51:332-338.

Archeological Services, P.O. Box 386, Bethlehem, CT 06751 is offering a free "Booklet of Archeological Publications" listing over 170 titles for sale as well as membership information and book lists for a number of archaeological societies. Also, an 82 page **Anthropological Bibliography of the Eastern Seaboard** will be sent free of charge upon request. Published by the Eastern States Archeological Federation in 1963, it includes more than 2500 entries on the archaeology, history, and ethnography of eastern Indians.

For those interested in human behavior and evolution, the International Society for Human Ethology publishes a quarterly **Human Ethology Newsletter.** The latest issue includes a number of good book reviews, conference notes, and a current literature list. For a sample copy and membership information ($10/yr, $5 students), write Robrt M. Adams, Dept. of Psychology, Eastern Kentucky University, Richmond, KY 40475.

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(see page 2 for details)

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UPCOMING CONFERENCES

August 12-15, 1986 NORTH AMERICAN PALEONTOLOGICAL CONVENTION, Boulder, CO.
Topics include: Mesozoic communities on land and sea, conceptual problems and analytical tools, community paleoecology and habitat systems, paleobiology of the major invertebrate taxa, golden age of dinosaurs, North American cave taphonomy, and taphonomy of open air sites. Contact Dr. Robert Bakker, Museum Annex, Hunter Building, Campus Box 315, University of Colorado, Boulder, CO 80309-0315.

August 25-29, 1986 12th IAS SEDIMENTOLOGICAL CONGRESS, Canberra, Australia.
For details contact Dr. K.A.W. Crook, Department of Geology, Australian National University, PO Box 5, Canberra, A.C.T. 2600.

August 25-29, 1986 5th INTERNATIONAL CONFERENCE ON ARCHAEOZOOLOGY, Bordeaux, France.
The conference is soliciting papers and ideas in the field of archaeozoology, defined as the "study of animal remains connected with the settlements of ancient human groups." Contact Dr. Peter Ducos, Conference ICAZ, C.R.E.P., St. André de Cruzieres, France.

September 1-7, 1986 WORLD ARCHAEOLOGICAL CONGRESS, Southampton and London, England.
For details contact Peter Ucko, Department of Archaeology, University of Southampton, England SO9 5NH.

Note: UISPP has been changed to September, 1987, see below.

October 16-19, 1986 SOCIAL SCIENCE HISTORY ASSOCIATION 11th Annual Meeting, St. Louis, MO.
Contact Program Chair Richard Steckel, Department of Economics, Ohio State University, Columbus, OH 43210; 614/422-5008 or 6701; or Co-chair D'Ann Campbell, Department of History, University of Indiana, Bloomington, IN 47405; 812/335-3849.

October 20-24, 1986 MEXICAN ASSOCIATION OF BIOLOGICAL ANTHROPOLOGY Fourth Biennial Congress, Mexico City.
For information write Asociación Mexicana de Antropología Biológica, c/o Instituto de Investigaciones Antropológicas, Cuidad Universitária, Delegación Coyoacan, 04510 Mexico D.F., Mexico.

October 9-11, 1986 GREAT BASIN ANTHROPOLOGICAL CONFERENCE, Showboat Hotel, Las Vegas, Nevada
The Conference will include the symposium "Early Human Occupation in the Arid West, 12,000-7,000 B.P." For arrangements and inquiries contact Jeanne Wilson Clark, Nevada State Museum & Historical Society, State Mail Complex, Las Vegas, NV 89158.

October 24-25, 1986 SMITH SYMPOSIUM: LATE PLEISTOCENE AND EARLY HOLOCENE PALEOECOLOGY AND ARCHEOLOGY OF THE EASTERN GREAT LAKES REGION, Buffalo Museum of Science, Buffalo, New York.
Sessions include: Geological and environmental background, integrated studies of the Hiscock and other late Quaternary sites, paleoecological studies of various groups, and archaeological studies. Direct inquires to Dr. Richard S. Laub, Geology Division, Buffalo Museum of Science, Humboldt Parkway, Buffalo, NY 14211.

October 30-31, 1986 EASTERN STATES ARCHAEOLOGICAL FEDERATION Annual Meeting, the Wilmington Hilton, Wilmington, Delaware.
Contact Kevin Cunningham, Location Studies, Delaware Department of Transportation, Box 778, Dover, DE 19901.

November 7-9, 1986 19th ANNUAL CHACMOOL CONFERENCE, Calgary, Alberta, Canada.
This year's theme: Diet and Subsistence: Current Archaeological Perspectives. For additional information write to: Programme Committee, Department of Archaeology, University of Calgary, Calgary, Alberta, Canada T2N 1N4.

November 10-13, 1986 GEOLOGICAL SOCIETY OF AMERICA, Annual Meeting, San Antonio, Texas.
Contact S.S. Breggs, Geological Society of America, PO Box 9140, 330 Penrose Place, Boulder, CO 80301.

December 3-7, 1986 AMERICAN ANTHROPOLOGICAL ASSOCIATION 85th Annual Meeting, Franklin Plaza Hotel and Holiday Inn Center City, Philadelphia, PA.
Deadline for all submissions is April 1, 1986; forms to be provided in January, 1986 AN. Program Editor to be announced.

May 25-27, 1987 GEOLOGICAL ASSOCIATION OF CANADA - MINERALOGICAL ASSOCIATION OF CANADA Annual Meeting, Saskatoon, Saskatchewan, Canada.
Contact W.O. Kupsch, Department of Geological Sciences, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0.

July 31-August 9, 1987 12th CONGRESS, INQUA, Ottawa, Ontario, Canada.
Contact Dr. Alan V. Morgan, Department of Earth Sciences, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1.

September 1-7, 1987 UNION INTERNATIONAL DES SCIENCES PREHISTORIQUES ET PROTO-HISTORIQUES, XIth Congress, Mainz, West Germany.
For details contact Dr. K. Weidemann, Generaldirektor des Römisch-Germanischen Zentralmuseums, Ernst-Ludwig-Platz 2, D-6500 Mainz, Federal Republic of Germany.

November 12-15, 1987 EASTERN STATES ARCHAEOLOGICAL FEDERATION Annual Meeting, Charleston, South Carolina.