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 extinction.

Graham, one of a handful of paleontologists, 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 far.

(Continued on page 5)

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

"SEARCHING FOR THE HEAD OF THE PALEOLITHIC DOG"

Olga Soffer-Robyns, 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 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 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 Paleographe and a strong advocate of multidisciplinary research, Soffer was allowed to move beyond archival research to field work.

Soffer went to the Ukrainian excavation site of Meshirich, 160 kilometers south of Kiev, that had already yielded three mammoth bone dwellings. Nineteen, Kortets, the paleontologist in charge of the site, had been taking core samples with the assistance of an archeologist 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)

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)
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 relative 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 archaeologists/staff respond 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 Education Act.

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's staff using whatever criteria suits our fancy. The only requirement is 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.

CRP 3 (1986)

Location of Sites in CRP

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. We don't expect it to 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:


Elephant Hunting - We apologize for misspelling Clem Coeetee and David Cumming's names. Although unintended, the way it was written made it seem like Zimbe was in Rhodesia. Zimbe, 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.
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
"wonder", 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解决 hole has been filled by sediment which
formed at different 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 prevent large numbers of fossilized
animals were removed from this superficial layer.
Fortunately Carr found out who had vandalized the site
and was able 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 layer of sandy soil and
reddish-brown sediment mixed with increasing amounts
of clay as it goes deeper. This is a layer 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-animals 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 B.P. date which is the only date for the site
so far.

Also at this hearth area we found a fairly large
number of artifacts, including several made out of
cheet or flint which is not indigenous to this part of
Florida. In fact, the nearest quarries would be in the
Tampa area for 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 flacks,
indicating that some tool reworking or
manufacturing was going on. Some tools are made 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 find 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
artefacts of the much more recent Tequesta Indians have
been found at the Cutler site. A few bone tools have
turned up, mostly 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
moldable but a fairly large number of human teeth,
as well as a long bone of a femur but no pelvic
bones. Not one bone is intact, and most are pretty
fragmentary and broken. Disinterment by animals
might as well as explain some of the 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 Divi-
sion 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 cemented sediment. It took the ex-
cavators 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 non-extinct dire wolf.
About 3-4 cm from the dire wolf, on the same horizon-
tal 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
deep 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 definite-
ly part of this concrete 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 still at this level, but includes several
charred bones, one of which may have derived from an
extinct llama, Palaeolama mirifica, discovered in direct association with other extinct faunal bones.

Faunal bones are what the concreted level has dis-
closed in abundance; many of them are cemented
with the associated sediment. Morgan and Emslie have
identified over 70 species, a like number of them
extend. There's a great diversity. 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
exterminations 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, then developed the structure
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 kinda handles. After two years of ac-
tively 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 saved, Carr
succeeded in having it designated an "archaeological
zone." This allowed them to go in and do salvage pro-
jects 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 Historical 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 he had been in his family 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 van-
dalizing it, in fact in a week's time moved over a thou-
sand 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 American Historical Conser-
vancy, a nonprofit group. "And it is through his generosity, and through the efforts of the Conser-
vancy, combined with our Historic Preservation Divi-
sion, that we've been able to direct the work on the
project."

According to Carr, work is due to continue there
until at least as October, 1986, though the land is still
scheduled for eventual development. Of the 22 con-
tiguous 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-projests 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 im-
possible, to ensure that adequate salvage operations
are performed on endangered sites. "We're 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
society. 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 ingrained that it would not be worth bothering to refute it 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 limiting 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 this was one of the oldest inventions in the world, and one that you may take 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 problematic! Also in the Ukraine, they have found carved mammoth tusks straightened into hoes—one can figure out how they accomplished the straightening. They have found burnt bone parts; and it takes a hot, hot fire to burn bone. The speculation is that tresses found running from the hearth to the outside were brought in and burned to create an artificial fireplace. There were, anyhow, kilns in Czestochowa 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 "cib rivets" that occurs when horses get bored and start chewing on things. Cib rivets are found 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-Magnon people 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.

Pollens 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, clevron, 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 the most remarkable of all the artifacts Auel describes is a chapeau worn by a child. It has been equipped with a pin and a scarf, and goes to show how even a child can maintain a degree of human nature.

In the end, one's judgement of any particular reconstruction of early human culture, whether in science or literature, depends on one's own overwhelming humanism, looking at human nature. Whatever our view may be, Auel's talent leads us to suspend judgement long enough to exercise a distinctive trait of humans, imagination. It is imagination, the ability to say "what if," to play with contrasting viewpoints, without mistakes one of the most important things that can be said of this author, her imagination. We are drawn back in time to see, in what we may call, in a phrase of Yeats', "The dreaming of the bones."

"—Michael D'Altonzzi

Editor's note: Jean Auel acknowledges her indebtedness for much of her anthropological information to Dr. Olga Soffer, whom she cites as the leading expert in the United States today on the Ice Age adaptations of Russia. For her own research in the Soviet Union see the article "Searching for the Heart 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 the Pleistocene, he studied carcass-bearing animals in a cave site which was the den of a saber-toothed cat that preyed on juvenile mammoths. The thesis studied an interest in obtaining an overview of this type. activity, the make-up of mammalian communitites. In this context, Graham first examined the terminal Pleistocene extinctions, and it is in this context of the functioning of mammalian communities that we have come 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 has been described by Semken as "disharmonious" assemblages, that is, mixed assemblages of species which do not co-occur in present day environments, like is the New Paris #4 in Pennsylvania, dated at 11,000 yr B.P., in which lemming, shrew and ground squirrel (which today would be found only in the boreal 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 of 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 knockers 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 structure from Pleistocene to the present, but there is no major universal equilibrium over long periods of time. Therefore, studies of ecological community relationships can only be short-span explanations of ancient data, but we can examine and understand primates 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 recognition of the transition of the 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 groups with others at different rates along its distribution line to a continual shuffling, dealing and reshuffling of cards. During the period of more equitable climates which prevailed during the coldest part of the Pleistocene, species may have been forced to live together in broader geographic areas.

As climatic extremes of hot and cold emerged, Graham notes that the environmental gradient along which species began to sort themselves out.

Unmerosable Cause of Extinction "1"

Eccoon 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 in 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 vegetation mosaic with their patches 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 interspecies interactions eat different parts of the same plant. Changes in the available flora mean a readjustment of this changing foraging pattern and heightening competition. For instance, if one species extirpates another 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 Lemmings, 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 have been a relationship between the numbers of similar species or genera present in one habitat.) Graham does not think it immediately evident that climatic change stresses species, whose diet is made up of large animals, more or less than it does generalists, only if 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.

The key question for him, as he considers the overkill hypothesis vis-a-vis his own environmental model of the Pleistocene extinctions is, through 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 and a large animal 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 that the environment failed to evolve a model with its stressed habitats. Bison, caribou, and other survivors may have been pre-adapted to the climatic change by blind luck or more by a friendly counterproponent 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 far; other methods cannot deal with such recent dates. Tandem accelerator dates still go on as far back as 60,000-30,000 yr B.P.; and some researchers may have pushed them as far back as 90,000-60,000 yr B.P., at that point bone deterioration and perminalization 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 potential effects of environmental changes 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 mega fauna 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 conclusive answers. "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. 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 says, so that we can have a comprehensive and thorough assemblage of data possible for figuring out what happens when we put two species together, modern or Pleistocene.

-- Judie Karamazov
"SEARCHING FOR THE HEAD OF THE PALE"

(Continued from page 1)

Discovery of the Mammoth 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 been debated for any longer than 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 also has surveyed ongoing excavations at 28 other sites, spread out over the tri-republic area of Byelorussia, the Russian Federation 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 Plain 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 four-petal pattern in relationship to each other, while at other sites they are all strung in a line. At still other sites, 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—and at the depth at which paleo-geologists' 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 Dobranichekov, about 30 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 central community control of Radomyshl'. "Then," says Soffer, "you come to sites like Mezin, it about the same time as Dobranichekov, and one dwelling will have six out of the eight storage pits at the site. So you're getting a kind of totalitarian idea that something is happening in the control of resources."

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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, or as fuel, and to make tools. Some percentage of bones of, 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 bit of dead-elephant!"

Some people have objected to the collection hypothesis on the grounds that the bones would were not exposed, which is obviously what would happen in Alaska today. But people don't take into account the permafrost conditions that 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 architectural 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 scalpulae—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 a hurry, they used a few twigs for kindling, though they might have used bone shavings instead. The bones were smoky and smell 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 contrast 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
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 eagle. They have unearthed eyed needles, female figurines, and jewelry such as pendants and fossilized marine shells which have been perforated and carried in from 800 kilometers away. At some

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sites, inventories include painted mammoth crania, scrapers, pendants, and long bones. They have 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 patterns.

Yet with all of the bones and artifacts that have been uncovered at Mezhrich, 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 Mezhrich. 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 mobile lifestyle 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 ice sheet 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 sites 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 that 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 to what she has discovered about the central Russian Plain.

—Janis Pendleton

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MAMMOTH BRIEFS

Daniel Fisher, Department of Geological Sciences and Museum of Paleontology, University of Michigan, reports that the excavation of a mammoth butcher site in Central Michigan, the Heider site. The excavated mastodont is a 13-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 cuts or complete shutdown during the next two years due to the state's knifed budget. The lab's operations are threatened by removal of the lab's head, Harry A. Griffin, to the Smithsonian's Paleobiology Department.

On Extinctions

On Mammoth Hunters
Gladkii, Mikhail I., Nielel, V. Korzer and Olga Sefer 1984 Mammoth-Boar Dwelling on Russian Plain. Scientific American 251(5):164-175.

On Jean Auel

NEW REFERENCES AND RESOURCES


Telmachay: Chasseurs des Phaléolithiques des Andes I - A synthesis of the work conducted at the prehistoric site of Telmacahay in central Peru, by D. Levalle, M. Julien, J.C. Wheeler and C. Karrin. Editions Recherches sur les Civilisations, 8 rue Anatole-de-la-Forge, 75017 Paris, Tel. 42.27.32.97.


Archeological Services, P.O. Box 368, 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 archeological 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 archeology, 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 Robert M. Adams, Dept. of Psychology, Eastern Kentucky University, Richmond, KY 40475.

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 basin systems, palaeobiology of the major insectivore taxa, golden age of dinosaurs, North American cave taphonomy, and taphonomy of open air sites. Contact Dr. Robert Bakker, Museum Amne, Hunter Building, Campus Box 315, University of Colorado, Boulder, CO 80309-0135.

August 25-29, 1986 12th IAS MAMMOTHEOLOGICAL CONGRESS, Canberra, Australia. For details contact Dr. R.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 ARCHAEOZOLOGY, Bordeaux, France. The conference is soliciting papers and ideas in the field of archaeozoology, defined as the "study of animals remains connected with the settlements of ancient human groups." Contact Dr. Peter Doves, Conference ICAZ, C.R.E.P., St. Andre de Cruisieres, France.

September 1-7, 1986 WORLD ARCHAEOLOGICAL CONGRESS, Southampton and London, England. For details contact Peter Ucko, Department of Archaeology, University of Southampton, England. Note: UISSPP 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 Siekert, Department of Economics, Ohio State University, Columbus, OH 43210; 614-292-5008 or 6701; or Civilizations and History, Department of History, University of Indiana, Bloomington, IN 47405; 812-335-8849.

October 29-31, 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, Ciudad Universitaria, Delegación Coyocán, 04510 Mexico D.F., Mexico.

October 9-11, 1986 GREAT BASIN ANTHROPOLOGICAL CONFERENCE, Showboat Hotel, Reno, Nevada. The Conference will include the symposium "Early Human Occupation in the Great West, 12,000-10,000 B.P." some portion of the symposium, and includes a paper "The Zuni Carbon14 Program" by David S. Demsky. Contact Dr. Renee W. M. Colton, Chair, Department of Anthropology, University of Nevada, Reno, Nevada 89557.

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: Geology and environmental background, integrated studies of the Hiockus and other late Pleistocene sites, paleoecological studies of various groups, and archeological studies. Direct inquiries to Dr. Robert D. Libby, Geological Section, Buffalo Museum of Science, Humboldt Parkway, Buffalo, NY 14210.

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

November 7-9, 1986 1986 ANNUAL CONGRESS, CONGRESSAL CON- FERENCE, Calgary, Alberta, Canada. This year's theme: "Dist and Subsistence: Current Archaeological Perspectives." For additional information write to: Programme Committee, Department of Archaeology, University of Calgary, Calgary, Alberta, Canada T2N 1N4.


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. Abstracts must be provided in January, 1986. A.N. 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. Kupch, Department of Geological Sciences, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W9.

July 21-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, XIXe 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.


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We're having a limerick contest (The editor did not loudly protest) A prize will be remitted 1987 (For best limerick submitted To the Trumpet by the last day of August) (see page 2 for details)