MAMMOTH TRUMPET

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Center for the Study of Early Man

University of Maine at Orono
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NEW DATE FOR OLD CROW CARIBOU FLESHER

Caribou tibia flesher from Old Crow. *(Photo courtesy of Robson Bonnichsen)*

Thirty-eight samples of bones from various Old Crow localities have recently been dated (in some cases re-dated) by accelerator mass spectrometry. The results may help to put Old Crow into a more solid chronological framework, but they have provided a few surprises as well.

Of the 38 samples, four were antler, one was from a tusk, and the remainder were of bone collegen. The dating was performed at the Simon Fraser University facility in the Tandem Laboratory at McMaster University in Hamilton, Ontario.

Four specimens were undoubted artifacts, including a caribou-tibia flesher, two caribou antler wedges, and a caribou antler billet. Previously dated to 27,000 yr B.P., the caribou flesher yielded a new date of only 1350±150 yr B.P. The other three artifacts yielded similar late prehistoric dates.

The other 34 samples were mainly from mammoth bone—flakes, cores, and specimens with green-bone fractures. These specimens are interpreted by some to represent the result of human modification. Old Crow has mammoth material dating back to more than 1 million yrs B.P., but the flaked and broken mammoth bone specimens dated here range from 25–45,000 yrs B.P. Older mammoth bones do not show similar breakage patterns, according to Richard Morlan, project archaeologist.

Seven of the specimens were found *in situ* beneath glacial Lake Old Crow clays and on or above an erosional feature called Disconformity A. Dates on these specimens span the period from 40 to 25,000 years ago. This suite of dates, Morlan comments, closely parallels the dates on the redeposited mammoth bones that may have been altered by people.

The dating is funded in part by grants from the National Science and Engineering Research Council of Canada to Simon Fraser University's Drs. Erle Nelson, John Southon, and John Vogel in collaboration with Richard Morlan from the National Museum of Man.

—M. Sorg

COMING OF AGE IN CALIFORNIA

Perhaps the most controversial topic in the field of archaeology is the question of when humans first crossed the Bering Strait and migrated into the New World. Archaeological sites with reported dates of more than ten thousand years have long been the subject of heated debate. This past November marked the 21st anniversary of one such site, made famous not only by its proposed age of 200,000 years but also by the distinction of being the only dig in the Americas directed by the late paleontologist Louis S.B. Leakey.

The Calico site is located 7 km northeast of Yermo, California, on the southeastern flank of the Calico Mountains in the central portion of the Mojave Desert. Classified by its excavators as a quarry and habitation site, it lies in a Pleistocene alluvial fan built from water-borne silts and stones that originated from a canyon to the west. The fan overlooks the basin of ancient Lake Manix, which dried up between 15,000 and 18,000 years ago and existed while the site was active. A fault opened up several millennia ago and cut off the flow of debris to the fan.

An archaeological survey of the Manix Basin was first begun in 1954 under the direction of Ruth Dee Simpson, then of the Southwest Museum in Los Angeles and now the director of the Calico site.

In 1958, Simpson had found enough surface materials to show scientists in Europe. While there, she met Dr. Louis Leakey, who asked her to search for the material underground and *in situ*—in its original stratigraphic context. In a commercial bulldozer cut Simpson and her crew later identified Lake Manix lithics in what they believed were original deposits. On his first trip to the site in May 1963, however, Leakey determined that it was in reality a secondary deposit and therefore undatable. He then wandered about the canyons and hills and selected the spot that has now become the Calico site.

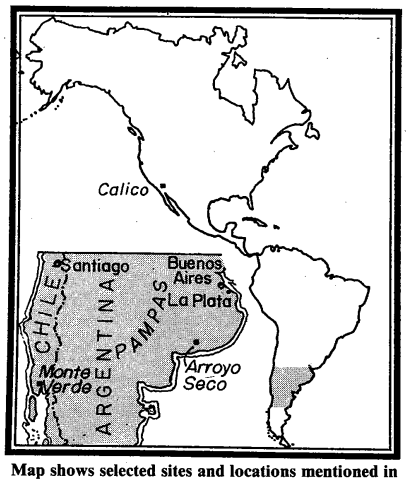
(Photo by Daniel J. Griffin)

The Calico site, looking northeast. Large roof (center) covers Master Pit #1. To right is covered trench leading back to Master Pit #2, also covered. "T" trench is visible behind (above) Master Pit #1. At far right are rows of unmodified siliceous rocks removed during excavation.

From November 1964, when excavation officially began, until his death in 1972, Leakey aided immensely in the Calico project. Although only able to visit in person two or three times a year, he raised valuable support from the National Geographic Society, the University of Pennsylvania, the Wilke Foundation, and the Isotopes Foundation at UCLA.

The first season of excavation saw the beginning of what is now known as Master Pit 1. The first 48 inches of this six by six m pit was sterile. Then a number of lithics were found of which Leakey eventually accepted seven as genuine stone tools. Master

(Continued on page 4)



Map shows selected sites and locations mentioned in the articles of this issue.

UPDATE ON MONTE VERDE

After seven field seasons, Tom Dillehay, archaeologist from the University of Kentucky, has finished excavating Monte Verde, one of the most rewarding Pleistocene sites in all of South America. Located in cool, wet, forested country west of the Andes in south-central Chile, Monte Verde did not start off looking rewarding, its beautiful name notwithstanding. For the first two field seasons, Dillehay had doubts about whether it was an archaeological site at all.

But by the time **Mammoth Trumpet** reported on Monte Verde in its first issue in winter, 1984, a de-

(Continued on page 5)

INSIDE . . .

CENTER NEWS

Henry Nevison

In Search of the First Americans, A 50-minute documentary on the efforts by the Center for the Study of Early Man to organize multi-disciplinary research in the pursuit of America's earliest heritage, has been awarded a bronze medal at the 28th Annual International Film and TV Festival of New York. Produced by Henry Nevison of the University of Maine's Public Information Service, the videotape was one of 1,269 entries in the general category of Film, Video, Slide and A/V productions, and the only one to win an award in the sub-category of Anthropology. This is Nevison's fourth international award in the past four years, and we are understandably delighted to be a part of it. Anyone interested in the availability of this tape should contact the Center.

CALL FOR PAPERS

Once again the Center is asking for your contribution to **Current Research in the Pleistocene.** Approximately three typed pages of original and current research is all that is requested. Remember the deadline is January 31, 1986! For more information and guidelines contact the Publications Coordinator at the Center. Jim Mead had been the editor of **CRP** here at the Center for two years. He will continue his editing of Volume 3, but from his new desk at the Department of Geology (Northern Arizona University) and the Museum of Northern Arizona, Flagstaff. All manuscripts to be published in **CRP** should be sent directly to Jim at the address below. Administration of the journal will still be handled at the Center's headquarters in Orono, Maine.

Send **CRP** manuscripts to: Jim I. Mead, Editor, **Current Research in the Pleistocene,** Department of Geology, Box 6030, Northern Arizona University, Flagstaff, AZ 86011, U.S.A.

TWO NEW BOOKS

The Center for the Study of Early Man is proud to announce the upcoming publication of two new, eagerly anticipated volumes. Both books, from the Symposia series of the Peopling of the Americas program of publication are valuable contributions to the field and present new and sometimes controversial interpretations of research at sites from the Yukon to Patagonia.

New Evidence for the Pleistocene Peopling of the Americas, edited by Alan L. Bryan, presents 23 papers, some in Spanish and Portuguese with English abstracts. It offers a comprehensive review of ongoing research, with an emphasis on South America.

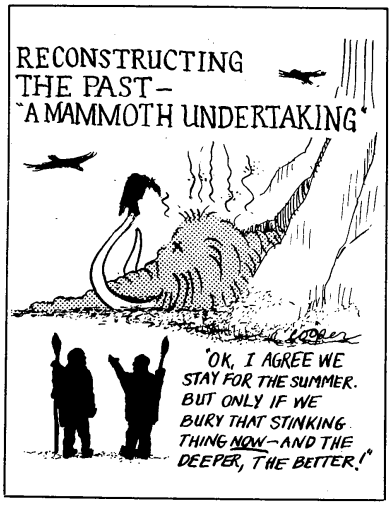
Alan L. Bryan is Professor in the Department of Anthropology at the University of Alberta in Edmonton. He and his wife, Dr. Ruth Gruhn, have made numerous trips through South America and have pioneered the excavation and interpretation of several early rockshelter sites in Brazil. **New Evidence** is the second major volume Bryan has edited on the early peopling of the Americas.

Environments and Extinctions: Man in Late Glacial North America. edited by Jim I. Mead and David J. Meltzer presents new conceptual frameworks for reconstructing and interpreting late Quaternary cultural and environmental remains. It concludes with a transcript of a roundtable discussion and debate which took place at the SAA symposium from which the book emerged. The volume contails a wealth of primary source data, tables, site maps, and figures.

Jim I. Mead is Assistant Professor in the Department of Geology at Northern Arizona University and a Scholar-in-Residence at the Museum of Northern Arizona. His research interests are late Quaternary paleoenvironmental reconstructions of arid North America, with an emphasis on vertebrate paleontology.

David J. Meltzer is Assistant Professor in the Department of Anthropology at Southern Methodist University. His research emphasizes paleoenvironmental reconstruction and evolutionary theory, especially human adaptations during the Late Pleistocene in North America.

See page 6 for complete tables of contents and ordering information.



Corrections and Brief Comments

Conferences - 12th International Radiocarbon Conference. Richard Gillespie of the University of Arizona brings to our attention that not all accelerators used for AMS are tandems, and tandem mass spectometry is a separate field which does not necessarily involve accelerators at all.

Early Holocene Burial at Wilson-Leonard Site - Al B. Wesolowsky is presently at Boston University; at the time of the "Leanderthal" work, he was with the University of Texas at San Antonio.

Arroyo Seco - The avocational archaeologists who discovered the Arroyo Seco Locality are Alfredo Moran, Alda Elgart, and Julio Mottola. Members of the multi-disciplinary team that began the excavations in 1979 include geologist Francisco Fildalgo, paleontologist Edwardo Tonni, physical anthropologist Alberto Marcellino, archaeologist Monica Salemme, and the Radiocarbon Lab of La Plata Museum. One brief correction: we had incorrectly labeled Macrauchenia as a camel; even though it resembles the camel, it is not one.

KEEPING THE TRUMPET ON KEY

As each new issue of the **Mammoth Trumpet** is prepared and published, we continue our efforts to fine-tune its purpose and its policies. In our role as "bridge," we attempt to report on a wide range of research and ideas. No idea is entirely free of controversy, but our attempt is to cut through the polemical masks and expose the ideas themselves—rather than promote any particular viewpoint.

We continue to need your support and communication. Keep us informed about new research, new publications, and new opinions. Our policy is not to accept advertisements; however, we will report receiving new references and resources that we feel are of general interest. If you strongly agree or disagree with material that appears in the **MT**, let us know. The closer we are to keeping a finger on the pulse of research, the greater the service we are able to provide.

Are You Having Trouble Receiving Your Trumpet?

Some of our members have reported difficulty receiving their **MT.** The newspaper is sent third class currently. This means that, if you move, it will not be forewarded by the post office; so, let us know about any change of address. If you have been having difficulty, let us (and your local Postmaster) know. If you wish to receive your **MT** first class, simply send us an extra $1.00.

MAMMOTH TRUMPET

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Gustavo Politis:

ARCHAEOLOGY IN ARGENTINA

Gustavo Politis (CONICET-Museo de la Plata) represents the younger generation of an Argentinian archaeological tradition that reaches back to the late nineteenth century, developing out of the pioneering work of three major scholars, Francisco Moreno, Juan B. Ambrosetti and, especially, Florentino Ameghino. Starting at the age of thirteen, Politis joined a small local group of amateur archaeologists and began making surface collections. His first interest in early human prehistory came from reading the only book on archaeology then available to him – Ameghino's **La Antigüedad del Hombre en el Plata (Antiquity of Man in El Plata).**

The title hints at the hypothesis that brought Ameghino, and with him Argentinian archaeology, to international prominence. He made bold claims for human antiquity in South America, based on his discoveries of human artifacts associated with extinct Pleistocene megamammals. Mainly because of the excitement generated by this hypothesis, in 1910 the Smithsonian sent an expedition to Argentina and Peru, led by physical anthropologist Ales Hrdlička.

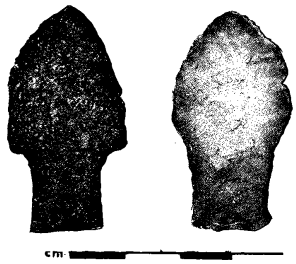
Museo de la Plata *(Photo courtesy of Gustavo Politis)*

"What happened," comments Politis, "was that Hrdlička criticized some of the Ameghino hypotheses with success." But – "even when we can't accept the great antiquity that Ameghino claimed for the human occupation of the Pampa region, we have to realize that in several hypotheses he was correct. Because man and the extinct megamammals *were* there together. He exaggerated the chronological interpretation, but he didn't have any additional information. He was working in isolation – eighty years ago."

Ameghino specialized in the Pampa region because he had grown up there, studying and collecting materials since he was a teenager. In the last three or four decades, however, archaeological attention has shifted to northwestern Argentina, largely because of the quality of sites, as well as the work of Rex Gonzalez, who is considered "probably the most important contemporary archaeologist in Argentina," over the past thirty-five years, and secondarily to Patagonia and Tierra del Fuego. Politis himself, however, has carried on the work of his first mentor in the Pampa region, and, as reported last issue in **Mammoth Trumpet,** has uncovered sixteen possibly-Pleistocene/early Holocene human skeletons at the Arroyo Seco site along with bones of both modern and extinct animals.

Indeed, for Paleoindian material, the Pampa region (along with Patagonia), is more productive than northwestern Argentina, where people have typically concentrated on the very late prehistoric period through the Inca Period. In the next two or three years, Politis would enjoy beginning work in that area himself, because he is interested in the transition from Preceramic to early Archaic, from hunter-gatherer to early food-producing society. He is not sure whether the dearth of Paleoindian material there is a genuine scarcity or simply a result of people's not looking for it.

But "the Pampa has an advantage over all the other regions" – including the Northeast, the Central Hills, and the Central West (near the border with Chile), "which is the good sedimentation, the good Quaternary strata we have there. The Pleistocene and Holocene strata are very thick with good bone preservation, so there is a good possibility of finding well-stratified sites. While in the northwest of Argentina, the Pleistocene and Holocene sediments are thinner and heavily eroded. You have to go to caves and special places to find well-stratified stuff. And it's the same, probably, in Patagonia: there are very good caves, but almost no open-air Paleoindian sites."



Fishtail projectile points found by Nora Flegenheimer at the Cerro La China site in the Argentine Pampas region. A radiocarbon date of 10,720 years ago was obtained from the level in which the points were found. *(Photo courtesy Gustavo Politis)*

How many Paleonindian sites exist in Argentina currently? In a sense, that's hard to say, because the backlog of samples submitted for radiocarbon dating exceeds the capacity of the country's two radiocarbon labs. Established only in the late seventies, the overworked labs in La Plata and Buenos Aires have a limited capacity to process samples from all the archaeologists, paleontologists, geologists, and botanists. Sometimes the scientists may ask for international help, for free dates by labs in the United States or elsewhere. But usually, in order for publication not to come to a standstill, an article must be sent out with few or no radiocarbon dates, followed an indefinite period of time later by a short notice saying, "we got this or that date." According to what dating has been accomplished, though, there are about seven Argentinian sites that are definitely Paleoindian, mainly rock shelter occupational sites or light-occupational campsites. There is only one open-air kill site (La Moderna).

". . . the Pampa has an advantage over all the other regions . . . which is the good sedimentation, the good Quaternary strata we have there."

A large percentage of Argentinian archaeologists believe in a pre-Clovis occupation of South America. "Because we have well-defined archaeological contexts, not only in Argentina but also in other South American countries, which are Clovis-age or even several millenia earlier. . . very few believe that the first people who came were Clovis hunters." Common to sites in Patagonia and one site in the Pampas are fishtail projectile points that most archaeologists suspect will become a diagnostic tool for dating Paleoindian strata. In one place (e.g., Level II of Los Toldos) there is an underlying level *without* fishtail points. Yet despite uncertainty in the dating, opinion seems unanimous that the first humans arrived in Argentina with sore feet from trekking down the North American continent from Beringia. No one that he is aware of, at any rate, accepts Antarctic or Pacific entry.

Most of these archaeologists received their training at the universities in La Plata – as Politis did – or in Buenos Aires, although there are more minor faculties scattered about the country. La Plata and Buenos Aires form a nice study in contrasts. Their archaeology departments are about the same size – and a remarkably great size it is, the La Plata faculty numbering about twenty, mainly archaeologists, with two or three paleontologists. "I assume the natural science orientation we have in La Plata is probably because we are still carrying on Ameghino's influence, as well as that of other early twentieth century naturalists. The two universities have completely different orientations. We are oriented towards natural science. We take a lot of zoology, archaeology, geology, and

Gustavo Politis

Quaternary studies. The people who are studying at Buenos Aires take a lot of history, philosophy, Classical archaeology, and Classical history." In the beginning, they were more interested in ethnohistory, Archival research, and physical anthropology. But that has changed in the last two decades, as the university faculty at Buenos Aires shifted towards the kind of archaeological interdisciplinary focus that exists now at La Plata.

Archaeology as an academic career began in Argentina in the 1960's. People get their (Licenciatura) degrees in anthropology in an undergraduate program lasting six years (there are no Masters degrees). The only two institutions granting the Ph.D. in the discipline are Buenos Aires and La Plata, whose Faculty of Natural Sciences is actually housed in the same building as the Museo de la Plata, as befits its natural-science orientation. It grants a Ph.D. in natural science, oriented to anthropology, while Buenos Aires grants a Ph.D. in philosophy from the College of Philosophy and Literature, oriented to anthropology. In addition to two or three paleontologists, the La Plata faculty counts five or six archaeologists interested in the Paleoindian Period including Augusto Cardich, Estela Manzur-Franchomme, Antonio Austral, Monica Salemme, Nora Flegenheimer, and Laura Miotti.

There are fewer sources of funding in Argentina than in the United States, maybe three or four places – but then, not so many applicants competing for the money. CONICET provides most of it; so do the universities, two or three governmental institutions, and a few international sources: National Geographic is supporting research in Tierra del Fuego led by Orquera and Piana, in the Northwest led by Rassino, and in Northern Bolivia led by Argentinian archaeologists Dougherty and Calandre. Two professional associations exist. The relatively new College of Graduates in Anthropology is a sort of non-academic professional union which nevertheless only admits people with a degree in anthropology. But amateurs may join the Argentine Association of Anthropologists, and in fact deliver some papers at the national biannual meetings.

Politis rather expects some upsurge of interest in anthropology and archaeology with the installation of the new government, which has promoted a revived emphasis on Argentina's Latin American (over its European) roots. Yet the interest may not originate with the modern Argentinian Indians, who have so far shown little propensity (possibly because they are such a small fraction of the population) to lay claim to supposed ancestral sites, as their counterparts have at times done in North America.

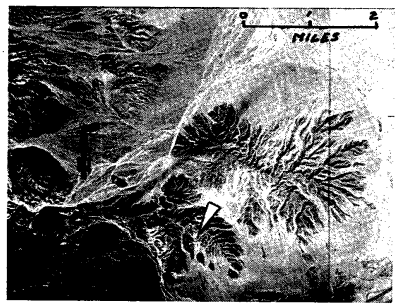
Unlike, say, Peru, which has sprouted a large number of American, Japanese, and French projects, Argentina has very few outsiders working there. Its international cooperation is chiefly with Chile, which shares eighty percent of its border with Argentina and whose archaeologists often excavate in proximity to sites in the Argentinian northwest and in Patagonia.

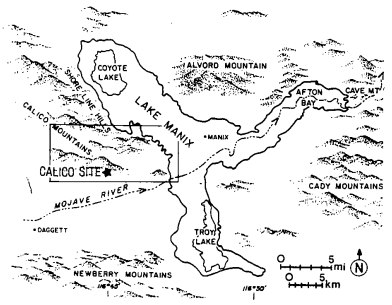
Gustavo Politis has a warmth and humor that travel easily across even the distance of a taped interview, and in himself should represent a force for the improvement of international scientific relations. Funded by CONICET, he has been a visiting scholar for the past year and three months, both in the Department of Anthropology at the University of Kentucky and the Center for the Study of Early Man. He came to study cross-cultural relationships in the Paleoindian period and to learn about new techniques in microwear analysis and taphonomy, and will return to Argentina in December.

– Michael Dolzani

The Calico Site

COMING OF AGE IN CALIFORNIA





Aerial view of Calico site (arrow, lower center) and surrounding area. Box on map (right) indicates area shown in photo. *(Map, Vicky Hipsley)*

(Continued from page 1)

Pit 1 is now 7 m deep, a fact all the more amazing when one considers that it was dug entirely with dental picks, awls, knives, hammers and chisels!

In 1968, upon Leakey's direction, a second master pit was begun 12 m northwest of the first. This 3 by 4.5 m pit is now 9 m deep, with the artifact-bearing level beginning at 4 m. Between the two pits there is a geological trench for the purpose of constructing an accurate soil profile.

In 1970 a major conference was held that Simpson thinks took place, unfortunately, too early in the site's history. At that time not enough analytical work had been done on the artifacts or the geology of the site. Most of the hundred scientists who attended left the meeting decidedly uncommitted as to the site's validity. Debate then and now centered on two points —whether the lithics are culturally manufactured and the exact date of the fluvial deposits. Simpson believes that the meeting generated a lot of negative feelings towards their project.

By 1970 Master Pit 2 was 5.5 m deep. Work then slowed and eventually ceased in both pits due to diminishing funds. During the years the National Geographic Society supported the dig, there were between 25 and 30 paid staffworkers on the site. Now ranger Fred Budinger is the only salaried staff member at Calico, others volunteering their time. Budinger was put in charge by the Bureau of Land Management, who took over the site in the early 1970's as an "area of critical environmental concern."

For many years the Calico site has avidly encouraged public interest and involvement. Every weekend an ongoing training program for volunteers is conducted by veteran crewmembers. A number of new test pits were opened to facilitate this training when work stopped on the master pits. In 1981 one of these pits became Master Pit 3, and now measures 4.5 m by 3 m by 2.2 m. Simpson says they are just beginning to reach the artifact-producing level of this pit.

The more than 11,500 lithics that comprise the Calico assemblage are mostly interpreted to represent flake tools—scrapers, gravers, cutting tools, and denticulates (tiny saws) made from flakes or spalls of stone, as well as a much smaller number of core tools—choppers, picks, anvil stones, and hand axes shaped by removing flakes from a cobble or very large flake until the central "core" is shaped as desired. Simpson notes that their lithics resemble some Chinese artifacts she has seen, yet do not look like those found in Europe.

Simpson lists a number of factors that convince her that the Calico lithics were indeed manufactured by humans and are not just the results of natural processes. The lithics are found in distinct concentrations or "clusters" that suggest individual workshop areas. A significant number of the Calico lithics appear to possess characteristics of percussion-made tools.

The Calico lithics are composed mainly of fine-grained siliceous materials such as chalcedony, jasper, and chert, which lend themselves well to flaking because they have no natural cleavage planes. There is a great abundance of poorer-grade materials at the site, but very little appears to be worked. Thus the argument is that these are not a result of the fan having acted as a great "gravel crusher" producing many natural flakes. Random natural forces would not, they suggest, differentially flake one type of stone over another.

Simpson says that many of the Calico specimens show distinct retouch or resharpening patterns that are distinguishable from natural edge damage. Clay Singer of UCLA and Cal-State Northridge has analyzed a number of the lithics under a 60× microscope and has determined that 2-3% of them show use-wear, even though the action of the soil would be expected to destroy most such evidence. Such use-wear suggests to him that Calico was not only a quarry site but also a habitation or campsite.

The question remains as to *who* made the tools. Simpson thinks that it was probably not *Homo sapiens sapiens,* nor *Home erectus,* but possibly an early form of *Homo sapiens.*

The data of the site over the past twenty years has had a wide scatter, ranging from a few tens of thousands of years to several millions of years. The current proposed age of 200,000 years was arrived at by James Bischoff of the United States Geological Survey, Richard Ku of the University of Southern California, and Roy Schlemon, a consulting geologist. Their dating method is made possible by the fact that, as material is buried, ground water percolates down and deposits "calcrete"—a calcium carbonate coating containing radioactive uranium—on all the rocks, including the artifacts. As the overburden increases in size and depth, however, less water can percolate down and the calcrete coating on the lower rocks begins to disintegrate. During the disintegration process the uranium changes to the isotope thorium. The ratio of uranium to thorium can be converted to a time scale, yielding a date of 200,000 ± 20,000 years before present for the lithics in the lowest level of Master Pit 2.

Recently, consulting geologist Dr. Dennis Burke analyzed the stratigraphy of the artifact-bearing levels and surrounding area to more fully understand the geology of the site. He has determined that the site is located in fluvial (stream and slope wash) deposits, not the alluvial (mud and rock flow) deposits of the fan itself. One hypothesis is that erosion through the fan created a valley and exposed a vein of chalcedony nearby; it was this "mother lode" of tool-quality material which drew people to inhabit the valley. The valley within the fan was later filled by the fluvial deposits from the Calico Mountains.

What is the significance of the Calico site? Simpson relates that, "Our artifacts demonstrate a genuine early lithic tool kit of great diversity and high quality. The fact that it is a percussion flake tool industry shows the extent of man's craftsmanship. Calico makes apparent the need to reevaluate the archaeological and geological data from previously-known sites."

"A hundred years from now," Simpson continues, "the Calico site will be seen as the first of the very, very old sites—a breakthrough and a door into a whole new chapter of American archaeology, establishing that man was here and was an accomplished tool maker in the middle Pleistocene."

—Stephen P. Nawrocki

Lithics recovered at Calico site include (counter-clockwise, from top left), unifacial scraper, depth 171"; gravers, depths 269", 157", blades and bladelets, depths 62", 57", 189", 137", 189". All shown half size. *(Photo by Daniel J. Griffin)*

"This is something that doesn't happen anywhere else."

Ruth DeEtte Simpson has spent practically her entire career as an anthropologist in the southern California area in which the Calico site is located. In addition to her ongoing activities at Calico, she has been a curator at museums in the area for over three decades, most recently at the San Bernardino County Museum. She continues to work as a volunteer since her retirement in 1983, taking care of the Calico collection housed there.

Simpson's role in the discovery and development of the Calico site cannot be underestimated. It is largely through her efforts that Calico has become a superb example of a *community* project, a dig exposed to and funded by the public, with an ongoing program that enables anyone to learn firsthand about archaeology, in both the lab and in the field. "This" as Simpson says, "is something that doesn't happen anywhere else."

UPDATE ON MONTE VERDE

(Continued from page 1)

Tom Dillehay studying use-wear on lithics under the microscope. *(Photo by Gustavo Politis)*

tailed picture of life in Ice Age Chile 12,700-13,200 years ago had begun to emerge, including the extraordinary preserved footprint of a child or small adult. Since that first report, another season's excavation has been accomplished, as well as some portion of the analysis of data by the 33 non-archaeological specialists at the project. Most of the environmental specialists (including geologists, botanists, forestry technicians, entomologists, and agronomists) were able to gather at the site to work on a number of problems. These activities have produced new information, some of it provocative.

The site is laid out in two main areas, on the north and south sides respectively of Chinchihuapi Creek, the cultural remains preserved by a covering of peat. The south side is a scattering of lithic tools, wooden artifacts, and plant remains; the new field season completed excavation of the north side, which is subdivided into east and west areas. The east area, mostly uncovered in 1983, has residential huts as defined by crude logs and branches laid out in rectangular forms; hearths; and shallow clay patches of the type called *brazeros* by natives today, on which the inhabitants presumably piled coals from the main hearth. Small circular features about 15-30 cm in diameter and 2-3 cm in depth, *brazeros* have been found containing burned junco reeds, medicinal seeds, and masticated boldo leaves.

The most recent field season concentrated on the west area, the most prominent feature of which is a wishbone-shaped structure associated with wood and woodworking activities. Here, the inhabitants had brought in 5 or 6 logs, which they had begun scraping down and cutting. Associated with this activity area were some of the site's best lithics, both percussion-modified stones and selected natural ones, modified by cultural use. "Tentatively speaking," Dillehay said, "it looked like the living area was being expanded by bringing in these other logs, cutting them, working on them, and leaving these choppers and scrapers lying around. It was a woodworking activity area as opposed to, say, a cooking or a living-quarter area. And that was the big discovery, I suppose, of this past season, when we were working there in February, March, and April."

In addition to the excavation in the west area, Dillahay and his crew placed about 30 test pits in the site to better understand the extent of buried material and the differential preservation of those materials. Test pits were also placed in another site about 1 km upstream from Monte Verde. Although the preservation of organic remains at the site was poor, a large bola stone and three utilized flakes were discovered under the same peat stratum that covers Monte Verde.

But a Pleistocene home-improvement project was by no means the only discovery of 1985. The excavating team found one, possibly two, additional rectangular architectural foundations, roughly 2.5 by 3 m, much like the dozen or so hitherto discovered, complete with *brazeros* full of burned junco leaves. Also, they found a cache of salt: a shallow pit about 80 cm wide and 4 cm deep, in which the salt had been so well preserved that "you could actually put your finger to it and lick it."

Two puzzles appear: first, how did they extract this salt; and second, why did they lay it out in a wide, flat depression? As to the first, the salt had to have been brought in from the coast, where modern local Indians have been reported to be extracting salt in two ways: from the water and from coastal plants; but the specific techniques for either are presently unknown. As to the second, it remains even more of a mystery. "It's in the same area where we found the higher portion of these small animal skin fragments," is all that Dillehay can offer. Preservation of hides? No one knows.

The animal skin fragments he is referring to were first discovered in 1983, some of them attached to wood, so that Dillehay was led to believe that the dwellings were constructed by stretching animal skins over a framework of logs and branches. Since then, amino acid tests have been performed on the skin fragments, and the results compared with those done on a number of modern animals. One type proves to be very similar, almost identical, with the modern elephant and camelid (guanaco). This accords with the bone remains from the site, which are paleocamelid and mastodon.

> ***". . . you could actually put your finger to it and lick it."***

Along with the skin fragments, analysis has been performed on preserved organic residue discovered in a number of naturally fractured stones, the result of scraping or of cutting. Some of it is actually visible, a brown or white caked material on the stones' edges; more shows up under an electron microscope. The human inhabitants of Monte Verde were scraping down two or three types of hardwoods, whose fibers remain in the cracks of the stones, and also the outer covering of junco reed stalks, an edible plant with a high sugar content. There may be some bone residue packed in those fractured stone fissures too, the biochemists think, and perhaps some tree resin and salt.

Five or six medicinal plants were recovered in the vicinity of the salt cache, making it 15 to 20 that botanist Carlos Ramirez (Universidad Austra de Chile) has identified in all. There is clear evidence that they were going a fair distance to bring in these plant parts, none of them natural to the site, about half of them occuring at the coast. And although it is only an inference that the Pleistocene occupants were actually employing them medicinally, that inference seems nearly unavoidable. Only parts that are medicinal are present, and the seeds and masticated leaves that have shown up are in fact inedible.

The conclusion is also based on ethnographic analogy: local Indians gather "lycopodium powder" from one of the plants to treat skin ailments. Lycopodium powder also stays dry, even during the wet season, and may have been used as a fire-starter. Thousands of burned lycopodium spores have been found in or around hearths and *brazeros*.

At present, there are sixteen radiocarbon dates from all strata that help lock this culture in to a 12,700–13,200 year frame. At a site 500 m upstream, three strata above the Pleistocene occupation lies an Archaic occupational level of the type dated at other people's sites to about 6–8000 years. Two and a half meters below the present surface or 1.5 m below the 13,000-year level at Monte Verde is perhaps the greatest puzzle of all, one which Dillehay is extremely cautious and conservative in making any conjectures about, yet which he feels cannot simply be dismissed out of hand.

As far back as 1979, two deep test pits were sunk into the terraces off the creek, (The topography today is almost exactly like that 13,000 years ago). At the 2.5 meter level, two patches of charcoal specks and chunks were found in a slight depression very similar to the *brazeros*. Around these were three stones, one of which bore a clear percussion scar, the other two being simply fractured stones with dubious morphology. There was no evidence of a filtering down of artifacts, since the strata above are culturally sterile, nor any evidence of geological disturbance. And the radiocarbon date for the charcoal was 33,000 years.

In 1983, more deep test pits were sunk across the site. Again, stones turned up at this level: there are 17 now, four with clear percussion marks or flaking scars. All are the same type stone, exotic to the area, origin unknown, not the same as the 13,000-year lithics above. And there are three charcoal patches altogether, the third one clay-lined in a fashion quite similar to the 13,000-year *brazeros*. For all his inclination to be skeptical, Dillehay ventures, "We might be talking about some cultural continuity here."

Amazing as that would be over 20,000 years, other evidence points tentatively in the same direction, or at least does not contradict it. Dillehay has worked with geologist Mario Pino and wood specialist Juan Diaz-Vaz (Universidad Austral) and on the lithics with Michael Collins (geologist, Southwest Museum of Man, Midland, Texas). "I don't want to commit my colleagues to the following, but I have shown the stones from the deeper levels to other early-man specialists, and others are in agreement with me that three or four of those stones have good evidence of human modification, be it flaking or percussion scars . . . And I point out with respect to those other 13 stones the following: they fit a pattern that's seen in the 13,000-year-old material, the possible selection of naturally shaped stones with sharp angles, suitable for cutting, scraping, or whatever else."

But Dillehay is extremely reluctant to make any conclusions about Monte Verde, much less generalize about the peopling of a whole continent from the findings of a single site. "I think that, personally speaking, I need to see much more information and need to see more cultural patterning before I'm willing, as the investigator at the site, to say that there's human activity 33,000 years ago, as represented by materials at that level. And I think that this 'component' at Monte Verde may be simply one of many other components before it, and I'm sure of many others to come, that will go into a *pool* of information that will remain questionable, undefinable, until we get more evidence. I think it's going to be an accumulative thing."

Hafted basalt scraper from Monte Verde. The stone is attached to wooden handle with bitumen and perhaps had *boqui* vine wrapped around it at one time. Some hafting polish is seen on the base of the tool and the edge is fractured from use. *(Photo courtesy Tom Dillehay)*

Far from being sorry that the excavation is concluded, Dillehay regards Monte Verde as something of an (enjoyable) interruption of projects he is eager to return to in Peru and Chile. But he has by no means washed his hands yet of the undertaking, for he has National Science Foundation funding to complete his analysis of the collected data until the end of next year.

—Michael Dolzani

NEW REFERENCES AND RESOURCES

Debert: A Paleo-Indian Site in Central Nova Scotia, by Dr. George F. MacDonald. Long out-of-print and unavailable, the Debert Site Report has been reprinted as a fascimile of the 1968 edition, with a new cover, foreword, and comprehensive index. The report is illustrated with many photographs and line drawings of artifacts recovered in archaeological excavations. Persimmon Press, 118 Tillingast Place, Buffalo, N.Y. 14216. 209 pp. including 31 B&W plates, 16 Tables and 26 Figures. ISBN# 0-9615462-0-4, $13.95 plus $1.25 postage and handling.

Out of Asia: Peopling the Americas and the Pacific, edited by Robert Kirk, and Emöke Szathmary. Published by the **Journal of Pacific History**, distributed by the Department of Anthropology, McMaster University, Hamilton, Ontario, L8S 4L9 Canada. Contact Dr. S. Saunders (416) 525-9140 ex. 3903. $18.50 plus $2.50 postage, American; $26.00 plus $2.50 postage, Canadian.

Selected contents:

The initial peopling of the Americas: an overview-Stephen Zegura; *The peopling of the Americas as viewed from South America*-Francisco M. Salzano; *The dental search for Native American origins*-Christy G. Turner II; *Peopling of North America: clues from genetic studies*-Emöke J.E. Szathmary.

The East Asian Tertiary/Quaternary Newsletter, compiled and published by the Centre of Asian Studies, University of Hong Kong, Robert Orr Whyte, Editor. This newsletter contains short original contributions, news items regarding research in progress or planned, reviews of books, abstracts of current literature, travel by scientists, requests for information, etc. Geographical scope: within the area bounded by 75 to 150°E longitude and 20 to 50°N latitude, but extending to adjacent regions when data are relevant to the core area. Topical scope includes geology, oceanography, paleoclimatology, paleobotany, paleozoology, and paleoanthropology. Geological time scale: from early to mid-Tertiary up to the emergence of humans, but reaching back to earlier periods when considered relevant.

The closing date for receipt of material in the Centre for **Newsletter** no. 4, 1986, will be the end of March, 1986. All scientists within and outside east Asia are asked to provide (without regular reminders from the Centre) a statement of current activities, travel, publications and any other information likely to be of interest to their colleagues. The price for the **Newsletter** is $6.50 U.S.

Use-wear Analysis of Flaked Stone Tools, by Patrick Vaughn. This book compares micro-wear on prehistoric implements with that of experimentally utilized flake tools, to arrive at a functional interpretation of the prehistoric tools. $49.50, available from the University of Arizona Press, 1615 East Speedway, Tucson, AZ 85719.

Irving, W.N. 1985 Context and Cronology of Early Man in the Americas. **Annual Review of Anthropology** 14:529-555.

Van Devender, T.R. et al. 1985 Fossil packrat middens and the tandem accelerator mass spectrometer. **Nature** 317:610-613.

Contributions in Quaternary Vertebrate Paleontology: A Volume in Memorial to John Guilday, edited by Hugh H. Genoways and Mary R. Dawson. This is an assembly of articles by the friends and colleagues of the late John E. Guilday in recognition of his contribution to the study of North American Quaternary fauna. There are 31 articles in addition to an obituary and complete bibliography for John E. Guilday. This book contains 538 and is heavily illustrated. Only 1200 copies have been printed, and it will not be reprinted. It may be ordered for $56.00 plus $2.00 shipping and handling from Publications Secretary, Carnegie Museum of Natural History, 4400 Forbes Avenue, Pittsburgh, PA 15213.

Pollen Records of Late-Quaternary North American Sediments, edited by Vaughn M. Bryant, Jr. and Richard G. Holloway. Late Quaternary fossil pollen records from all regions of North America are summarized and explained. The 15 chapters representing the work of 18 different individuals provide access to paleoenvironmental records for each major area of North America. The final chapter contains a biblio-

(Continued on page 8)

CONFERENCES

The IVth International Theriological Congress

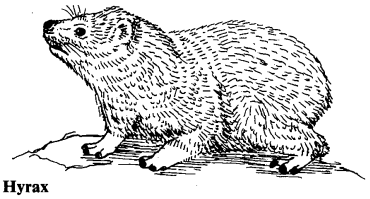
During recent decades, the confrontation between molecular biologists and anatomists or paleontologists had focused on Primates, specially on the degrees of kinship between humans and certain apes. Evolutionary histories constructed with paleontological and anatomical data have sometimes conflicted with those using molecular evidence of genetic similarity. This confrontation is now extending to other animals. At the IVth International Theriological Congress (Edmonton, Canada, 13–20 August 1985), the phylogeny of nearly every mammal group was discussed by a wide range of specialists using very different approaches. It turned into a really great opportunity to check the points of agreement of disagreement.

The "Quagga Affair" (see **Mammoth Trumpet** 1(3):4) seems definitely solved to everyones satisfaction. The DNA of the Quagga, an extinct South African Zebra, cloned from cells from a museum specimen, confirms its close relationship with modern East African plains zebras (Higuchi and Wilson, Berkeley). The conclusions agree with a prior study of the coat pattern by Rau (Cape Town) and of the skulls and teeth by Eisenmann (Paris). At a higher level, there is also agreement on the date of appearance of the first Equus (about 4 MY ago) between the new paleontological data (discussed by Azzaroli, Florence; Repenning, Denver; Voorhies, Lincoln) and the age of the common ancestor deduced by molecular biologists from the mitochondrial DNA (George and Ryder, San Diego).

But things are not going as smoothly everywhere, namely for the Hyraxes. In ancient times, these curious, small animals were considered rodents. The name of Spain is a reminder of this confusion: when Phoenicians saw Spanish rabbits for the first time, they took them for hyraxes called "Saphans" in the Bible, and named the place "Saphan's Island" or "Hispania". Naturally people no longer confuse rabbits and hyraxes but the exact taxonomic position of the latter is still a matter of controversy. To which order do they belong? Are they closer to Proboscidiansa, (elephants), Sirenians, or Perissodactyla (horses and rhinos).

An outstanding work of comparative anatomy presented by M.S. Fischer (Tübingen) has given a new start to the discussion. Fischer is convinced that hydraxes are Perissodatyla and brings to the argument much evidence. But, his hypothesis is in contridiction with biochemical data that points to a close relationship between hydraxes, Proboscidians, and Sirenians (Kleinschmidt et al., München; Sarich, Berkeley; Shoshani, Detroit). Apparently further work will be needed to settle the question. In the mean time, it is useful to comment on the reaction to such disagreements.

Nowadays, there is sometimes a tendency to give more weight to biochemical studies than to anatomical ones. The former have even been said to be more "objective" than the latter . . . But do not let anatomologists despair! They can take comfort in a remarkable communication on biochemical convergences, similarities which may not be due to common ancestory, (Stewart and Wilson, Berkeley) admitting very honestly that biochemistry may also be wrong: very similar lysomes (a type of blood protein) are found in the cow and in the langur (an Asian monkey), but this does not mean that they are closely related.



Hyrax

Obviously, molecular biology is not a "panacea," particularly when it deals with only a few biochemical parameters. To try and elucidate the evolutive history of the mammals, the whole range of data must be taken in account, both anatomical and biochemical. And that is why meetings such as the Edmonston Congress are so important, putting in contact people who hardly knew of one another before.

Dr. Vera Eisenman, Institut de Paléontologie, 8 rue de Buffon, 75005 Paris, France

What is a Catastrophe?

The Extinction Conference held this past March as part of the Southwestern Rocky Mountain Section AAAS meetings, provided a bit of an update on extinctions research since the recent book published by Martin and Klein, (see **Mammoth Trumpet** 1[3]). With about one hundred in the audience, the principal researchers of the Pleistocene extinction reveiwed and updated their research and exchanged ideas.

A major outcome of the conference was the increased awareness that the Pleistocene extinction can be used as a model to provide very useful information about other larger and earlier extinction events. Because the Pleistocene extinction was generally limited to certain classes of larger land mammals, its record has been previously neglected by many. However, this record can be dated more precisely than others with radiocarbon isotopes, and can be connected to the biostratigraphic data allowing the study of whole communities. Fossil records of earlier events are sometimes more spotty and difficult to date without a larger error margin.

One of the questions the Pleistocene record may be able to answer is "what is a catastrophe?" The picture which emerges is that these extinctions which signal the end of the Ice Age may have occurred within about 1000 years, affecting a large number of organisms within particular animal groups. Although not as many forms of life (e.g. not invertebrates, marine animals, or plants) were affected, the drastic changes within such a short time range and the impacts on the ecology of related communities qualifies as an ecological catastrophe.

Clearly, contemporary understanding of the causes of ecological disasters can yield important lessons for coping with current and future environmental change. Still, more research is needed to illuminate the complex relationship between human populations and such events.

Information contributed by Paul Martin, University of Arizona, Tuscon.

UPCOMING . . .

December 27–30, 1985 ARCHAEOLOGICAL INSTITUTE OF AMERICA, 83rd General Meeting, Sheraton Washington Hotel, Washington, DC.
For details contact the Archaeological Institute of America, Program Committee, P.O. Box 1901, Kenmore Station, Boston, MA; 617/353-9361.

March 20–23, 1986 NORTHEASTERN ANTHROPOLOGICAL ASSOCIATION 26th Annual Meeting, Buffalo Hilton, Buffalo, NY.
For details contact R.M. Gramly, Buffalo Museum of Science, Humboldt Parkway, Buffalo, NY 14211.

April 8–12, 1986 THE LONGEST RECORD: THE HUMAN CAREER IN AFRICA, A CONFERENCE IN HONOR OF J. DESMOND CLARK, Berkeley, CA.
For more information contact Dr. John W.K. Harris, Department of Anthropology - JDC, University of Wisconsin, Madison, WI 53201.

April 23–26, 1986 SOCIETY FOR AMERICAN ARCHAEOLOGY 51st Annual Meeting, The Clarion Hotel, New Orleans, LA.
For more information contact Annual Meeting Chair: Robert W. Neuman, Museum of Geoscience, Louisiana State University, Baton Rouge, LA 70803.

May 19–24, 1986 INTERNATIONAL SYMPOSIUM OF ARCHAEOMETRY, Nuclear Research Centre, Athens, Greece.
Topics include: non-metals, dating of organic materials (e.g. radiocarbon and other cosmogenic nucleides, dendrochronology, amino acid dating), and dating of inorganic materials (e.g. thermoluminescence, ESR, fission track, uranium series, archaeomagnetism). Contact Dr. Yannis Maniatis, Archeometry Symposium, NRC Demokritos, 153 10-GR Aghia Paraskevi, Attiki, Greece.

May 19–21, 1986 GEOLOGICAL ASSOCIATION OF CANADA - MINERALOGICAL ASSOCIATION OF CANADA - CANADIAN GEOPHYSICAL UNION Annual Meeting, Ottawa, Ontario, Canada.
Contact Dr. J.A. Donaldson, Department of Geology, Carelton University, Ottawa, Ontario, Canada K1S 5B8.

May 25–30, 1986 AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE Annual Meeting, Philadelphia, PA.
For details contact AAAS Meeting Office, 1101 Vermont Avenue NW, Washington, DC 20005; 202/842-9530.

June 2–4, 1986 NINTH BIENNIAL AMQUA MEETING, University of Illinois, Champagne, IL.
Details to be announced.

July 7–11, 198 GEOCONGRESS '86, an International Earth Science Congress, Johannesburg, South Africa.
21st Biennial Congress of the Geological Society of South Africa. Contact Symposium Secretariat, S.339, CSIR, PO Box 395, Pretoria 001, Republic of South Africa.

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 UNION INTERNATIONAL DES SCIENCES PREHISTORIQUES ET PROTO-HISTORIQUES, XIth Congress, Southampton and London, England.
For details contact Peter Ucko, Department of Archaeology, University of Southampton, England, SO9 5NH.

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.

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.

August 21–23, 1988 THE CANQUA/7th YORK QUATERNARY SYMPOSIUM, Lethbridge, Alberta, Canada.
The conference theme will be Paleoenvironmental Reconstruction of the Late Wisconsin Deglaciation and the Holocene. Contact Dr. R.W. Barendregt, Quaternary Symposium, Department of Geography, University of Lethbridge, 4401 University Drive, Lethbridge, Alberta, Canada T1K 3M4.

GEOLOGICAL SOCIETY OF AMERICA MEETINGS
1986 San Antonio, Texas (Nov. 10-13)
1987 Phoenix, Arizona (Oct. 26-29)
1988 Denver, Colorado (Oct. 31-Nov. 3)
For details: S.S. Breggs, Geological Society of America, P.O. Box 9140, Boulder, CO 80301.

MAMMOTH BRIEFS

A liaison committee has been formed between the Geology-Archaeology Division of the **Geological Society of America** and the **Society for American Archaeology.** Final appointments to this committee were made at the recent GSA meeting in Orlando. There will be several purposes to this committee which in general will act on matters of mutual concern to the two organizations. First, they will consider how the SAA and the GSA can work together to improve federal-level funding for projects which integrate geology and archaeology. Second, they will seek to educate the profession on the usefullness and desirability of integrating these two disciplines in research projects. Third, they will discuss the education of students in a way which promotes the links between the fields. The committee members are **Harold W. Borns** (Institute for Quaternary Studies, University of Maine at Orono) from the GSA and **Jonathan Davis** (Social Sciences Center, Desert Research Institute, Reno, NV) from SAA.

Glynn Isaac, eminent paleoanthropologist and professor of anthropology at Harvard University, passed away on October 5, 1985 at the age of 47. He became ill while on a trip to Beijing, China, for the National Academy of Sciences, and died unexpectedly while en route to the United States for treatment. Isaac had gone to Harvard in 1983 after having spent 17 years at the University of California-Berkeley. Born in Cape Town, South Africa, he received his doctorate from Cambridge in 1969. He is best known for his research on key hominid fossil sites in East Africa (Koobi Fora, Lake Turkana, and Lake Natron). He has been a world leader in paleoanthropology whose shoes will be difficult, if not impossible, to fill. A memorial service was held on November 4 at Harvard.

Jean M. Auel, author of best-selling novels about the Neanderthal-early Cro-Magnon phase of human evolution, has just published the third book in the Earth's Children series, **The Mammoth Hunters.** Ms. Auel, a charter member of the Center for the Study of Early Man, recently visited the Center and spoke at the University of Maine about her research. While she was here, she was interviewed at length, the **Mammoth Trumpet.** This interview focuses on the need for communication between scientists and the lay public concerning human prehistory, and the need on the part of us all to understand our own cultural and biological heritage. Her work will be featured in the next issue of the **MT.**

(Photo courtesy of Crown Publishing Company)

SUGGESTED READINGS

Major Journals On Argentine Anthropology and Archaeology

Relaciones de la Sociedad Argentina de Antropología, published by Instituto de Antropología, 25 de mayo Nro. 217, ler piso, 1002 Buenos Aires, Argentina.

RUNO, published by the Instituto de Antropología, 25 de mayo Nro. 217, ler piso, 1022 Buenos Aires, Argentina.

ETNIA, published by Museo Etnografico Municipal "Damaso Arce", 7400 Olavarria, Argentina.

On Calico

Bischoff, J.L., R.J. Shlemon, T.L. Ku, R.D. Simpson, R.J. Rosenbauer, and F.E. Budinger 1981 Uranium-series and soil geomorphic dating of the Calico archaeological site, California. **Geology** 9(12):576–582.

Budinger, Fred E., Jr. 1983 The Calico early man site. **California Geology** 36(4):75–82.

Carter, G.F. 1980 **Earlier than you think - A personal view of man in America.** Texas A & M University Press, College Station.

Haynes, C.V. 1973 The Calico Site: Artifacts or geofacts? **Science** 181(4097):305–310.

Patterson, L.W. 1983 Criteria for determining the attributes of man-made lithics. **Journal of Field Archaeology** 10:297–307.

Friends of Calico Newsletter. For information, write to Friends of Calico Early Man Site, 2024 Orange Tree Lane, Redlands, CA 92373.

NEW REFERENCES AND RESOURCES

(Continued from page 6)

graphy of 547 citations of published and unpublished pollen analysis reports from the American Southwest. ISBN 0-931871-01-8; 350 pages; $35.00. Available from the American Association of Stratigraphic Palynologists Foundation, Robert T. Clark, Treasurer, Mobil Research and Development Corp., DRL, PO Box 819047, Dallas, TX 75381.

Critical Periods in Quaternary Climatic History of Northern North America, (Climatic Changes in Canada 5), Syllogeus no. 55, National Museum of Natural Sciences, edited by C.R. Harrington. A variety of papers concerning Holocene paleoclimates. ISSN 0704-5764; 482 pages. Available free from National Museum of Natural Sciences, Ottawa, Ontario, Canada K1A 0M8.

Stone Tool Analysis: Essays in Honor of Don E. Crabtree, edited by Mark G. Plew, James C. Woods, and Max G. Pavesic. This book honors the contributions to archaeology and lithic technology of Don E. Crabtree. The papers presented in the 12 chapters represent the broad influence of his work. Topics include: pressure flaking techniques of Australian Aborigines; cognition, behavior and material culture; stone tool notching; and stone tool reduction techniques. 320 pages, including numerous illustrations and index, from University of New Mexico Press, Albuquerque, NM.

The Williamson Site, Dinwiddie County, Virginia, edited by Rodney Peck with an introduction by Vance Haynes. This is a collection of the best articles ever published about the Williamson Paleoindian site. There are 213 pages with many tables, charts, maps, pictures of Paleoindian tools, and one color plate. Send $25.00 plus $2.00 shipping and handling to R.M. Peck, 1539 Quail Drive, Harrisburg, NC 28075.

Animal Bone Archaeology, by Brian Hesse and Paula Wapnish. Published by Taraxacum, Washington, 130 pages, 100 figures, 10 tables, and index. The subjects covered in the 8 chapters include: animal categories; assemblage formation; vertebrate skeleton; collection, record keeping and conservation; information available from individual bones or fragments; taxonomic category analysis; and assemblage analysis. ISBN 0-9602822-3-8, $18.00.

The November, 1985, issue of **National Geographic** (Vol. 168, no. 5) will be of special interest to many readers. This issue, with a holographic image of the Taung child (the first known hominid skull, discovered in South Africa) on its front cover, offers two interesting and informative articles on the origins of humankind. The accompanying photographs and drawings well illustrate the various stages of human evolution.

The International Council on Archaeozoology was formed in 1974 to promote study of the standards in the study of faunal remains from archaeological sites. Corresponding membership is available to anyone interested in archaeozoological or related research by writing the General Secretary: Dr. A.T. Clason, Biologisch-Archaeologisch Instituut, Poststraat 6, 9712 ER Groningen, The Netherlands. The ICAZ is having its Fifth International Conference this coming August (see Upcoming Conferences, this issue). Their last conference in London (1982) attracted more than 230 researchers from all over the world. Proceedings of that conference are currently being published in four volumes by British Archaeological Reports (Oxford) under the title *Animals and Archaeology*. Volumes constituting proceedings from the previous three conferences are subtitled *Hunters and their Prey, Shell Middens, Fishes, and Birds,* and *Early Herders and their Flocks* (BAR S103, S183, and S202 respectively) are already available. (Information contributed by Richard H. Meadow, ICAZ Executive Committee Member, Zooarchaeology Laboratory, Peabody Museum, Harvard University).

GLOSSARY

Theriological - pertaining to the study of theria, the subclass of mammals whose young have their early development in the uterus, including marsupials and placentals.

Perissodactyla - the mammalian order which comprises the odd-toed hoofed quadrupeds: tapirs, rhinoceroses and all horses.

Lycopodium powder - the spores of the plant *Lycopodium clavatum,* commonly known as club moss or wolf toes. The resinous spores cling to the skin and repell moisture. The powder is also highly flammable and is used in fireworks and as "flashpowder" on the stage. *L. cathartícum,* native to the Andes, is reputed to have been used, when fresh, as a cathartic. The plant is also used to dye wool blue in conjunction with Brazil wood.

Bone collegen - the protein component of bones which surrounds the inorganic, mineral, matrix or framework.

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