An interview with Christy Turner

EXTRACTING DATA FROM TEETH

For 20 years, Christy Turner has been extracting—so to speak—information from dentition, bearing upon the biological variation of early humanity. Now, the question has become: can we take data based on teeth currently available in the many collections worldwide, and use it to pinpoint the location in the Old World from which native Americans first arose?

"Right now, it seems as if we have a pretty good shot at it," was Turner’s reply in a recent interview. A more extended pronouncement to that effect took the form of an article in Early Man in the New World, edited by Richard Shutler, Jr. That paper represents the results of preliminary research funded by the National Geographic Society. Subsequent analysis has begun to indicate that Turner has his contentions are sound. The real answer is still gestating in the womb of a computer, that probably this May, should give birth to conclusions regarding seven hypotheses. Those hypotheses were fertilized by data gathered over the past year from about 6,000 individual specimens. The research was funded by a grant from the National Science Foundation.

All 6,000 specimens were examined by Turner himself, a demanding task to accomplish in a year's time, especially since it involved traveling over the entire globe. However, this had the advantage of reducing discrepancies in interpretation that are more or less inevitable with more than one analyst. In fact, asked about his research team, Turner answered: "Well, there's myself, my wife, and my youngest daughter." For one solid year, the latter two traveled with Turner, took skeletons out, put skeletons away, took photographs, undertook record searches, etc.

Turner sat, day in, day out, and coded specimens. Data were sent to Arizona State University for processing by Research Assistant Linda Wuss. And toward what conclusion, pending the computer analysis, does the evidence from teeth seem to point? Well, to Turner at least this much: the origin of the Paleoindians has to be east of Lake Baikal in Russia, most likely from the Lena River basin area (see map). Despite archeological evidence of a relation between Paleoindian tools and European upper Paleolithic tools, the biology of the prehistoric people west of Lake Baikal is strictly European, including (Continued on page 5)

HAYNES RECEIVES ARCHAEOGEOLOGY AWARD

Dr. C. Vance Haynes, Professor of Anthropology and Geology at the University of Arizona, became the second recipient of the Archaeological Geology Division Award at the 97th Annual Meeting of the Geological Society of America last November. The award, presented by Division president, Harold W. Bums, was established in 1962 to "honor individuals who contribute in an outstanding manner to the interdisciplinary field of archaeological geology."

Haynes began his career by working at John Hopkins University, and then at the Colorado School of Mines, where he received his Ph.D. in Geology in 1965. After graduation, while working on lunar rocks with the Martin Company, Haynes joined friends who were working on Paleoindian sites and Pueblo ruins in New Mexico. He applied his geological skills to the task at hand and learned the stratigraphic techniques which are essential to relative dating of buried materials. He went on to the University of Arizona as a Research Assistant and was soon appointed to the faculty there.

In accepting the award, Haynes said he wished to depart from the usual type of acceptance speech, (Continued on page 3)

RESEARCH SUGGESTS EARLY TOOLS NEAR SAN DIEGO

The question of when people first appeared in North America continues to challenge archaeologists. Certainly human presence by 12,000 to 11,000 yr B.P. has been established without question; however, arthatifical materials in geological associations at sites in both North and South America have continued to suggest a much earlier date. If people arrived as early as 30,000 to 50,000 years ago, they probably would have carried a culture derived from the chopper-chopping tool tradition of southeast Asia.

Among those archaeologists pursuing evidence of such early North American inhabitants is Brian O.K. Reeves, Associate Professor of Archaeology at the University of Calgary (Alberta, Canada). Reeves' curiosity about early man was aroused in 1976 when, at a conference in San Diego, California he examined George Carter's collection from the area. Reeves believed the collection included some definite, early tool specimens.

During a 1977 sabbatical, he began examining sites on the mesas and sea cliffs surrounding the San Diego Texas Street site where, for years, claims have been made of human-made artifacts with extreme antiquity. "I found a lot of naturally broken-up rock," Reeves explains (see lower left photo, page 3). "But I also found a large number of formed tools—choppers and chopping tools of the southeast Asian kind, suggesting quite early occupation."

Testing three miles from the Texas Street site in Mission Valley during 1978, Reeves discovered a number of specimens exhibiting bipolar flaking, quartzite cobbles resulting from weathering and mechanical stress which apparently had been brought to the site and used as tools.

Returning to San Diego in 1981, Reeves and his crew began a systematic collection and excavation both on the coast and along the mesas of El Cajon 12 miles (Continued on page 3)
ARCHAEOLOGICAL SEDIMENTS IN CONTEXT

The Center for the study of Early Man is proud to announce the publication of a new volume in its "Peopling of the Americas" edited volume series. Archaeological Sediments in Context, edited by Julie K. Stein and William K. Farrand, provides the most recent information available in the newly emerging field of geoarchaeology. The volume is a result of a symposium held at the 1982 Society for American Archaeology annual meeting in Minneapolis, Minnesota. This collection of papers will be an invaluable aid to specialists in many disciplines within the Quaternary framework seeking to understand the relationship between archaeological artifacts and their contextual settings. The book will be useful not only to a professional library, but is also written to serve as a textbook for courses with substantial geoarchaeology content.

Julie K. Stein is Assistant Professor in the Department of Anthropology and adjunct Assistant Professor in the Quaternary Research Center at the University of Washington. Her research interests are primarily concerned with geoarchaeology. Particularly studies involving sediments found within archaeological sites. William R. Farrand is Professor of Quaternary Center Library

One of the goals of the Center is the development of a research library available for use by anyone needing information on the peopling of the Americas. Accordingly, your input would be greatly appreciated. If you have authored or have access to books, manuscripts, articles, reviews, or abstracts—whether published or unpublished—on related subjects, please send us a copy.

We are still in the process of putting together a comprehensive bibliography on the human occupation of the Americas, for eventual publication. If you have compiled a bibliography or know of appropriate materials, please drop us a line. Address all contributions, comments, or inquiries to: Library Center for the Study of Early Man, 495 College Avenue, University of Maine, Orono, ME 04473.

Corrections and Brief Comments

International Geological Congress: "The Iny- yakhtakhian, a late Paleolithic culture (3,500 yr B.P.)," Dr. Robert E. Ackerman draws to our attention that 3,500 yr B.P. is late Neolithic, not Paleolithic and includes the following reference: Mochanov, I. A. 1969 The Ymyyakhtakh late Neolithic culture Arctic Anthropology. 6(1):115-118.

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DID YOU MISS SOMETHING?

We have a limited number of printed abstracts and posters from the Bone Conference held last summer in Canaan City, N.Y.

The published long abstracts, with references, include 32 entries or 36 pages in a 8 1/2 x 11" format, $4.00, postage paid, $6.00 outside North America. The large (18 x 22") commemorative posters feature a broken bone motif woven into an abstract design in the center, and a wide black border with blue type all around. Printed in 3 colors on heavy ivory stock with a hand-serigraphed insert. A bargain at $3.00, postage paid. U.S. funds only, please. (Orders outside North America, please add $1.00 postage.)

EDITOR'S NOTE

The staff at the Center for the Study of Early Man invites MAMMOTH TRUMPET readers to celebrate with us our first anniversary. We are delighted to report that the newsletter is a growing success, with a circulation base of over 2,000. We see ourselves as occupying a unique niche; the MAMMOTH TRUMPET is neither a newsletter nor an academic journal—rather, we attempt to be a bridge between the academic and the public worlds. We take no intellectual position with regard to the peopling of the Americas, but seek to present a broad range of ideas from across the Quaternary sciences.

When our first issue was published, we expected to produce two each year. In response to advice from readers, we decided to produce four a year. We have not changed the subscription rate; we are hoping to increase the number of subscriptions to accommodate the increase in price. Subscriptions are by volume and volume 1 ends with this issue. Our next issue, which starts Volume 2, will be published this coming summer.

Please help us! We can keep our production costs down if we don't have to mail individual renewal notices. The renewal form and a reader survey are on page 7. If you support what the Center is doing, please indicate by joining at a higher level. Each dollar in excess of operating costs will be fed into our endowment fund. We are attempting to match a $500,000 endowment grant from the Bingham Trust for Charity this year and are actively searching for major gifts from individuals and foundations. If you are interested in becoming involved in this effort, please write or call us.
RESEARCH SUGGESTS EARLY TOOLS NEAR SAN DIEGO

(Continued from page 1)

into the interior (sponsored by the Social Sciences and Humanities Research Council of Canada). Again, he uncovered the same crude chopper-chopping tool assemblages. Throughout his work in the San Diego area, Reeves has uncovered chopper-chopping tool replications in a variety of rock types.

"Importantly, the artifact assemblage is not related to known Holocene records of San Diego (pre-7,000 yr B.P.), a late-Wisconsinan-early Holocene culture which had a bifacial technology. And the later La Jolla unifacial tool culture didn't include these large tools." Reeves' San Diego artifact assemblages are composed of unifacial core and flake tools fitting well with the Asian chopper-chopping tool tradition. These chipping tools were a long-standing tradition in Asian Old World areas, consistent with the lifestyle of peoples living around the Pacific Rim.

Verifiable dating is critical to Reeves' assertions concerning early man in southern California. Working at the Scripps Tower site on the University of California-San Diego campus, Reeves radiocarbon dated an upper level to 9,200 yr B.P., placing it in the early La Jolla time frame. Unfortunately, organic in pre-Holocene levels in the coastal areas have been leached away by a naturally occurring, highly acidic fog. However, a lower level which has the chopper-chopping tool assemblage was dated to 25,000 to 30,000 years ago using thermoluminescence techniques.

Thermoluminescence (TL) dating eliminates the need for organic materials. The technique is original and developed to date ceramics and fired clays, but has recently been applied to alluvial clays and clay materials of sedimentary origin that have not been fired. When deposited out of contact with sunlight, clays begin building a photon charge that can be released by heating. The resulting measured photon emission indicates age. However, samples must be collected under "black box" conditions and must be large enough to allow retrieval of a central core certain to have remained unexposed to sunlight or heat. Although still controversial, thermoluminescence is beginning to be accepted by geologists as a valid technique.

Investigating a site in the San Diego River valley called "Fletcher Wash", Reeves discovered a number of chopper-chopping tool artifacts in the gravel member associated with exhumed paleosols. Paleosols, or "buried soils", are soils that were formed during stable land conditions but were subsequently buried as land stability changed. Reeves' TL dates on these paleosols are on the same order as the Scripps Tower site.

Again, the same artifact assemblage was uncovered inland at the Cuyamaca Road site (see photo). Although undatable by absolute methods, Reeves believes the location of this primary occupation site in relation to surrounding river terraces places it at mid-Wisconsinan age (approximately 30-50,000 years ago). A San Diego County-ordered independent geological study by Roy Schiemer (Newport Beach) resulted in the same age estimate.

In addition, Reeves was able to date hearths at two San Diego sites. One site in the Torrey Pines State Reserve boasted a 30 meter alluvial cover with a series of paleosols overlying a marine abrasion platform. One exposed hearth at 10 meters with quartzite flakes in association was dated at 13,000 years ago. Artifacts were apparent in the paleosols but the area is one of the few natural environments left on the coast, and is considered too delicate to be excavated. A similar hearth with flake association was dated by TL at 1400 in the southern San Diego Otay River. With insufficient time to excavate, Reeves was unable to investigate further.

Reeves, who received his Ph.D. in archaeology from the University of Calgary in 1971, shares the frustrations of many archaeologists who are in a race against time with urban developers. Rapid urbanization in areas such as southern California often prohibits excavation and thereby forces researchers to engage in a form of "archaeo-politics" with the local land owners and officials.

Reeves hopes to excavate an intriguing site uncovered at Camp Pendleton Marine Base. A large mammoth task was uncovered at 12 meters deep in a paloosol. Some preserved mammoth bones, flake tools, and an extensive set of hearths may yield valuable information concerning early occupation of the area.

If he is able to successfully excavate chopper-chopping tool assemblages in positive association with middle or early Wisconsinan deposits and produce convincing dates, Brian Reeves may have an important role in answering the question of the timing of human arrival into North America.

— Laura Rienberg

HAYNES

(Continued from page 1)

and instead talk about his new project, the Clovis Origins Project. The project is an intensive, problem-oriented archaeological investigation which will focus on the narrow time interval between 12,000 and 10,500 yr B.P. In describing the objectives of the project, Haynes said there is a need to more fully understand the microstratigraphic process and its patterns. He also indicated that point types need to be more precisely dated and the dispersal of lithic materials should be investigated. Haynes called for the assemblage of information about sea levels, lakes and rivers, ice margins, landscapes, environments, fauna, and vegetation in the areas of the fluted point cultures. The goal within the next decade is to achieve an understanding of the Clovis origins and to publish a series of maps for the years 12,000, 11,500, 11,000, and 10,500 yr B.P. It will require a team of dedicated specialists, he said, to help bring this information together.

— Joanne C. Turner

PLEISTO-SCENES

A) Natural brown mammoth
B) Dark blue tundra migration hand silk-screened on high quality t-shirts. Adult shirts available in S, M, L, XL on natural white heavy weight 100% cotton. $8.50 each. Children's shirts available in XS (2-4), S (5-6), M (10-12), L (14-16) on sand colored cotton / polyester blend. $7.50 each.

Please include your name and mailing address. Price includes shipping and handling. Add $1.00 per shirt shipping outside North America. Maine residents add 5% sales tax. U.S. funds only. Make checks payable to the Center for the Study of Early Man, University of Maine at Orono, 495 College Ave., Orono, ME 04473. Allow 6 weeks for delivery.

A view along Cuyamaca Road where test excavation is being started on left. During Wisconsinan times this was a lake shore. Part of the site has been disturbed by highway development. Cobble stone beach deposits are one of the few local sources available because marine bay sediments underly the beach deposits.
SOCIAL FOR AMERICAN ARCHAEOLOGY . . .
A HALF CENTURY OLD

Editor's Note: In place of our usual biography, we offer this feature on the anniversary celebration of the Society for American Archaeology which has renewed its commitment to serve professional and avocational archaeologists as it begins its next fifty years.

The Society for American Archaeology (SAA) was officially constituted on December 28, 1934 by 31 individuals in Pittsburgh, Pennsylvania. The establishment of such a society was the natural culmination of increasingly active research in American archaeology in the search for evidence of early inhabitants of the western hemisphere and the corresponding need for cooperation and communication among professionals and non-professionals.

Exciting discoveries in archaeology were almost commonplace in the early years of the twentieth century. Basketmaker, Folsom, Anasazi, Holokokam, dendrochronology—all these developments in the Southwest demanded that researchers be consistent in their methods and terminologies. As professionalism grew in the West, so too did Eastern archaeology profit and evolve. Ironically, the Depression had a positive effect on archaeology as WPA funds were appropriated for archaeological excavations.

Despite the economic trials of the early 1930s, interest blossomed in archaeology; particular interest was given toward increased professional standards, cooperation between professionals and amateurs, increased communication, and improved methodologies. The name of the Society for American Archaeology was chosen in hopes of appealing to both the amateur and the professional—to begin meeting the goals outlined above. Additionally, a journal, American Antiquity, was begun in 1935 as a communication vehicle.

So, at 11:00 p.m., December 28, 1934, thanks to the far-sightedness of our predecessors, the constitution and bylaws of the proposed society were approved and the first group of officers elected.

In their honor, the SAA will celebrate its 50th anniversary at the 1985 Annual Meetings in Denver, Colorado. A series of special events and a special 50th Anniversary issue of American Antiquity will mark this occasion.

The SAA encourages involvement of amateur or avocational archaeologists as well as professionals. Current SAA President George Frison (Wyoming) notes the continuing need to maintain good rapport between the two groups, and that this anniversary is a good time to promote that relationship. "The SAA is well aware of the contributions of avocational archaeologists and recognizes that its beginnings were strongly influenced by both professional and amateurs alike." In response to these initiatives, the SAA anticipates giving a "long overdue" award for distinguished service to an avocational archaeologist at this meeting.

To be called the Crabtree Award, it is expected that this award will be continued in the future.

If you wish to pre-register for the meetings, write to SAA, 1511 K St., N.W., #716, Washington, D.C. 20005. On-site registration will be in the Convention Lobby of the Radisson Hotel in Denver from 4 to 8 p.m., May 1-4, and before noon on May 5. Child care service is available in cooperation with the YWCA of Metropolitan Denver.

50th Anniversary Meeting Events

Among the SAA-sponsored events scheduled for the Annual Meetings (Denver, Colorado; May 1-5, 1985) to celebrate the 50th anniversary of the organization are:

Thursday evening, May 2
Remarks by outgoing President (George C. Frison) on the founding of the Society; ceremony honoring the Society's surviving founders.
- James B. Griffin
- William A. Ritchie
- Wilson M. Krogman
- Dorothy Schultz

Roundtable discussion (with moderator) on the general theme "American Archaeology in the Early Years of the Society." Participants:
- James B. Griffin
- Albert C. Spaulding
- Emil W. Haury
- H. Marie Wurmaning
- George L. Quimby
- Waldo Wedel
- William G. Haag

Friday, May 3
Part I. THEMES IN THE HISTORY OF ARCHAEOLOGY
- Albert C. Spaulding: "Archaeological Interpretation 1935"
- Bruce G. Trigger: "Archaeology and American Society"
- Don D. Fowler: "The Conservative Ethic in American Archaeology: A Historical Overview"
- Donald K. Grayson: "The European Influence on American Archaeology: The Search for Our Earliest Ancestors"
- William G. Haag: "Field Methods in Archaeology"
- Jacob W. Gruber: "Culture and Archaeology: A Historical Retrospect"
- Curtis M. Hinesley: "Writing the History of American Archaeology"
- Parry Jo Watson: "Archaeological Interpretation 1985"
- Ruthann Knaudson: "Archaeology in Contemporary Cultural Resource Management"
- David H. Thomas: "Hunter-Gatherer Studies"
- Barbara L. Stark: "The Study of the Origins of Agriculture"
- Henry T. Wright: "The Evolution of Civilization"
- George L. Cowgill: "Quanumative Methods"
- Mark P. Leone: "Symbolic and Structural Archaeology"

Friday evening, May 3
1. Remarks by the incoming President (Don D. Fowler)
2. Plenary session
- "Views of the Development of American Archaeology"
- Lewis R. Binford: "Title not confirmed"

See Upcoming section, page 12, for titles of other relevant symposia being held at SAA's 50th Annual Meeting.

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Traditions and Change in Two Archaeological Journals
Between Philosophy and Archaeology

Photographs accompanying this article are of WPA excavations at the Maceo Group, Mount D (date unknown). Digs such as these in the early 1930s employed hundreds of laborers in five states. Interest generated by such archaeological projects, both professional and amateur, led to the formation of the SAA in 1935. (Photo courtesy of David Metter from the Frank Seiter Papers, National Anthropological Archives, Washington, D.C.)
all of the Cro-Magnon material the Soviets have from Malta, near Lake Baikal, all the way to Moscow. Immediately, as one goes east of Lake Baikal, the population shows Mongoloid characteristics similar to those of the Neanderthal. Turner has examined all proposed Paleolithic specimens—only about 25 in all, ranging from one tooth to 7-10 incomplete skeletons in China. Geographical origin of the Paleolithic is the hoped-for resolution of one to the seven hypotheses, to each of which Turner plans to devote a separate published article.

What about origin in time? This may be the answer to a second hypothesis proposing rates of dental change. If the rate of dental micro-evolution the study establishes holds, Turner will have a mechanism possibly reflect upon the ultimate question of human origins. Turner has identified two Asian dental populations, which he names Sinodont and Sundadont. Sinodonts represent the Northeast Asian ("Mongolian") population, stopping just to the east of Lake Baikal (see map), and show a more modern, evolved dentition. The less evolved, more ancient Sundadonts include prehistoric Southeast Asians. All American Indians, Turner claims, are Sinodont, although not as evolved as the Aleut/Eskimo and Na-Dene.

If specimens appear which would close the apparent gap in the New World fossil record before 15,000 years ago, Turner would expect them to possess different characteristics depending upon how far back in time they went. At 20,000 years, they would already be more like those of the original Siberian group. Because he has noted no European influence in the weight of the sediment combined with the somber fact that the children had starved to death over a period of 2-3 months. Most cases are less extreme, however, and the effects of external influences can be filtered out of the analysis. Beyond that, Turner needs only a sufficient number of specimens to establish a dating, a number that varies according to the age of the specimens. To date in the 12-15,000 range, he would require at least five individuals; but in the 30-40,000 year range, only one, because the entire configuration of the teeth would be different.

Above, Valerii Alexeiev (left), physical anthropologist from Moscow working with Christy Turner (right) in Novosibirsk at IHPPE on dental anthropology procedures.

Top right, mandible from the Siberian site of Krasnoyarsk (west of Lake Baikal) showing the 4-cusped lower second molar which is more common in Europeans than in Asians.

Lower right, lower canines from another Krasnoyarsk Siberian showing the 2-rooted trait (upper photo) which occurs in low frequencies in Europeans but is effectively absent (lower photo) in Asians and Native Americans. (Roots on left) (Photos courtesy of Christy Turner)

for determining at least relative age: i.e., this series must be at least so much older than that one for so much evolution to have occurred. Similar considerations lead him to disagree with Emoke Szathmary's theory that, for example, Eskimos and Indians branched apart about 10,000 years ago after already arriving in Alaska. Degree of dental evolution, he says, requires them to have separated further back in time, about 15,000 years ago, which would probably push them back into Siberia at the time of branching. The geographical and chronological indicators thus far have led Turner to entertain a three-migration hypothesis for the peopling of the New World (see map on page 1). He proposes the Paleolithic group migrated from the Lena Basin, the later Na-Dene group originated in the northeast Siberian forests, and the Abut/Eskimos came last from the Amur Basin. Turner has also included Greenland population data in order to test Robert McGee's suggestion of an original eastern, not western, Eskimo penetration. His claim is that other studies appear to support dentition analysis regarding Climatic three-migration theory. He cites the work of Robert Williams, Joseph Greenburg, and of Stephen Zegura. Turner feels that Michael Crawford's studies (highlighted in Mammoth Trumpet's second issue, Summer, 1984) have not supported the three-wave pattern because prehistoric denition analysis is more sensitive than biochemical analysis of modem populations (Crawford proposes a two-wave migration model). He suggests two reasons for this. One is that teeth are not so strongly influenced by natural selection, and consequently they change more slowly. The other reason is that modern Indian blood samples have the inherent problem of including European admixture, which he estimates can run as high as 30% before becoming detectable.

If the dental evolution rates (termed "dento-chronology") hold, Turner's data may provide input about where and when the Siberian immigrants themselves originated, and in its furthest reaches may most likely deviate significantly from the Sinodont; at 30,000, they would lie somewhere between the two types; and at 40,000, he would expect Sundadont traits. As a result, he tends to discount most of the New World claims to great antiquity. The Del Mar specimen, previously dated at 30-40,000 years, could not possibly be so old without bearing the Sundadont or Sundadont-precursor traits it does not have; indeed, Turner was inclined to grant it not more than 5-6,000 years in line with its more recent dating. This does strike at what is perhaps the most serious methodological dilemma that faces Turner's type of study: to some degree, at least, conclusions are necessarily built upon the foundation of the original excavators' opinions and datings—opinions and datings Turner himself has shown can be fallible.

What are the differences in teeth Turner discriminates? In establishing the prehistoric European-Mongolid dental contrast, he compared separate characteristics. An important example is number of roots. Asians have a high frequency of three rooted lower first molars; the European frequency is practically zero. Conversely, about 10% of Europeans have two roots on their lower first canine (see figure); Asian and New World individuals have only one. Number of cusps also follows a genetic pattern; on the lower second molar, Europeans tend to have four, Asians five or six (see figure). Though there are always obvious traits produced by wear and pathology, shapes of teeth are also significant. Europeans have fairly flat incisors on the tongue side; Asian people have a ridged surface, termed "shovel-shaped." All American Indians and effectively no Europeans have shovel-shaped incisors.

Turner readily concedes that tooth data is epigenetic—there is always a component of environmental influence. Yet not only is that influence much less than for skeletal features, but Turner feels that with teeth, anomalies and external factors can be readily weeded out from evolutionary changes. For example, the original excavator of the Siberian group refused to analyze the Mal'ta children (in Siberia) because he deemed them pathological; actually, the deformation he had noticed was due to the weight of the sediment combined with the somber fact that the children had starved to death over a period of 2-3 months. Most cases are less extreme, however, and the effects of external influences can be filtered out of the analysis. Beyond that, Turner needs only a sufficient number of specimens to establish a dating, a number that varies according to the age of the specimens. To date in the 12-15,000 range, he would require at least five individuals; but in the 30-40,000 year range, only one, because the entire configuration of the teeth would be different.

Turner has examined every individual he could, in Southeast Asia from Bangkoi to Hokkaido, including the Philippines, Taiwan, Hong Kong, Bangkok, central Thailand, and Japan. He received enthusiastic co-operation in the U.S.S.R.

One of the most compelling facts to emerge from his exhaustive tour of the world's collections is that there are literally thousands of collections of skeletons, in both the Old and New Worlds, that lie gathering dust, virtually unstudied. It is much more exciting to go out into the field than sit in a laboratory and analyze, he points out. And yet he feels that many museum in the country is capable of yielding him at least a few bits of new information.

While waiting for the completion of his computer analyses, Turner has been working on a couple of subpapers, inspired by his year-long whirlwind tour of skeleton collections: one showing that modern Taiwanese aborigines are not representative of the prehistoric Taiwan population; secondly, a Hong Kong study related to the Sino-Sundadont contrast. In addition to the article in the Shutter volume, and an important paper in Russian, he also has an article on these studies appearing in two places, with two titles. One is in the journal Anthropogeonica (1984) from India, in an article entitled "Advances in the Dental Search for Native American Origins." The other is "The Dental Search for Native American Origins," in a volume resulting from a symposium at the Xth International Congress of Anthropology and Ethnological Sciences, edited by Robert Kirk and Emoke Sturanyi called Out of Asia: The Peopling of the Americas and the Pacific. When his initial computer data analysis is complete, Turner can then use the second year of his National Science Foundation grant to further analyze the data and present it in a series of further publications. Mammoth Trumpet readers can only wait the results with anticipation.

-Michael Dolcanti
This is the last issue of Volume 1. We hope you enjoy receiving the news we gather for you. Reports and photos of discoveries from places as far-flung as Patagonia and Siberia, exclusive interviews with leading investigators in the multidisciplinary field of Pleistocene studies, advances in research and news of conferences are only part of what you get when you subscribe to the Mammoth Trumpet and become a member of the Center for the Study of Early Man.

You also help sustain the continued existence and operation of the Center itself, as a resource for all who are interested in the peopling of the Americas. A large portion of all Center memberships at the Contributing level or higher will help build our endowment fund. Additionally, members receive reduced rates through pre-publication offers on our publications. (And who showed you the first elephant in mammoth "genes"?)

The Mammoth Trumpet is one year old. Help us celebrate our first birthday by renewing your membership and returning the reader survey below. We want to hear from you, to know what you like to read, what you want to know, (and even what you find irrelevant).

Due to limited funds, increased mailing costs, and a desire to keep your subscription rates from rising, we are not sending individual renewal notices. PLEASE SUBSCRIBE RIGHT NOW. Your membership expires before the next (Summer) issue, regardless of when in the last year you joined.

Please, don't become a part of our past; don't let your subscription to the Mammoth Trumpet become extinct!

PEOPLING OF THE AMERICAS PUBLICATIONS

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Edited by
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Context and Geocarkheology: An Introduction
Julie K. Stein and William R. Farrand
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Julie K. Stein
Rockshelter and Cave Sediments
William R. Farrand
On the Interpretation of Archaeological Sites in Alluvial Settings
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Curtis E. Larson
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Geocarkheology of Northern Regions: Lessons from Cryoturbation at Onion Portage, Alaska
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David Young and Robbin Bonnichsen, authors. Theory and method linking cognition, behavior and material products. Contemporary experiments are used to interpret flaking patterns on prehistoric stone tools.
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Julie K. Stein and William R. Farrand, editors. Please see page 2 for descriptive art and above for complete table of contents.
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FORTHCOMING TITLES
Environments and Extinctions: Man in Late Glacial North America
Jim L. Mead and David Melzer, editors.
New Evidence for the Pleistocene Peopling of the Americas
Alan L. Bryan, editor.
Animal Remains from Archaeological Sites
D. Gentry Steele and B. Miles Gilberi, editors.

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Page 6: Mammoth Trumpet Volume
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SURVEY

We appreciate all the notes, letters, and news you have sent us during the past year. Please take this opportunity to fill out the questionnaire below. Feel free to use other sheet(s) if the space provided is not enough. Additional comments are welcomed.

1. What can we (the Center and the Trumpet) do better?

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**WORKING TO CHANGE THE TIDE OF AMERICAN ARCHAEOLOGY**

Alan Bryan started his career with the intention of understanding early human lifestyles and artifacts in the Americas. In 1960, he accepted an invitation by the National Museum in Rio de Janeiro to study a shell mound site on the coast of Brazil, similar to ones in the Puget Sound area on which he had just finished a University of Washington master’s thesis. The Forte Mareschal Luz site was to be the turning point of Bryan’s career. The 4,000-year-old mound site is not particularly remarkable. However, the fact that by all the evidence, the people of Forte Mareschal Luz did not use flaked stone until about 900 years ago is noteworthy. Such a phenomenon tended to be considered so improbable as to be discounted as missing evidence or improper analysis. Yet Bryan had screened all the material, and, in the face of skepticism, felt that his analysis was correct. There are plenty of quartz tools naturally sharpened or slightly resharpened, but no flaked stone. It would seem then, these people simply did not possess the stone tool industry that most North American students of prehistory routinely learn to identify.

Bryan points out that the reaction to this apparent anomaly taught him something about human behavior, that is, the tendency to disregard or explain away any evidence that does not fit the current explanatory paradigm. However, reports began to accumulate from the Tennessee Valley, northern Alabama, and Idaho, all of them citing something very similar, a culture with bone artifacts but, until the relatively recent past, no flaked stone. “It think anomalies are important to examine, not to try and explain away. This is a very important part of the study of early man.” Alan Bryan and Ruth Gruhn, his colleague and wife, have since spent their careers investigating the anomalous and the inadequately understood early human artifacts. (see photo, page 12)

Within archaeology of the western hemisphere, ‘inadequately understood’ may almost be equated with ‘South America.’ In 1970, on their first sabbatical, Bryan and Gruhn took a Land Rover from New York south through Central and South America all the way to Patagonia, then back north to Brazil, examining all the known early sites along that route. On this trip they developed the opinion that caves have the best potential for finding early materials. Further, the best place to find suitable caves seems to be eastern Brazil, which is tectonically and climatically stable. Even in the Pleistocene, presumably the area was never extremely cold, consequently there was comparatively little frost action. Still, most of the caves have collapsed over time, making it extremely difficult and time-consuming to penetrate the rockfall under which ancient human material may be buried. Difficulty in getting permission from South American governments to excavate may also complicate archaeological investigations in some countries.

In 1976, on their second sabbatical, they settled upon a small Brazilian rockshelter, the Lapa Poesia site, and began to teach themselves how to analyze artifacts they say are so simple that many archaeologists might not even recognize them as artifacts. And yet Bryan and Gruhn suspect that such artifacts occur in North America as well. In fact, they feel it is plausible to assume that, if people were in the New World before 12,000 years ago, their tools would probably resemble those of the more recent South American cultures. Therefore, the so-called “gap” in the New World human record before 12,000 is no gap at all, but a blind spot in archaeological vision.

Gruhn explains that the kind of material they deal with in South America could well be appearing quite regularly in the United States but is largely ignored. “Well, it just doesn’t shine when it’s next to some beautifully flaked stuff or well-trimmed end scrapers or projectile points. Very few of the Brazilian artifacts are deliberately shaped. They’ll just take a chunk and make little nodes on it maybe, or just use a flake and shape it that way. There are very few formal categories of artifacts. Down in Brazil that’s all you get, and you had to learn how to handle it. To look at each piece, because they’re all distinctive, and look at them very carefully.”

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**TROPICAL LOWLAND SOUTH AMERICAN ARCHAEOLOGICAL SITES WITH RADIOCARBON DATES GREATER THAN 11,000 YR B.P.**

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<tr>
<th>Site Name</th>
<th>Latitude</th>
<th>Longitude</th>
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<tr>
<td>Muso, Venezuela</td>
<td>14,300 ± 500 (C-999)</td>
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<td>Taima-Taima, Venezuela</td>
<td>14,375 ± 450 (M-1068)</td>
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<td>Alto Boi, São Paulo, Brazil</td>
<td>14,200 ± 1,150 (S-1208)</td>
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<td>11,600 ± 500 (Gif-3720)</td>
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<td>11,000 ± 1,100</td>
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<td>Toca de Boqueiro do Peixe Fandêa, Piauí, Brazil</td>
<td>14,300 ± 210 (Gif-)</td>
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<td>17,000 ± 800 (Gif-5387)</td>
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<td>25,000 (Gif-5730)</td>
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<td>25,000 (Gif-5783)</td>
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<td>20,400 ± 600 (Gif-5961)</td>
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<td>26,400 ± 500 (Gif-5982)</td>
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<td>31,500 ± 950 (Gif-6041)</td>
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<td></td>
<td>12,200 ± 600 (Gif-6428)</td>
<td>quartz cores, utilized flakes, choppers, hammerstones</td>
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<td>13,900 ± 300 (Gif-6527)</td>
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NEW REFERENCES AND RESOURCES

JOURNAL OF ETHNOBIOLOGY

Editor's Note: Although the Mammoth Trumpet does not offer critical reviews of books and articles or announcements, we are interested in announcing new references and resources as they come to our attention.

Paleoenvironmental reconstruction, the use of plants and animals by Paleoindians to recent cultures in the New World, paleoecology, ethnoecology, and ethnozoology — these are just a few of the subjects that are rapidly developing into interdisciplinary journals. The Journal of Ethnobiology, Lyndon L. Hargrave, a prominent pioneer in this field, defined ethnozoology as "the study of man's use of biological material, whether or not used by man, at any place in time."

This year, the Society of Ethnobiology, a new professional organization that now publishes the journal, will hold its eighth annual conference in the Boston area in May (see "Upcoming"

How often do you find a publication of real value that is also free? Here is one that many teachers will find useful in teaching anthropology, history, and even current events.

Attention Teachers!

The Archaeology of Colorado by E. Steve Cassells. Drawing from unpublished reports and personal communications with other archaeologists, his own field work, and review of literature, Cassells examines the significant archaeological sites for every cultural stage of the Southwestern United States, including the prehistoric period. The book is richly illustrated and is sells for $17.95.

How to Make and Use the Attatl: The Ancient Weapon of the Ice Age Hunters by Roderick D. Laird. This book shows the reader what materials are needed and graphically explains how to make and throw an attatl, as well as how to enter the World Open Attatl contest held in Saratoga, Wyohoing. Extensively illustrated, the book sells for $7.50, plus $1.00 postage and handling. From: Attatl Press, P.O. Box 703, Saratoga, WY 82331.

Other articles:
- Mammoth Trumpet by N. E. Hargrave
- Frontiersman by R. L. Kirk
- The Archaeology of Colorado by E. Steve Cassells
- How to Make and Use the Attatl: The Ancient Weapon of the Ice Age Hunters by Roderick D. Laird
- Out of Asia: Peopling the Americas and the Pacific by R.L. Kirk and J.E. Szathmary
- The Archaeology of the Tauxi Indian Association, Vol. 1, Numbers 1 & 2, Smithonian Institution, Washington, DC 20560

-Dave Cook
Caves are non-renewable natural resources and their preservation, conservation, and management is a primary concern for a variety of governmental and private agencies, groups, and individuals from different disciplines. However, caves have many unique properties that set them apart from other natural resources and consequently require special consideration. The 1984 National Cave Management Symposium was held at the University of Missouri-Kansas City in order to address these concerns. Sponsors of the conference were the Missouri Department of Natural Resources and the Ozark Scenic Riverways (National Park Service).

The symposium consisted of two days (October 11 and 13, 1984) of technical sessions covering a wide diversity of topics. The papers presented at the technical sessions can be categorized as those dealing with cave systems and management in general, and with the management of natural resources within caves. A series of day-long field trips to many of Missouri's caves were taken on the day between the technical sessions.

Management of Cave Systems

Papers on managing agencies dealt with their structure, organization, and management responsibilities. One of the primary problems discussed in this session was the need for coordination and communication between the agencies in order to minimize redundancy and maximize effectiveness. Jer Thornton (American Cave Conservation Association) and George Huppert (University of Wisconsin-La Crosse) suggested that a Midwest Field Study Commission should be formed to resolve this problem.

Computers will play a primary role in facilitating communication between agencies, and several papers at the symposium dealt with this aspect of cave management. However, before communication between electronic files can be accomplished, cave data files must be standardized. At present most speleological surveys have included data files for their own needs. According to Jerry D. Vineyard and Tami L. Martin (Missouri Department of Natural Resources) the computerization of cave files has been a catalytic factor in bringing speleology into environmental decision-making because of the fast and efficient means of retrieving information. According to Rob Stitt (National Speleological Society), the microcomputer is the standard tool used by most managing agencies to electronically capture cave data.

Cave rescue exemplifies the need for coordination and communication between various agencies and groups. Presentations by Jeff Scott (Boone County Fire District), John C. Hempel (National Cave Rescue Commission) and Don Paquette (INCRR) outlined different ramifications of this need.

Other papers outlined management problems at specific caves. For example, Katharine M. Rodhe (National Park Service) discussed planning for cave management at Wind Cave, Hot Springs, South Dakota. The problems of visitor regulation at Fitton Cave, Arkansas were addressed by Steve Chaney (National Park Service).

Natural Resources Within Caves

Caves serve as repositories for many natural resources. Cavernous networks act as conduits for groundwater. Minerals (e.g., speleothems) and economic deposits (e.g., guano, saltpeter, etc.) are formed and retained in cave environments. Caves are frequently self-contained ecosystems which provide refuge for many endangered species. Many caves contain prehistoric cultural and paleontological resources which are part of our natural heritage. These natural resources are the focus of many cave management programs.

A series of papers by Tom and Cathy Aley (Ozark Underground Laboratory), James E. Vandike (Missouri Department of Natural Resources), and James F. Quinlan (Mammoth Cave National Park) reported the results of ground water tracing studies with the use of fluorescent dyes. Such studies are fundamental in assessing the impacts to ground water systems.

The plight of minerals and economic deposits in caves was not given much attention. Tom and Cathy Aley presented the results of their study on exotic plant growth in Carlbad Caverns, New Mexico. Obviously any attempts to recover economic deposits from caves will have severe impacts on other resources in the cave. Caves are relatively fragile ecological systems and many of the species in cave biotas are frequently known only from a few localities. As reported by Ronald Crankhotel (Missouri Department of Conservation), the adverse effects on Manatee Spring by a liquid fertilizer lead is a clear example. James E. Gardiner (Missouri Department of Conservation) noted that 41 vertebrate species have been identified from a recent biological inventory of 436 caves.

Perhaps the most common association observed with caves are bats. Papers on the protection of bat colonies focused on the design and implementation of cave gates. As with the management of any multipurpose features with various resources, there are always going to be conflicts of interest. This was the case recently at the John Guilday Cave Preserve in West Virginia (see discussions in the National Speleological Society Bulletin). Biologists wished to protect the bat species that utilized the cave, but paleontologists wanted to recover fossils from the cave. An agreement was reached by the different parties by closing part of the cave, while allowing paleontologists to continue their research in restricted areas.

A paper by R. Bruce McMillian (Illinois State Museum) provided an overview of cultural resources and cave environments. Caves have served many purposes for human populations throughout their evolution. Caves are nature's "time capsules" and often offer optimal opportunities for interdisciplinary studies of the dynamic interactions between hominid populations and Quaternary landscapes and biotas. The interdisciplinary nature of the species in cave biotas is illustrated by numerous environmental and archaeological projects, especially recent studies by Cinq-Mars and Mortan at Blue Fish Caves, Yukon Territory; Bonnichsen and Young in the Pryor Mountains, Montana; McMillan, Kay, and Wood at Rodgers Rockshelter, Missouri; Syles and Fowler at Modoc Rockshelter, Illinois; and Adovasio et al. at Meadowcroft Rockshelter.

A wide variety of fossil resources ranging from durable remains (teeth, bones, and shells) to perishable items (hair, plants, etc.) and including extremely fragile traces such as footprints can be preserved in caves. Like cultural resources, the effective management of fossil sites requires the cooperation of academics, managers, and laymen.

One of the primary management concerns for cultural resources in caves is the indiscriminate looting of sites by "pothunters" for personal gains or the spelunker who buries surface finds to "preserve" the specimen. Unfortunately, this type of activity has increased at an alarming rate. It is especially difficult to monitor and control on private land but all efforts must be made to assure that, for the public good, future destruction is minimized.

The contextual record, or undisturbed locale of paleontological and archaeological resources, is as important as the specimens themselves. Contextual relationships can provide information on the origin and inherent biases of the accumulations (e.g., predator/prey) between organisms preserved in fossil deposits, on the use of caves by fossil animals and humans (dens, hibernacula, mortuary and ritual activities, etc.), and on a variety of other phenomena. Therefore, fossil and archaeological specimens should only be removed from caves in the case of emergencies or under the supervision of trained specialists.

In addition to management, educational programs must be developed to alert the public to this problem. Charles M. Niquette (Cultural Research Analyst) and Emily S. Brown (United States Army) reported on recent efforts by the army to preserve and manage cultural resources in caves on Fort Leonard Wood, Missouri. Russell W. Graham (Illinois State Museum) evaluated caves as primary sites for paleontological research which document biotas and environments of the past.

Case-studies presented by James S. Oliver (Illinois State Museum), Neal Woodman (University of Kansas), and James E. Vandike clearly documented many of the points outlined by McMillan and Graham. James Oliver's presentation on bone accumulations in Short Trap Cave, Pryor Mountains, Montana underscored the significance of contextual information for interpreting taphonomic processes. The presentation by Neil Woodman on the micromammal fauna from False Cougar Cave, also in the Pryor Mountains of Montana, showed the value of microvertebrate remains for paleoecological reconstructions. Both of these papers recognized the benefits of cooperative programs between academic groups (e.g., universities and museums) and management agencies (e.g., U.S. Forest Service).

James E. Vandike discussed the recently found footprints of an extinct lion, Felis atrox, in a south-central Missouri cave. He also outlined many of the difficulties involved in protecting these resources.

Caves, without a doubt, are an extremely important part of our environment. Efforts must continue to open dialogue between academics, managers, decision-makers, and the general public in order to provide the best protect to this unique natural resource. The Cave Management Symposium has provided a forum for this dialogue but people from various disciplines will be willing to attend and participate in these meetings in order to make them successful.

-- Russell W. Graham, Quaternary Studies Center Illinois State Museum, Springfield, IL 62706
Geological Society of America Symposium

**TIME AND CIRCUMSTANCES OF THE PEOPLING OF SOUTH AMERICA**

David M. Hopkins: "South American prehistory is a time and place very close to the edge of the age of humans, so close to the edge that it is very nearly invisible. I want to explain that in the 1940s, when I was a graduate student, I took a seminar in structural geology from a very authoritarian man. He introduced the seminar by telling us all the ideas that were nuts. One of them was Pangaea. He was so authoritarian that the seminar concluded because he believed in the various theories that he told us didn't deserve the slightest bit of consideration, and I resubscribed in that way to the ideas of Pangaea. I do not think of Pangaea as a unified theory. You are invited to very carefully read what you hear today and to think hard about it, and to open your mind to new ideas."

And the more than 100 attendees did just that as they listened to nine scientists present papers citing evidence of human occupation ranging from 10,000 to 30,000 yr B.P. to more than 30,000 yr B.P., from locations as diverse as the tropical Amazonian jungles to the Andes mountains.

Alan Bryan (University of Alberta) co-chairperson of the meeting held November 6, 1984 in Reno, Nevada, began with a report on early occupation of tropical South America. He listed eight lowland sites with human materials dating 10,000 to 13,000 yr B.P. Two are kill sites in northern Venezuela dating 16,000 to 13,000 years old; six are occupation sites in eastern Brazil, with dates ranging back to 35,000 yr B.P. Bryan said that while the archaeological evidence for early human presence is firm, the paleoenvironmental evidence for human occupation is much more equivocal. The problem in the preliminary analyses of the paleoenvironmental trends is that several scholars presented papers summarizing more regional paleoenvironmental reconstructions.

John Mercer (Ohio State University) outlined the geology, history of the glaciers, and the paleoclimatic episodes in the Andes. Referring to the area in which the Monte Verde archaeological site is located (near latitude 19°S), Mercer gave the date of glacial advance and retreat in the area. Apparently, the piedmont glaciers reached their outermost positions shortly after 19,500 yr B.P. and then receded only to advance one more time to their final full-glacial altitude about 14,500 to 15,000 yr B.P. Rapid deglaciation followed during the next 1,000 years. The entire glacial-interglacial transition took place in 3,500 years (between 14,500 and 11,000 years ago).

Paul Collinvaux (Ohio State University) has worked with sediment cores from a number of lakes in northern South America. These 7,000 to 8,000 yr old cores range from the high Andes to the tropical areas. The cores indicate significant changes in rainfall during the Holocene. Collinvaux's analyses show the Andean forests on the steep slopes and valleys by the year 6,000 yr B.P., and an increase in species diversity since that time. Based on maize pollen, it would seem that the cultivation of maize was a late arrival on the Andean slopes. He concluded that the area has a long history of environmental fluctuation, with many local variations. As the relevance of dates, he noted that early human studies, Collinvaux feels that there was no par-ticular limiting environment in either Amazonian or the Andean uplands.

Vera Mackgraf (INSTARR) reported on her pollen and environmental reconstruction work in southern South America. From her work with sloth dung, Mackgraf concludes that megatheres' control of extinction seems unlikely. The sloth diet does not seem to have changed significantly over the time period at the end of the Pleistocene. However, she also says there is little evidence for excessive human predation upon the extinct fauna. She suggests either a mutual tolerance between the species or, at most, a gradual process of human-caused extinction.

In her analysis of the peopling of the high southern latitudes of Patagonia, Tierra del Fuego, she examined the records of many other workers in various Andean sites. The oldest evidence of humans in the archeological record is 12,600 yr B.P., but there is evidence of abundant population prior to 11,000 years ago. Faunal remains are also abundant.

John Rick (Stanford University) summarized the existing data on human occupation of Andean and coastal Peru during the late Pleistocene and early Holocene. He analyzed the temporal clustering of radiometric dates on reliable materials in clear association with cultural remains. His analysis provides little support for human occupation before 12,000 yr B.P. Rick considers the earliest dates as aberrant occurrences in the distributions. He concluded that room should be left for some form of an early occupation of Peru. However, he suggests that Peru may not have been the southbound highway, and that the earlier remains further south have to be explained by other routes of travel.

David Hopkins in summary: "...Finally I want to talk about rigor. We have to deal with our data with rigor. Some of us are less rigorous than others and there are choices: one is to be always optimistic. A second is to be extremely rigorous and to admit nothing to your consciousness that cannot be explained; admit nothing to your thoughts about human history that cannot possibly be illustrated. A third thing is for us all to discipline ourselves to be able to change our minds or to entertain ambiguities; to be one foot in one camp and another foot in the other. And it is important for us to maintain as much of an open mind as we can without its turning into a sieve. The other danger is that we will blind ourselves and we'll walk across things that are significant, that are the clues to discoveries. So we have to be at least willing to admit possibilities."
MAMMOTH BRIEFS

Eugene M. Gryba reports the recovery of two
fossilized points from the shallow, multicomponent Sibbald Creek site (EgY-2), located in the Rocky Mountain foothills 72 km west of Calgary, Alberta, Canada. The points were found near the base of 45 cm of poorly
stratiﬁed deposits. The site contained material rang-
ing from Paleoindian to the Historic period. No faunal
remains were recovered from the bottom of the
cultural deposits. One small, multiple ﬂuted example from Sibbald Creek is reminiscent of the point recovered by Flad-
raux from the Charlie Lake site near Fort St. John in northeastern British Columbia [see Mammoth Trumpet 1(1)].

The Sibbald Creek site is located on a terraced rem-
rnant tilted high against the south side of a small knoll
and overlooks a large open meadow which dominates
the valley floor of Sibbald and Jumpingpound Creeks (see photo). That southwestern Alberta was occupied at a relatively early time by a resident human popula-
tion whose members were quite familiar with the range of alternatives available in this part of North America suggested by the use of good quality, locally derived siltstone for the manufacture of one of the ﬂuted points, the protected, southern aspect of the campsite, and its regional setting in the foothills off the open Plains and in an area frequented by chinook.

A 219-page report on the 1980 salvage excavations at EgY-2 has been prepared. Sibbald Creek: A Record of 11,000 Years of Human Utilization of the Southern Alberta Foothills, by Eugene Gryba, with Appendix 1 by Donald A. Barnett. Published as Archaeological Survey of Alberta Occasional Paper No. 22 (1983). Alberta Culture, Edmonton.

Andrey V.Sher (Moscow), with colleagues from the Moscow University, have excavated a mid-Pleistocene

site on the Keremeit River, a tributary of the lower Indigirka R. (see map on page 1) this past summer. They have collected and begun study of numerous fossils of large mammals, rodents, and insects adding enormously to the understanding of the history of the Berigian fauna and environment of the area which was previously poorly known.

They plan excavations next summer of a woolly mammoth site presumed to be late Wisconsin age, on the same river. Many of the mammoth bones are fractured, but probably by natural rather than human processes.

Huang Wano (Institute of Vertebrate Paleon-
tology and Palaeoanthropology, Beijing, China) reports completion of a review of mammalian fossils and climatic change during late Pleistocene and Holocene times in eastern China. The review shows variations in climate accompanied by rapid sea-level ﬂuctuation during the late glacial and post-glacial. Studies of the Chinese Phegus, Hisoanaehai, and Shinnogia faunas reveal a widespread drop in air temperature during the period 15,000 to 10,000 yr B.P. During the cold stages, mammals such as the woolly rhinoceros, mammoth, horse, deer, and mole-rat migrated from northern to southern China.

Australian National University Quaternary Studies Programme and the Institute of Vertebrate Paleontology and Palaeoanthropology (Beijing, China), have an on-going research program to compare human skeletal materials from China and Australia in order to understand the development, chronology, and distribution of Pleistocene and early Recent human populations in the Paciﬁc region. Leaders of the pro-
gram are Wu Rukang (VPFP) and A.G. Thorne (ANU). Research indicates there are morphological similarities between late Pleistocene cranial remains from southeastern Australia and those from the Chinese site of Liukiang and the Upper Cave at Zhoukoudian suggesting a direct relationship of the two populations. Work is underway on a ﬁlm about Pleistocene human populations in China, Indonesia, and Australia and their relationships. (From The East Asian Tertiary-Quaternary Newsletter, No. 1, 1984).

SUGGESTED READINGS

On Dental Evidence for the Peopling of the Americas


TO THE ENDS OF THE EARTH

We will go to great lengths, to the places indicated on the signpost at Calico (see photo, left) and beyond, to bring you the latest news and research about the pop-
ing of the Americas. But no matter how far we go or what we ﬁnd when we get there, we still have more one step to take to get the news to you and for that we need your help. That step is you subscribing to the Mammoth Trumpet. This is the last issue in Volume 1; Volume 2 will begin with the next issue, due out this summer. Due to our limited funds, we cannot send out individual notices to all our loyal members. Please take the time to make sure your subscription is up to date so you won’t miss a single issue of the Trumpet. For more information and a convenient renewal form, please open to page 5.

University of Maine at Orono
Center for the Study of Early Man
485 College Ave.
Orono, ME 04473

Apr. 24-27, 1985 19TH ANNUAL CONFERENCE OF CANA-
DIAN ARCHAEOLOGICAL ASSOCIATION, Hotel Fort Garry,
Winnipeg, Manitoba, Canada.

For more information contact the conference coordinator Elizabeth Snow, 621 Academy Road, Winnipeg, Manitoba R2H 0E7, Canada.

May 1-5, 1985 50TH ANNUAL MEETING SOCIETY FOR
AMERICAN ARCHAEOLOGY, Denver Hilton Hotel, Denver, Colorado.

Selected symposia include: [Research in Zoarchaology, Faunal Analysis, and Taphonomy (P. Buxbaum, chairperson); "Regional Perspectives in the Pleistocene Prehistory of the Old World" (P. Soffer, chairperson); "Early Man in South America" (A. Bryan, chairperson); Archaological Research in the Paleolithic Period (P. Sportel, chairperson); and 16,000 B.P.: The End of the Paleolithic in the Old World? (L. Stringer, chairperson). Contact Dee F. Green, USSA Forum Secretariat, 511 Goldstone Ave., Albuquerque, NM 87104.

For additional information about SAA’s 50th anniversary meeting, see article on page 6.

May 4-5, 1985 EXPERIMENTAL ARCHAEOLOGY WORK-
SHOP, Gulf Branch Nature Center, Arlington, Virginia. Workshop for people interested in prehistoric technologies, including ﬂintknapping, ﬁre making, horning, pottery ﬁring, and other tool manufacture. Contact Scott Sibley (703-558-6031, ext. 671-731), evenings and weekends) or Gulf Branch Nature Center, 3408 North Military Road, Arlington, VA 22207.

May 8-10, 1985 ETHNOBIOLOGY CONFERENCE, 8TH
MEETING, Boston, Massachusetts.
The conference will focus on the AA0-formediely published report, Museums for a New Century. Contact American Association of Museums, P.O. Box 3399, Washington, DC 20033.

July 19-21, 1985 CAMP PALEO FLINTKNAPPING
DEMONSTRATIONS AND THE 5TH ANNUAL WORLD OPEN
ATLANTIC CONTEST, Strathmore, Wyoming.

For more information on this lovely, pre-sessional, part-
recruitment gathering, please contact Ada Borel Jackson, Box 703, Saratoga, Wyoming 82331.

Sept. 12-13, 1985 AMERICAN ASSOCIATION FOR STATE
AND LOCAL HISTORY ANNUAL MEETING, Toledo, Ohio. For more information, contact Dr. Fred Weisman, Center for Material Resource Archaeology and Ethnology, Massachusetts Institute of Technology, Cambridge, MA 02139.

May 23-26, 1985 AMERICAN ASSOCIATION OF MUSEUMS
ANNUAL MEETING, Detroit, Michigan.
The conference will focus on the AA0-formediately published report, Museums for a New Century. Contact American Association of Museums, P.O. Box 3399, Washington, DC 20033.

Aug. 23-26, 1985 5TH INTERNATIONAL CONFERENCE ON
ARCHAEOZOOLOGY, Bordeaux, France.
The conference is soliciting papers and ideas in the ﬁeld of ar-
chaеozoology, deﬁned as, "The study of animal remains connected with the settlements of ancient human groups." Contact Dr. Pierre Ducos, Ve Conference ICAZ, C.R.E.P., St. Amand de Crouzilles, France.

Sept. 7-9, 1986 UNION INTERNATIONALE DES SCIENCES
Contact Peter Cuoio, Department of Archaeology, University of Southampton, Southampton S09 5NH, England.

July 31-Aug. 9, 1987 12TH CONGRESS, INQUA, Ottawa, On-
tario, Canada.
Contact Dr. Alan V. Morgan, Department of Earth Sciences, Uni-
versity of Waterloo, Waterloo, Ontario, N2L 3G1, Canada.

GEOLOGICAL SOCIETY OF AMERICA MEETINGS
1985 Orlando, Florida (Oct. 28-31)
1986 San Antonio, Texas (Nov. 10-13)
1988 Denver, Colorado (Oct. 31-Nov. 3)

Ruth Grunh and Alan Bryan stand at the crossroads of South and North American archaeology, both literally and professionally. The signpost stands at the Calico site in southern California and points the way to several early sites in both the northern and southern hemisphere. See page 1 for a map and page 7 for an article detailing Bryan and Grunh’s work in southern California. (Photo by George Carter, courtesy of Alan Bryan).