

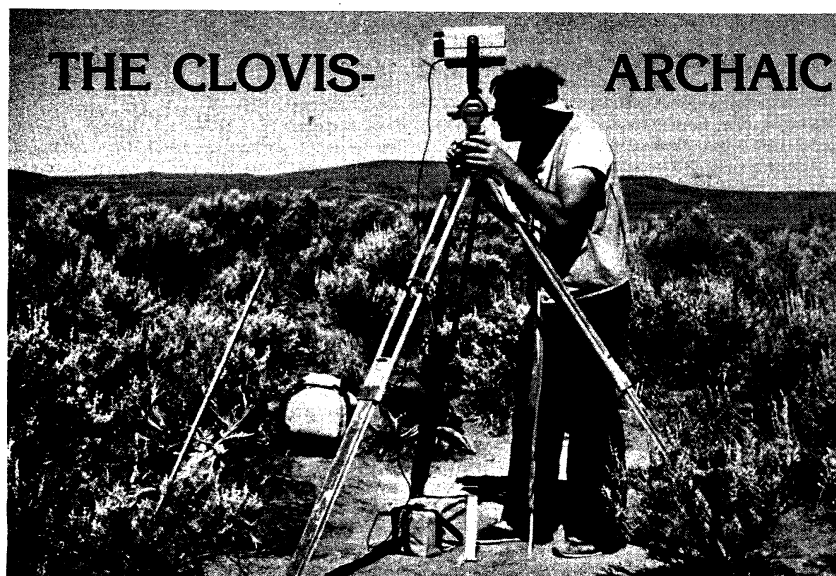
# MAMMOTH TRUMPET



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Center for the Study of Early Man  
495 College Ave. Orono, Maine 04473

University of Maine



Wayne Tucker, University of Oregon student, operates the electronic distance measurer (EDM) which has been responsible for critically accurate recordings of the location and elevation of each lakeshore feature and artifact discovered in the basin. (Photo by D. Hunter)

## An Update on the Dietz Site in Oregon

The Dietz site in the Alkali Basin area of south-central Oregon is a two component site containing materials from both the fluted and stemmed point traditions. Although mostly surficial, artifacts from this site, when placed in their correct geomorphic context, may help to articulate the nature of the change from Paleoindian to Archaic cultures in western North America.

The period between the late Pleistocene and early Holocene (12,000-7,000 yr B.P.) is relatively obscure in terms of our knowledge of human cultural patterns.

This time interval witnessed a significant change from the Paleoindian Clovis fluted point tool pattern to Archaic patterns which included tools such as stemmed points and technology for processing plants (ground stone and milling tools).

But there is little evidence for the nature of this transition, as well as an attendant inconsistency in the terminology used to describe it. Some archaeologists use the term "Paleoindian" to describe Clovis and previous North American cultures only; others include the stemmed point horizon under this heading; still

## INTERFACE

others refer to this as a transitional period, calling it "late Paleoindian" or "early Archaic."

Although other western sites have been uncovered in which the two traditions co-occurred, the investigators of the Dietz site believe it is unique in its potential to clarify and compare the relationship of these two traditions to each other.

In the Alkali Basin, the problem with most sites has been a lack of focus on proper interpretation of complex and subtle shorelines of prehistoric lakes due to the great drop in lake levels. At the Dietz Site it has been possible to discern two separate shorelines and two corresponding zones of concentrated artifact finds.

The higher shoreline contains an abundance of sites which belong to the regional complex known as the Great Basin stemmed tradition. The lower shoreline, encircling a smaller, more shallow lake or marsh, has on its western shore large, discrete, entirely Clovis tool clusters. These shorelines overlap in one place and have between them an intermediate zone in which materials from the two traditions are found mixed.

The Dietz Site was discovered in 1982 by Dewey L. Dietz who contacted John Fagan, archaeologist with the Portland District Corps of Engineers. After a preliminary survey with local BLM archaeologist William Cannon which revealed more fluted point fragments, Fagan involved C. Melvin Aikens, ar-

(Continued on page 5)

## CENTER MATCHES HALF-MILLION DOLLAR BINGHAM CHALLENGE

This past summer the Center for the Study of Early Man, University of Maine, was able to match the half-million dollar challenge from the William Bingham Trust for Charity and provide million dollar endowment for the Center. The match was accomplished through countless gifts from Center members as well as substantial gifts from several private donors and \$350,000 from the University of Maine Foundation.

The permanent endowment for the Center is intended to "extend the trust of the Center beyond the confines of the University." It will be used to continue leadership and coordination for international scholarship about the peopling of the Americas, as well as to "tell the story" of the first Americans to the public.

The Center will continue to focus research and public education programs on the earliest prehistoric people of the Americas. However, this focus is approached globally with the goal of understanding the dispersion of the human species. The understanding of the cultural and biological dynamics of Ice Age peoples, of their activities and environments, involves the Quaternary sciences of archaeology, geology, ecology, and climatology, all of which are represented at the Institute for Quaternary Studies.

The Bingham Trust is providing an additional \$500,000 in endowment for the Institute for Quaternary Studies at the University of Maine with which the

(Continued on page 8)

## IS THERE LIFE AFTER GRAMM-RUDMAN — SURVIVAL OF A MAJOR RADIOCARBON LABORATORY

After nearly twenty years of service to the archaeological community, the Smithsonian's radiocarbon laboratory, headed by Robert Stuckenrath, has been abolished. Due to the Gramm-Rudman law, closure of the lab was originally scheduled to take place by November 22. However, in late August the salary lines for the lab staff were discontinued.

Fortunately, the University of Pittsburgh has been able to offer a home for the entire laboratory, as well

as for Stuckenrath and his assistant, John Williams. Stuckenrath will become a Research Professor in the Department of Anthropology. The laboratory will be moved in its entirety (including all the electronics, the chemical systems and 23 tons of shielding) to a research facility several miles from the University of Pittsburgh campus.

Stuckenrath will be working closely with James Adovasio and his colleagues in the Anthropology Department. Adovasio is Professor of Anthropology and Director of the Cultural Resource Management Program; he played an important role in arranging for the move to Pittsburgh.

The move will take place in November, with the expectation of commencing operations in mid to late spring, 1987. Stuckenrath expects to continue with his own research, providing radiocarbon dating expertise and dates as he has in the past; however, about half of his and his lab's resources will be devoted to in-house work.

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# C E N T E R N E W S

## CRP CALL FOR PAPERS

**Current Research in the Pleistocene** is seeking papers for publication in the upcoming issue. This annual journal highlights the leading edge of the Quaternary sciences as they relate to the peopling of the Americas before 10,000 years ago. Topics covered include archaeology, lithic studies, taphonomy, physical anthropology, and paleoenvironments (plants, invertebrates, vertebrates, and geosciences). The regional focus section of invited papers in this issue will feature South America.

This journal has a worldwide circulation, and subscriptions by libraries and other institutions continue to increase steadily. **CRP** presents researchers a unique opportunity to keep abreast with the latest developments in the multidisciplinary field of Quaternary sciences. Papers should be no more than three pages in length and may be accompanied by one figure. For further information and guidelines for contributors, write to Jim I. Mead, editor, Department of Geology, Box 6030, Northern Arizona University, Flagstaff, AZ 86011. Deadline for submissions is January 31, 1987.

## AND THE WINNER IS . . .

The limerick contest elicited quite a range of responses from readers of the last **Mammoth Trumpet**. It made opening the mail great fun! Most entries fell into one of three general categories: limericks about the **Trumpet** (flatterers!), limericks about the Pleistocene, and limericks about research on the Pleistocene. We have printed some of each.

Judging them was more difficult than we had thought possible. Our criteria in selecting the winners were: 1) the entry had to actually be a limerick; 2) humor counted; 3) scientific or historical information, if included, should be accurate; and 4) no disparaging limericks would be printed. A separate kids' category was added after we received many excellent limericks—several illustrated—from Rod Laird's class in Saratoga, Wyoming. Their artwork accompanies this article.

Although the contest is officially over, we always welcome literary efforts of all kinds and will print them when appropriate, with permission of the author. Many thanks to all who took the time to send us your imaginative efforts.

It's so gneiss to read your **Trumpet**,  
Folks praise it o'er tea and crumpet.  
Sure when Auel is said and done,  
There is really only one;  
For 'tis top of the stack I plunk it.

—Michael Murphy

The huge wooly mammoth of yore  
Met extinction along with his roar.  
But he died not in vain  
From the forests of Maine  
His trumpet sounds loudly once more!

—Letha Curtis Musgrave

There once was a 'Clovise' named Shawna  
Who liked to sing in the sauna.  
Invited to a luau  
She eyed all the chow  
And ate up the last megafauna

—Hetty Jo Brumbach

Some scholars hold an overwhelming conviction  
That overkill caused the Pleistocene extinction  
While another school of thought does pitch  
Climatic stress voided many a niche.  
Over eating, over heating or ecological eviction?

—Stephen A. Chomko

## OPPORTUNITIES FOR DONORS

Our thanks to all of you who have donated gifts for the Center's endowment. However, as you will have read (starting on page 1), the endowment is not yet complete. In order to fund normal operating expenses (as opposed to project expenses), we estimate needing \$1.3 million dollars to generate adequate interest income. The University of Maine has agreed to help us out until we can raise the additional \$300,000, but we need your help for the coming year.

We have submitted a proposal to the National Endowment for the Humanities Challenge Matching Grant Program for the purpose of strengthening the humanities component of the Center's work. We hope, for example, to establish a National Publisher's Resource Center to aid major publishers of social studies textbooks in improving their coverage of the Americas' earliest human heritage for primary and secondary education. Those of you who are particularly interested in the humanities are encouraged to let us know when you make your donations. If NEH funds us, we can use your donation to match theirs.

There are also specific projects for which we are

seeking donor support. We welcome contributions for the following:

**Mammoth Trumpet Junior**—To develop a newspaper similar to the **Mammoth Trumpet**, for school children grades 6–8, and related curriculum aids for teachers. The focus is on the early prehistory of North and South America. Major donors would be acknowledged in each issue, if desired.

**CSEM Library and Resource Center**—To renovate one of the large rooms of the Center building into a library and conference room. The goal is to improve scholarly and public access to the Center's resources, to provide study areas for visiting scholars, and room for special conferences. We will, of course, accept small contributions, but would also consider naming the library for a major donor.

**Basic Research on Pleistocene Peoples of the Americas**—To support (1) radiocarbon dating of human skeletal material of probable Pleistocene age from North and South America; (2) excavation of archaeological sites along the flanks of the Rocky Mountains in southwestern Montana; (3) analysis of early stone tool industries from Maine, Montana, and possibly China; and (4) support visiting scholars from Asia, North America, and South America who participate in Center research.

More details on above projects are available on request from the Center.

## GRADUATE RESEARCH FELLOWSHIPS IN QUATERNARY STUDIES PROGRAM

Two graduate research fellowships are available in the Institute for Quaternary Studies at the University of Maine. The fellowships are available to qualified applicants to the Institute's MA graduate program and can be used for research in archaeology, glacial geology, paleoecology, and paleoclimatology. The stipend includes tuition and living expenses. For further information and application materials please write to: Institute for Quaternary Studies, 304 Boardman Hall, University of Maine, Orono, Maine 04469.

### First Prize

There once was a digger named Ada  
Who probed deeper into her strata  
She was unearthing a plan  
For a new Early Man  
But was foiled for lack of real data

—Robert Jarvenpa

### Runners-Up

A Pleistocene fellow named Fritz  
At mammoth-hunting never said "quits"  
He followed one far  
Till the ground turned to tar  
And he's down there still in the pits

—J. Richard Greenwell

A young archaeologist named Dave  
Went off to dig in a cave.  
An interest in taphonomy  
Won't bolster the economy  
What an un-YUPPIE-like way to behave!

—Jeanne Nash

### First Prize

Once there was a mammoth named Marshmello  
Who wanted to play the cello  
So she got on a bus  
with some people who cuss  
and off she rode to Pocatello

—Heidi Orde, age 9



The mothers decided to cook.  
They said, "Go wash up in the brook."  
Mom then called to Tyson  
To come eat his bison  
"Watch out, the gravy turned to gook."

—Nina Vecchio, age 10

Once there was a mammoth named Gnu  
Who wanted to go to Peru  
So he got on his bike  
And met his friend Mike  
And broke all his spokes and chain too!

—Scott Forbes, age 6



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# COUNTING THE CLOCK

*"When I do count the clock that tells the time..."*

—Shakespeare, Sonnet 12

Everything that was once alive comes with a built-in clock that, perhaps unlike the model in the dashboard of your car, keeps precise time, even over thousands of years. Cosmic rays, randomly striking the carbon atoms in organic substances, turn some of them into radioactive carbon-14, which, like all radioactive material, decays at a known fixed rate. There are perhaps a hundred laboratories in the world that specialize in counting the clock that tells the time in once-living things, radiocarbon labs that date organic materials by measuring how much the radioactive carbon in them has decayed. Many archeologists and anthropologists, shipping their samples long-distance to these labs, have never actually been inside one, and have only an approximate idea of how they operate. For this reason *Mammoth Trumpet* decided to interview Bob Stuckenrath, who has been the director of the Smithsonian radiocarbon lab since it opened in 1968, and who is now moving his lab to the University of Pittsburgh.

In addition to having worked for twenty years for the Smithsonian Institution, Robert Stuckenrath is one of the very few radiocarbon-lab directors who are themselves anthropologists—in fact, he can think of only one other. With his quiet, relaxed voice and humorous, sometimes gently ironic turn of phrase, he sounds at times unexpectedly like radio comedian Garrison Keillor of *A Prairie Home Companion*, with his ability as a *raconteur*.

Take his wry description of the basement laboratory at the Smithsonian when he first arrived there: "There were pipes running through the ceiling so that you had to stoop most of the day wherever you were working. Lighting was poor, the air conditioning system was noisy; the office was about three feet by four with one filing cabinet, and the paint coming off the ceiling. You couldn't load combustion tubes with samples vertically—you had to pump everything in horizontally. It was just a cramped, crowded, noisy, dirty little place."

Combustion is actually the second step, after chemical pretreatment, in the radiocarbon dating process. Stuckenrath recounts the sequence in precise detail, but cautions first that every lab is different—partly "because every radiocarbon man designs his own equipment; you can't walk out and buy it."

When a sample comes in, it is tagged with a code number. "And then, to be truthful, it sits on the shelf. Normally it will sit on the shelf anywhere from five to twelve months, depending on the size of the backlog"—a backlog typical of all carbon-dating labs, incidentally. "So then it goes through the chemical pretreatments. You roll it out on your benchtop and you think, 'what the hell am I going to do with *this* mound?' But after thirty years in the trade you develop a certain feeling for it. Usually a sample of, say, charcoal is boiled in sodium hydroxide after you pick out the cigarette wrappers and the peanut shells, and then washed and soaked in hydrochloric acid and dried."

Then it goes to the combustion system where the actual combustion and purification take place. "It's burned in a long, high-temperature glass combustion tube. You stuff it in there, oxygen in one end, a vacuum pump pulling on the other, to convert the carbon to carbon dioxide." The CO<sub>2</sub> is purified, scrubbed with a variety of chemicals (silver nitrate, hot copper oxide, chromic acid, others), accumulating until all the carbon is burned.

Stuckenrath's lab does not use carbon dioxide as the actual counting medium, so the gas is next taken to the methane system, where it is forced into two 150-pound stainless steel reactors and combined with hydrogen. The lab has to make its own hydrogen; the commercially manufactured stuff is made simply from tap water, and thus has radioactive contamination in it. Radiocarbon dating demands hydrogen made from "dead water," and Stuckenrath's chief source of it while at the Smithsonian was a little Lake Woebegon-ish sort of town called Crisfield on the eastern shore of Maryland. "They're very proud of their dead water. So I used to call a couple of days ahead of time and ask the mayor if I could come down and get some water. 'Sure, come right ahead.' So I would come down

and take the mayor out to lunch. And then I'd go over to the town pump and draw forty or fifty gallons of water, which would last for three or four years."

At any rate, once hydrogen has been created from the dead water, it is added in a ratio of four parts hydrogen to one part carbon dioxide, and along with a catalyst, is left sitting for half an hour at a temperature of 850-900°F. Not without reason are the reactors referred to as "bombs." "I suspect we have enough hydrogen in there to simply remove our entire building if anything ever went wrong. That's the only time I don't smoke—when we're pumping hydrogen—because I'm old enough that I was listening to the radio the night the Hindenberg went up." But in eighteen years he has never had an accident. The CO<sub>2</sub> and hydrogen combine to form water, which is frozen out, and methane, which is forced into the counting system.

The counting room is quieter and cooler than the rest of the lab. In the center of it sits a mass of steel and mercury shielding, to keep out the cosmic rays, for the continual background radiation that makes radiocarbon dating possible is also the greatest potential threat to its accuracy. The shielding area is only six by ten by six feet—yet it weighs twenty-four tons. Nine of those tons are mercury, a bathtub full of which would weigh five tons.

Inside the shielding are six counters of various sizes for processing different-sized samples, which count quanta of energy emitted as radioactive carbon atoms in the methane decay. The gas is transferred into one of the containers; the proper numbers are typed in, counting times set. Most of the time, Stuckenrath says, "we have it set up so that it counts steadily for a hundred minutes. Then it vomits up everything it knows, clears its mind, and starts all over again for another hundred minutes. We can tell from the first

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***"We have it set up so that it counts steadily for a hundred minutes. Then it vomits up everything it knows, clears its mind, and starts all over again for another hundred minutes."***

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couple of hundred-minute printouts what the count rate is. And we have calculated for each counter a series of curves; we can look at the number of counts per minute that we're getting and tell approximate age.

"If this sample's looking like it's 10,000 years old, then it had better go for three days, 4000 minutes' worth of counting time. If it's only 500 years old, it goes one night. That sort of thing depends on the size of the sample, the size of the counter, the sensitivity of the counter. We have counters of different sizes because you have to have some adaptability. For a little half-liter container, our equipment normally counts on that for three weeks. If the sample is too small for the precalibrated pressures for your counters, then you have to add some dead gas to bring it up to pressure. We try not to, which is why we have a variety of sizes." An alternative is to try developing tiny counters to deal with tiny samples: the English have one which can work on as little as ten milliliters, though it has to be left counting for three to five months, and though its dates come with a rather large standard deviation, the plus-or-minus number which indicates, in Stuckenrath's precise phrase, "the distribution of individual counts around a mean." Or, less precisely but more concretely, how approximate a given date is likely to be.

"Let me put it this way," says Stuckenrath using a characteristic down-home analogy, "It's like making popcorn. You put in your popcorn, a little oil, and clap the lid on it and shake it. You can't tell when any one kernel is going to pop, so for your popping party you get a bell-shaped curve" (actually, he revises

himself, one that is slightly skewed). "It's exactly the same thing: we can't predict when any particular carbon-14 particles are going to break down. But we can tell on the average that half will disappear in a certain length of time, half of the remainder in a certain length, and so on."

To find the number of counts per minute, you take the number of counts and divide it by the counting time. The square root of the number of counts per minute is the plus-or-minus number. Thus, if you have 10,000 counts over a 1000-minute period, it works out to ten counts per minute, plus or minus one tenth of a count. Or rather, the result is the basis of the final deviation: when you begin subtracting background radiation out, the plus-or-minus margin grows considerably, which is why some European labs have been built a hundred feet underground, with immense amounts of shielding, in order to reduce the background level as far as possible. Where plus or minus one percent on the final dating is generally regarded as precise, so that 10,000 years  $\pm 100$  is quite acceptable, some European labs are achieving dates such as 4000  $\pm 20$ , in other words a deviation of one half of a percent.

Absolute shielding is impossible; the very walls of the counters contain a few contaminants. But Stuckenrath's shielding cuts the 1500-2000 counts per minute that a counter simply set on a shelf will register to 200; sophisticated electronic circuitry further reduces his worst counter to six counts of background radiation per minute, his best to one and a half.

He also does research on new methods of pretreatment. All radiocarbon labs are attempting to meet the desires of archeologists for ever finer discriminations—organic materials like bones being broken down possibly even into their individual amino acids. Dating bone is a mildly controversial topic in the field, because it is so difficult to do and because the results are at times so erratic. The reason is that there is more than one type of carbon in bones, and it is hard to isolate the only reliable type, the collagen fraction. Another fraction, the hydroxy-apatite, exchanges carbon atoms readily with ground water, thereby muddling the results. Some labs do not even want to try dating bone samples. "The process is not only tricky but time-consuming, dirty—and it stinks to high heaven."

Another technique currently debated in the field is radiocarbon dating using the tandem particle accelerator. "I think it's a fine idea," Stuckenrath says, though not unreservedly. "I think it's a mistake to try to use accelerators which for fifteen years or longer have been used for other experiments and now have carbon-14 lurking around in the nooks and crannies. But if you have dedicated equipment, that's fine... if you've got the money. If you've got the money." Accelerator dating can be expensive for the client as well as for the investor in an accelerator. But it can be the preferred solution to the problem of having little samples, for a small amount of charcoal is easy to lose in the carbon-14 system once it's gas.

Asked what site investigators themselves can do to improve the chances their radiocarbon results will be accurate, Stuckenrath replied, "Refine the degree of association of the sample material with the event to be addressed. Invalid association is probably the source of at least 50% of the inaccuracies." Another way is actually to involve the lab in the investigation. Even if the people in the field know accurately what is in association, they may not know what it will take to get a good date.

There is, of course, no degree in radiocarbon dating; those who specialize in it are usually chemists or geologists. Stuckenrath's primary interests include the earliest peopling of the Americas as the relationship between changing environments and culture. Probably not many are ex-lawyers. Although he also spent three years in engineering school, Bob Stuckenrath recounts: "I started as a budding young lawyer. Went home to practice law; everybody'd known little Bobby since he was five. While they were interested in how he was doing, why, he was obviously too young to handle any of their work."

(Continued on page 8)

# TREES IN THE STONE

*Editor's note: The following is a story submitted by ethnologist Ruth Holmes Whitehead. It is set in an as-yet-unexcavated Nova Scotian quarry and workshop site about 10,500 years ago. A fluted point made from the material from this quarry was found about 10 miles away from the site; thus this site possibly contains a paleolithic component. She visited the site and later dreamed about it, finally incorporating it into part of a novel. The man's song in the story about chalcidony being trees dreaming in stone arose from a conversation with a geologist who said that the chalcidony in Scott's Bay, Nova Scotia, resulted from the compression of huge Jurassic forests, and that one can sometimes see tree-rings in the stone.*

It is a beach of tiny polished pebbles, crescent-shaped, enclosed by sheer rock walls. To the north, dark chocolate basalt cliffs, a matte-black pudding studded with orange crystal raisins, the mineralized remains of ancient gas bubbles. And then sweeping away south, a long flank of sandstone and chalcidony, one of the mother-lodes to whom generations of the *Lnu'k* have come, collecting the special rock they need for their tools and weapons.

Here the water mines it for them; the ice and tides and storms and runoff of streams, chewing and chumling away at the cliff face, dissolve the sandstone and leave behind the hardest, most beautiful chalcidony, in huge slabs of green and gray, lavender and burnt-red, half buried in the pebble beach the sea rakes smooth each day. In places too the sea has undercut the cliffs, leaving caves like open mouths with an overhang of lip. Inside, a moist sheen of water coats the walls: layers of chalcidony, moss agate, feather agate, all of it stirred, swirled, stippled, seeded and speckled with colours, pocked with amethysts, sprinkled with quartz crystals and tiny stars. After the bitter basalt, this rock seems to burst into life like some technicolour dream. The basalt is dream too, but a dream without light. All the light in *this* world is here.

And everywhere there is the sound of water: little trickles down the face, which string the cave mouth with a necklace of drops, tinkling faintly as they fall, the sucking noise of the sea over the rock floor, the rushes and diamond light of a small waterfall at one end, its liquid strands twisting and turning like mobiles made of glass.

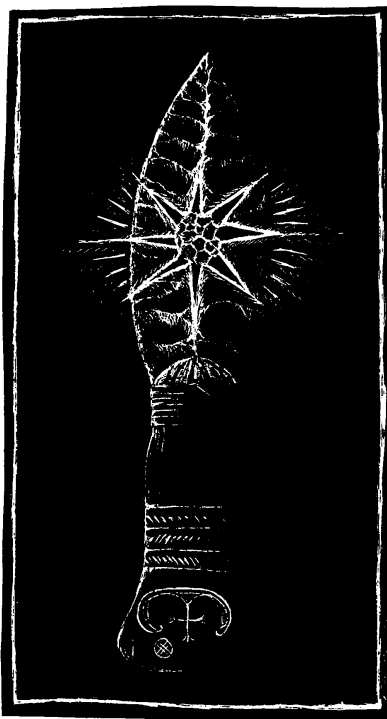
North along the basalt cliffs, a stream has cut a channel from the forest at the top down to the beach. And down through the stream now a man is coming. He is full of exuberance, full of energy; he leaps and dances from rock to rock, splashes in the water, finally jumps the last ten feet to the sand. "*Niskamijeskw! Kmtn!*" he shouts. "Old grandmother mountain, how many eggs have you laid for me during the cold storms?" He laughs at his own joke, and stops to retie a hair ornament. The whole of his shoulder-length black hair is knotted with copper cones and periwinkles and tiny feathers on leather strings. Bird bones and polished vertebrae swing on spruce-root loops through his ears. A knife in a sheath is slung from a cord around his neck, as is a triangular leather pouch stiff with the fat and ochre rubbed into it. Several more pouches, one the entire skin of a muskrat, hang from his belt. Apart from a loin-cover, this is all he wears. His skin is brown, and slick with oil.

The man becomes noticeably more sober and slow as he approaches the south end of the little beach. Outside the final cave, he leans both palms against the rock face and salutes its weathered gray flanks by pressing his tongue against them. "*Kesiku*," he murmurs. The cave swallows him. He lays a cake of tallow on a small ledge inside, and stands quietly as the amethyst geodes show him their sharp crystal teeth. His heart pounds in his ears like a birchbark drum.

Spit out again into daylight, his gift accepted, he begins to examine the beach for boulders. He weighs, hefts and rejects one rock after another. Some of them he sniffs, even licks. He taps a bigger one, cleaning the pebbles away to see how large it really is. This one he sings to, a few notes, then breaks off, dissatisfied, and ambles closer to the waterline. The tide is just starting to curl around that green one there, the one

like a big flattened egg. He squats by it, lifts it out of the water for a closer look. *Tap, tap*. He smiles.

Now the rock is hauled up onto a drier spot, close to the cliff wall. The artisan sits down on a big boulder and takes off all his pouches; he opens the biggest, the one with all the intricate red and black paintings and the drawstring top. Inside is a heavy piece of folded leather. His hammerstones are in there, too—the beach could supply these, but he has favorites, ones just the



size of his handgrip. There are also some antler billets. All these he places on the rock next to him in a neat row, for he will do the initial shaping here, on the beach.

Now his concentration is absolute. He turns the rock over and over, searching for the best site of attack. With the side of his hammerstone he roughs up an edge, creating a better striking platform. By carefully controlling the place, the angle and the strength of impact, he is both shaping and thinning the rock, a process difficult to describe and even more difficult to master.

He holds the rock in his left hand, braced against the folded leather pad on his thigh, taps the spot several times to gauge the blow, then hits. His left hand opens and a large flake, now detached from the mass, falls to the ground. *Tap, tap, whack. Tap, tap, WHACK WHACK. Tap, tap, tap, WHACK.* Over the next few minutes, the core is shaped and thinned, shaped and thinned. The ground is littered with chips and chunks of rock. Finally, it is done. The man wipes the sweat from his eyes, puts pad and tools away, and walks toward the water, holding the preform in his hands.

He lets himself fall backwards into the sea, surfaces puffing and blowing, streaming water, goosebumps on his arms and nipples standing up from the cold. He holds the preform up, turning it over and over. It is flawless, and in the centre is the white cheese-rind striation that indicates amethyst within.

This is the forest above the beach; it is afternoon and the fog has come in. The brown man sits on the cliff edge beneath the endless black spruce trees. Their lower branches have been lopped off over the years, so it is their gnarled trunks one sees all around him

like spools wound and unwound with fog. He is about to make a fire. For this the *Lnu'k* use a piece of chert or chalcidony—the local equivalent of flint—and as their 'steel', a stick tipped with iron pyrites. And because he now makes a very special blade, a ritual blade, the fire he makes to temper the rock of his blade must be struck from itself. Power will inhere in his blade because of this. As with all manipulations of Power, there is risk; the preform may shatter. He gets its attention first, by singing to it. His voice is pitched deep and resonates in the bones. The fog wraps him round.

Ho, you trees,  
I see you dreaming in this stone.  
The seeds of burning are in you.  
A long time you have dreamed.  
Come out!  
Burn with your children  
in my fire.  
Da'ho! It is I who call you,  
O trees in the stone.

The kneeling man contorts himself around the pile of bird down and powdery rotten wood he uses as tinder, sheltering it with arms, legs, torso. The muscles in his shoulder bunch once as he strikes. The movement is faster than the eye can follow; the pyrite tip hits the rock in his left hand and the hot sparks flare . . . Nothing . . . He burrows the left hand further down into the tinder and strikes again. And again. This time the sparks catch. A faint curl of smoke begins to escape the mesh of scarred stubby fingers. Gently the man blows, then feeds his small flame with dry grass and a curl of birchbark. The fire begins to crackle.

The preform needs to be heat-tempered before he works it further, and the brown man times the necessary length of its stay in sand over the hot coals of his fire by the length of a specific traditional song he intones.

The fog has burnt away. Now comes the final thinning, and the man's strain and concentration are immediately visible. For greater control he holds the stone against the leather pad on his thigh, bracing it. As he strikes off the long thin flakes he works up and back along each side, peeling back layers of material from the edge to the centre spine, gripped, intent. The critical blows are being struck—he lifts the blade. A few whitish flakes fall away as the piece is turned up. The cheese-rind smear is gone, and in the exact centre of his knife is the now-opened geode, a cluster of purple crystals, tiny amethysts perfectly displayed by the expert strike, not one crushed. A long sigh escapes the artisan.

Rapidly now the man completes the last stages, holding the blade in his left hand, still bracing against his leg. His tool is an antler-tine pressure flaker, and placing it against the rock-edge he uses it to pull down and away, making a pointed tip, a cutting edge like a razor's, a flute at the base for easier hafting. The minute flakes seem to come off in a blur, a stone drizzle. Every so often, the man holds the blade in his mouth, letting his saliva soak it.

The brown hands move lovingly over the blade. It is done, and the maker hafts it with an elaborately carved handle, lashes this tightly with wet rawhide, and lies back on the moss, finished. Drained, wet with sweat, his body is freckled with small blackflies which have drowned on the oiled skin. His last act before he closes his eyes is to make a quick cut on his chest, a slash from which the blade may drink. For this is a very special blade, and blade that will bring and bind him a son. His song has said so.

It is dark at first, earth-dark, cave-dark. Then there is a fire, small, just the red light's flicker from behind the hearth-stones. The crowding trees are the cave walls; the night and the fire define them with tigerstripes of orange and black shadow. This is a birthing, two women together here in the timeless dark. The labour has been going on for some hours. The older woman supports the younger, kneeling behind her, holding her as a contraction comes, wiping her

(Continued on page 8)

## THE CLOVIS-ARCHAIC INTERFACE IN THE WEST

(Continued from page 1)

chaeologist from the University of Oregon. Test excavations and surface collections began in 1983. Work continued in 1984 under the co-direction of Aikens and Fagan with funding from a National Science Foundation grant. Since 1985, research has proceeded with assistance from the BLM Lakeview district, university students, volunteers, and some private funding.

Judy Willig, doctoral candidate in archaeology at the University of Oregon, has been the Assistant Project Coordinator. Research on the Dietz Site is the subject of her dissertation. She, along with Aikens and Fagan, organized a symposium this year focusing on the Paleoindian-Archaic transition in the west at the Society for American Archaeology meetings last spring. In addition, Willig organized a similar symposium with a more regional focus for the Great Basin Conference. Willig is encouraged with the accumulation of research on this transitional period, and hopes to bring further definition to it.

During the 1985 season point-plotted surface collections were done for the area yielding the Clovis tools, from a stemmed point-yielding area, and from an area where these were found mixed. The critical task has been to relate these to the ancient shorelines. Willig and students from the University of Oregon Field School (about 8 of whom volunteered an extra month of their time) made a painstaking survey of the two hypothetical shorelines. They looked there for additional sites, and ran a north-south line down the center of the Alkali Lake Basin.

The survey along this control line covered many miles, but did not reveal any Clovis localities other than the original site on the western shore. It did, however, yield 56 additional localities, 25 of which contained diagnostic artifacts mostly assignable to the stemmed tradition. Although there seems to be only one Clovis site on the lower shoreline, the stemmed point sites are distributed in greater numbers along the higher shoreline—but never below that line.



Typical "assemblage" of Great Basin stemmed artifacts (left) from one of the lakeshore sites in the Northern Alkali basin, and a fluted point base fragment (right) from the Dietz site. (Photos by J. Willig)

Willig also hopes to find a Clovis-age surface buried by sterile material and overlain by a Great Basin stemmed point assemblage. She has narrowed her search to three prospective localities. In one case, she is confident there is a Clovis-age paleosol buried by 50-70 cm of sterile deposit and capped by loose, sandy deposits containing stemmed points. The difficulty is in finding a Clovis deposit with enough artifact density to be both diagnostic and informative.

During the summer of 1986 Willig finished mapping the shorelines and relating them to the artifacts. This was done using an Electronic Distance Measurer which helps map the contour of the ancient shoreline to within several centimeters. The task of seeking funding for further work in the Alkali Basin and for excavating the promising buried Clovis-age sites lies before her.

—Judy Karamozov



Dewey Dietz, avocational archaeologist who discovered the site, assists William Johnson in setting up a surface collection unit to document the exact location of artifacts. (Photo by J. Willig)

## POSSIBLE PALEOINDIAN SITE AT INDIAN ROCKSHELTER

In late March of this year the U.S. Forest Service sponsored a cultural resource survey in Hoosier National Forest. Its purpose was to identify and do a preliminary evaluation of archaeological sites in a proposed timber management area. The findings from this particular survey prompted additional involvement at one of the sites, located in south-central Indiana.

The survey, conducted by Cheryl Munson, staff archaeologist, Glenn Black Laboratory, University of Indiana, covered over 9,000 acres, involving sites with and without vegetation. These sites without vegetation (i.e., rockshelters) were located partially from predictions based on local topography and bedrock geology. A complex of rockshelters was found in an area composed of heavily dissected sandstone, siltstone, and occasional limestone.

When the survey team arrived at one of the rockshelters they found fresh holes, tracks, piles of back-dirt, and a small pile of discarded artifacts. It was in this pile, composed primarily of chert debitage, that the base of a Clovis point was found.

The rockshelter comprises an area about 88 feet long by 8 feet deep. Unfortunately, an estimated 50-70% of the site had been disturbed by vandals. The Forest Service archaeologist, Mary Wilson, was contacted immediately after discovery of the site. But, in just the few days that it took to set up her initial examination, an additional five square feet were vandalized.

Wilson concluded that part of the archaeological deposit was intact. She then arranged for a one week test excavation in order to salvage important cultural materials before further damage could be done.

At this time, the site was put under surveillance. However, since they could not keep a twenty-four hour guard there, they relied on the local press for help. The press could not only advertise the fact that the site was now being watched, but also publicize the legal penalties for such vandalism.

Because the land lies within national forest, Federal rather than State laws have jurisdiction. The

two most important of these are the Antiquities Act, and the Archeological Resources Protection Act (ARPA). Passed into law in 1979, ARPA is the strongest Federal law to date for dealing with archaeological vandalism. It carries up to \$100,000 fine, and a five year maximum prison sentence. It was used successfully to prosecute offenders in Idaho and Illinois just this past year.

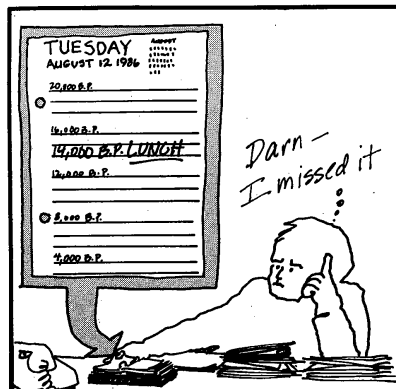
The test excavation was carried out by Mary Wilson, with the help of archaeologists Jan Brashler, John Davis, and Dan Haas. They opened six pits to see what they could find still intact. Unfortunately, no further diagnostically Paleoindian materials were discovered. The earliest identifiable cultural layer was early Archaic with several more recent cultural traditions above that.

In two of the six excavation pits the lowest layer was reached. In one of those the lowest layer was early Archaic; in the other they found a large rockfall and did not excavate beneath it. It is unknown whether there are earlier materials under that layer of rocks.

Wilson's analysis is not yet complete, but the results are likely to provide much additional information about Archaic and more recent cultural traditions than about Paleoindian peoples of the area. However, as Cheryl Munson comments, "It's possible the Clovis fragment is the only Paleoindian specimen there; but the site is significant because, although there are hundreds of rockshelter sites in south-central Indiana, there is no other rockshelter which has produced evidence of Paleoindian presence."

It is unlikely, however, that the Forest Service will be able to excavate further. Their funding is specifically for salvage archaeology as needed to prevent the destruction of sites, rather than pure research. They hope, however, that the recent publicity and attempts to educate the public will deter further destruction of that and other sites in the area. In the meantime, the site has been nominated for placement on the National Register of Historic Places.

—Kathleen Waters



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## NEW REFERENCES AND RESOURCES

*Editors Note: Although we review some major journals regularly for articles and books of interest to MT readers, we do not review all. Please send us reprints or notification of your publications. All contributed references are placed in the Center's library.*

Ruth Gruhn (University of Alberta) advises that after many delays the final report on the 13,000 year old site of Taima-taima in Venezuela has been privately published in West Germany: Claudio Ochsenius and Ruth Gruhn (editors) 1986 *Taima-taima: A Late Pleistocene Paleo-Indian Kill Site in Northernmost South America—Final Report of 1976 Excavations*. It may be obtained for \$4 U.S. postpaid from Erika Veit, Fichestrasse 42, 7700 Singen, West Germany. Make U.S. dollar money order payable to Claudio Ochsenius.

A recently excavated site in Brazil, a rockshelter called Boqueirao do Sitio da Pedra Furada which has walls decorated with prehistoric paintings, has been reported recently in *Nature* (see below) as the cover story. Details on this site, which was excavated by Niede Guidon (Laboratoire d'Anthropologie Préhistorique d'Amerique, Ecole des Hautes Etudes, Paris) and which dates to 32,000 years ago, can be found in the two references below. Please note that in the list of references in the *Nature* article the citation for the book edited by Bryan (which first published information on the site) is in error. The correct reference follows:

Guidon, N. and G. Delibrias 1986 Carbon-14 dates point to man in the Americas 32,000 years ago. *Nature* 321:769-771.

Bray, Warwick 1986 Finding the earliest Americans. *Nature* 321:726.

Guidon, N. 1986 Las Unidades Culturales de Sao Raimundo Nonato—Sudest del Estado de Piaui—Brazil. In *New Evidence for the Pleistocene Peopling of the Americas*. Edited by Alan Lyle Bryan. pp. 157-172. Center for the Study of Early Man, Orono, Maine. (Article in Portuguese with long abstract in English)

Binford, Lewis R. and Nancy Stone 1986 The Chinese Paleolithic: An outsider's view. *AnthroQuest* (Leakey Foundation News, Special Edition), No. 35, Fall, pp. 1, 14-21.

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Dillehay, Tom D. 1985 Monte Verde: Early man in south-central Chile. *National Geographic Research Reports* 1978 Projects: 173-184.

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O'Rourke, Mary Kay and Jim I. Mead 1985 Late Pleistocene and Holocene pollen records from two caves in the Grand Canyon of Arizona, USA. *AASP Contribution Series* 16:169-186.

Reynolds, T.E.G. 1986 Toward peopling the New World: a possible Early Paleolithic in Tohoku District, Japan. *American Antiquity* 51(2):330-332.

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Sage, Richard D. and Jerry O. Wolff 1986 Pleistocene glaciations fluctuating ranges, and low genetic variability in a large mammal (*Ovis dalli*). *Evolution* 40(5):1092-95.

Vialou, Denis 1984 A la conquete prehistorique du nouveau monde. *Decouverte* 13(13):30-36.

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Wilkison, Elizabeth M. 1986 A complex of paleo-indian quarry workshop and habitation sites in the Flint Run area of the Shenandoah Valley of Virginia. *The Chesapeake* 24(3).

**Above the Gravel Bar: The Indian Canoe Routes of Maine**, by David S. Cook. 1985 Milo Printing Company: Milo, Maine.

The Archaeology of Hidden Cave Nevada, edited by David Thomas Hurst 1985 *Anthropological papers of the American Museum of Natural History* 61(1).

## ARIZONA ARCHAEOLOGY WEEK

*Editors note: The article is the first in the series featuring exemplary programs across the Americas which involve the public in their archaeological heritage. We solicit information on other programs our members may know about.*

**Arizona Archaeology Week** is a four-year-old program of state-wide public education in archaeology. Sponsored by the Arizona State Historic Preservation Office (SHPO) and the Governor's Archaeology Advisory Commission (AAC), this program highlights the knowledge, artifacts, methods, and values of preserving their state's earliest heritage. This year's program theme, "The Past Made Public," emphasized commitment to public education and involvement. At least 44 organizations in over 16 communities actively participated.

Prior to 1980, illegal excavation in Arizona was a common problem. Thanks to intervention by Governor Bruce Babbitt, however, the situation has been turned around. First he created an Archaeology Advisory Group. Then the state made unauthorized excavation on state land a felony and instituted an aggressive public relations campaign to educate citizens on the importance of their heritage.

Inaugurated by the governor's proclamation, Arizona Archaeology Week included a wide range of events and products. Publicity was garnered in many ways beginning with a poster design competition; the winning poster was distributed statewide. A teacher's curriculum packet was developed containing four lesson plans, recommended readings, a synopsis of Arizona archaeology, and a list of archaeological places to visit; it was distributed to over 1000 public and private schools.

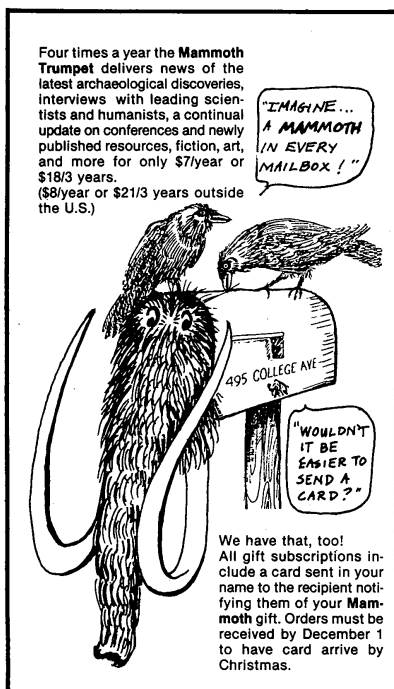
A Public Information Package was distributed to archaeological organizations, museums, national and state parks, and the media. This included posters, information about events, a list of major National Register of Historic Places archaeological sites in the state, and a list of archaeological sites open to the public. A similar packet was sent to mayors of all Arizona cities and towns with draft language for a city or town proclamation for the Archaeology Week celebration. Additionally, the Bureau of Land Management (BLM) sent out copies of an issue of their newsletter devoted to archaeological activities in each BLM district to over 2000 individuals and organizations.

Teresa Hoffman, archaeologist with the SHPO, helped coordinate the over 45 special demonstrations, exhibits, lectures, and tours. Included this year were, for example:

- An Open House at the Arizona Archaeological and Historical Society in Tucson
- Tours of sites at the Homolovi Ruins State Prehistoric Park
- An Archaeology Booth at the Yuma County Fair
- Special exhibits at the State Capitol Museum
- A teacher workshop for all grade levels

Plans are currently underway for Arizona Archaeology Week 1987, using the theme "Take Pride in the Past: 100 Years of Arizona Archaeology." For further information, contact Teresa Hoffman, Arizona State Parks Board, State Historic Preservation Office, 1688 W. Adams, Phoenix, AZ 85007, (602) 255-4174.

—Marilyn Roper





# CONFERENCES

## INQUA COMES TO NORTH AMERICA IN 1987

The second INQUA Congress to meet on this continent will be held at the Congress Centre, Ottawa, Canada from July 31 to August 9, 1987. A circular containing abstract submission, accommodation reservation, excursion, and general reservation forms is available from Mrs. Huguette Lacoste, Executive Secretary, XII INQUA Congress, National Research Council of Canada, Ottawa, Ontario, Canada K1A 0R6, or by calling 613/993-9009 or telex 053-3145. The deadlines for receipt of abstracts and the deposit for field excursions is January 15, 1987.

The anticipated number of participants in the Conference, as of September 1986, is 1591 representing 72 countries. The organizers of the Congress are making a special appeal to students, offering special student rates and pointing out that Ottawa is within a 24-hour drive of a great part of eastern North America. The following is a list of Symposia and Special Session titles for INQUA '87.

### Symposia

*Inception, growth and decay of the Laurentide Ice Sheet*, organized by R.J. Fulton and J.T. Andrews  
*Glaciomarine environments*, organized by R.D. Powell

*Monsoons and paleomonsoons*, organized by R.J. Fairbridge

*Peopling of the Americas: Clovis Origins*, organized by R. Bonnichsen and K.R. Fladmark

*Longterm restructure in the Late Cenozoic terrestrial ecosystem*, organized by K. Luchterhand and Estella B. Leopold

*Long continental record*, organized by D. Adams

*Applied Quaternary studies*, organized by B.P. Hageman

### Special Sessions

*Responses of the global ocean to changes in insolation at the orbital frequencies*, W.L. Prell;  
*Holocene climatic change (Data/model comparisons)*, T. Webb, III and F.A. Street-Perrot;  
*Global comparisons of Southern Hemisphere climate during the last glacial maximum*, J.C. Vogel and C. Heusser;  
*Paleoclimates of the Circum-North Pacific region*, L. Heusser and C. Sancetta;  
*Patterns of development of north-temperate lakes in late Glacial and Postglacial time*, R.B. Davis and H. Löffler;  
*Paleoseismicity and neotectonics*, J. Adams and N.A. Morner;  
*Holocene glaciers*, P.T. Davis and G. Osborn;  
*Subglacial bedforms—drumlins, fluted moraines and ribbed moraines*, J. Menzies and J. Rose;  
*Genetic classification of glaciogenic deposits and their landforms*, A. Dreimanis and A. Raukas;  
*Stratigraphical and environmental geological, geochemical and geotechnical problems of loesses*, M. Pesci and I. Smalley;  
*Shorelevel change and its impact on coastal development*, P.A. Pirazzoli and D.R. Grant;  
*Late Quaternary paleohydrology of North America*, M. Church and L. Starkel;  
*Climatic and lithostratigraphic significance of paleosols*, K. Valentine and J.A. Cutt;  
*Quaternary of South America*, K. Suguio and J. Rabassa;  
*Paleoenvironments des hominides européens du Pleistocene ancien et moyen*, M.F. Bonifay and J.P. Suc;  
*Reconstruction of the environmental setting for archaeological sites*, J. Donahue and P. Goldberg;  
*Comparative studies of actual and fossil periglacial phenomena*, H.M. French and E.A. Koster;  
*Quaternary dating methods*, N.W.

Rutter and J.K. Brigham-Grette; *Paleoenvironmental reconstructions from arid lands*, O.K. Davis and L. Scott;  
*Atlas of the Northern Hemisphere 20,000-18,000 yr B.P.*, A.A. Velichko;  
*Global carbon cycle—paleoclimatic perspectives*, A.D. Hecht and E. Sundqvist;  
*The late-glacial transition in North America*, L.H. Maher and W.A. Watts;  
*The early prehistory of Africa*, R.L. Carlson and P.V.

### Smith Symposium

The Smith Symposium: Late Pleistocene and Early Holocene Paleoeology and Archaeology of the Eastern Great Lakes Region was held at the Buffalo Museum of Science, Buffalo, New York on October 24-25, 1986. The following is a list of papers presented.

- Thompson Webb III (Brown U). Climatic change over the past 18,000 years in eastern North America: pollen and climate model results.
- Denise F. Gaudreau (Southampton College). Vegetational change in northeastern United States over the last 14,000 years: reexamination of plant population dynamics.
- George L. Jacobson (U of Maine) and Eric C. Grimm (U of Minnesota). Synchrony of rapid change in late-glacial vegetation south of the Laurentide Ice Sheet.
- R.F. Karrow and B.G. Warner (U of Waterloo). Ice, lakes, and plants, 13,000 B.P. to 10,000 B.P.: the Erie-Ontario lobe in Ontario.
- Parker E. Calkin (SUNY - Buffalo) and Ernest H. Muller (Syracuse U). Late Pleistocene and Holocene geology of the eastern Great Lakes region.
- Richard S. Laub (Buffalo Museum of Science). The Hiscok site: an unusually rich late Quaternary locality in western New York State.
- Norton G. Miller (NY State Museum). Plant fossils from the late Quaternary Hiscok Site (Genesee County, New York) and their regional significance.
- David W. Steadman (NY State Museum). Vertebrates of the late Quaternary Hiscok Site, Genesee County, New York.
- Daniel C. Fisher (U of Michigan). Season of death of the Hiscok mastodonts.
- Jeffrey J. Saunders (Illinois State Museum). Fossiliferous spring sites in western Missouri.
- James E. King (Illinois State Museum). Palynology of midcontinental spring deposits.
- John H. McAndrews (Royal Ontario Museum) and L.J. Jackson (Port Hope, Ontario). Age and environment of the Rostock mammoth and other postglacial elephants in southern Ontario.
- Anthony D. Barosky, Cathy W. Barosky (Carnegie Museum of Natural History), Allan C. Ashworth (North Dakota State U), and Rudy J. Nickmann (Bergen County Climate Center). The Newton mammoth and associated paleoecology from Bradford County, Pennsylvania.
- Holmes A. Semken, Jr. (U of Iowa). The Late Wisconsin biome of the southeastern United States.
- Alan V. Morgan (U of Waterloo). Late Pleistocene and early Holocene Coleoptera in the lower Great Lakes.
- J. Mark Erickson (St. Lawrence U). The promise for fossil oribatid mites in paleoecological analyses of Quaternary lake and bog deposits: preservation quality and date extraction.
- Mark J. Camp (U of Toledo). Late Wisconsinian unionid habitats in the Maumee Drainage Basin of Ohio, Michigan, and Indiana.
- Peter L. Storck (Royal Ontario Museum). The early Paleo-Indian Parkhill Complex in the Great Lakes region.
- D. Brian Deller (McGill U) and Chris J. Ellis (U of Waterloo). Early Paleo-Indian complexes in southwestern Ontario.
- Richard Michael Gramly (Buffalo Museum of Science). Paleo-Indian sites south of Lake Ontario, western and central New York State.
- Arthur Roberts (Simon Fraser U). Paleo-Indian/Archaic transition on the north shore of Lake Ontario.
- Russell W. Graham (Illinois State Museum) and Marvin Kay (U of Arkansas). Taphonomic comparisons of cultural and non-cultural faunal deposits at the Kimmiswick and Barnhart Sites, Jefferson County, Missouri.

Tobias; *High resolution Quaternary deep-sea biostratigraphy; implications for the climate control*, L.H. Burckle; *Rates of change: the time factor in Holocene Mediterranean landscape evolution*, S. Bottema and J.L. Bintiff; *The Antarctic and Southern Ocean; Recent and last glacial maximum*, G. Denton and E. Zinderenbaker; *Quaternary of the Queen Elizabeth Islands*, J. England; *Glaciation of the northern Appalachian region*, D.R. Grant and G. Denton; *Late Pleistocene and Holocene insect assemblages; their use in Quaternary paleoecology and archaeology*, G.R. Coope and A. Morgan.

### 6th Annual World Open Atlatl Contest

The 6th Annual World Open Atlatl Contest, July 19, 1986 in Saratoga, Wyoming was an international success. Joining the 37 men and women atl原因 contestants and 20 flintknappers were Dr. Axel Schulze-Thulin, head of the American department of the Linden Museum in Stuttgart, West Germany, and his wife Hanni. Dr. Schulze-Thulin gave a talk about his recent travels to early sites in North and South America. Speakers at the Early Man Symposium included Marie Wormington (Denver Museum of Natural History) and Chuck Reher (University of Wyoming).

## UPCOMING CONFERENCES

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.

March 5-8, 1987 SOCIETY OF ETHNOBIOLOGY, 10th Annual Conference, Florida State Museum, University of Florida.

Contact Elizabeth S. Wing, Florida State Museum, Gainesville, FL 32611; 904/392-1721.

April 3-5, 1987 CENTRAL STATES ANTHROPOLOGICAL SOCIETY, 63rd Annual Meeting, Victorian Inn, Columbus, Ohio.

Send abstracts and registration fee by December 15, 1986 to James Hamill, Department of Sociology and Anthropology, Miami University, Oxford, OH 45056.

April 22-26, 1987 CANADIAN ARCHAEOLOGICAL ASSOCIATION, 20th Annual Conference, Westin Hotel, Calgary, Alberta, Canada.

Contact M.C. Wilson, Program Chair, Department of Geology and Geophysics, University of Calgary, Calgary, AB T2N 1N4, Canada.

May 25-27, 1987 GEOLOGICAL ASSOCIATION OF CANADA - MINERALOGICAL ASSOCIATION OF CANADA Annual Meeting, Saskatoon, Saskatchewan, Canada.

Contact W.O. Kupsch, Department of Geological Sciences, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0.

July 31-August 9, 1987 12th CONGRESS, INQUA, Ottawa, Ontario, Canada.

Contact Dr. Alan V. Morgan, Department of Earth Sciences, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1.

September 1-7, 1987 UNION INTERNATIONALE DES SCIENCES PREHISTORIQUES ET PROTO-HISTORIQUES, XIth Congress, Mainz, West Germany.

For details contact Dr. K. Weidemann, Generaldirektor des Römisch-Germanischen Zentralmuseums, Ernst-Ludwig-Platz 2, D-6500 Mainz, Federal Republic of Germany.

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## CENTER MATCHES BINGHAM CHALLENGE

(Continued from page 1)

Center is affiliated. The purpose of the Institute endowment is to enrich Institute programs and to "ensure that the Center for the Study of Early Man will continue to be embedded in a rich matrix of relevant academic disciplines."

The Institute was founded in 1970 to provide highest quality multi- and interdisciplinary research and teaching in the Quaternary sciences. It is jointly staffed by University of Maine faculty from the departments of Anthropology, Botany and Plant Pathology, Geological Sciences, and History. Institute programs focus on three fields—paleoclimatology, paleoecology, and prehistoric archaeology—and this research is currently being conducted in the United States, Canada, Africa, Antarctica, Greenland, India, and Scandinavia.

A four-year search of institutions in the United States led the trustees of the Bingham Trust to the University of Maine as a place which was properly staffed and had the academic quality to develop a center to study the earliest human heritage of the Americas. They initially awarded \$500,000 to Robson Bonnicksen, Associate Professor of Anthropology and Quaternary Studies, to establish a Center for the Study of Early Man.

Since its initiation in 1981, the Center has developed an active publication program, conducted research at several early archaeological sites in Maine

and Montana, stimulated research by organizing conferences and international scientific exchange, and developed its role as a clearinghouse of information—both for scientists and the general public.

The Center's success motivated the Bingham Trust to offer the challenge matching endowment grants to the Center and to the Institute of \$500,000 each, on condition that the University of Maine raise a matching \$500,000 for the Center.

The Center endowment, however, is not yet complete. Three hundred-thousand dollars are still needed in order that the Center's basic programs can proceed uninterrupted with just the interest income from the

endowment. External grants are normally solicited for special conferences, professional research, and new programs. Endowment interest is used for staff salaries and normal operating expenses. Unfortunately, interest rates have declined, and the pinch is being felt this year especially.

Currently, the Center is seeking to increase its international membership, develop its library, begin some programs aimed at children and teachers, continue its publication program, and pursue its work on conferences and exchanges. See page 2 of this issue for more information.

—Marcella Sorg

## COUNTING THE CLOCK

(Continued from page 3)

"So, fortunately the highway department came along and built a road through our living room, and we had to leave. I had become interested by then in the history of the law, so I went to Penn State with the idea of doing graduate work in it. But I needed to have a job within the university, and there was one open in the radiocarbon lab. So I took it, and after I guess about three years I wound up managing the fool thing . . . All the time at Penn I made a point of hiring very good graduate students in chemistry, because I failed college freshmen chemistry in 1946.

I'm a cookbook chemist, and that's all." But he felt that *someone* in the lab should know a little about the kind of objects the lab was examining, so he began taking courses in archaeology, and ended up with a degree in anthropology. At about that time, in 1968, the position of director of the Smithsonian radiocarbon lab opened up. He was accepted for it, and, eighteen years later, now at the University of Pittsburgh, Stuckenrath continues, counting the clock that tells the time.

—Michael Dolzani

## TREES IN THE STONE

(Continued from page 4)

face, rocking her a little. The faint murmuring noise at first seems to be the trees talking, but it is the midwife who weaves a continuous spell of low sound, not singing or speech, just sound like a carrier wave upon which the mind of the other can rest. The noise helps to gate out pain, and the midwife modulates it to the duration and intensity of each contraction; unconsciously the girl follows it, regulating her breathing to it. Around her neck there is a cord, and slung on it a leather sheath; the hafted blade lies within, rising and falling with her breath.

The expelling contractions begin. Air rushes from the lungs as muscles wake to overwhelming life, wrapping through the body like a huge constricting serpent. It is awesome, uncontrollable. The girl squats now, holding to the smooth bole of a white birch for support. An enormous spasm. The midwife says something rapid, sharp; the girl pants frantically and the head is delivered. One more push for the shoulders and the body follows and is in the midwife's hands.

The baby cries. The mother collapses onto the spongy moss, now wet with blood, and begins to nurse him. He has had a small drop of fat dropped onto his

tongue first to welcome him, to ensure that his chin will always be dripping with fat. Once he is sucking happily, the girl takes the knife from around her neck and hands it to the older woman.

A fistful of sweetgrass is thrown on the fire. Slowly the knife is removed from its ornate sheath and washed in the heavy smoke. Seven times it is passed through. The girl calls out, the placenta is delivered, the cord is tied; and then the knife, the Well-Made Knife, cuts the cord. In a flash the baby is severed from the Dream Before. He is 'realized' from one world into another, literally made real in the eyes of the *Lnu'k*. And he is separate now from his mother's body, a male child, the first to his parents. His mother's song has said so.

There is an exhausted peace around the fire, a faint breeze, a hint of chill. Slowly the older woman rises, massaging a weary back. She takes the placenta, places it on a sheet of bark, lays the knife on top, and buries all in a little hole beneath the birch. The last clods of earth and stone are patted down, and then the quiet dark returns.

—Ruth Holmes Whitehead

Excerpted and revised from a novel written in 1977.

## SUGGESTED READINGS

### On Dietz Site

1985 Notes on Dietz Site Investigations. *The Thunderbird Archaeological News of the Northwest* 6(2-3).  
Dietz, Dewey L. 1986 The Dietz Clovis Site. *Indian-Artifact Magazine* 5(3): 20-21, 49.

**LIMERICKS**

Eating mammoth five months in a row  
A bilious old hunter named Joe  
Yelled, "Enough of this stuff!"  
But his wife in a huff  
Snarled, "We've still got eight tons to go!"  
—Robert Davidson

Early Man is the subject to date  
Did he arrive early or late?  
Some bet on bone tools,  
Others call them damn fools.  
Answers we eagerly await.  
—Pat Shipman

See page 2 for more limericks and  
limerick contest winners.

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WHAT!?

YOU MOVED  
AND DIDN'T  
TELL US?  
DO I LOOK  
LIKE I CAN  
READ YOUR  
MIND?

THE TRUMPET  
IS NOT FORWARDED.

WE MUST HAVE YOUR CORRECT ADDRESS.  
PLEASE NOTIFY US OF ANY CHANGE OF ADDRESS.

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