MAMMOTH TRUMPET

Volume 16, Number 1 · December, 2000

Center for the Study of the First Americans
355 Weniger Hall, Oregon State University
Corvallis OR 97331-6510

Exploring an Ancient Lake, Legacy of the Ice Age

The level marked by the tools and meter stick is the original humus layer that existed 12,000 years ago, when this was the shore of a lake formed by the melting Laurentide Ice Sheet. To get to it, though, volunteers from Massachusetts Archeological Society have to dig through soil that was bulldozed and spread over the site 36 years ago. It's hard work, but after 12 years they have unearthed thousands of weapons and tools—including a puzzler—and enlarged our understanding of Paleoamerican migration. (This may look like a peaceful country setting, but just beyond those trees commuters are racing through the suburbs of Boston on 4-lane Interstate 95.) Our story begins on page 10.

JOSEPH FINNERAN

The Center for the Study of the First Americans fosters research and public interest in the Peopling of the Americas. The **Center,** an integral part of **Oregon State University,** promotes interdisciplinary scholarly dialogue among physical, biological and social scientists. The **Mammoth Trumpet,** news magazine of the **Center,** seeks to involve you in the late Pleistocene by reporting on developments in all pertinent sciences.

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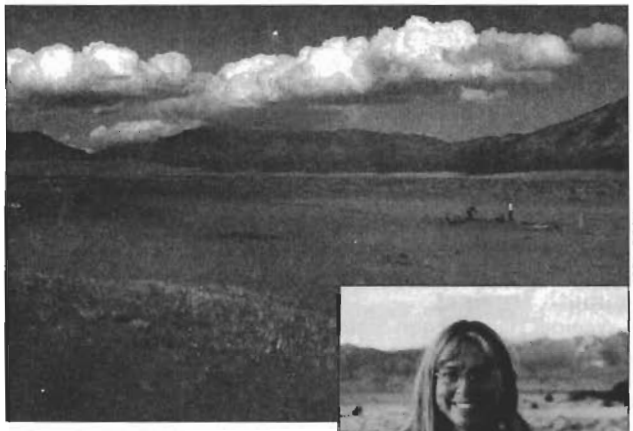
Department of Anthropology
ISSN 8755-6898

World Wide Web site **http://www.peak.org/csfa/csfa.html**

ON THE CUSP BETWEEN PLEISTOCENE AND HOLOCENE

Although the **Mammoth Trumpet** has occasionally reported on archaeological sites with Folsom components or artifacts, we have never published an article specifically on Folsom, the Paleoamerican culture that came to the attention of scientists before the discovery of Clovis. Folsom people obviously were not the *first* Americans, but



PEGI JODRY

DENNIS STANFORD

Pegi Jodry, and the Stewart's Cattle Guard site, discovered in a wind-deflated basin, or blowout, near Great Sand Dunes National Park.

years of research by archaeologist Margaret A. Jodry of the Smithsonian Institution's Paleoindian-Paleoecology program reveals a great deal about the America those first people inhabited.

Dr. Jodry, known to colleagues and friends as Pegi, has been studying Folsom sites in the High Plains and Rockies for many years, and her many publications, including a recent dissertation for American University, which soon will be published, portray Folsom people as skillful, well-organized, and well-traveled people who lived in a period of relatively benign climate during the last gasp of the Pleistocene. They made beautiful stone tools from the best raw materials and no doubt had many wood, bone, and fiber artifacts that have not survived in the archaeological record. Discoveries, including very delicate needles, suggest they made high-quality clothing and other fiber artifacts.

Contrary to the suggestions that they were brutish louts who might have stampeded a herd of bison over a cliff for a quick feast, Jodry's evidence indicates that they probably made the most they could of the giant Pleistocene bison of their time—about 10,900–10,300 radiocarbon yr B.P. The people had to be well organized and skilled to survive. It was a time of dramatic climatic change. Many large animals were disappearing or had become extinct relatively recently. "I think it's very poignant and interesting," says Jodry, "that during the Folsom time period there might have been

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INSIDE

ARCHAEOLOGY AND KENNEWICK MAN: Science or Sacrilege?

by Bradley T. Lepper

Scientists studying the First Americans are in turmoil over the federal government's recent decision to put Native American spirituality ahead of scientific evidence in determining the fate of a human skeleton 4,000 years older than Italy's famous "Ice Man." The Department of the Interior recently announced that it would turn over the bones of Kennewick Man, a 9,000-year-old skeleton found in Washington state, to a group of American Indian tribes for reburial without further scientific study. The only reason these bones have not already been reburied is that several scientists have taken the government to court for the right to study this ancient skeleton. The fate of Kennewick Man will be determined at a trial in federal court set to begin in June 2001.

In 1990, the Native American Graves Protection and Repatriation Act (NAGPRA) was signed into law, giving federally recognized Indian peoples a process for claiming skeletons and funerary objects from museums and other institutions that receive federal funding when those remains can be shown to be "culturally affiliated" with a modern tribe. Cultural affiliation, according to NAGPRA, means that "there is a relationship of shared group identity which can be reasonably traced historically or prehistorically between a present day Indian tribe . . . and an identifiable earlier group." A key point here is deciding just how "reasonable" one must be in making a case for cultural affiliation. Under NAGPRA guidelines, the evidence that can be marshaled in support of claims of "cultural affiliation" includes a balance of data from anthropology, archaeology, biology, folklore, geography, history, oral traditions, and "other relevant information or expert opinion." Including folklore and oral traditions with the more empirical data of the academic disciplines was intended to establish a balance between traditional American Indian beliefs and values and the scientific enterprise. In practice, however, these are more often irreconcilable world views than complementary perspectives.

In July 1996, the skeleton of Kennewick Man emerged from the mire along the banks of the Columbia River.

We need good stories. And writers to tell them.

Outgoing editor Don Hall has left me with an awesome task, to fill 20 pages of ***Mammoth Trumpet*** four times a year with the high-caliber articles our readers have come to expect.

I had all the help I could hope for on this, my first issue as editor. Don has left us with a 3-part series on Pegi Jodry's research in the American West, Brad Lepper gives us an articulate scientist's update on Kennewick Man, and staff writer Carol Ann Lysek imbues ***The Archaeology Channel*** with the excitement it deserves. For my part, Betty Tharp and Joe Finnerman gave Char (the better half of Wordsmiths) and me the $5 tour of the Wamsutta site, and Anton Chobot gave unstintingly of his time over the phone.

What else could I wish for? To hear from people with stories—or just leads—for articles in future issues. If you're on to a development in archaeology, anthropology, paleontology, or any discipline that will further our understanding of the peopling of the Americas, we want to hear from you. Write or e-mail Rob Bonnichsen or me.

Thank you, Don.

–Jim Chandler

The Mammoth Trumpet (ISSN 8755-6898) is published quarterly by the **Center for the Study of the First Americans,** Department of Anthropology, Oregon State University, Corvallis, OR 97331-6510. Phone 541-737-4595. Periodical postage paid at Corvallis, OR 97333. e-mail: csfa@orst.edu.

POSTMASTER: Send address changes to:
Mammoth Trumpet
355 Weniger Hall, Oregon State University,
Corvallis, OR 97331-6510

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Characteristics of the bones suggested to scientists that the remains belonged to an individual of European-American descent, presumed to be that of an early settler. This interpretation was complicated by the fact that analysts found a stone projectile point embedded in his pelvis—a spear point similar to other points known to have been fashioned between 5,000 and 7,000 years ago. Subsequent radiocarbon dating of the bones established that the man died more than 9,000 years ago. The extreme age of these bones satisfied the Department of the Interior that the individual was "Native American," thus rendering his remains subject to potential repatriation under NAGPRA. But for many scholars, mere chronology is a poor substitute for reasoned study and analysis. If it can be shown that Kennewick Man belonged to a lineage not represented by modern Native American peoples, as his physical appearance suggests, then NAGPRA should not apply. Some archaeologists have argued recently that at least some Paleoamericans might have been transplanted Europeans, and even Vine Deloria has proposed that Paleolithic European visi-

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IN MEMORIAM

GEORGE ALLEN AGOGINO

Dr. George Allen Agogino died at his home early Monday morning, September 11, after a three-year battle with cancer. He was 79. He came to Portales in 1963 to lead a summer excavation at the Blackwater Draw archaeological site; he stayed to create the Department of Anthropology at Eastern New Mexico University, which he chaired for eleven years. He was the founding director of the Blackwater Draw Museum, which he designed and found the resources to build. In 1989 he was selected to be a New Mexico Eminent Scholar by the Governor. He retired as Distinguished Research Professor in 1991.

Between graduating from Overbrook High School in Philadelphia, Pennsylvania, in 1940 and volunteering for service in WW II in 1943, he was employed by the Lehigh Valley Railroad Company to examine the accuracy of conductors' reports. In WW II he was a member of the Signal Service Group in the Southwest Pacific Theater of Operations, where he was a high-speed radio operator, sending and receiving code signals. He was also placed on detached service to reconnoiter remote New Guinea villages for Japanese presence. After the Allied occupation of Japan, he was assigned to Tokyo headquarters under General MacArthur.

With a BA in Anthropology and an MA in Sociology from the University of New Mexico, he began his teaching career at Nasson College in Maine. He also taught while he completed his Ph.D. in Anthropology at Syracuse University. His inspiring teaching and prolific research career included positions at the State University of South Dakota, the University of Wyoming, and Baylor University in Waco, Texas. He was also a post-doctoral research appointment at Harvard University. He published more than 600 articles and chaired numerous sessions and presented many papers at professional meetings. While he is best known for his contributions to Paleoindian archaeology, he had broad interests including the ethnology of the Southwestern U.S.; Mexican archaeology, ethnology, and history; forensic physical anthropology, and the supernatural. He was a fellow of the American Association for the Advancement of Science, the American Anthropological Association, and the Royal Anthropological Association of England. He was selected for membership in the Explorers Club in 1980 and for inclusion in Who's Who in America (1988–1997) and Who's Who in the World (1991–1992).

His selection as a member of the U.S. Olympic track team for the 1940 summer Olympics (canceled due to the war in Europe) was a high point in his athletic career, which included three national high school indoor track team championships at Overbrook High School and organizing and running on the University of New Mexico cross-country track team. He combined his exceptional athletic ability with his capacity to lead and inspire to coach college baseball and basketball. He continued to compete in sports, particularly tennis, well into his retirement.

He had a lifelong love of music, which he pursued for over sixty years. He started playing guitar and singing with his strong, beautiful voice at a young age. He played with Pete Seeger in 1946. His most recent musical activity was singing at services at the Central Christian Church.

ALICE AGOGINO

Dr. Agogino is survived by his wife, Dr. Mercedes Agogino of Portales; two daughters, Karen Agogino of Albuquerque and Dr. Alice Agogino of Berkeley, California; a grandson, Adrian Agogino of Austin, Texas; and a granddaughter, Arianne Agogino Gieringer of Berkeley.

Services were held Saturday, September 16, at 2 P.M. at the Central Christian Church of Portales. The family requests that in lieu of flowers, donations be made to the Blackwater Draw Museum. Checks should be made payable to Friends of Eastern Foundation, designated to the Blackwater Draw Museum, and sent to: Friends of Eastern Foundation, Station #8, ENMU, Portales, NM 88130.

For more information on the life of George Allen Agogino and remarkable people whose lives he touched, check Web site http://best.me.berkeley.edu/~aagogino/g_agogino/index.html

Finding Early Peoples In Alberta

A remarkable couple have added a new dimension to the term 'avocational'

ANTON AND MARIA CHOBOT built their retirement home in Alberta in 1979 in a spot rivaled in beauty by few other places in the world, on the shore of Buck Lake in the foothills of the Rocky Mountains. If they wondered how they would pass the time, the problem was solved for them: their property lies atop a major deposit of toolmaking stone and *tens of thousands* of artifacts made from it. They have spent 20 years examining excavated debris—and they admit they're overwhelmed.

Small wonder. They have recovered more than 14,000 stone tools, cores, and primary and decortication flakes, and more than 13,000 secondary flakes. About 95 percent of the artifacts were found in backhoe-excavated material. The results of their labor are staggering on first view. When Bruce Ball, at the time an archaeologist working for the Canadian government, visited the Chobot property there was only an excavation and poured foundation. His first question was, "Did you find this heap when you bought the site?" The "heap" was a pile of artifacts the Chobots had found and set aside! That was 1981, and they've been busy ever since.

Cobble bed.

Land Shaped by Water and Ice

The developer who subdivided the land around Buck Lake carved building sites out of terrain that today is forested in spruce, poplar, and willow. The Chobots bought lot #10, perched high on the slope of the upper terrace above the lake. To the west, toward the lake, lies a lower terrace. To the east the developer built a feeder road for the subdivision.

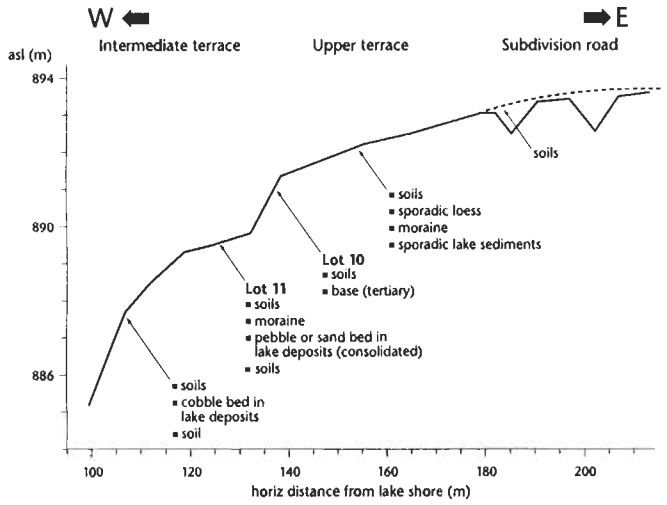
When backhoes excavated for their house foundation, the Chobots discovered that the terrain has experienced major transformations over the ages. An ancient lake collected cobbles that became smoothed by water loaded with silt and fine sand. Close to the shore, wave action sorted pebbles from cobbles. The cobble and pebble beds form a continuous curve that rests over older layers of developed soils. The cobble beds were an excellent supply of quartzite and chert that Paleolithic peoples later used for knapping tools and points.

During the Late Wisconsin, about 22,000 yr B.P., the Laurentide Ice Sheet reached Buck Lake. This part of Alberta lies at the edge of the "Ice-free Corridor," the gap between the Cordilleran Ice Sheet to the west and the Laurentide Ice Sheet encroaching from the east that some anthropologists theorize served as a conduit for Paleoamericans entering from Beringia into the bountiful lower North American continent. (See "New Information on the Ice-free Corridor?") When the glacier later retreated it deposited moraine that covers the upper and intermediate terraces, overspreading the pebble beds and some of the cobble beds. Glacial boulders protrude in several places. Dating the moraine deposits, Anton is certain, would shed light on the pre-Clovis existence of this part of Alberta.

As you might have guessed, the Chobots didn't acquire this knowledge of the composition of the earth under their property instantly. They first started collecting artifacts when their lot was being excavated. After the foundation was poured and it was time to backfill, they had the contractor spread artifact-rich soil

Anton and Maria Chobot.

ALL PHOTOS: ANTON & MARIA CHOBOT



The profile of the Chobot site, showing the composition of the surface at different parts of the subdivision. The Chobots' house is on lot #10. They bought neighboring lot #11 and have set it aside for future exploration by trained archaeologists.

around three sides of the cottage so that they could sift through the material at their leisure.

By experience they can tell from the color and composition the original depth of the material. Soil excavated from the basement, for example, is grayish blue with no sign of organic matter; after two years of exposure to the open air no vegetation had grown in it, and heavy rains continue to wash artifacts out of it. Material excavated from the road cut, on the other hand, is composed of recognizable layers differing in structure, color, and composition. It contains little "black soil"; most of the material is gravel- and pebble-rich sediments colored brown, yellow, or gray. It appears that the subdivision feeder road and upper terrace contain the oldest artifacts.

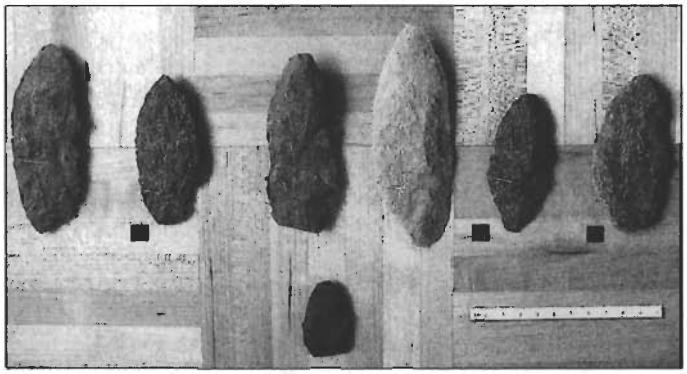
During the construction of the parking area on adjacent lot #12, a Clovis layer was found on top of sharp blackish gray sand soil 43 cm below the surface. Under the Clovis layer, 58 cm below the surface in organically rich soil, the Chobots found a group of flake tools.

Dig just a little deeper at Buck Lake and you can go back to a different geologic era! While digging their septic tank in 1981, Anton found fossil remains at a depth of 1 m. He contacted Alan Bryan at the University of Alberta in Edmonton, who said the context was probably Triassic, the fossils those of marine creatures that inhabited the inland sea that existed before the Rocky Mountains were heaved up out of it at the end of the Mesozoic—60 million years before humans appeared on Earth.

Building Their Collection

The first authority to appear on site was Bruce Ball, when the Chobots' house was under construction. He checked the profile of the excavation wall and offered help starting the catalog of collected artifacts. In August 1981 they registered their property as an Alberta archaeological site; its official designation is Chobot Site FfPq-3.

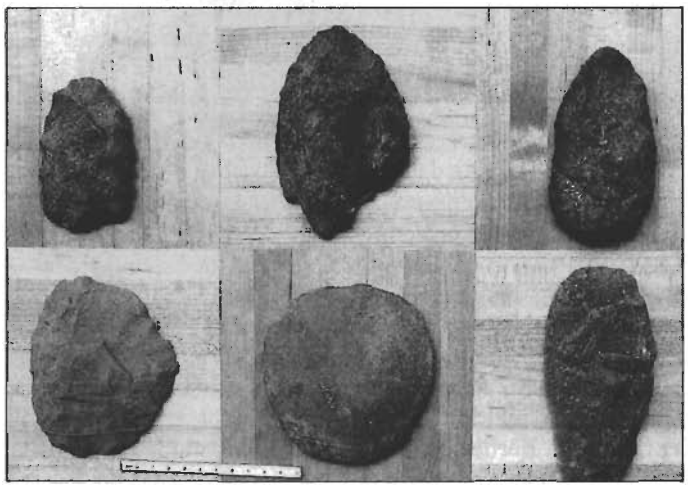
As they discovered artifacts, the Chobots mounted the more interesting specimens on boards, the order completely random without regard to chronology or type. To date they have accumulated 21 boards, each displaying from half a dozen to more than three dozen points or tools. They are aware that this is "archaeology by backhoe," not rigorous data recovery of artifacts in situ.



▲ Quartzite bifaces, most found in material excavated from the upper and intermediate terraces. At upper left is a biface bipoint; at bottom is a fluted preform. The others are biface points; those marked (■) are similar to Sandia points.

◀ Assorted choppers of quartzite found in material excavated from the road cut and upper terrace.

▼ Three bifaces with hand axe shapes (top). On the bottom a uniface, or cobble spall; a utilized cobble, primary spall; and a biface. All are quartzite.



New Information on The Ice-free Corridor?

In "Paleoecologist Finds Corridor Ice-free but Forbidding" in the March 1992 issue of **Mammoth Trumpet**, Quaternary scientist Carole Mandryk, then completing her doctorate at the University of Alberta, told us the findings of her research on the Ice-free Corridor. A passage through glacial ice from Beringia to the lower reaches of the continent, where the climate was less hostile and game was plentiful, did indeed exist and *could* have been traveled by Paleoindians arriving from Siberia. She makes no judgment about whether anyone *did* in fact travel the route, only that it was possible.

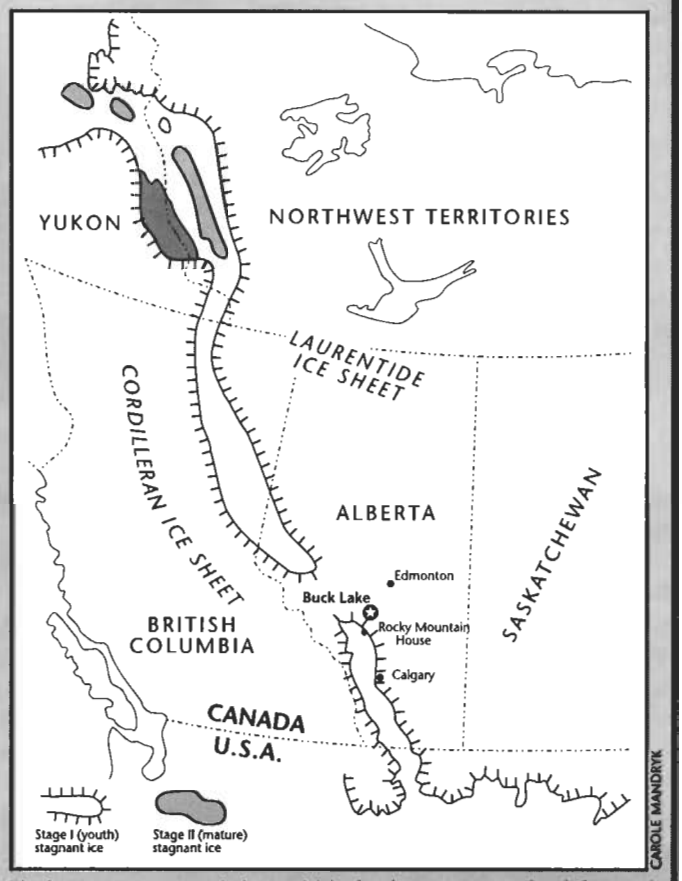
The journey was possible, though, only before 21,000 years ago and after 12,000 years ago. At about 21,000 to 19,000 years ago the Cordilleran Ice Sheet and Laurentide Ice Sheet coalesced as shown in this map—at Buck Lake, by extraordinary coincidence—thereby blocking the corridor and preventing passage by man or animal. Although glacial ice retreated and the corridor re-opened about 18,000 years ago, Dr. Mandryk contends that the landscape was forbidding, a cold, semi-arid steppe with scant precipitation and only 10–25 percent of the land bearing sparse grass and sagebrush, "a rock-desert tundra where mammals and birds were rare because of the extremely low biomass." Until about 12,000 years ago, Mandryk argues, such harsh climate, sparse vegetation, and minimal fauna probably would not have sustained human population.

She bases her conclusion about the post-glacial environment, the period from 18,000 to 14,000 years ago, on pollen counts made on samples of sediments taken from a lake a few miles south of Rocky Mountain House that lay within the ice-free corridor. Her exhaustive laboratory research proves that vegetation was so sparse there simply wouldn't have been enough calories to feed the smallest density of humans we would expect to find.

Mandryk's conclusions are convincing for the period *after* glacial ice retreated. What is the picture *before* 21,000 years ago, before the corridor was closed? "Mandryk's lake sediments simply don't contain the data," Don Alan Hall reported eight years ago.

Perhaps there is a new source of data that can illuminate the pre-glacial period: Chobot Site FfPq-3. In 1983 and 1984 the Chobots investigated the cobble beds. Moraines had formed over the cobble beds, presumably from the glacial episode that closed the ice-free corridor. On top of the moraine deposits they found artifacts of Clovis culture that undoubtedly date to a period after 14,000 years ago, when the climate had improved and burgeoning vegetation could have supported animal life. But they also found artifacts *under* the moraines. What is more astonishing, they have found two layers of cultural soils *under the cobble beds.* It would appear that humans have subsisted here, or at least passed through on their search for better climes, well before Clovis.

How long before Clovis? That question can be answered only by an archaeological and geological survey on their property, using modern dating techniques—precisely what the Chobots hope will happen someday.



Nonetheless they have scrupulously recorded data on the artifacts mounted on boards—specimen number, description (they admit they can't identify some artifacts, especially points), material, weight and dimensions, margin characteristics, and comments that might aid a scientist reviewing their data.

Heavy-duty tools and more than 500 cores for making chopper tools and flaked tools were collected from material dug from their basement and the road. Many choppers, cleavers, bifaces, and flakes have sinuous margins. To classify the tools the Chobots used information published by authorities including K. P. Oakley, F. Bordes, K. D. Schick and N. Toth, E. N. Wilmsen, and L. H. Keeley.

Points, including Clovis, Fishtail, and Cascade types, were recovered from material excavated above the cobble and pebble beds and glacial till. The extensive collection includes a rare find, a biface remarkable similarity to a specimen pictured in F. Bordes's *The Old Stone Age.*

A Plea for Help

It is amazing that self-taught archaeologists could have pursued their investigation as far as Anton and Maria have done at their site—which was supposed to be just a cottage on the shore of a pretty lake.

The Chobots are a remarkable couple. They were born in

Czechoslovakia. In the late 1950s the Soviets used Czechoslovakian prowess in industry and technology as a tool to penetrate the Middle East and Africa. Anton, trained in electrical engineering at the university in Bratislava, traveled extensively and indulged his interest in archaeology wherever he went. While working at an electric power company in Syria he saw evidence of Roman constructions, at Ugarit a dig through five cultural levels—none, of course, dated back as far as the basement of his house at Buck Lake. Returning to Czechoslovakia in 1962, the Chobots found their country in ideological turmoil in the aftermath of the Hungarian revolt of 1956 and Khrushchev's program of destalinization. On vacation in Yugoslavia the Chobots decided to emigrate to the West. Next stop, Canada.

It soon became apparent to the Chobots when they discovered the wealth of artifacts on their property at Buck Lake that people with special skills and equipment were needed to perform an exhaustive study. The first thing they did was to buy neighboring lot #11 in the subdivision. Except for digging 16 test pits and planting a few trees, they have left the lot in its original state. It is a half-acre reserve that awaits a team of trained archaeologists.

The Chobots' attempts to enlist help so far have ended in disappointment. They contacted the Provincial Museum in Edmonton, described the site, and emphasized the importance of dating the layer under the cobble bed and of showing the connection between archaeological layers and the slope the subdivision sits on, especially the road and terraces, which are richest in artifacts. After a preliminary study, however, museum authorities declined further investigation, citing lack of funds as the reason.

Anton and Maria hope that someday a sponsor will be found to fund a complete archaeological and geological survey on their property, using modern dating techniques. Meanwhile, they enjoy life at beautiful Buck Lake.

–JMC

How to contact the principals in this article:

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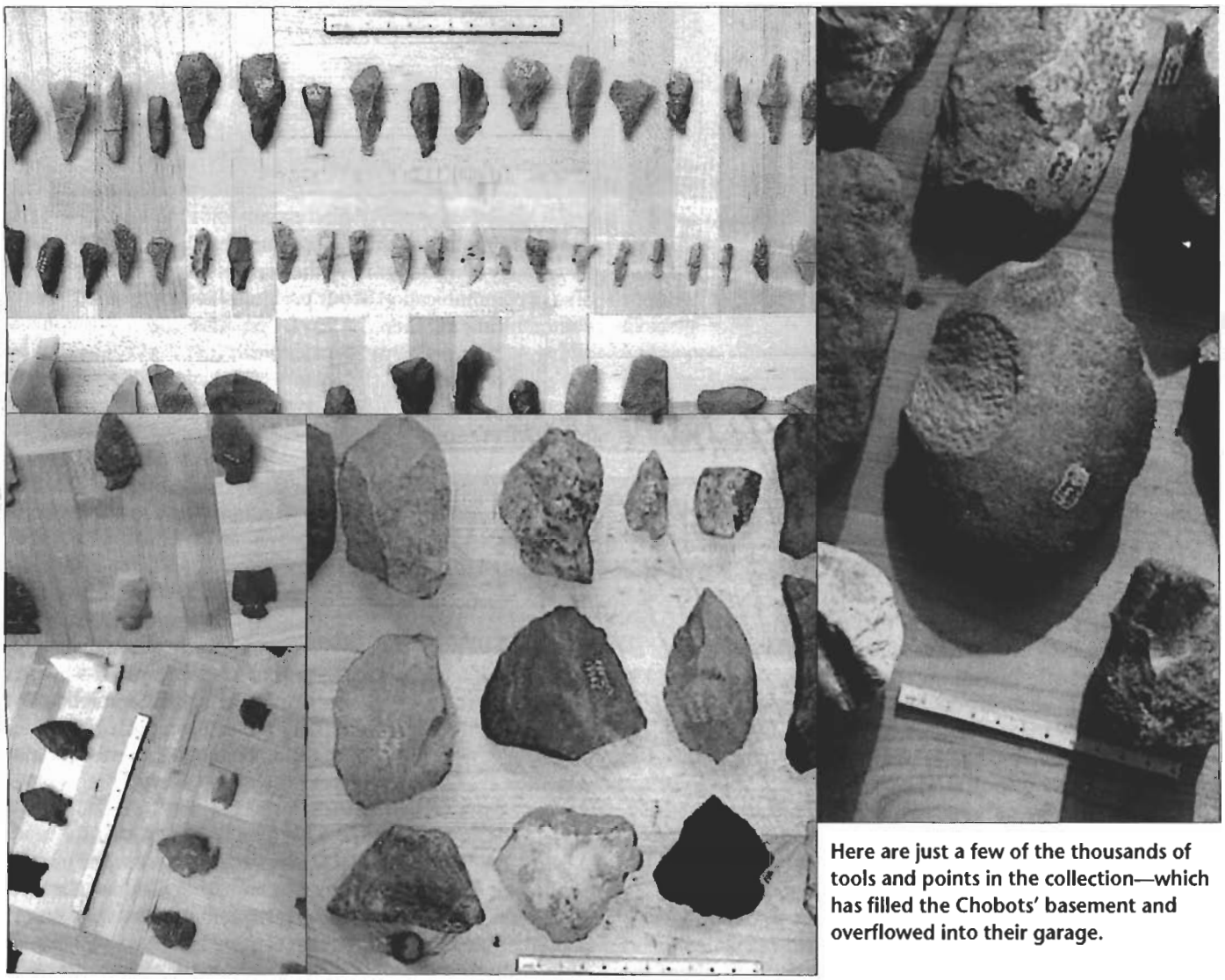
Winfield, AB, Canada T0C 2X0

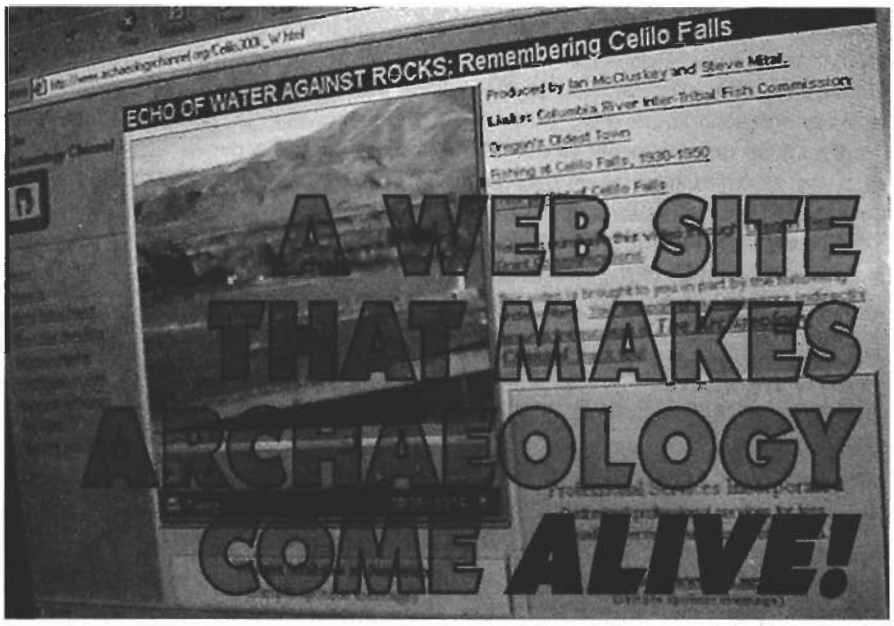
e-mail: achobot@telusplanet.net



Here are just a few of the thousands of tools and points in the collection—which has filled the Chobots' basement and overflowed into their garage.

SEARCH THE INTERNET and you can find hundreds of archaeological links, but you won't find a Web site as innovative or captivating as ***The Archaeology Channel***. Today it offers six on-demand video-streaming "movies" about archaeology and indigenous peoples. These films are about 15 minutes each, digital images that you can watch on your computer monitor (but you can't download them to your hard drive). In the future ***The Archaeology Channel*** will present news programs, oral presentations, interviews, and panel discussions pertaining to archaeology. There's also a plan to offer classroom viewing in conjunction with new archaeological curricula for students and to serve the professional audience.

This seems a tall order for a concept that only took root in 1999, but like the Internet, it is moving full speed ahead. ***The Archaeology Channel*** is the brainchild of Rick Pettigrew, a graduate of the University of Oregon and former highway archaeologist for the state of Oregon for 10 years. ***The Archaeology Channel*** is a project of the Archaeological Legacy Institute, a nonprofit organization spearheaded by Dr. Pettigrew. He is the founder of ALI, as well as its president and executive director. ALI, based in Eugene, Ore., received its 501(c)(3) tax-exempt status in mid-1999 after what Pettigrew describes as an expensive ($500), complex, and lengthy process prescribed by the Internal Revenue Service.



Problems in archaeology need to be fixed

In 28 years as an archaeologist, much of that time spent in private practice, Pettigrew has become increasingly concerned about the limited way in which archaeological information is being communicated within the profession and to the general public. The Archaeological Legacy Institute and ***The Archaeology Channel*** on the Internet aim to bridge this communications gap and also provide educational opportunities.

Over the past 30 years Pettigrew has seen archaeology move from university- and museum-based research to cultural resource management (CRM) research funded by private and government sponsors. "Today most archaeologists don't work for universities," says Pettigrew, "and although archaeology is better funded than ever before—there's more archaeology going on now because federal regulations require it for construction projects and so forth—problems have been created.

"Many fine reports are written that see very little distribution because clients understandably want to pay only as much as they are required to. So they tend to pay for field research and generate a final report . . . and that's the end of their responsibility." Typically a single copy of the report gets stored at a central office in the state and is never seen again. Pettigrew says every year millions of dollars are spent on generating data that neither the profession nor the general public get to see.

Pettigrew is also troubled by the strained relationships between archaeologists and indigenous peoples throughout the world. He believes improved communication through new technology can relieve the tension and help them find common ground so they can work together. "Archaeology can help indigenous peoples recapture parts of their culture that have been lost or forgotten. I think we have a responsibility to explain to them why we do what we do and how we do it, maybe even help them in their own programs. Nowadays a lot of tribal organizations have their own archaeological programs."

According to Pettigrew, opportunities abound in the area of technology to do things never before possible, particularly in the area of communication. If our problems lie largely in the area of communications, then, he says, "we have the opportunity to address those problems because with Internet technology we can communicate with the entire world at very little cost, not just through e-mail but through moving pictures—videos. That's where I came up with the idea of ***The Archaeology Channel***—a venue for moving pictures and other types of multimedia forms that enable us to communicate important messages about archaeology and about indigenous peoples to everybody in the entire world."

A direct line from the archaeologist to the public

Banking on the general public's intense interest in archaeology, Pettigrew sees great potential for introducing archaeology by way of the Internet into every part of school curricula—history, biology, geology, writing, geography. In fact, in September 2000 the Smithsonian Institution held a 2-day symposium showing teachers ways to weave archaeology into their course material. Teachers want to teach and reach their students. "Archaeology is cool," says Pettigrew, "it's fun, kids like it, it's kind of a natural."

With ***The Archaeology Channel*** on the Internet, the general public now have direct access to archaeologists and their research. There are no journalists interpreting, no incomplete and inaccurate news reports. Archaeologists can now help journalists get the complete story on a project and present research

questions that led to their investigations in the first place. And we now have a way to treat another ailment: much of the archaeological information conveyed nowadays to the general public is on a superficial level. "There's really not much understanding about why we do what we do," Pettigrew complains, "about the fundamental questions we have that cause us to go out and dig things up. We're learning a great deal about the human past, thereby a great deal about ourselves as human beings, who we are—our identity, really." We need to inform the public, he insists, and ***The Archaeology Channel*** is the way to do it.

Hobby archaeologists are a special group that deserve the attention only the Internet can give them. Many avocationals, Pettigrew admits, know more about archaeological sites than do archaeologists. He has no illusions, though, about their conduct; they run the gamut, he says, "from reputable to disreputable." Using the Internet, archaeologists can communicate directly with this group, find common ground, and mitigate the distrust and resentment of professionals held by many lay people doing serious archaeology.

Log on to www.archaeologychannel.org and *EXPERIENCE* archaeology!

The technology: Still in short pants, but trousers are coming

So what is this new technology that allows archaeologists to communicate in such diverse ways? How does it all work? The technology used by ***The Archaeology Channel*** is in its infancy and will improve dramatically over time. Today on-demand video streaming shows short films (ideally 15 minutes or less) on current topics of archaeological research. These films in most cases are produced by the archaeologists themselves and document their particular research project.


Rick Pettigrew.

Most local media centers can convert film to VHS, mini-DV, or Beta SP format. ALI takes any of these formats and plays the tape into their computer containing a video-capture board, where encoding software converts the analog signal into a compressed digital file small enough to be "streamed" over the Internet. This sophisticated encoding process is astonishing: it compresses a 10-minute video that takes about 4 gigabytes of hard drive space to 4 *megabytes!*

This small digital file is now ready to move through the "skinny pipes" of the Internet and is transmitted to iBEAM Broadcasting in San Francisco, Calif. ***The Archaeology Channel*** contracts with iBEAM for the use of their satellite hookup and their worldwide capability of broadcasting to the "edges of the Internet" where traffic is not as heavy. The cost to ***The Archaeology Channel*** depends on how many people access the iBEAM server—the more people accessing it, the higher the cost. But the more people that view ***The Archaeology Channel***, the easier it is to attract underwriters and members to help cover the cost.

The quality of what you see at home is limited by the speed of your computer and modem. If you have a 56k dial-up modem, you'll see a picture that is small, grainy, and jerky. Broadband users (100k and 300k) receive much better pictures, with quality and motion almost as good as television. As people upgrade their computer systems, more and more will be able to view these super-quality videos.

Even with its initial limitations, this technology has important advantages over standard TV, starting with much lower production and broadcasting costs. Compare the millions of dollars required to produce The Discovery Channel or The Learning Channel with mere *thousands* invested in ***The Archaeology Channel***. And since it's on the Internet, ***The Archaeology Channel*** is available worldwide.

Perhaps the most important benefit of this new technology is the capacity for interaction. Instead of passively viewing a TV program, you can interact on the Internet and participate at *your* convenience. As technology improves, the Internet may actually overtake television for entertainment and sharing information. Already it is the preferred news-gathering medium for young adults.

Funding: There's the rub

The Archaeology Channel is in its infancy and currently operating on a shoestring, says Pettigrew, with borrowed computer equipment. The only computer currently owned by the Archeological Legacy Institute is the $1,500 encoding computer. ALI has applied to technology companies for grants for $5,000 worth of equipment for an in-house production facility. The equipment will include a tape deck for playing mini DV tapes and a mini DV camcorder so they can shoot their own videos.

"Financing is the biggest challenge of all," says Pettigrew.

continued on page 18

On the Shore Of a Pleistocene Lake

Unearthing secrets about New England's post–Ice Age inhabitants

AS UNLIKELY A SPOT for an archaeological dig as you can imagine, the Wamsutta site lies within sight of downtown Boston and a stone's throw—literally—from one of the busiest interstate highways in the U.S. Nonetheless this is where a dedicated team of volunteers, all members of the South Shore/North River chapter of the Massachusetts Archaeological Society, have been digging since 1988. They have amassed an impressive collection of artifacts and are adding to our knowledge of how Paleoamericans coped in a continent breaking free of the Laurentide Ice Sheet.

This is a site with a charmed life, according to excavation director Joe Finneran, a fellow endowed with boundless energy and unflagging enthusiasm. The Wamsutta site owes its existence to a series of serendipitous events, starting with its creation that began 18,000 years ago, when all of New England lay under a glacial cap that was starting to recede. It took 2,000 years for glacial melt to form the Neponset River Valley. In the Paleo period the Neponset River was a major waterway a mile wide. (The Neponset River today is a mere trickle in comparison.) A section of the river swelled into 5-by-3½-mile glacial Lake Neponset.

It was 14,000 years ago that the lake started to recede, beginning its transformation into a major peat bog. Today the entire valley for 15 miles is peat, a fact that continues to be underscored to residents of the nearby towns of Norwood and Canton whenever a summer lightning storm sets it ablaze.

The first stroke of luck befell the site 12,000 years ago, when Lake Neponset had shrunk to a great pool only about four feet deep—except for a peninsula that jutted out into the water. There were people who were quick to seize upon it as a seasonal camp ground. "Can't you imagine what the first people felt," says Finneran with his usual exuberance, "when they came around a bend in the Neponset River and saw this gorgeous beach of red sand?" The site had everything going for it. There was plentiful game—the team has found evidence of caribou and a fragment of bone or tusk that is likely mammoth or mastodon—and certainly waterfowl. There was also shelter: a promontory of sandstone 90

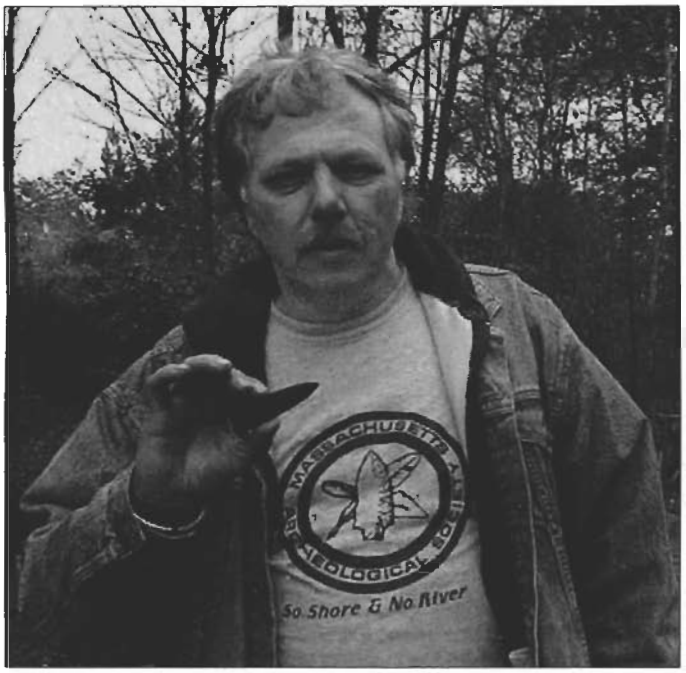
ALL PHOTOS: JOSEPH FINNERAN

Locus G, at the summit of Signal Hill. The M.A.S. team excavated the area in the foreground from 1993 to 1995. The Boston skyline can be seen on the horizon at center; that's the Prudential tower on the left, the John Hancock tower on the right.

feet high, known today as Signal Hill, shields the site from bitter north winds of winter. "This was their Florida" is how Finneran describes Wamsutta. Paleoamericans seeking refuge in winter started coming here from the north about 12,000 years ago, and they returned year after year. Signal Hill, visible for many miles, doubtless served as a navigational aid in their annual journey.

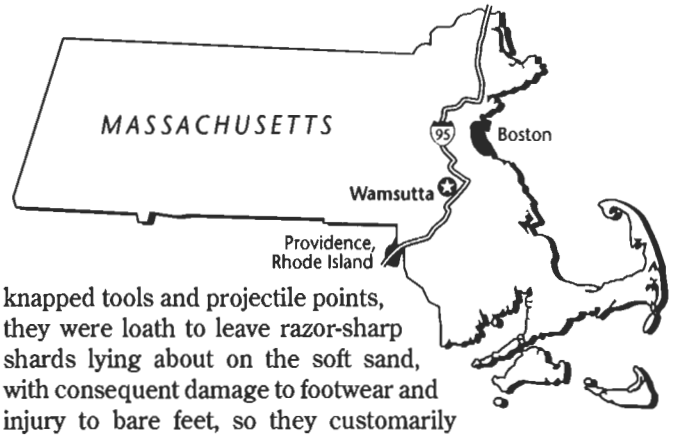
Tools Tell Us Where They Came From

One thing the Wamsutta site does not have is a source of toolstone. Its seasonal residents had to bring it with them. The artifacts they left behind and that the M.A.S. team continues to uncover tell us where they came from. Most of the projectile points and tools are made of Mt. Jasper flow-banded rhyolite, the definitive Paleo material that was quarried exclusively in a pre-



historic mine near Berlin, New Hampshire (see "Northern New Hampshire Takes Pride in Its Unexpected Fluted-point Sites," **MT** 15:3). "As soon as you see it," Finneran declares with the confidence of a man who has seen hundreds of specimens, "you know who left it there." They also brought with them from Vermont Mt. Independence chert and Colchester jasper. The materials from which they knapped their weapons and tools are their footprints in prehistory.

The artifacts they left tell us how inextricably their life at Wamsutta was bound up with the lacustrine setting. In square 111 Finneran recovered from the Pleistocene beach a bifacially fluted point that had been reworked into a hafted awl, possibly used for making oilskin watercraft similar to Eskimo kayaks or Gaelic curraghs (see photo). The awl broke and was discarded by the Paleo craftsman. It has a curious appearance today; knapping patterns are weak and smooth, as if the tool had been polished in a lapidary's rock tumbler—precisely what you would expect if it had been tossed into shallow water and polished by the action of water and sand. Other aspects of lakeside life, however, frustrate the M.A.S. team's efforts to unearth clues about how the early residents lived. When Paleo craftsmen



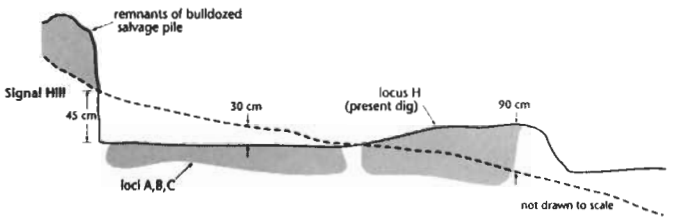
knapped tools and projectile points, they were loath to leave razor-sharp shards lying about on the soft sand, with consequent damage to footwear and injury to bare feet, so they customarily threw knapping debitage into the fire. As a result, about half of all discarded felsite pieces the team have found show fire damage. Wamsutta's seasonal residents were good housekeepers, unfortunately for today's archaeologists.

In the late Pleistocene the sea level rose and the earth, freed of the weight of the Ice Sheet, continued to rebound; the coastline of eastern Massachusetts began to take on its present contour. Finneran theorizes that as Lake Neponset continued to recede, visitors to Wamsutta traveled the Neponset River from Dorchester Bay and en route discovered a quarry of felsite at nearby Blue Hills. At other sites close to Blue Hills, archaeologists have found points of later traditions—Dalton, Hardaway, and Palmer—but only isolated specimens at Wamsutta. It appears that late-Paleolithic people settled closer to the quarry, in locations as rich in game as Wamsutta, and returned to Wamsutta only on isolated hunting forays.

Other evidence points to the decline in Paleoamerican habitation. Another toolstone found on site is Pinetree Brook felsite

Joe Finneran, excavation director of the Wamsutta site, holds his most valued prize, a Paleo lanceolate point knapped from Marblehead felsite.

that comes from a small quarry in Blue Hills. It was used by Paleoamericans, ignored by native peoples in the Archaic, reappears in the Woodland Period. Moreover, in locus **H** (see aerial photo) where the team is currently digging, the members found a large spread—18 square meters—of quartz toolstone, includ-



The profile of Wamsutta site. The original slope is shown by the dotted line. During the construction of Interstate 95 in 1964, the contractor bulldozed artifact-rich soil from the foot of Signal Hill and spread it over the site, creating the contour shown by the solid line. At locus H the M.A.S. team is digging through the overburden in order to reach the Pleistocene beach underneath.

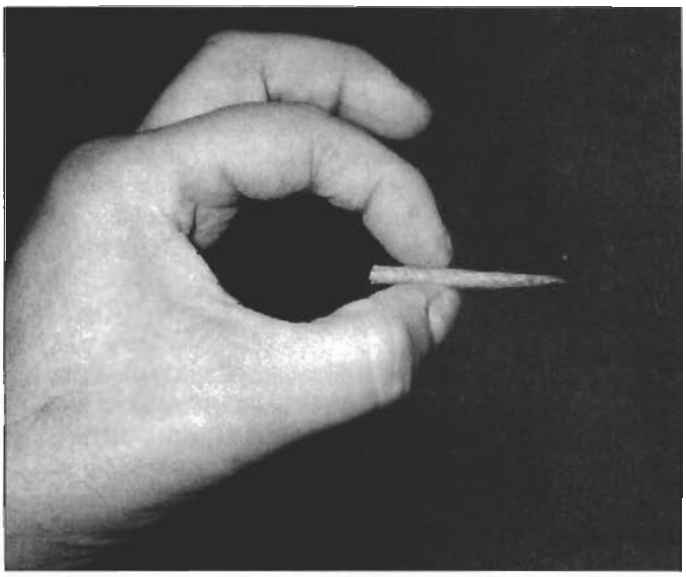
M.A.S. team member Betty Tharp shows off a quartz coronet scraper (left) and an ear-shaped side scraper of Mt. Jasper flow-banded rhyolite. Both were found 44 cm below the surface in square 101 at locus H. These tools would have been part of the tool kit of any well-equipped Paleo craftsman.

ing valuable pieces like hammerstones, anvil stones, and hundreds of cores and flakes. "Why would they have left it," Finneran asks, "unless they were moving for good to other camping areas?" Thus Wamsutta experienced intense seasonal habitation 12,000 years ago, when it was a highly desirable hunting and camping site on the shore of glacial Lake Neponset, then fell into disuse with the changing terrain.

Over succeeding millennia Lake Neponset became a wooded marsh that hunters continued to explore. Finneran, who as a child lived about 1½ miles from the spot now known as Fowl Meadows, used to pick up Woodland and Archaic artifacts and Amerind arrowheads. (The land was home to the Massachusetts and to the Wapanoags, whose grand sachem, Massasoit, succored Plymouth Colony in its first years. Wamsutta, a son of Massasoit, gave his name to the sandstone that forms Signal Hill and to today's site.) Fowl Meadows was country 45 years ago, Finneran recalls, impassable in the spring because it reverted to swamp. The Wamsutta site owes its preservation to the marsh-like properties of the land. No Colonial farmer ever plowed it. It remained untouched until the 1960s.

How the Wamsutta Site Was Discovered

Paradoxically, recovery of the wealth of artifacts from the Wamsutta site was made possible by the construction of Interstate 95, the highway that spans the East Coast from Maine to Florida. Engineers building the highway around Boston plotted the course through Fowl Meadows—and knew they had a job ahead of them building up a berm to raise the roadway above the marsh. In 1964 the contractor, needing a flat, level staging area for storing equipment and supplies, bulldozed up to 18 inches from the foot of Signal Hill. By luck the bulldozer blade was dropped at exactly the level of Paleo artifacts, with the result that excavated material spread at the foot of Signal Hill—and over the Pleistocene beach that had been the hub of activity for its seasonal residents 12,000 calendar years ago—was rich in artifacts.

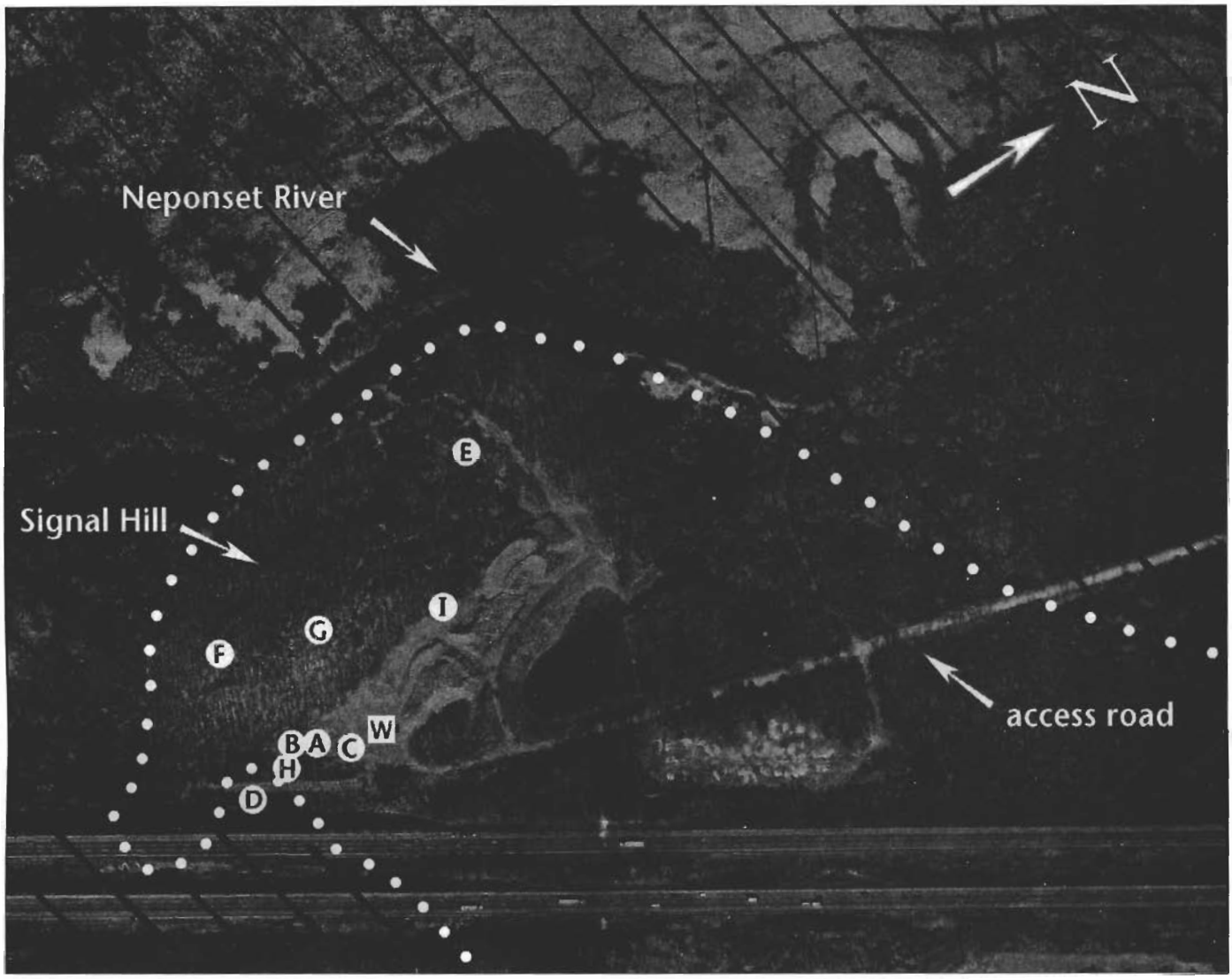


After I-95 was built, the land in Fowl Meadows off its shoulder lay idle and became heavily overgrown with vegetation. In 1978 a team of avocational archaeologists from the Eastern Massachusetts Archaeological and Geological Research Group (known simply as The Group) investigated the site. They worked there until 1984 and recovered more than 600 tools and projectile points.

Volunteers from M.A.S. arrived on site in 1988 and continued the work started by The Group. Finneran credits Curtiss Hoffman, then president of M.A.S., with the team's success. Dr. Hoffman, now with the Department of Sociology and Anthropology at nearby Bridgewater State College, taught them the methods of professional archaeology and instilled in them the discipline necessary to perform rigorous data recovery.

Their work has paid off with a bounty of artifacts discovered in situ that exceeds anything they could possibly have imagined. To date the M.A.S. team has recovered more than 2,000 tools and points dating from the late Ice Age: unifacial tools, side scrapers, end scrapers (some with graver spurs), prismatic

Side view of a fluted point of Mt. Independence chert that was reworked into a hafted awl, then broke and was discarded. The broken tip is on the left; on the right is the basally thinned hafting area. It has a polished, well-smoothed surface that Joe Finneran suspects resulted from the action of water and sand.



The peninsula (dotted line) that extended into glacial Lake Neponset (area in hashed lines) in Pleistocene times is visible in this aerial photo taken of the Wamsutta site in 1993 (scale: 1 inch = approximately 300 ft or 91.5 m). At the bottom are the north- and southbound lanes of Interstate 95. The access road is a private road; entry is denied except to M.A.S. members and workers at the wastewater pumping station W built by the Massachusetts Water Resources Authority after this photo was taken.

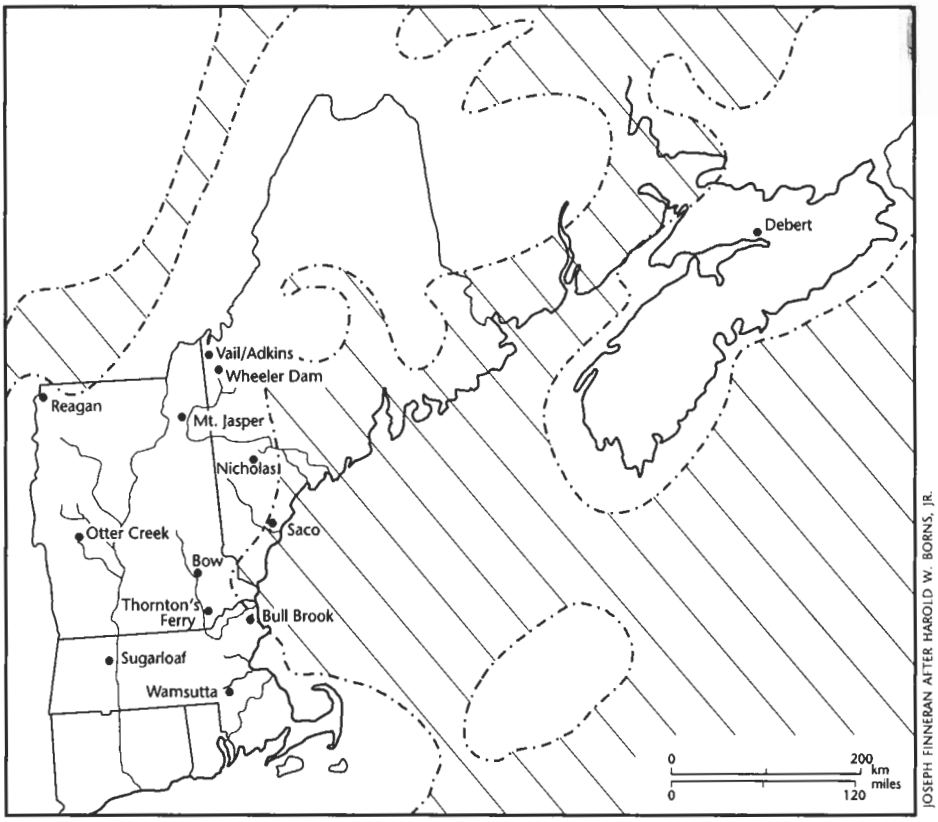
The Eastern Massachusetts Archaeological and Geological Research Group (The Group) excavated loci A, B, and C at the foot of Signal Hill and E on the north-facing slope of Signal Hill from 1978 to 1984.

The M.A.S. team initially dug at locus A in 1988, then explored F and G on the summit of Signal Hill. Since 1997 the team, digging at H, has recovered an enormous collection of artifacts in situ from the Pleistocene shore. The team is currently finishing work at H and intend to concentrate next on the Bates Rockshelter at locus I.

In 1993 a charcoal sample found at D, dated to 10,210 ± 60 [rc] yr B.P., or 12,140 [cal] yr B.P., firmly established the Pleistocene context of the Wamsutta site.

blades, blade cores, limaces, gravers, spokeshaves, burins, sinew stones, abraders, anvil stones, grinding stones, backed knives, awls, bead blanks, bifacial cores, *pièces esquillées*, borers, channel flakes, denticulates, planes, radial fracture tools, whetstones, drills, projectile points (fluted and lanceolate types), many hammerstones, a stone pick, a crescent knife, an adze, and much debitage. Along the way Finneran has developed profound respect and a feeling of kinship with the people that crafted these tools. "These were experts at the arts needed to survive," he insists, "at navigation, toolmaking, hunting, making watercraft. They used no toolstone except what they brought with them."

By luck we know when they were at Wamsutta. In 1993 the State put in a sewer line through Fowl Meadows immediately alongside I-95 and adjacent to the area where M.A.S. volunteers were digging. Cultural Resource Management archaeologists unearthed a Paleo fire pit; charcoal from the pit was dated by Beta Analytic Inc. labs to 10,210 ± 60 [radiocarbon] yr B.P. Ofer Bar-Yosef of Harvard, at the request of the South Shore/North River chapter of the M.A.S., later computer-translated the date to



New England was a vastly different place 12,000 years ago, when Paleoamerican peoples made Wamsutta their wintering grounds. The retreating Laurentide Ice Sheet still had so much water locked up that the worldwide sea level was about 90 m (295 ft) lower than present; simultaneously, land that had been depressed as much as 1,000 m (3,300 ft) by the immense weight of the Ice Sheet was rebounding. The result was startling differences from the continent we know today. This map, based on research in the early 1970s by Harold W. Borns, Jr. of the Department of Geological Sciences at University of Maine–Orono, shows the shoreline as it existed then (dotted lines), compared with today's familiar coast (solid lines). A large part of Maine was then submerged; on the other hand, Nova Scotia (home of the Debert site) and the Grand Banks were islands. Massachusetts extended much farther into the Atlantic Ocean than it does today; the islands of Nantucket and Martha's Vineyard were part of the mainland, Cape Cod was merely a feature of the terrain, and Wamsutta was well inland. Known Paleo sites in New England shown on this map have two things in common: they were on the mainland 12,000 years ago, and they did not become submerged when the sea level rose in later millennia. We can only guess how many sites, peopled at the same time as Wamsutta, today lie submerged—for example, at the bottom of Boston Harbor!

approximately 12,140 [calendar] yr B.P. Wamsutta site therefore lies comfortably within the time frame of other known Paleo sites in New England—such as Vail and Adkins in Maine at 10,900 [rc] yr B.P. and Thornton's Ferry in New Hampshire at 10,600 [rc] yr B.P.—and Debert site in Nova Scotia at 11,100 [rc] yr B.P.

Signal Hill: An Archaeological Site in Its Own Right

This outcropping of Wamsutta sandstone, it turns out, did more than serve as a windbreak for Paleoamerican campers on the beach.

Burinated sidescraper of flow-banded rhyolite about 3.5 cm (1.4 in) high from Mt. Jasper in New Hampshire—196 miles north of the Wamsutta site, an impressive journey for the Paleoamerican carrying the tool or the quarried stone from which he later knapped it. The burin feature (stepped edge on top) makes the tool exceptional.

Today its slopes have accumulated sufficient soil to support deciduous trees. On the crest four to five inches of sod overlie sandstone. Until modern times Signal Hill lay undisturbed, visited only by hunters and trappers and occasional surface-collectors of artifacts. During World War II a radio beacon was erected on its peak as a navigational aid for military aircraft; after the war the beacon was dismantled, and only a concrete pier remains today. Recently there were plans to build a communication tower on Signal Hill for cellular phones, but the builder got no further than felling a stand of cedars on the peak before giving up the idea. Power equipment over the years has done no more than scratch the surface.

Fluted point of Mt. Jasper flow-banded rhyolite about 2.7 cm (1.1 in) long. It has been resharpened to half its original size.

The view from the summit of Signal Hill is spectacular for us today. The M.A.S. team, reasoning it must have been equally appealing to Paleoamericans, performed a 3-year methodical data recovery on the peak. A 1-m-square pit yielded about 250 pressure flakes of Blue Hills felsite. In all, the team dug 11 pits to verify that this was indeed a Paleo site, then backfilled the holes and drew a diagnostic map to help future archaeologists locate the excavations.

The most tantalizing features of Signal Hill are two rock-shelters on its south-facing slope. In the Younger Dryas, toward the end of peak seasonal colonization at Wamsutta site, New England experienced a quick refreeze. Finneran, a native son

A Most Curious Find

Of all the objects the Massachusetts Archaeology Society team have found at the Wamsutta site, this innocent-looking jadelike stone tool turns out to be the most perplexing.

One day last summer Joe Finneran spied it sticking out of the ground, hooked by the blade of a bulldozer, not far from the MWRA wastewater pumping station adjacent to locus **H** where they were digging. He suspected from its well-worn contours and comfortable feel in his hand that it had served as a tool. But what was the material?

Other M.A.S. members, including those with a good working knowledge of geology, couldn't identify it. Finneran took it to his friend Dick Beale, a Boston lapidary and expert in international lithics. Finneran asked if it was serpentine, the only locally occurring stone he knows of that appears in various guises, sometimes green like his find. Beale studied it under the microscope, then looked up and said, "Joe, if you ask me this looks like Connemara marble."

That isn't the answer Finneran was expecting. But when Beale produced cut and polished samples of Connemara marble from Galway in Ireland, Finneran had to agree they indeed resembled the stone his tool was made of.

Next stop, the University of Rhode Island and O. Don Hermes of the Geology Department, considered by many the premier lithics authority in the Northeast. After a microscopic analysis, Dr. Hermes said it appeared to be a burnishing stone that contained epidote veinlets in an unknown host material. The material, he said, was unlike anything he had ever seen.

A burnishing stone: that fits in with other tools Paleo craftsmen at Wamsutta used to build watercraft. Stretch a deer or caribou skin tight and work oil into it with the stone, and you have a tough, waterproof covering for a lightweight boat on the lines of a kayak or curragh. But can it be Connemara marble? And if it is, how did it get to Wamsutta?

The answer to the first part of the question may come next March, when Finneran takes his find to Ireland. Robert Joyce, owner of a Connemara marble quarry, has agreed to provide samples from four different locations that match as closely as possible the color variations in the burnishing stone. Hermes will have the material he needs to perform exhaustive tests that will prove or disprove its provenance.

If the results demonstrate with a convincing degree of certainty that the stone for Finneran's tool first saw the light of day on the rocky shores of western Ireland, what then? "Right now," he admits, "any gathering of academics would laugh me out of a lecture hall." If his find turns out to be Connemara marble, then, he says, we'll see.

well acquainted with the kind of winters that punish Massachusetts when nature decides to show who's boss, guesses "there must have been a blizzard and a half here!" If he had been caught here by a storm, Finneran has no doubt what he would have done: he would have grabbed an armful of hides, hunkered down in a rockshelter, covered himself up, and waited it out. And he's willing to bet that's exactly what savvy Paleoamericans did here 12,000 years ago. The smaller rockshelter close to the peak can accommodate two people comfortably. A larger rockshelter farther down the slope, rigged with branches for rafters and covered with hides, could have protected 30 people. "Just look at those rocks," Finneran says, pointing to massive blocks of sandstone arrayed in an arc before the protecting cliff face. "Can you tell me they *fell* there?" So far the M.A.S. team has only superficially explored the rockshelters, but the larger one is next on their list for painstaking data recovery.

The smaller rockshelter on Signal Hill. This crevice in the Wamsutta sandstone on the south-facing slope could have sheltered two persons comfortably.

Where Do They Go from Here?

If the Wamsutta site were a cat, you'd say it has already used up seven or eight of its nine lives. And in fact its future is far from certain.

For the time being the M.A.S. team has a secure site. The only access road is chained and padlocked—twice. A formidable wire-mesh fence protects the site from anyone attempting to get in from I-95. "Besides," team member Betty Tharp declares confidently, "the cops would get your car before you got back to it." Despite its proximity to I-95, the land has the look and feel of pristine wooded marshland. Tame deer abound. There's the occasional copperhead or timber rattlesnake, once a black racer that Joe Finneran swore was longer than the present record-

(left to right) **M.A.S. team members Betty Tharp, Elaine Sassi, and Al Lowry at work on locus H, summer 2000.**

holder. (It was; it measured 7-foot-2, beating the champ by 6 inches.)

The M.A.S. team members consider themselves blessed with a patron whose generosity has made their work possible. The land the Wamsutta site sits on is owned by industrialist George P. Bates, himself a member of M.A.S. who has written articles for their bulletins. He has given the team protected access to the site since 1988. Bates realizes the importance of the Wamsutta site: of five known archaeological sites in Massachusetts, Wamsutta is the only one being worked today. The others have either fallen prey to subdividers or have been bought by the State and allowed to lie fallow under questionable conditions. Moreover, the Wamsutta site has yielded the oldest radiocarbon-dated specimen ever found in Massachusetts. Bates knows there is a unique archaeological site on his land.

If Joe Finneran and members of the local chapter of the Massachusetts Archaeological Society could make a wish, they'd wish that an anonymous benefactor with deep pockets would buy the land and set it aside in perpetuity as a working archaeological dig. Its location, close to the intersection of I-95 and Routes 1 and 128, would be a spectacular spot for a visitors center and museum. Since wishes are free, they'd throw in walking trails to the top of Signal Hill and along the Neponset River. In this real world, however, they'd settle for teams of trained archaeologists to help get the artifacts out of the ground while there's still time.

In fact, there is reason to be optimistic. R. Michael Gramly, an archaeologist who has investigated among other sites the Mt. Jasper rhyolite source in New Hampshire and has assisted and advised over the years at Wamsutta, is a brand-new member of the local chapter of M.A.S. Next summer Dr. Gramly will be a member of the team unearthing artifacts at Wamsutta site. Where will they be working? At locus **I**, the Bates Rockshelter on Signal Hill.

"Please, Get Our Name Right"

In 12 years the team from the South Shore/North River chapter of the M.A.S. has invested more than 16,000 hours painstakingly retrieving Paleolithic artifacts. For their hard work, all the members ask is that everyone call the site by its right name, the Wamsutta site, not "Neponset," not "Signal Hill." Curtiss Hoffman, in a 1993 letter to Arthur E. Spiess of the Maine Historical Preservation Commission, implores him, "Please, the site already has enough names—Wamsutta, Signal Hill, etc.—without burdening us with yet another!"

Beyond giving the Wamsutta site the recognition it deserves, the M.A.S. team isn't looking for rewards. The work is reward enough. Joe Finneran will tell you it's hard to match the thrill you get when you uncover an artifact knapped from Mt. Jasper flow-banded rhyolite by a master craftsman, watch it change color from gray to tan before your eyes, and realize you're the first person to see it in 12,000 years. It's the creation of an American artisan—and it's more than twice as old as the great pyramid of Egypt.

–JMC

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Kennewick Man

continued from page 3

tors to America exterminated the Pleistocene megafauna. If this unlikely scenario proves to be the case, should these people be considered "Native Americans"? Vikings are known to have been present in northeastern North America before Columbus. If archaeologists uncover a Viking burial in the United States, should it be considered "Native American"? In the punch line of an old joke, a Maine farmer wryly quips, "If my cat crawled into the oven to give birth, her kittens wouldn't be biscuits."

Within a few weeks of the initial announcement of the age of Kennewick Man, federal authorities decided to give his remains to a coalition of five local American Indian tribes for reburial, in spite of the scientific importance of the discovery. At this point, eight scientists, specialists in the field of First Americans studies, filed a lawsuit in federal court to block the destruction of Kennewick Man's remains. They succeeded in halting the precipitous repatriation of the remains, and the Department of the Interior

proceeded to consult with representatives of the various tribes who wanted the bones turned over to them, as well as with specialists in archaeology, cultural anthropology, and linguistics. Scientists hired by the Department of the Interior found no evidence to support the idea that Kennewick Man was culturally affiliated with any modern tribe. Yet Secretary of the Interior Bruce Babbit said he was persuaded by the "oral histories of the five tribes that collectively assert they are the descendants of people who have been in the region of the upper Columbia Plateau for a very long time." The American Association of Physical Anthropologists issued a statement observing that

> the Secretary appears to have based his decision on the premise that a lack of archaeological evidence for cultural affiliation has no evidentiary value because, if more data were available, it might conceivably provide evidence for the existence of a relationship of shared group identity. Using the Secretary's logic, anything is possible and there is no basis for evaluating competing ideas with current evidence. Using the Secretary's logic, as the antiquity of a set of remains increases, so does the ease with which the preponderance of evidence is shifted to cultural affiliation with a federally recognized tribe using the flimsiest of arguments based on geographical proximity, folklore, and oral traditions. By making it easier to argue that a relationship of shared group identity existed in precisely those cases in which the least evidence of such a relationship is available, the approach taken by Secretary Babbitt in the Kennewick case inverts what was clearly Congress's intent in passage of NAGPRA.

Michael Kelly of the Detroit College of Law noted in an editorial for the *Los Angeles Times* that Babbit's extraordinary decision was equivalent to "discovering the body of Moses in the West Bank and handing his remains over to the Palestinian Arabs because they occupy that area and their oral histories tell them this was always the case."

"If my cat crawled into the oven to give birth, her kittens wouldn't be biscuits."

The Society for American Archaeology concurred with the DOI that Kennewick Man was a Native American, but rejected the arguments advanced in support of cultural affiliation. The SAA asserted that a straightforward reading of the reports submitted by DOI consultants "strongly indicates" that "no relationship of shared group identity can be reasonably traced from the groups living in the area 9000 years ago to any present-day tribes." Further, the SAA stated that "the argument advanced by the DOI appears to reflect a tenuous attempt to find a legal justification to defend a decision that was not based on the evidence or the language of the statute" and was, in fact, "inconsistent with the evidence."

Human remains as old as Kennewick Man are not likely to share a high degree of either biological or cultural affiliation with any particular modern person or group. Since people are known to move around, freely exchanging genes and ideas, modern groups typically differ, often in dramatic ways, from the people who preceded them. Environmental catastrophes, warfare, or diseases also might have eliminated entire groups along with their oral traditions. Dorothy Lippert, a Choctaw Indian and an archaeologist, accepts that "for many of our ancestors, skeletal analysis is one of the only ways that they are able to tell us their stories." But Armand Minthorn of the Confederated Tribes of the Umatilla Indian Reservation, one of the tribes asserting a claim to Kennewick Man, believes such studies are sacrilegious and irrelevant. "We already know our history," he asserts. "It is passed down to us through our elders and through our religious practices."

Robson Bonnichsen and Alan Schneider have pointed out, in an essay published in *The Sciences,* that there are a diversity of American Indian creation stories and religious practices. These differ fundamentally from scientific ways of knowing the past. Science is based on evidence; and interpretations can change as new evidence is uncovered. Religious ways of knowing are based on supernatural revelation and are not subject to doubt or disproof.

NAGPRA, as Secretary Babbit has interpreted it, may mean an end to scientific studies of ancient burials in the United States. This would represent an incalculable loss to what we can know about the human past. Lynn Goldstein, an archaeologist at Michigan State University, has observed that burials "probably yield more information per cubic inch than any other kind of archaeological site." Burials can provide information about the age and sex of ancient humans as well as clues to their health, diet, social organization, and religious beliefs.

Reburying the bones of Kennewick Man would forever silence the stories he could tell us of his life and times. To do so on the basis of the modern religious beliefs of some American Indian tribes whose only known relationship with his remains is the fact that they live near the site of his burial—9,000 years after the fact—is to violate the balance struck by the varied lines of evidence NAGPRA calls for in determining cultural affiliation. The outcome of the Kennewick Man court case will have far-reaching implications for the future of archaeology in America.

This article is the first in a series of articles reviewing the basis for the decision of the Department of the Interior that Kennewick Man is culturally affiliated with modern American Indian tribes of the region. For further information on the controversy, see the following Web sites.

The Department of the Interior on Kennewick Man:
www.cr.nps.gov/aad/kennewick/index.htm

The Friends of America's Past, devoted to Kennewick Man and similar controversies:
www.friendsofpast.org

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The Archaeology Channel

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Commercial advertising is out because the IRS does not allow it under nonprofit 501(c)(3) status. Instead, ALI is looking for underwriters like those that subsidize the Public Broadcasting System—they can tell about their business but cannot overtly solicit sales. Grants and contracts will be another important source of financing; memberships and donors will make up the rest.

In addition to the videos currently showing, ***The Archaeology Channel*** has a backlog of videos ready for viewing. They want content to keep pace with archaeological research being done *today* around the world, and they want to team up with archaeologists to show high-quality material. Archaeologists can bring their own quality video material to ***The Archaeology Channel*** for broadcast.

This past summer, in partnership with archaeologist-videographer David Bogan, ***The Archaeology Channel*** shot five short films chronicling current archaeological field research in Oregon, Nevada, and Maine. The idea is to present a short-form, news-digest kind of program that shows viewers interesting projects underway today. Pettigrew hopes current grant applications will give him the funds to continue this project.

He has even more ambitious plans for the future. He envisions ***The Archaeology Channel*** acting as a news-gathering agency, a mini CNN, sending its news team anywhere in the world to cover newsworthy archaeological discoveries and bring back fresh video to be shown on ***The Archaeology Channel.*** They will be first on the spot: the archaeologist will let ***The Archaeology Channel*** film a news-breaking project before issuing a news release, then refer people to ***The Archaeology Channel*** video in news releases. Grant funding is needed to make this plan a reality.

These are early days, and so far ***The Archaeology Channel*** has barely scratched the surface of its potential. Until further funding can be developed, everyone connected with the project except the Web developer is a volunteer—including Pettigrew. Volunteers are needed to help manage the Web site, encode videos, raise funds, act as volunteer coordinators, and help with membership, publicity, and correspondence. You don't have to live in Oregon in order to help, says Pettigrew. "We exist in cyberspace, so volunteers can be located anywhere."

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COMING CONFERENCES

March 28–31 2001, 70th Annual Meeting, American Association of Physical Anthropologists, Westin Crown Center, Kansas City, MO.
Contact: David Frayer or Sandra Gray, Dept. of Anthropology, 622 Fraser Hall, University of Kansas, Lawrence, KS 66045-2110; Frayer@ukans.edu or sgray@kuhub.cc.ukans.edu

March 28–31 2001, Northwest Anthropology Conference, Best Western University Inn, Moscow, ID.
Contact: Donald E. Tyler, Professor & Chair, Dept. of Anth/Soc/Justice Studies, 101 Phinney Hall, University of Idaho, Moscow, ID 83844-1110; 208-885-6752; fax 208-885-2034; dtyler@novell.uidaho.edu

April 18–22 2001, 66th Annual Meeting, Society for American Archaeology, New Orleans Marriott, New Orleans, LA.
Information: http://www.saa.org/Meetings/index.html
Slawkowska 17, 31-016, Krakow, Poland, bochenski@isez.pan.krakow.pl; http://www.isez.pan.krakow.pl

Send conference notices to Mammoth Trumpet, CSFA, 355 Weniger Hall, Oregon State University, Corvallis, OR 97331

Northeastern Anthropological Association Meetings

March 30–31, 2001
Hartford, Conn.

I for one hope there is good coverage of ecological and environmental topics as the NEAA celebrates its 40th year of representing the needs and interests of anthropologists in Northeastern United States and Canada. The 2001 Meetings will be held Friday, March 30, to Saturday, March 31, at The Crown Plaza Hotel, Hartford, Connecticut. **Dr. Sherry Ortner** of Columbia University will deliver the Keynote Address at the banquet ($20) on Saturday night. Two plenaries dealing with provocative issues at the forefront of current anthropological debate are being finalized (one each day of the 2-day conference). A career workshop, book display, and opportunities to network with colleagues from all five subareas abound.

Enter the annual NEAA Student Paper Competition. Awards are $200 (U.S.) for undergraduate and graduate winners. For guidelines on student paper competition visit the NEAA Web site at www.neaa.org

Paper and poster sessions are welcomed in Physical Anthropology, Archaelogy, Linguistics, Applied Anthropology, and Cultural/Social Anthropology. Send proposals for sessions, papers, and posters to Prof. Gerald Reid at ReidGF@aol.com

–John T. Omohundro,
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Director of Learning Communities
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On the Cusp

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generations of people in which the elders were telling the younger people about a time when mammoths still roamed this landscape. They were gone, but Folsom people were very much aware, I'm sure, of these stories of the time before—the time that was a little harder perhaps."

The following article describes highlights of Jodry's research into the Paleoenvironment of the High Plains and Rocky Mountains. It is the first of three that we will carry in successive issues of **Mammoth Trumpet.**

The Younger Dryas in Southern Colorado

Pegi Jodry and her colleagues have learned much about the environment at the time the Folsom tradition flourished on the High Plains and in the Rockies. Analysis of lake sediments near archaeological sites gives us a picture of a cooler, moister time, corresponding with the Younger Dryas. In this period, after a few millennia of de-glaciation, global warming was interrupted by a return to a few more centuries of Ice Age conditions, when many of the world's glaciers advanced. In Jodry's study area of southern Colorado, the period was marked by a decline in the elevation of upper timberline in response to cooler temperatures in the high mountains. Several lines of evidence point to a higher carrying capacity for large mammals including the great bison (*Bison bison antiquus*), long associated with Folsom.

Increases in snow depth, duration, and extent have been found to produce significant changes in carbon and nitrogen dynamics of soils. Jodry also notes that deeper and longer-lasting snow act together to warm the soil. Greater microbial activity, more litter decomposition and more nitrogen, coupled with nitrogen-enriched snowmelt, all led to better forage for grazing animals such as bison, and these animals further increased soil productivity. Jodry suggests that greater plant vigor enhanced the nutritional condition of bison, which in turn fertilized the vegetation.

The higher mountains surrounding the San Luis Valley, where Jodry is excavating the Black Mountain site, a Folsom hunting camp at 10,100 feet elevation. This site, the highest-altitude Folsom camp yet tested in North America, gives us our first glimpse of Folsom high-country adaptations.

In short, the period from around 10,900–10,300 radiocarbon yr B.P. (or approximately 12,900–12,600 calendar yr B.P.) quite likely was a wonderful time to hunt bison in the upper Rio Grande and nearby montane basins. The high altitude acts to compress ecological zones, so short forays would have taken the people into quite different habitats and hunting grounds. Jodry has found Folsom sites near fossil lake basins, or playas, that have few signs of Clovis or later Paleoamerican groups. Paleoenvironmental evidence indicates that before and after Folsom time, a net decrease in effective moisture may have influenced shifts in hunting patterns as some areas became less welcoming to large mammals and thus offered fewer resources to hunters.

A significant line of animal-population evidence comes from spores recovered from lake sediments. The spores of the dung fungus *Sporormiella* can be counted as proxy indicators of the relative numbers of herbivores. The fungus is common in the dung of domestic herbivores including cows, horses, and sheep, as well as wild herbivores such as deer, elk, moose and wild sheep and rabbits. It has also been found associated with mammoth dung in a Utah cave. Jodry reports that in her study region in the upper Rio Grande Basin, the highest occurrences of dung fungus spores occurred near the end of the Pleistocene, suggesting that the heaviest grazing occurred then. Data indicate a far greater herbivore biomass in late Pleistocene than occurred later in the Holocene or historic times. Her evidence from Stewart's Cattle Guard and other Folsom sites indicates that bison contributed in large measure to this biomass.

A recent period of global cooling ("Little Ice Age") that extended from about A.D. 1350–1870 can be used for conceptualizing an environment that may have had parallels to that inhabited by Folsom people. In her extensive analysis of stone tools, Jodry makes comparisons with late-Prehistoric tools used by Plains Indians to process meat en masse from large bison kills. For example, she points out that ethnographic photographs depict Plains Indians drying meat on extensive racks. Some portion of the bountiful yield of meat from a large Folsom bison kill likely was similarly dried for future use.

PEGI JODRY

Further, climatological modeling suggests that though cooler and damper, early Folsom-era weather in the Southern Rockies probably presented fewer summer thunderstorms that would have hampered meat drying and hide processing at the Cattle Guard and nearby sites.

Though there are likely many parallels between the lives of Folsom people and more recent hunter-gatherer societies, research by Jodry and many other scientists makes it clear that the Younger Dryas interval, and terminal Pleistocene times generally, lack direct analogs today.

–Don Alan Hall

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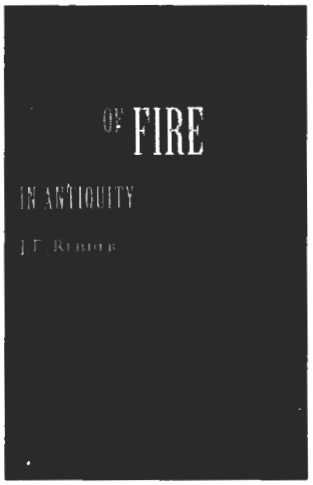
New Books

The Mastery and Uses of Fire in Antiquity, by J. E. Rehder, foreword by Ursula Franklin, McGill-Queen's University Press, 2000. 216 6-by-9-inch pages with illustrations and tables, $34.95 (U.S.) hardcover.

This is a detailed examination of how fire and furnaces were used in antiquity—from hardening clay to smelting iron ore for producing iron and steel.

The material fabric of nearly all settled civilizations exists largely because of pyrotechnology—generating, controlling, and applying heat from fire to change the properties of materials. The technological achievements that make contemporary society possible, for instance, are the result of some 10,000 years of developing the intentional use of fire for purposes other than warmth and food.



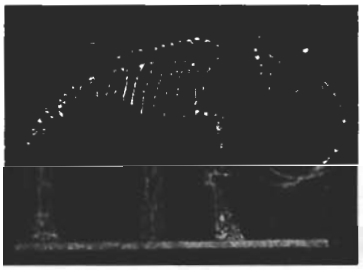
Because pyrotechnology was considered a demeaning craft, ancient texts contain little about its practice; our knowledge of early developments is based almost entirely on interpreting artifacts recovered by archaeologists in the past 150 years. Literature in archaeology and anthropology, however, tends to concentrate on the artifact rather than on how it was produced—much about the pot or spearhead, little about the kiln or furnace. Surprisingly little literature exists on the practice of pyrotechnology. *The Mastery and Uses of Fire in Antiquity* fills this gap.

The author, a senior research associate in the department of metallurgy and materials science at the University of Toronto, is an engineer with 50 years' experience in industrial research and pyrotechnology. Rehder covers the kinds of furnaces, the nature of the fuel used, and the substance produced—fired clay, lime from limestone, metals from ore, glass from sand. He also convincingly refutes arguments that furnace use resulted in early deforestation. *The Mastery and Uses of Fire in Antiquity* provides much-needed information for anyone interested in archaeology, anthropology, and pyrotechnology.

American Monster: How the Nation's First Prehistoric Creature Became a Symbol of National Identity, by Paul Semonin, NYU Press, 2000. 400 6-by-9-inch pages with 30 illustrations, ISBN 0-8147-8120-9, $28.95 (hardcover).

In 1801 the first complete mastodon skeleton was excavated in the Hudson River Valley, marking the climax of a century-long debate in America and Europe over the identity of a mysterious creature known as the American *incognitum.* Many citizens of the new republic believed this mythical beast to be a ferocious carnivore, capable of crushing deer and elk in its "monstrous grinders." George Washington and Thomas Jefferson avidly collected its bones; for the founding fathers, its massive jaws symbolized the violence of the natural world and the emerging nation's own dreams of conquest.

Paul Semonin's lively history of this icon of American nationalism focuses on the link between patriotism and prehistoric nature. From the first fist-sized tooth found in 1705, which Puritan clergyman claimed was evidence of human giants, to the scientific racial-



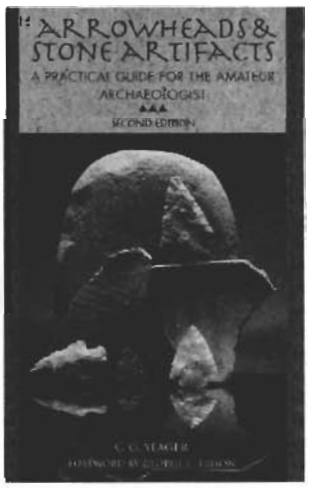
Skeleton of *Mammut Americanum* as it was first displayed—tusks ready to skewer its prey!

ism associated with the discovery of extinct species, Semonin traces evangelical beliefs, Enlightenment thought, and Indian myths that led the founding fathers to view this prehistoric monster as a symbol of nationhood.

Paul Semonin, cultural historian and graphic artist, received his Ph.D. in history from the University of Oregon. He lives in Eugene, Oregon, and occasionally teaches history at Linfield College and Oregon State University.

Arrowheads & Stone Artifacts: A Practical Guide for the Amateur Archaeologist, Second Edition, by C. G. Yeager, Pruett Publishing Company, 2000. 226 6-by-9-inch pages with illustrations and glossary, ISBN 0-87108-912-2, $16.95 (paperback).

Since the original publication of *Arrowheads & Stone Artifacts,* which sold more than 50,000 copies, laws pertaining to surface collecting have changed and author Gary Yeager's knowledge of artifacts has expanded. This new edition has more than 50 new photos and illustrations of common and rare artifacts and boasts a new foreword by Paleoarchaeologist of the Year George C. Frison.



The book is a valuable primer for the beginning avocationalist, indicated by the chapter names—"Amateur Archaeologists' Code of Ethics," "Antiquity Laws—Is Your Activity Legal?" "How Artifacts Were Made," "Arrowhead, Spearpoint, or Knife?" It is profusely illustrated with drawings of artifacts, as well as photos of knapping materials and of topographical features that are likely indicators of buried artifacts.