



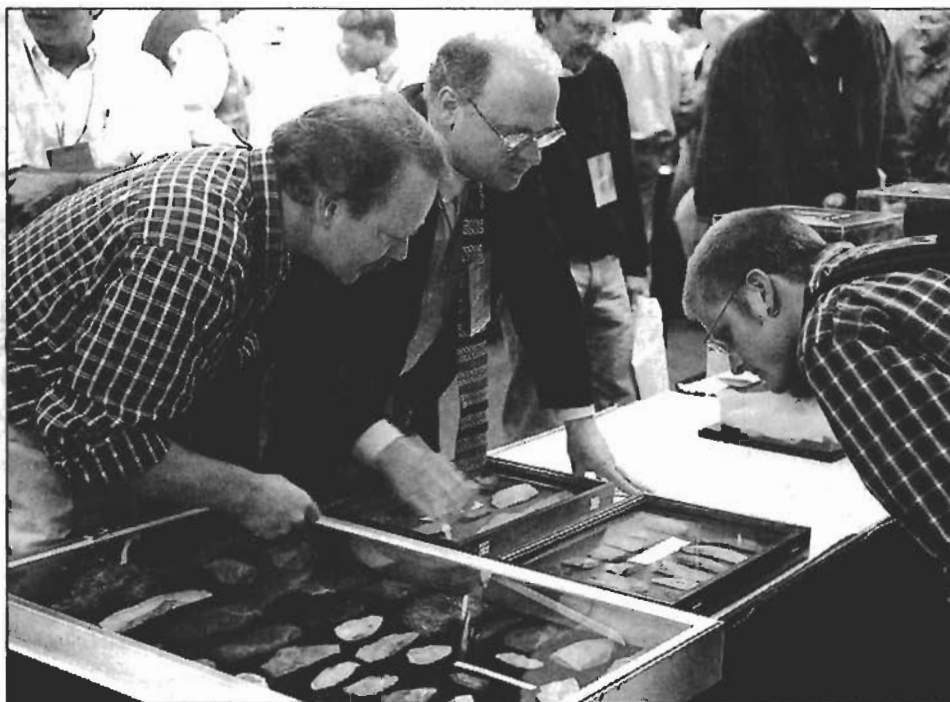
MAMMOTH TRUMPET

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Center for the Study of the First Americans
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Ogling the Artifacts at Santa Fe

Participants in the Clovis and Beyond Conference inspect a few of the Clovis and pre-Clovis artifact assemblages in the biggest-ever exhibit of its kind, organized by Mark Mullins. With this issue, the **Mammoth Trumpet** begins its coverage of the conference.



DON ALAN HALL

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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CHARTING A NEW ERA

Clovis & Beyond Draws Over 1,400

SANTA FE, N.M.—Scientists at the Clovis and Beyond Conference here signaled a new era of innovation and inquiry in the search for answers to the mysteries of human colonization of North and South America. The first of its kind since 1989, the late-October conference drew into one room many of the principal scientists who are engaged in research on earliest clues to a human presence in the Western Hemisphere. More than 1,400 people attended, including several human biologists, hundreds of avocational archaeologists, dozens of students, and a number of journalists.

Many of North America's most widely respected authorities on the earliest Americans described their latest research for the Santa Fe audience.

Conference buzz words, heard in many formal presentations and casual conversations, included "multiple hypotheses," "paradigm shift" and "multi-lineal theory." Participants discussed a variety of possibilities for the initial peopling of the Americas. It was evident from the presentations and posters that scientists are actively considering the Beringia land bridge, a Pacific Coast route, an ice-free corridor between continental ice sheets—perhaps more than 30,000 years ago—and boats that might have taken people across oceans or along ice floes.



DON ALAN HALL

More than 1,400 persons in Santa Fe's Sweeney Center heard about the latest research on the peopling of the Americas at the Clovis and Beyond Conference, such as is being described here by Texas archaeologist Michael Collins. In future issues, the *Mammoth Trumpet* will report details of many of these presentations. One of Dr. Collins's projects is described beginning on page 8.

Though participants and audience alike seemed open to new ideas and theories, Santa Fe's Sweeney Convention Center was not free of controversy as the scientists argued deeply held opinions. At times the frustrations caused by decades of scientific disapproval and condemnation of archaeological sites believed to be more than 11,500 radiocarbon years old spilled out as conference presenters directed harsh words toward long-standing critics, most of whom were in the audience. But the acrimony seemed as a brief storm that passed, leaving the hope that all is well in science, and that

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17 Linguistic Clues Link Na-Dene with Siberian Language

Birch bark provides Merritt Ruhlen with one indication of a Siberian origin.

19 Central Oregon's Great Basin Region Has Potential for Pleistocene Sites

Archaeologist Dennis Jenkins continues long-standing research in a scientifically fruitful area.

Clovis and Beyond exhibits included points from the Colorado's historic Dent Clovis site. A reconstructed hafted Clovis dart tops the exhibit provided by E. James Dixon of the Denver Museum.



North America's leading archaeologists are, indeed, moving ahead toward new understandings.

As a result of the research and interpretations presented here, textbook editors are likely to have to provide broader, more-inclusive interpretations to replace the long-dominant theory that Ice Age hunters armed with mammoth-killing spears walked across a land bridge from Asia to populate the Americas at the end of the last Ice Age.

Though those in attendance were not polled, reactions to some of the scientists' presentations made it evident that the conference audience generally believed that people have been in the Americas for considerably longer than that. The term "pre-Clovis," meaning cultures that existed before the people who left behind well-known Clovis artifacts that date back no earlier than about 11,500 radiocarbon years, was heard as much as the term "Clovis." And it was evident that many participants took the conference title to mean *beyond* Clovis in antiquity as well as beyond the Clovis-first paradigm that has held sway in American archaeology for decades.

Archaeologists who have argued that there were people in the Americas before 11,500 years ago spoke of having peer reviewers reject their research papers and requests for research funding. They expressed the opinion that evidence presented at the conference should change the prevailing attitudes of their colleagues.

Though it was the scientists and the spectacular displays of ancient stone artifacts that were in the spotlights at Santa Fe, the single most-dominant presence was the unseen specter of those elusive first Americans, the enigmatic subjects of presentations and creators of displayed artifacts. Details from the scientists talks, slides and posters gave these people of

five hundred or maybe a thousand generations ago considerable sophistication. It became clear that the people who outsmarted mountains of ice, gigantic predators and prey animals, a changing global climate, and perhaps both of Earth's greatest oceans weren't oafish Flintstones. As they were described, bit by bit from a variety of perspectives and disciplines, they began to seem as complex and varied as any people now alive. They surely were skilled artisans, whether or

not proof of their skills was preserved for archaeologists to find. These savvy travelers may have reached the Western Hemisphere from a number of directions, and they may have made the Americas a genetic melting pot many millennia before the erection of the Statue of Liberty.

Research on Clovis and non-Clovis traditions across North America was the initial focus of the conference after its public policy forum [article on page 11]. Robson Bonnicksen, Director of the **Center for the Study of the First Americans** and conference co-organizer, presented a paper coauthored by Dennis Stanford and Margaret "Pegi" Jodry of the Smithsonian Institution detailing the newly understood complexity of the archaeology of the Clovis era west of the Mississippi River. A challenging question, "Are We Sure It's Clovis?" was examined by archaeologist Ken Tankersley with coau-



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thors David Anderson, Christopher Ellis and Bradley Lepper; George Frison described "The Goshen Cultural Complex: A Paleoindian Cultural Group Overlapping Clovis;" and Albert Goodyear examined "Evidence of Pre-Clovis Sites in Eastern North America." (These and many other Clovis and Beyond presentations will be reported on in future issues of the **Mammoth Trumpet**.)

Daniel C. Fisher of the University of Michigan described his fascinating research on North America's elephants and the human interactions with them, and Steven R. Holen of the Nebraska State Museum reviewed the bone technology that makes him confident humans were living on the Great Plains before the last glacial maximum. Geoarchaeologist Michael Waters of Texas A & M University analyzed the potential for developing convincing evidence of pre-Clovis sites in the Southwest. University of Alberta archaeologist Ruth Gruhn reviewed "Current Archaeological Evidence for a Late Pleistocene Settlement of South America." Northeast Asian connections with the Americas were explored in turn



DON ALAN HALL

At breaks in Clovis and Beyond sessions, presenters answered questions from the audience. Here Robson Bonnicksen, CSFA director and Oregon State University professor, answers a question while Bradley T. Lepper of the Ohio Historical Society reviews other written questions.

by Utah archaeologist David B. Madsen ("North Asian-North American Connections") and Ted Goebel, University of Nevada-Las Vegas archaeologist ("Ice-

Age Beringia and Human Colonization of the Americas").

Physical anthropologists Richard Jantz of the University of Tennessee, Jo-

*Just published—
a milestone contribution to American paleoarchaeology*

The Fenn Cache: Clovis Weapons and Tools

by George Frison and Bruce Bradley



The Fenn cache is a remarkable collection of 56 projectile points, tools, and preforms manufactured in America when the primary food source was mammoth.

Beautiful actual-size color photographs by Pete Bostrom show both sides and one edge of Clovis points and preforms. There are also full-size line drawings of both sides of each artifact.

Text by two of America's foremost paleoarchaeologists covers Clovis origins and archaeology, mammoth hunting, flintknapping, and much more. This beautiful new book may be purchased for \$45.00 plus \$4.75 postage and handling. Questions? ffenn@trail.com

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seph Powell of the University of New Mexico, and Douglas Owsley of the Smithsonian Institution described their research that continues to compare data from the earliest-known American skeletons with data from other people worldwide, mostly from living populations.



Data they presented at Santa Fe characterized Americans of 8,000 to 10,000 years ago as differing even more from each other and from later Americans than they have previously reported. "In fact," said Dr. Owsley, "early American crania are usually different from *any* modern crania."

Owsley said that one of the most unusual ancient skulls, that of "Minnesota Woman," had recently been repatriated and reburied. To emphasize the potential loss of information from the burial of that individual, he pointed out that two generations ago one of America's foremost physical anthropologists examined measurements of Minnesota Woman and declared that she had been a modern Sioux, an assertion that appears ridiculous in the light of a careful reexamination employing the latest techniques and statistical methods. Left unstated was the possibility that with new techniques, some future physical anthropologist might have learned still more, had not the skull been lost to science.

Genetic, skeletal and cultural evidence in many of the presentations painted an increasingly cosmopolitan picture of early Americans. Evidence

that may tie the Clovis tradition to Europe was the topic of the conference's crowded closing banquet at the Santa Fe Hilton. Although the idea that there is some European background for American Indians or their predecessors has often been dismissed as ridiculous, if

The back-to-back presentations by veteran researchers Alan L. Bryan (left) and C. Vance Haynes opened the conference's archaeology session with valuable and contrasting looks at the search for the First Americans.



BOTH: DON ALAN HALL

not simply racist or anti-Indian, Dennis Stanford of the Smithsonian Institution made it seem perfectly plausible as he described decades of research on stone-tool technology.

In a presentation coauthored by flint-knapper and lithic authority Bruce Bradley, Dr. Stanford summarized: "Our hypothesis is that Clovis and pre-Clovis of the East Coast of North America probably—from our point of view and not proven, this is ongoing research—came from the Iberian Peninsula.

"In other words they are from Iberia, not Siberia," he said, although he later clarified that the hypothesis refers to technology and not necessarily a particu-

lar population of people. Stanford, a co-organizer of the conference, outlined his lengthy search in Alaska and northeastern Asia for technological antecedents of America's Clovis culture, identified by beautiful and uniquely crafted spear points. Decades of failures to find links between Clovis artifacts and Asian artifact assemblages, he explained, ultimately encouraged Stanford and Bradley to seek another hypothesis. Distinctive features of stone-tool technology led them to consider the Solutrean culture. Their biggest problem, Stanford admitted, is the interval of time that separates Solutrean from Clovis. (A report on Stanford's presentation will appear in the next issue.)

Though press coverage of the Santa Fe conference widely reported the concept of the European culture spreading into North America as "Clovis," the idea is not new. In his presentation on the Clovis culture, Dr. Tankersley told the conference that back in 1941, New Mexico archaeologist Frank C. Hibben found two bifacially flaked, willow-leaf-shaped points in the lowest level of the Sandia Cave site near Albuquerque. Hibben, said Tankersley, "noted that the Sandia artifacts more closely resembled the flaking technology of the Solutrean than they did Folsom." Folsom-style points had been recovered in a level of the site above the two enigmatic artifacts. "Hibben's suggestion of a diffusion of Solutrean technology in North America is alive and well in 1999," Tankersley, a conference co-organizer, told the Santa Fe audience.

The most lively session was comprised of nine brief presentations focusing on the theme: "The Future of Research: Where Do We Go From Here?" Speakers were geochronologist Tom Stafford; archaeologists David Meltzer, Pegi Jodry, Tom Dillehay, James Adovasio, Michael Collins and Alan Bryan; physical anthropologist Richard Jantz; and geneticist Theodore Schurr.

A fascinating expression of the past and future of paleoarchaeology in the Americas came from the back-to-back 40-minute presentations by Alan L. Bryan and C. Vance Haynes, which opened the conference's archaeology session. Dr. Haynes, geoarchaeologist emeritus at the University of Arizona, is the longtime

champion of those who favor a late-entry hypothesis for the initial peopling of the Americas, while Dr. Bryan, archaeologist emeritus at the University of Alberta, has long been a champion of those who prefer an early-entry hypothesis. Though their presentations were anything but a debate, the Santa Fe audience could pick out their long-standing differences as well as considerable common ground regarding methods and research strategies.

"If Monte Verde is a valid 12,500-radio-carbon-year-old site," said Haynes shortly after the conclusion of Bryan's presentation, "this fact does not mean that sites *previously* rejected for lack of compelling evidence have any more validity now than they did under earlier scrutiny. Nor does it mean that equivocal pre-Clovis sites are now less so."

"We should conclude from the evidence at Monte Verde and many other early sites in South America," Bryan had said in his presentation, "that the Clovis-first model has been disproved and that there must be earlier sites in North America."

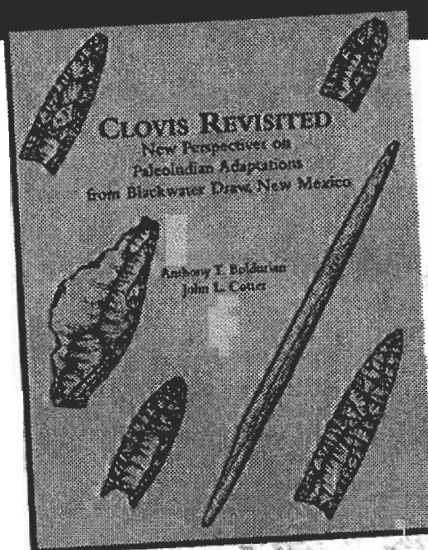


George C. Frison's Experimental Clovis Weaponry was one of the many popular displays at Santa Fe. Dr. Frison successfully used Clovis-style points while participating in the culling of Zimbabwe elephants by wildlife officials. These replicas were created by Bruce Bradley.

Haynes took the opportunity to scold early-entry colleagues for some of the terminologies that have been heard frequently in the long-standing debate over whether Clovis-culture people were the first Americans. "I'm curious as to who came up with the concept of a 'Clovis Barrier,'" Haynes said after his initial

mention of Monte Verde. "Was it the media, looking to exacerbate controversy, or was it a colleague?" he asked rhetorically. "I suspect a little of both." He made it evident that he was thinking of a physical barrier, because, he continued: "But what archaeologist worth his or her salt would refrain from excavat-

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A poster detailing Clovis in the Midwest is examined by Carole Mandryk, Harvard University paleoecologist.

ing below a Clovis level because of a preconception that there would be no archaeology there? The concept is certainly unscientific. Most archaeologists I know always look *below* the earliest occupation layers with the hope of finding even earlier evidence." He decried the use by colleagues of the term "Clovis Mafia" to refer to defenders of the late-entry theory.

Bryan outlined what he considers a Clovis barrier when he complained about conduct of late-entry colleagues: "Whenever a pre-Clovis site is challenged, it is automatically classified as controversial, which is interpreted as being question-

able and doubtful and therefore can be ignored." He continued: "Usually the challenge is presented in the form of alternative hypotheses, which are rarely tested. Frequently the alternative untested hypotheses are accepted instead of the published evidence. By this process, all pre-Clovis claims have been put down. Despite the rising amount of contradictory evidence, variations of the Clovis-first model have held sway for more than 60 years.

"A major reason why the Clovis-first model has been accepted even by scholars who say they are open to the possibility of pre-Clovis is because several

claimed early sites were disproved by further work," Bryan continued. He cited the Tule Springs site in Nevada, considered a 25,000-year-old site until careful work (by Haynes and Richard Shutler) produced evidence that the dated organic material was not charcoal. Thus, the site's artifacts could not be dated. "Many archaeologists at that time decided that all similar claims were spurious," said Bryan, who went on to note that worked bones from Tule Springs had been directly dated to 13,000 years B.P. He cited Hibben's Sandia Cave site as another example of a site where pre-Clovis evidence was disproved. "Yet two willow-leaf-shaped points . . . from the pre-Clovis stratum have never been explained. . . . They've just been ignored."

Haynes agreed, saying that those points, the ones also referred to by Tankersley, are the oldest artifacts in the site.

Bryan cited Yukon's Old Crow as another site that late-entry mentality caused to be ignored when a Caribou-bone tool thought to date well back into the Pleistocene was discovered to be only about 1,300 years old. "The presence of mammoth-bone flakes and cores dated up to 40,000 years B.P. at Old Crow have been ignored or explained away as naturally flaked in the Old Crow River. Similar

Sweeney Center poster and display rooms were crowded with scientists, students and interested amateurs—especially during breaks in the presentations downstairs.






Julie Fleming of South Fork, Colorado, studies a poster by Argentinean scientist Laura Minotti that ponders the "Quandary of Clovis" from the perspective of archaeology of the Patagonia region.

potheses to be continuously tested via new data. One paradigm should not displace another if both are reasonable hypotheses."

Haynes urged colleagues not to relax scientific standards. "In the future, the scientific investigations of all potential pre-Clovis sites must include on-site evaluation of evidence as it is recovered," he said. "The standards today should be no less than they were with Folsom in 1927. It is apparent, as always, that available evidence and interpretation of data becomes more or less subjective depending on the bias of the interpreter." The best recourse, he said, is to rely on multiple working hypotheses. Bryan might have added that each of the hypotheses should be tested.

Bryan called for reexamination of all previous assumptions based on the evidence from Monte Verde and from many other sites in the Americas where he said there is a great diversity of early non-Clovis evidence. "We need to realize that we should not be looking for any specific kind of artifact or any *particular* kind of association."

He continued: "Instead, we should be looking in geologically ancient Pleistocene deposits for definite human evidence, which certainly will not be as obvious as finding fluted points."

Haynes concluded by contrasting scientists with lawyers. In law, he noted, "winning the argument is what it takes to win the case, not presenting multiple working hypotheses. However, unlike jurisprudence, in science it should be truth that we seek, not winning the argument." 

—Don Alan Hall

mammoth bone flakes and cores... from Bluefish Cave not far away, but far from fluvial action, have been ignored or explained away as coming from disturbed context." He noted that dates are widely accepted on flaked mammoth artifacts from Paleolithic sites in Eurasia and from pre-Clovis-age sites in Nebraska.

Why, Bryan asked rhetorically, has the Clovis-first model been so popular with archaeologists and the public? "One major reason is because highly diagnostic fluted points—beautifully flaked fluted points—are very obvious and easy to identify as being early." He went on to suggest that another reason "is the appealing vision of advanced human beings acting as great hunters that

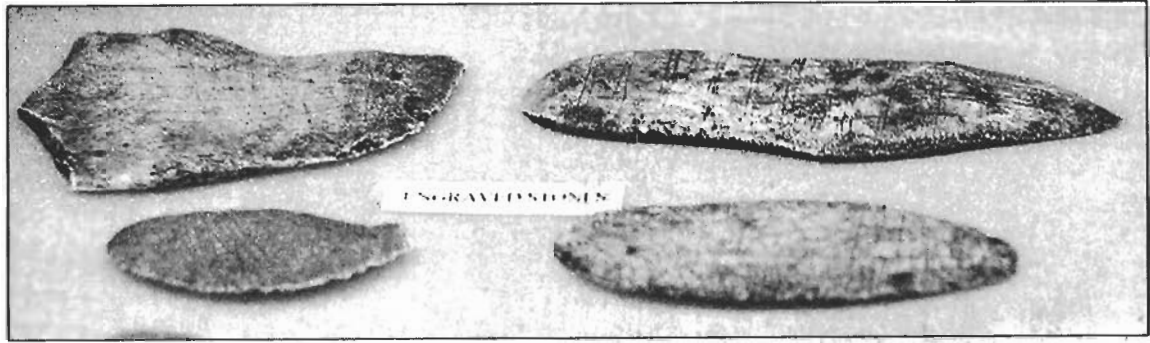
rapidly conquered large regions of the world with an advanced technology."

Haynes questioned his colleagues' use of the term "paradigm." He suggested that "model" might be a better word. "A single paradigm," he told the conference, "is nothing more than ruling theory. Some archaeologists have responded as if two or more different models or paradigms cannot exist at the same time. I've even heard it said that we need a new paradigm because the Clovis-first model has been around too long. Should a paradigm be invalid because it's been around for a long time? Instead of treating paradigms as if they were fashion designs to be abandoned for new fads, they should be treated as working hy-



Sweeney Convention Center in downtown Santa Fe was the venue for the Clovis and Beyond Conference, first of its kind since the World Summit Conference in 1989.

Engraved stones from the Clovis-age Gault site are exhibited at the Clovis and Beyond Conference in Santa Fe.



GEORGE WISNER

A TEXAS ARCHAEOLOGIST is looking toward Europe to possibly explain the origins of a vast amount of Clovis-age artifacts being recovered from a site in central Texas—a site that may hold new insights into the peopling of the Americas.

So far, the Gault site has produced Clovis-style projectile points, point preforms, blades and cores, burins, and small engraved stones. These artifacts bear a “striking similarity” to cultural material recovered from upper-Paleolithic sites in Western Europe, says Michael B. Collins, a research associate with the Texas Archaeological Research Laboratory at the University of Texas in Austin. A sampling of Gault site artifacts was displayed in Santa Fe during the Clovis and Beyond Conference, garnering considerable interest from conference-goers.

Collins stopped short of directly linking Clovis culture (generally dating to between 10,900 and 11,500 radiocarbon years ago) and the older European Solutrean culture. “However, I have been struck by the similarities between those cultures, particularly the Solutrean artifacts and Clovis artifacts.” He believes it would be a terrible mistake to automatically rule out some form of influence or contact between the European and Clovis cultures.

Collins also is one of four principal investigators of the Gault site, an extensive campsite and lithic workshop around a series of springs at the head of a stream. His colleagues are Harry Shafer and Michael Waters, both of Texas A & M University at College Station, and Tom Hester of the University of Texas at Austin. The site is on a terrace of a spring-fed tributary of Salado Creek in Bell County, about seven miles from Florence, or approximately 35 miles north of Austin. University of Texas archaeology Professor J. E. Pearce first investigated the site in 1929. Excavation since then has revealed dense archaeological remains over an area approximately 700 meters long, 200 meters wide, and more than 2

Texas Site Suggests Link with European Upper Paleolithic

meters deep. Artifact collectors have extensively dug the site over the past seven decades.

The site is a campsite and stone-tool quarry made possible by a surrounding source of reliable water, toolmaking chert and protective bluffs. It has revealed an almost continuous occupation since Clovis times. Collins and his colleagues have been excavating there sporadically since 1991, a year after four small and elaborately engraved limestone rocks were recovered in association with Clovis-age points. The team has concentrated efforts at the site during the last year.

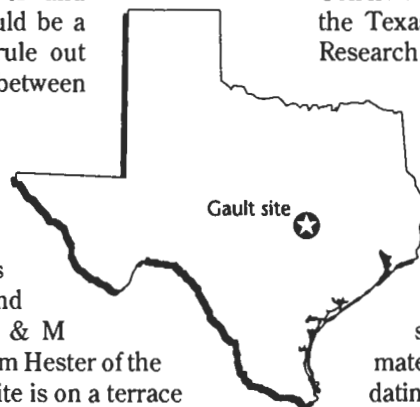
Research at the Gault site is planned for the next two years, Collins said, thanks to recent approval of a \$95,000 grant from the Texas Higher Education Coordinating Board Advanced Research Program. “It is a welcome encouragement for us,”

said Collins, who explained that most of the excavation has been done on a financial shoestring.

Though renewed financial support is encouraging Collins, he remains disappointed in two aspects of the site: a lack of suitable material for radiocarbon dating, and poor preservation of bone. Although Clovis-age artifacts identified typologically and stratigraphically provide relative dating for the

site, the team has found almost no charcoal or other materials suitable for radiocarbon analysis and absolute dating. They have recovered limited fragments of bones that include horse and bison, and Collins is hoping that a mammoth mandible with teeth, also recovered from the site, can be dated. Despite the site’s lack of absolute dates, Collins said the team has almost 100 radiocarbon dates from the Wilson-Leonard site’s Clovis-age horizon approximately 15 miles away. That site contains comparative materials.

“The material we are finding at the Gault site is typologically





GEORGE WISNER

Artifacts from the Gault site near Florence, Texas, as displayed in Santa Fe.

The results of his excavations have persuaded Collins to question the "Clovis First" model for peopling of the Americas, a model rigorously criticized during the Santa Fe conference. Unable, however, to find clear antecedents for the Clovis culture in northeast Asia, some archaeologists, including Collins, are now comparing Clovis artifacts with those of late-Pleistocene people in Western Europe and finding surprising similarities.

"I have made a list of 18 similarities between Clovis and Solutrean and other west European finds," Collins said. "These are technological similarities, general patterns, and similarities in engraved stones." He wrote in the October 1998 issue of the journal *TARL Research Notes*:

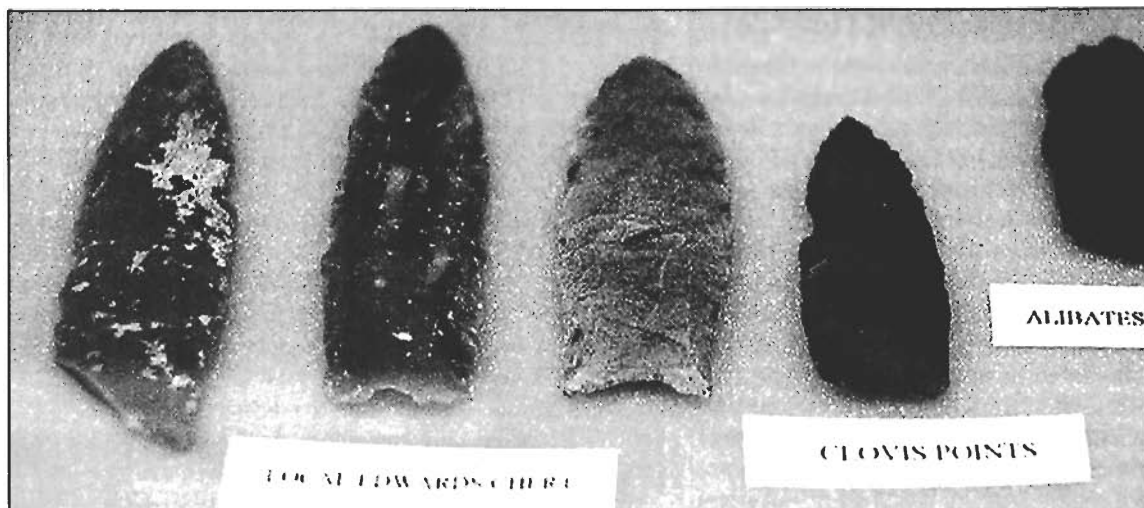
All of the Upper Paleolithic cultures of western Europe share the traits of prismatic blades and burins made of flint along with various tools made of bone and antler. The well-known cave paintings of France and Spain are also the work of Upper Paleolithic people. Of more specific interest are blades, blade cores and beveled-base bone and antler points found in Aurignacian sites; large, thin bifaces and spear points of Solutrean affiliation; and . . . small, flat engraved stones called *plaquettes*. Some of these traits are shared with Clovis assemblages found widely across North America, some are restricted to only part of the Clovis range, and two are known almost exclusively from the Gault site.

Clovis flintknappers from throughout North America made their distinctive points from equally distinctive preforms, Collins said. One distinctive preform feature, of which there are a number of outstanding examples from the Gault site, are flakes the flintknappers had removed across the face of the artifact from one edge to the other—"overshot" or *outré passé* flakes.

"The Gault site has yielded the largest assemblages of such Clovis artifacts in Texas and one of the largest in North America," Collins wrote in the *TARL Research Notes*. He went on to note that scholars have been curious why Clovis knappers made so many blades like European upper-Paleolithic knap-

similar to that found at the Wilson-Leonard site, providing a dual-site comparison of artifacts," Collins said. And he is encouraged because the team is coming down on one meter of Clovis-age deposits that has two distinct components, or cultural layers, to study. This Clovis-age material is just below an early-Archaic level and a buried soil he believes may hold enough organic material to produce a reliable radiocarbon date.

Although confident of finding more Clovis-age material through further excavation and research, Collins said he is pleased with what has already been unearthed and with its possible connection to the Upper Paleolithic cultures of Western Europe. Collins said he became intensely involved in the Gault site in 1991, shortly after a collector found small engraved stones there. "We couldn't just take the word of a collector," he said, "so we conducted our own dig there." The effort produced more engraved stones, a Clovis point, Clovis blades and Clovis blade core, and one Plainview (or Goshen) point, Collins said. In 1998, after the property had changed hands, the new owners said they found some mammoth bones, so Collins and his crew secured permission to dig there for three more years, beginning with a field school in the summer of 1999.



Gault site Clovis points on display at the Clovis and Beyond Conference.

GEORGE WISNER

pers, yet rarely made characteristic blade tools from them. One of the most distinctive upper-Paleolithic blade tools in the European tool kit, Collins continued, is the burin, a tool with a beveled point that is believed to have been used for carving bone and antler artifacts. Though burins are almost unknown in Clovis sites, the Gault site has recently yielded a burin. He said that two other artifacts initially believed to be burins may be questionable.

Engraved stones found at the Gault site have proven to be the most provocative finds, Collins says. Engraved stones of Clovis age are presently known from only three sites in the Western Hemisphere. One was found at the nearby Wilson-Leonard site and another at the Clovis site in eastern New Mexico, but more than 50 such stones have been recovered at the Gault site. The Gault site's stones primarily contain geometric patterns that have yet to be deciphered.

Collins said some of the stones at the Gault site also contain what appear to be images of plants, or with "highly speculative interpretation" could be construed as spear points stuck in some kind of animal. Though burins might be the tool of choice to carve such art, Collins does not think it likely the Gault site carvings were created with a burin. "The scars are not V-shaped like a burin would make, but appear to be incised to leave a sharp cut mark like that from a stone blade or modern pocket knife." He says that the carvings will be subjected to further analysis.

Future research at the Gault site will provide a broader view of ancient activities there. "Since we have a large site that was occupied and used over a long period of time, I think we will be able to find evidence that will allow us to see changes in Clovis technology over time," he said. "I also would hope we can find some domestic features, like hearths, or living structures. I do



Gault site blade cores displayed at Santa Fe.


know we will find an enormous amount of material from a Clovis-age occupation. We have found an enormous amount already. We have tens of thousands of Clovis-age flakes, dozens of preforms, scores of Clovis blades and blade cores. We have a large lithic assemblage and we hope to find more that will tell us about their tools and how they made them."

More than 50 engraved stones have been recovered at the Gault site

Limited use-wear studies on some of the Clovis blades strongly suggest that they were being used as tools to process plants, Collins said, which provides evidence that has previously been elusive in many Clovis sites. More use-wear studies are planned. Collins's plans also call for continued exploration of a connection between the Clovis culture and those of Western Europe's Upper Paleolithic.

"Clovis certainly doesn't seem to have any antecedent sites in eastern Asia," Collins said. "There are no clear predecessors to it. Maybe it's time we back off and reassess the big picture in light of recent information. There may have been a maritime-adapted people in Europe at a very early date, and they may have been coming here quite routinely, just as the Vikings did."


Collins also conceded he has taken his time at getting around to looking at alternative theories for the peopling of the Americas. "I guess I'm just more willing to think outside the box than I once was." He recalled being skeptical when French archaeologist Abbé H. Breuil, who was working at La Mouthe Cave in the Dordogne in the southwest of France many years ago, noted that there is a depiction of a boat with a sail on the cave's wall. "I thought it was the craziest thing I ever heard," he said.

"I just don't think we can automatically rule out other possibilities anymore." 

—George Wisner

New Interdisciplinary Journal To Be Published in Siberia

The Institute of Archaeology and Ethnography of the Siberian Branch, Russian Academy of Sciences (Novosibirsk) has announced the publication of a new quarterly peer-reviewed journal. The interdisciplinary journal *Archaeology, Ethnology & Anthropology of Eurasia* will be published in identical Russian and English versions.

Editor Anatoly Derevianko says the main purpose of the new periodical is the presentation and analysis of materials relating to the archaeology, ethnology and anthropology of Eurasia including North and Central Asia. "The editorial board would also be interested in materials that extend the understanding of Eurasia to the Pacific Rim and, where appropriate, to the Americas," he said. Detailed information on the new journal is available on the World Wide Web at <http://www.archaeology.nsc.ru>. 



DON ALAN HALL

Clovis and Beyond opens as attorney Jo Ann Harris, at lectern, introduces The Future of Public Policy session with panelists

(from left) Francis McManamon, Jim Warnica, Joe Watkins, Lois Schiffer, Keith Kintigh, Bradley Lepper, and (behind lectern) Alan Schneider.

Public Policy: Many Concerns, Few Answers

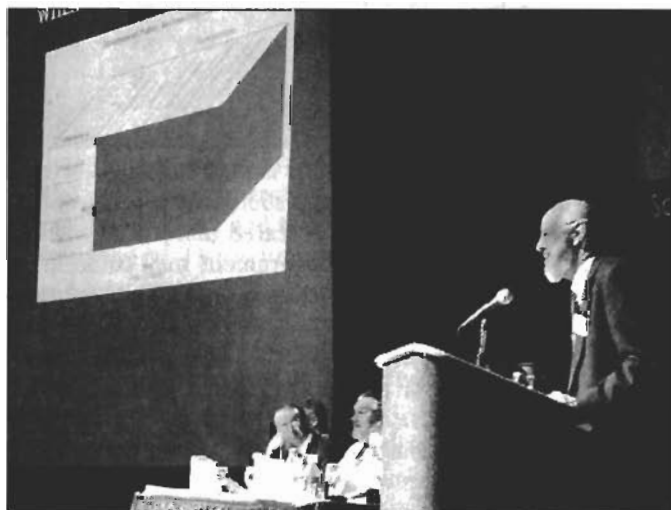
SANTA FE, N.M. — Tempering dramatic breakthroughs in the search for a scientific explanation of human colonization of the Americas are troublesome administrative, legal, and cultural barriers that were explicitly examined at the Clovis and Beyond Conference here in late October. Participants emphasized the necessity to coordinate science and public policy matters.

"Stewardship of First Americans resources is enormously important to the future of public archaeology," explained Robson Bonnicksen, conference co-organizer, as he introduced the overall perspective of the conference. "Public policy will play an enormous role in defining the future dialog between our communities for better or worse." The public policy panel, with seven differing and sometimes conflicting perspectives, addressed the question "Where Do We Go From Here?"

Lawyer and discussant Jo Ann Harris concluded the public policy panel session, which opened the conference, by pledging to look for success stories. "We're going to try to identify stories where Native Americans, archaeologists, scientists, land owners—all people—have worked together with specific instances of success." The goal, she continued, is to identify success stories around the country, then organize a series of regional workshops where government land managers, scientists, land owners, and Native Americans can learn from the successes.

Much of the concern voiced relates to NAGPRA, National Graves Protection and Repatriation Act, and how it is to be interpreted and administered. Dr. Bonnicksen, archaeologist and Director of the Center for the Study of the First Americans at Oregon State University, noted that nine years have gone by since the law was passed. "We still lack basic definitions for dealing with unaffiliated and unidentified *human remains*, which is the legal category that covers ancient human skeletal remains important to First American studies. The law is mute," he said, "on how Congress intended *for such ancient remains to be handled*, if at all."

He explained that two fundamental concerns have created conflict. The first is the definition of Native American. He noted that the National Park Service in an opinion letter has taken the position that any human remains from the United States that are older than the time of European contact are by definition Native American and subject to NAGPRA. He said, however, that some



DON ALAN HALL

Conference co-organizer Robson Bonnicksen of Oregon State University displays a slide illustrating areas of potential conflict among the various communities interested in early archaeology of the Americas.

legal scholars do not interpret the law in the same way. They propose that time and time alone is not an adequate criterion for making racial determination. Bonnicksen outlined the argument that early American remains that are morphologically different from modern-day Native Americans *might not* necessarily be ancestors of today's Native Americans and that their remains are thus not covered by NAGPRA.

The second concern he outlined is, if ancient human remains are determined to be of Native American origin, what criteria are to be used to determine cultural affiliation with modern tribal groups. Bonnicksen noted that the law lists 10 criteria that can be used in such determinations, but decision-makers have yet to agree on common standards for using these criteria in making NAGPRA determinations. He reported that the ambiguity created by these definitional issues has created dissension among communities with a stake in First American studies.

At the public policy session, Keith Kintigh, Arizona State University archaeologist who is president of the Society for American Archaeology, the principal organization of North America's academic archaeologists, voiced support for the government's interpretation of NAGPRA. Speaking on behalf of the SAA, he said that he interprets the term Native American to include all first Americans regardless of how many migrations there were, where they came from, when they came, and whether some groups died out. "I think this is what the law says and I'm certain that's what Congress intended." However, he argued that disposition of ancient human remains should depend on the determination of whether the remains have or lack cultural affiliation. "Because the earliest Americans will likely fail to meet the legal standard of cultural affiliation," said Kintigh, "they should be classified as culturally unidentifiable. As such, they're not now subject to repatriation."

Kintigh warned that under administrative proposals, which are under review and discussion, they would be. "Thus we must focus our public policy attention and the public's attention on the disposition of culturally unidentifiable human remains and the potential of these remains to contribute *enormous amounts* of information about the past." He added: "We need to reach a conclusion to the major repatriation issue that is acceptable to tribes and to museums and to the scientific community."

Lois J. Schiffer, Assistant Attorney General in the Environment and Natural Resources of the Justice Department, describes some public policy successes as fellow panelists listen.

Bradley T. Lepper of the Ohio Historical Society presented his perspective as an academic archaeologist. "The concerns of modern Native Americans *should* be taken into consideration," he said, "but our current understanding of biological and cultural evolution calls into question the validity of any claim or relationship of direct descent between any particular modern person or group and human remains older than four or five hundred years. And claims based on spiritual grounds should not be subject to legislation in a nonsectarian society."

Dr. Lepper, an archaeologist with special expertise in the earliest sites in the Midwest, noted that most archaeologists do support the rights of Native Americans, including the right to

reclaim skeletons and religious artifacts reliably associated with modern tribes. But he cautioned that the way "culturally unidentifiable" human remains are to be dealt with under the Act is an impending policy question of critical importance.

Lawyer Alan Schneider, an advocate for all scientists' rights, carried the archaeologist's perspective further, accusing administrative agencies of deciding policy rather than applying the law. Agencies claim, he said, "that all they are doing is merely applying the law and that they are restrained by the law. I disagree with that position. I believe that in many cases they are making the policy themselves, for example, when they take the position that NAGPRA restricts or, in fact prohibits, study of new discoveries. That's not written in the statute, that's their interpretation."

Schneider went on to say that when agency administrators take the position that all remains that predate documented European arrival in America are Native American, "that is not written in the law. That is *their* policy."

Schneider told the audience he finds it disturbing that administrators would look for an implied interpretation of the term "Native American" when the statute has an expressed definition, which is "relating to peoples, tribes and cultures that are indigenous today."

Totally Different Perspectives

Other panelists brought totally different concerns and viewpoints to the table. For example, Jim Warnica of Portales, N.M., spoke from the perspective of private landowners and amateur archaeologists. He warned that important archaeological sites, perhaps mammoth-kill or human-burial sites, are possibly being lost to science because ranchers and farmers fear they might lose their land if such a discovery became public.



"They don't want anyone on their land to find sites," Warnica told the conference. "They'd just as soon you stayed away. This is not really justified, but they're scared that if anybody finds something on their land, the government may come in and confiscate their land. So they'd just as soon people stayed away." He emphasized that such fears were new and that private landowners formerly were delighted to have "college people" come to study bones or artifacts on their property. He cited personal knowledge of several recent examples in eastern New Mexico in which potential archaeological or paleontological sites were purposely destroyed by property owners.

The forum's perspective presented by a high official of the

U.S. Justice Department focused on success stories involving public land and did not directly address the private-land issue raised by those New Mexico farmers and ranchers. Lois J. Schiffer, Assistant Attorney General in the Environment and Natural Resources of the Justice Department, explained that the public policy being discussed at the forum was the result of long-standing efforts to give the public more of a voice in policy matters that before the 1970s had been mostly decided behind closed doors by government and industry. Then, environmentalists and other interests got a place at the table where policies were being formulated. It is good, she said, that policy making takes into account diverse views.

More Voices at the Table

"The same expansion of the table has occurred in the area of public management of cultural resources," said Schiffer. The Antiquities Act in 1906 and the Archaeological Resources Protection Act in the late 1970s protected cultural resources on Federal lands and regulated how they would be available for study and preservation, she explained. "With the enactment of a series of later laws, the American Indian Religious Freedom Act in 1978, NAGPRA in 1990, amendments to the National Historic Preservation Act in 1992, and President Clinton's issuance of an executive order on sacred sites in 1996, other purposes and goals were added and a new seat was given to Native American interests at the table." The real issue, she said, is to be sure that those interests are listened to. "The expanded table, to be sure, creates tensions. But it also creates opportunities. Opportunities for them to listen to each other—even to walk for a time in the shoes of another in order to better understand their concerns." She cited three cases in which diverse communities came together to create solutions to contentious differences: Devil's Tower National Monument, where Indians and rock climbers agreed on a plan that protected a sacred site and allowed climbing; consultations with county governments concerning management policies on public lands in the West; and a partnership between the Simpson Timber Company and the Yurok Tribe to protect the Klamath River in California.

Francis P. McManamon, whose position as chief archaeologist of the National Park Service in effect makes him the top archaeologist in the federal government, spoke more specifically of Federal policy toward archaeology. He noted that archaeologists, historians and historic preservationists have labored to strengthen federal regulation of public and private activities. "Growth of environmental impact reviews and public planning of projects have stimulated an explosion of archaeological investigations and professional growth that has transformed what, when, and how archaeology is done today in the United States. Overwhelmingly," McManamon continued, "these laws, regulations and programs have benefited the scientific research and the educational goals of archaeologists, physical anthropologists, museums, and others who hold and promote the values associated with research and education."

'Ready to Scream about . . . Regulations'

He acknowledged that regulation has meant limitation and constraints on some aspects of research done under these legal

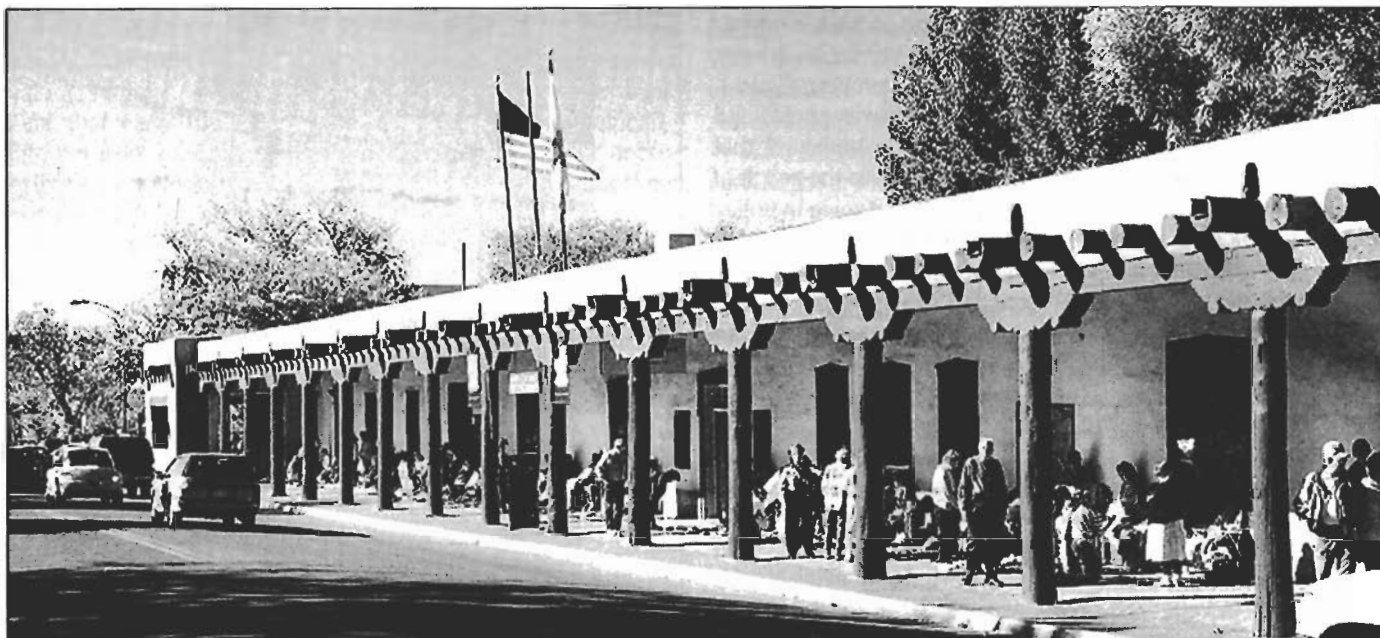


DON ALAN HALL

Summing up the Public Policy session, Jo Ann Harris challenged scientists to work closer with Native Americans and public administrators to solve the policy problem of very old human remains.

authorities and that methods and techniques used in research projects, as well as the execution and results, have been open to public scrutiny. "Some of us, and I include myself, may find ourselves ready to scream about the injustice or wrongheadedness of government regulations. I would counsel you to take several deep breaths and a historical perspective before throwing out the baby with the bath water about government regulation."

"Archaeology is hardly unique in having constraints placed upon its practitioners and the scientific research they want to conduct. Research in many disciplines is subject to legal, regulatory and policy restraints," said McManamon, and he cited medical research as an example. "NAGPRA imposes some constraints on archaeological and anthropological research," he said, and those constraints are part of the balance established



DON ALAN HALL

Under the portal of Santa Fe's Palace of the Governors, one of the oldest public buildings in the United States, American Indian artisans sell their creations.

by the law "to address grievances that many Native Americans have raised, quite legitimately, about the treatment of burials and human remains that are, they believe, associated with their ancestors."

Joe Watkins, an archaeologist with the Federal Bureau of Indian Affairs and a Native American, detailed Indian concerns at the panel, although he stressed that he does not represent "the American Indian viewpoint." He began by noting that a number of scholars have said that American Indians have been held to be inferior to "civilized" Euro-Americans to justify violation of treaty rights and civil rights. NAGPRA, he said, was widely

considered human rights legislation aimed at providing equal treatment to all human remains under the law.

Watkins said that he continues to hear the following concerns about archaeology among American Indians: "The lack of Native voice within the discipline; the patronizing attitude of many scientists toward American Indians; the lack of respect for the Indian viewpoint; and the absence of true equality between parties."

'Tail-to-tail Like Two Wild Cats'

"Perhaps, unfortunately," he said, "this conference is an example of those concerns. As has been pointed out to me by most American Indians who are aware of this conference, I am the only American Indian speaker here—and I am suspect because I'm also an archaeologist." Watkins continued: "We, the ar-

Visitors to Clovis and Beyond exhibits studied a great variety of artifacts and posters and, in the foreground, a reconstructed skull and facial depiction of Kennewick Man.

The controversial skeleton was not specifically discussed by the Public Policy panel.



GEORGE WISNER

chaeological and the American Indian communities, are tied tail-to-tail like two wild cats, fighting and spitting while attempting to inflict damage on each other." He went on to say that he once thought education "would prove the key to alleviating the struggle, but now I'm not sure." He concluded: "If archaeology continues to involve aboriginal populations in its development, we have a great opportunity for becoming a truly humanist science."

Harris, a former Justice Department official with a deep love of archaeology, summed up the conference's Public Policy session by challenging both scientists and government officials. "What I am hearing from the scientists," she said "is that they need to be educated themselves about a lot of sincerely held, very different views. I'm not talking about *just* the American Indian views, and there are many many American Indian views, but I'm also talking about the way policy is made and policy makers implement the law." Acknowledging that the SAA plays an important role in such understandings, she continued: "But the fact is that I think many many scientists are into *science* and they are not into public policy. We've got to change. We *have* to figure out a way to work with each other."

Turning to administrators, Harris said the panel had raised two problems that government must fix. Both involve government regulation of unidentified and unclaimed human remains, specifically "the very, *very* old remains that are inadvertently discovered." She urged them to see that regulations get promulgated or a statute gets passed that addresses this subject. "It's been nine years now and there are still not regulations promulgated with respect to this very serious and very focused piece of NAGPRA—the piece that is most important to First Americans research. Please," she urged, "do something."

'Feeds Contempt, Distrust and Cynicism'

Finally, she summarized the panel's criticism of the decisions government land managers are making. "We are told that there is great disparity in the way the government is dealing with inadvertently discovered remains in different jurisdictions. We also hear that many local managers are making promises to Native Americans they're not keeping." She said that on such a subject so fraught with tension, broken promises, uneven application of standards, or the non-application of standards leads to confusion. That, she said, "feeds contempt for the law, it causes

In the Next Issue


Coverage of Clovis and Beyond presentations will continue in the next Mammoth Trumpet with, among other things, the story of how Dennis Stanford and Bruce Bradley came to believe that there really may be a link between Clovis and the Solutrean culture of Europe. We'll also feature a report on innovative research by Walt Ream and Orin Shanks on finding and identifying protein and ancient DNA on stone tools, and other interesting information from the presenters at Santa Fe. Actually in the next and future issues, we'll do our best to review all the interesting details from Clovis and Beyond.



distrust, cynicism—and here's the real problem—a belief that it is not the *law* that is being implemented here but that it is *politics*." Attributing decisions to politics, she said, is the worst that people can think.

Because the conference schedule allowed no time for questions or audience interaction with the panel, Harris invited all interested people to continue the discussion in an upstairs meeting room at the Sweeney Center. About 20 conference goers did so as the archaeology presentations began, and they started by following Harris's suggestion to search for success stories involving cooperation. One mentioned was a cooperative agreement between archaeologists and the Colville Tribe of Washington State, in which the tribe generally decides how an investigation will proceed when human remains are found in exchange for archaeologists accepting study restrictions including time limits.

However, the bulk of upstairs discussion swirled around the reluctance of some private landowners to allow access to their land for archaeological survey or excavation. Many landowners, participants said, rightly or wrongly fear they may lose land value, if not use of parts of the land itself, once cultural resources emerge. Therefore they prefer not to open their land to archaeological access. While some people said the taking of land is an unfounded horror story that gets amplified and spread around erroneously to the detriment of archaeological inquiry, others said that cultural-resource law can be complicated and might force landowners to accept restrictions on use of their property in some cases.

Participants reached no unanimous agreement on issues, but they did agree that more public education through methods such as Internet "chat groups" and putting conference papers on the Internet would be positive steps. Allowing for that sort of public comment and review, people suggested, might result in less vandalism of archaeological sites, less resistance to archaeological inquiry, and more understanding among factions. 

—Don Alan Hall & George Wisner

COMING CONFERENCES

April 5–9 65th Annual Meeting of the Society for American Archaeology, Philadelphia.

Contact: SAA, 900 Second St. NE, Suite 12, Washington, D.C. 20002. 202-789-8200. meetings@saa.org; www.saa.org.

April 12–15 69th Annual Meeting of the American Association of Physical Anthropologists, San Antonio.

Contact: Sarah Williams-Blangero, Dept. of Genetics, Southwest Foundation for Biometrical Research, San Antonio. 210-258-9434; sarah@darwin.sfbr.org

Send conference notices to Mammoth Trumpet, 620 Northwest Witham Drive, Corvallis, OR 97330 

Conference Surprises Frison and Haynes With 'Century' Awards

SANTA FE, N.M. — Two widely known and respected participants of the Clovis and Beyond Conference were honored with special awards. Immediately before George C. Frison's presentation on the Goshen cultural complex, C. Vance Haynes made an unscheduled return to the conference podium to present the veteran Wyoming archaeologist with a plaque proclaiming him Paleoarchaeologist of the Century.

"No single archaeologist has furthered our understanding of the Paleoindian cultures more," Dr. Haynes told the audience before presenting Dr. Frison with the large plaque featuring a replica of a Clovis point mounted on leather above a recognition plate of hand-engraved silver. "He pioneered the way we look at Paleoindian flaked-stone weaponry," said Haynes, adding that



BOTH: DON ALAN HALL

Veteran Wyoming archaeologist George Frison at lectern (above) reads the plaque proclaiming him "Paleoarchaeologist of the Century," as C. Vance Haynes continues his surprise award presentation. Later, at the conference banquet, Dr. Haynes himself was surprised to receive an almost-identical plaque recognizing him as "Geoarchaeologist of the Century."

After his presentation on the Goshen Cultural Complex, conference-goers congratulate George Frison (left), who since 1995 has been Professor Emeritus at the University of Wyoming, where he had headed the anthropology department for more than 25 years.




Frison's pioneering work also involved large animals, bone beds, hunting strategies, seasonality, meat storage, and even the supernatural. "He demonstrated the lethal nature of Clovis weaponry," Haynes continued. "His research is driven by an inner passion to seek the truth about Paleoindian hunters and the prehistoric environmental conditions of the Great Plains of North America."

Surprised by the honor, Frison, professor emeritus at the University of Wyoming, briefly recalled those who had been his teachers, especially the late H. Marie Wormington of the Denver Museum of Natural History. "We ought to have an empty chair here for her," he said.

At the conference's concluding banquet the following evening Haynes was surprised to be the recipient of an almost-identical award as Geoarchaeologist of the Century. In present-

ing the award, archaeologist Ken Tankersley cited a long list of Haynes' previous honors and said Haynes, Regent's Professor at the University of Arizona, "was instrumental in raising our discipline to a higher level." Like Frison, Haynes seemed speechless. "I was dumfounded that this was happening," he said later. "This was a total surprise."

He went on "to thank Rob Bonnicksen, Forrest Fenn, Dennis Stanford, and Ken Tankersley for organizing and producing the best Paleoamerican conference I have ever attended. To have so many Clovis and pre-Clovis collections at one place for examination by all is a tremendous feat and a genuine contribution to knowledge." He thanked Mark Mullins for his part in organizing the exhibits of artifacts. The conference was originally the idea of Fenn, Santa Fe avocational archaeologist and publisher. Fenn designed and created the two plaques. 

EVIDENCE FOR THE PLACE OF ORIGIN of some of the earliest Americans comes from a variety of disciplines including archaeology, physical anthropology, genetics, and linguistics. Linguistics, like genetics, has its own scientific basis. Because of that, any linguistic discovery that may shed light on early human migration into North America demands our close attention.

Could something as simple as similar words for birch bark in two cultures on two different continents, separated by thousands of miles, offer a clue to the origin of the Na-Dene? Such word similarity is what first drew Merritt Ruhlen's attention to the Ket language. The only currently existing member of the Yeniseian family of languages, Ket is spoken by about 550 people (out of a total population of 1,100) who live along the Yenisei River in central Siberia. The other five languages in the Yeniseian language family became extinct in the 19th century.

The four-branch Na-Dene language family is made up of the three single languages—Haida, Tlingit, and Eyak—which are spoken along the coastline of western Canada and southern Alaska, and the Athabaskan group of languages. These Athabaskan languages are found in interior Alaska and western Canada as well as certain parts of the Pacific coast of Oregon and California and in the American Southwest (Navajo, Apache).

Dr. Ruhlen told the **Mammoth Trumpet** that until quite recently both the Yeniseian and Na-Dene language families were believed to be families with no known relatives. Ruhlen now thinks he can show that of all the world's language families the Yeniseian and Na-Dene families are most closely related to each other. If correct, this relationship would locate the starting point of one of the three migrations to North America from Asia posited by linguist Joseph H. Greenberg in 1987. Ruhlen's evidence indicates that Na-Dene and Yeniseian must have once formed a single population in Eurasia. Part of the population migrated to the New World, giving rise to the Na-Dene languages, while another part of the population remained in Asia and gave rise to the Yeniseian languages.

Though many linguists maintain that Old World and New World language stocks are not related, Dr. Greenberg has postulated three migration waves that began at least 11,000

years ago with the Amerind, followed 6,000 to 8,000 years ago by the Na-Dene, and 3,000 years ago by the Eskimo-Aleut.

In an article recently published in the *Proceedings of the National Academy of Sciences*, Ruhlen presents 36 sets of words in Yeniseian and Na-Dene that appear to have a shared origin and seem to be descended from the same ancestral root. These shared words are part of basic vocabulary—pronouns, body parts, and natural phenomena—such as the words for elbow, foot, head, breast, shoulder, guts, lake, river, louse, birch bark, river, ocean, boat, snow (falling), snow (on ground).

Evidence connecting languages consists of words that are similar in sound and meaning, Ruhlen explains. "For example, Italian *acqua* and Spanish *agua*, both meaning 'water,' are similar in sound and meaning because both derive from the same word, *aqua*, in an earlier language, Latin. Evidence such as this shows that Spanish and Italian are members of the same linguistic family, the Romance family of languages that descended from Latin."

As so often occurs in science, Ruhlen happened by chance upon the link between Ket and Na-Dene while he was doing research on another problem, in this case the origins of the Basque language. He was looking at the six language families that are related to Basque, and in the process he began comparing Na-Dene with Yeniseian (Ket). The word for birch bark

Linguistic Evidence Suggests Point of Origin for Na-Dene



is so similar in both families that it caught his attention and caused him to take a closer look at the relationship between the two families.

Both Na-Dene (Athabaskan) and Yeniseian (Ket) have one word for birch bark. This is significant, says Ruhlen, because most languages combine two words to express birch bark, as does English. Furthermore, Yeniseian uses a completely different word for birch tree. One can infer from this that for Na-Dene and Yeniseian language speakers birch bark was a very important part of their culture.

After his article was published, Ruhlen said he received a letter from a linguist who specializes in Yeniseian. This linguist told him that the Ket make many items out of birch bark including tepees, boats, dishes and other household items. An Eagle Scout then told Ruhlen that birch bark is virtually waterproof—even if it is wet on the outside you can just wipe it off and



set it on fire. It's the only wood that can be lit even when wet, thus making birch bark an extremely important item in a cold and wet climate.

Ruhlen also finds it compelling that the Na-Dene and Yeniseian families share at least two words that mean boat, and that both were maritime peoples. He can't say whether the first Americans arrived by boat because the linguistic evidence for Amerind doesn't settle this question one way or the other. On the other hand, he thinks that the Na-Dene group probably did arrive by boat, landing first on the Queen Charlotte Islands, where the most divergent member of the family is found (Haida). This population then expanded to the mainland where first Tlingit developed, then Eyak, finally the widely dispersed Athabaskan family that lives in much of Alaska, Western Canada, and parts of the American Southwest. The particular way in which these languages are distributed implies that the Na-Dene group arrived by boat and spread out from the Queen Charlotte Islands, says Ruhlen.

Ruhlen teaches at Stanford University part time and spends the rest of his time doing his own research on languages of American Indians. He also designs and typesets Joseph Greenberg's books, the most recent of which—*Indo-European and Its Closest Relatives*—focuses on the Eurasiatic family, which includes Eskimo-Aleut.

Of the Clovis-first theory, Ruhlen said, "It is sometimes claimed that Amerind is somehow tied together with the Clovis-first theory of archaeology and that pre-Clovis dates would invalidate Amerind. In my view, and that of Greenberg, the Clovis-first theory and the Amerind hypothesis are totally independent of one another. Language is notoriously unreliable at giving reliable dates for early language families such as Amerind. This is where archaeology excels and it is on the basis of the archaeological evidence alone that we date Amerind to roughly 11,000 [radiocarbon years] B.P. We find the few earlier archaeological dates either unconvincing (Pedra Furada, 44,000 B.P.) or so close to the Clovis time frame (Monte Verde, 12,500 B.P.) that

Yeniseian–Na-Dene Cognates

	Yeniseian	Na-Dene	
birch bark	*qł'y	*q'əy	A
bow, arrow	*qł't	*-q'a'	A
foot	*kɪ's	-k'ahš-	E
river, ocean	*ses	sliskw	H
lake, river	*de'	deh	A
boat	*qe(')p	*-qee-	A
rope	*tɪ'	t'lx	T
nlt, louse	*yok	*ya'	A
head	*tɪ'	*-tsli'	A
elbow, knee	*gld	*-god	A
skin	*sees	*-səts'	A
child	*gə't	gyli't	H
hungry	*qoot	q'ut	H
snow	*tɪlx	t'lix'	T

Forms preceded by (*) are reconstructed forms. The Proto-Yeniseian reconstructions are the work of Sergei Starostin; the Proto-Athabaskan reconstructions are by Michael Krauss and Jeff Leer. Na-Dene consists of four branches: Haida (H), Tlingit (T), Eyak (E), and Athabaskan (A); the first three are single languages. Notice that the glottal stop (') consistently follows the vowel in Yeniseian in the first three words, while it consistently precedes the vowel in Na-Dene in the same three words. This is known as a sound correspondence in historical linguistics and is often considered the ultimate proof of historical affinity.

it would have little linguistic import. After all, 1,000 years is just the difference between Old English and Modern English. The abundant evidence found throughout North and South America after Clovis time—in comparison with the few, often disputed earlier dates—is what leads us to identify Amerind with this explosion of humans in the New World." 🍀

—Carol Ann Lysek

SUGGESTED READINGS

ON the Gault Site

- Collins, Michael B. 1998 Interpreting the Clovis Artifacts from the Gault Site. *TARL Research Notes* 6(1):5–12.
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- Lundelius, Ernest L., Jr. 1998 Vertebrate Fauna from the Gault Site. *TARL Research Notes* 6(1):17.
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ON Northern Great Basin

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Fort Rock, the geological feature that lends its name to a basin in south-central Oregon, was once surrounded by the waters of a shallow lake. Nearby Fort Rock Cave has yielded the remains of nearly 100 twined sagebrush-bark sandals, almost 10,000 calendar years old.

Central Oregon's Great Basin Region Has Potential for Pleistocene Sites

One early autumn morning around 10,000 years ago, inside an oblong wickiup of woven mats of bulrushes and sedges wrapped on a frame of lodgepole pine braces and held tight to the ground with anchor stones, a family begins its day. They are gathered around a small fire as they share a breakfast of dried meat, chokecherries and hazelnuts. Their snug shelter is near the shore of a cold, sky-blue lake set in the eroded caldera of an ancient volcano not far east of the Oregon Cascade Range. After their meal, they depart, continuing their seasonal round of hunting and gathering.

Though this portrayal is conjectural, analysis of cultural materials recovered between 1990 and 1992 at the Paulina Lake site in central Oregon's Newberry Crater has left little doubt of the existence of a seasonal camp. Dennis L. Jenkins, staff archaeologist for the Oregon State Museum of Anthropology at the University of Oregon, says many researchers now regard that wickiup at Paulina Lake as the oldest-known dwelling in North America.

Although the Paulina Lake site is at least a thousand years younger than sites that chronicle the Clovis tradition, it is

one of the recent discoveries that are focusing renewed interest on the Fort Rock region of south-central Oregon, where sites dating back to Clovis age tease researchers with the potential of even older possibilities, says Dr. Jenkins. He calls some of the earliest dates associated with sites in the Fort Rock Basin area "tenuous," but is excited about the prospects of finding early sites in the Fort Rock Basin and believes he has a good chance of finding them in well-documented contexts.

Jenkins's continuing research in the Fort Rock Basin follows in the footsteps of earlier University of Oregon investigators whose discoveries have set the stage for continuing research throughout the desert West. Perhaps the best known of these discoveries resulted from the pioneer research done in 1938 by Luther Cressman, who recovered woven sagebrush-bark sandals at Fort Rock Cave. Dr. Cressman's excavations yielded the remains of nearly 100 twined sagebrush-bark sandals. Almost 10,000 years old, these sandals were made of heavy fibers woven to form a flat sole with toe flap at the front and a cord at the heel wrapped around the wearer's ankle. Many of these

perishable finds are now displayed at the Museum of Natural History in Eugene.

Fort Rock Cave, named for the isolated landmark that gives the basin its name, now belongs to the Archaeological Conservancy, a New Mexico-based organization dedicated to preserving archaeological sites for possible future research.

The sagebrush sandals, like many of the Fort Rock Basin discoveries, were found under a layer of volcanic ash from the eruption of Mount Mazama, which exploded approximately 6,800 radiocarbon years ago to form Crater Lake. The explosion and ash deposits firmly capped and protected cultural materials at sites of the Fort Rock region and perhaps shielded even older materials yet to be discovered. University of Oregon researchers have continued to recover archaeological material below the Mazama ash layer. Jenkins's team, for example, found the Paulina Lake house approximately 50 centimeters below that powdery cover.

Other significant Fort Rock Basin excavations include those of the late Stephen Bedwell, who in 1970 uncovered material from Connely Caves, a series of six small caves and rockshelters holding cultural material acceptably dated from 8,000 to 11,000 years ago. The earliest levels of these sites also produced dates suggestive of the terminal Pleistocene, when pluvial lakes defined the area's

landscape. Dr. Bedwell, using an artifact assemblage that included a wide assortment of stone and bone tools, defined what became known as the "Western Pluvial Lakes Tradition," a theoretical construct proposing that the subsistence patterns of the area's early residents focused on lakes and marshes that existed in the region at the beginning of the Holocene.

Rapidly fluctuating conditions have frequently reshaped the landscape of the Northern Great Basin. The region's most consistent quality is perhaps its continuing shifts between wet and dry conditions, Jenkins said. Erosion has caused some very early artifacts to be exposed on the surface and caused others to become deeply buried.

While some collectors have reported finding isolated Clovis-style fluted points in the Fort Rock Basin, Jenkins says that there are no Clovis or Clovis-era sites currently documented in the basin. Bedwell, Jenkins says, believed that he had found a fluted point in his lowest levels of excavation at Fort Rock Cave, but later examination showed that the specimen was simply another stemmed point variant common to the region. However, Clovis people had been in the general vicinity; Clovis occupation is well established at the Dietz site a mere 40 miles to the east.

Bedwell's 1970s research at Connley

added, Connley Caves could have been occupied in pre-Clovis times. There is little doubt, he added, that the site is a good place to explore further for evidence of early human occupation.

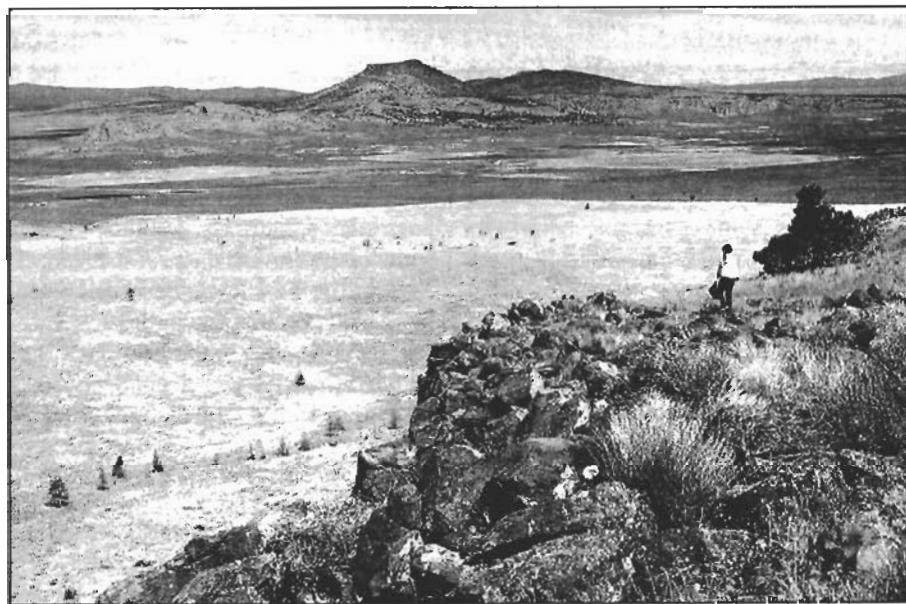
Jenkins also said Cougar Mountain Cave, which is in a small volcanic dome a dozen miles east of Fort Rock and was excavated to bedrock by a collector in 1958, produced lithic artifacts similar to those found at Connley Caves. Many of these artifacts, and others at the lowest level of Fort Rock Cave, were associated with bison bones and are similar to those from Conneley Caves. Reports of the Cougar Mountain Cave assemblage, Jenkins says, indicate a culture that functioned in a fashion very similar to the one that occupied Connley Caves.

Though Fort Rock Basin sites provide excellent potential for the discovery of older dates than have yet been found, Jenkins also is planning research in other subregions of Oregon's Northern Great Basin east and south of the Fort Rock area. Proposals are varied. They include

that archaeologists should be looking for more caves and rockshelters where perishable data—from seeds to basketry—are most likely to have been preserved. Research plans for the University of Oregon Archaeological Field School Northern Great Basin Prehistory Project call for annual excavations to help answer questions about what people were doing on the landscape and when they were doing it. Already, data from the earliest Holocene period, 12,000–7,600 yr B.P., suggest at least three types of sites: temporary foraging camps, summer base camps, and winter residential bases in locations like Connley Caves and Cougar Mountain that were near marsh and lake-side locations.

Although he is cautious about predicting that archaeologists definitely will find evidence of pre-Clovis people in the Northern Great Basin, Jenkins remains optimistic about the potential of the area to further illuminate issues related to the early peopling of the Americas. Clearly, Clovis was distributed across the Great

University of Oregon archaeologists continue to analyze northern Great Basin sites. Early Holocene marshes in places like Christmas Valley, pictured before distant Table Rock, would have provided people an abundance of wildfowl and other food through the winter.




DON ALAN HALL

Caves, a few miles south of Fort Rock at the north end of Paulina Marsh, illustrates the potential for continued early finds, according to Jenkins. There Bedwell recovered Western Stemmed points, Leaf-shaped points, and Windust points. Dates associated with these discoveries ranged from 9,000 to 13,000 calibrated years B.P. Other lithics included cobble tools, scrapers, choppers, graters, *manos*, bone awls and other bone tools. If the chronology is accurate, Jenkins

surveys seeking new sites, excavation of the most promising sites in caves and rockshelters and around freshwater springs, and exploration of areas of geothermal spring activity. Such sites may have created environmental niches for winter settlements and a corresponding plant and animal resource base capable of sustaining a population for extended periods.

Jenkins believes that evidence thus far collected in the Fort Rock Basin indicates

Basin by the time of the known occupations of Fort Rock Cave, Connley Caves and the Paulina Lake site. "Was there something earlier? I don't see why not," says Jenkins. "There is currently spotty evidence of Clovis out there but if we are looking for something earlier we are going to have to look real hard. I believe momentum is just now beginning for brand new excavations that could lead to some exciting discoveries." 

—George Wisner