ARCHAEOLOGY

Wisconsin Dig Seeks to Confirm Pre-Clovis Americans

MILWAUKEE, WISCONSIN—This week, archaeologists will begin to dig 48 kilometers south of here, at a site that even skeptics say may be the most convincing yet in demonstrating the early presence of humans in the Americas. Scientists will search a mucky lakeside just west of the city of Kenosha for additional remains of a woolly mammoth. Bones found previously bear marks from human butchering and have been dated to 13,500 radiocarbon years before present—a full 2000 years before big-game hunters known as the Clovis people were thought to have arrived on the continent.

Sites near Kenosha "may be the best pre-Clovis sites in North America," says team leader Michael Waters of Texas A&M University in College Station. Even pre-Clovis skeptic Stuart Fiedel, an archaeologist with the Louis Berger Group in Washington, D.C., agrees that "the Kenosha sites are high up on my radar screen. On the face of it, they seem to be one of the best cases [of pre-Clovis evidence]."



Mammoth meal? Bones from Kenosha, dated to 12,500 radiocarbon years ago, show signs of butchery by early Americans.

Archaeologists long thought that America was first settled by the Clovis hunters, who crossed the Bering Strait and moved south through an ice-free corridor around 11,500 radiocarbon years ago. Then in recent years dozens of sites in both North and South America pointed to an even older human occupation. But each pre-Clovis site has been bitterly contested (*Science*, 2 March 2001, p. 1730), and a handful of influential archaeologists believes that definitive pre-Clovis evidence is lacking. "One of my problems with the [pre-Clovis] position is that the sites that it is founded on are still dubious," says Fiedel.

Hence the excitement over the sites near Kenosha. In 1990, an amateur archaeologist found butcher marks on mammoth bones stored at a local historical museum; archaeologists later excavated at two sites, those of the Schaefer and Hebior mammoths. These mammoth bones are so well preserved that collagen could be extracted from inside the bone for radiocarbon dating, yielding dates of about 12,500 radiocarbon years ago, 1000 years before the Clovis people. And a handful of crude stone tools—unlike the elegant spear points of the Clovis people—were recovered under the bone piles. All in all, the sites are unique, with "unequivocal stone tools [and] excellent dates," says Waters.

Now his team is in pursuit of an even older Kenosha mammoth at Mud Lake, where a few bones with cut marks were unearthed during a ditch-digging project in the 1930s and later dated. Waters believes that the rest of the mammoth is there and plans to try to relocate it this summer while scouting for new sites for future excavations. The preliminary dig starts this week, but because heavy rains have slowed the work, full-scale excavation of Mud Lake isn't expected until next year.

Given the potential of the Kenosha sites, they have attracted little attention. "I really don't understand why there has not been more investigation devoted to [them] to date," says Fiedel. Starting this summer, Waters's crew hopes to change that.

–TERRENCE FALK

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ENVIRONMENT

States Sue Over Global Warming

In a legal gambit aimed against global warming, the attorneys general of eight states last week sued the five largest emitters of carbon dioxide in the United States for creating a public nuisance. The states are asking that the electric utility companies cut emissions by 3% each year for a decade. Legal experts predict the states' case will be an uphill battle.

Carbon dioxide litigation is heating up. In 2002, environmental groups sued the Overseas Private Investment Corp. and the Export-Import Bank of the United States for not conducting environmental reviews on the power plants they financed. And last year, Maine, Massachusetts, and Connecticut sued the Environmental Protection Agency for not regulating CO_2 as a pollutant under the Clean Air Act. Now, the states have taken the first legal action directly against CO_2 emitters.

The plaintiffs—California, Connecticut, Iowa, New Jersey, New York, Rhode Island, Vermont, and Wisconsin, along with the City of New York—claim that the CO_2 that utility companies release contributes to global warming, which will harm state residents. The alleged ills include increased numbers of deaths from heat waves, more asthma from smog, beach erosion, contamination of groundwater from rising sea level, and more droughts and floods. "The harm to our states is increasing daily," Eliot Spitzer, the attorney general of New York state, said at a press conference.

The defendants together spew about 650 million tons of CO_2 a year. Their 174 fossil fuel–burning plants contribute roughly 10% of the anthropogenic CO_2 in the United States. The suit maintains that annual cuts of 3% are feasible through making plants more efficient, promoting conservation, and using wind and solar power—without substantially raising electric bills. "All that is now lacking is action," Spitzer said.

That claim irks American Electric Power of Columbus, Ohio, a defendant. Spokesperson Melissa McHenry says that the company had already committed to reducing its emissions by 10% by 2006. "Filing lawsuits is not constructive," she says. "It's a global issue that can't be addressed by a small group of companies."

It will also be a tough suit to win, says Richard Brooks of Vermont Law School in South Royalton, who studies the legal issues of air pollution. The fact that global warming is a planetwide phenomenon will make it difficult to establish how much these companies are contributing to the claimed harm. And under public-nuisance law, the plaintiffs must show that their citizens are suffering significantly more than the nation as a whole. "I would be totally amazed if the court gave this a serious response," Brooks says. "This makes me imagine that this is more of a symbolic suit."

–ERIK STOKSTAD

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