



■ Archaeologist Rolfe Mandel (above) is one of a group of scientists from KU and the Denver Museum of Nature & Science excavating a site that could contain evidence of the earliest humans on the Plains. The western Kansas dig site (right, top) is framed by an overpass on I-70; Mandel leads a field trip of scientists from around the country (right, bottom).

BY REX BUCHANAN

On the High Plains of far western Kansas, just east of the Colorado border, Interstate 70 slices across a dry creek bed indistinguishable from hundreds of other gullies that cut through the landscape.

Cattle graze on a carpet of buffalo grass, dotted by prickly pear cactus and sharp-bladed yucca. A windmill pumps water into a couple of moss-covered tanks.

The big sky of western Kansas hangs over it all.

Though it seems common, this spot is extraordinary. Beneath the loose soils and shortgrass prairie, the banks of this streambed may hold evidence of the first

people to walk this part of the world. KU archaeologists, working with the Denver Museum of Nature & Science, have found tantalizing clues—fractured bones and stones that might be tools—that could push back the date that people first came here by 1,000 years and rewrite the human history of the Plains.

Twelve-thousand years ago, this creek bed looked vastly different. The prairie here was tallgrass, like today's Flint Hills. Cottonwoods and willows crowded the banks. Snails, like those found today in eastern Kansas, thrived in the wet places, their tiny spiral shells now fossilized and bleached white. Pelicans splashed in pools.

The difference was water. The average annual precipitation at the time was 32

Archaeologists question the timelines for early prairie people. The answers may lie in a western Kansas dig.

In 1976, during the final phases of construction of I-70, engineers redirected the flow of creeks near the town of Kanorado (named for Kansas and Colorado, because the border is just a mile west of town). After the creek path was changed, the land's owner found bones protruding from newly exposed soils. Paleontologists from the then-Denver Natural History Museum arrived to identify the bones as mammoths, something like a modern elephant, only bigger. At one time mammoths were fairly common on the Plains, grazing on the brushy vegetation, like those willows

KU anthropologist Jack Hofman. This time they found camel bones and more mammoth remains. Later they found flint scrapers and flakes of quartzite that maybe, just maybe, were evidence of early people.

That meant more trips to the dry creek, where Holen began working with Rolfe Mandel, an archaeological geologist at the Kansas Geological Survey, based at KU, and associate professor of anthropology. Mandel, g'80, PhD'91, had just received funding through the Odyssey Archaeological Research Fund, a program endowed by retired Denver

The Plainsmen



inches, much like today's Lawrence, instead of the 16 to 18 inches per year common out west now. Where creeks dissected the land, they exposed the Ogallala aquifer, the same aquifer that supplies water to thousands of irrigation wells today. But then, in the time before irrigation lowered water tables, water flowed from the Ogallala through springs and seeps, and ran down this now-dusty draw.

With water came animals. Instead of today's white-faced Herefords, there were camels, bison, mammoths. The High Plains were an early version of today's Serengeti.

These ancient animals were walking protein and calories. Where you have animals, you attract people.

along the creek banks.

Museum paleontologists collected the bones, returned several times to pick up more, and stashed them in the museum's collection.

In 2002, Steven Holen, fresh from a doctorate in anthropology at KU and recently installed as a curator of archaeology at the now-Denver Museum of Nature & Science, took a second look at those bones.

"When I got here, the first thing I did was go look at the mammoth collection," says Holen, PhD'02. "I saw some strange breakage patterns on the bones from Kanorado, so I decided to go back and look at the notes and any other information I could get."

Holen then traveled to Kanorado with



JOHN CHARLTON (2)

oil man Joe Cramer. The endowment supports field work, travel, graduate students and laboratory analysis, all integral to archaeology, and its purpose is to fund the search for the earliest evidence of humans in the Great Plains.

It turns out that the nondescript little draw near I-70 was exactly the place to look.

In June 2005, nearly 100 volunteers from the Kansas Anthropological Association, coordinated by the Kansas State Historical Society, came to the site to sift through the soils and walk the draws. For three weeks, they spent the days digging and the nights bunking at

confirm that humans were here, but “the fracture patterns on the bones suggest that they were broken by humans who were processing them for marrow or to make bone tools,” Holen says.

It’s tough to prove that a fracture was caused by people, and not some natural event like another animal stepping on the bone and breaking it.

But put those fractured bones together with other evidence from the site, like a rock fragment that might represent a stone hammer, and the case for this earliest occupation becomes stronger.

It’s no surprise that evidence here is hard to come by.

dence of these early Native Americans at Kanorado, it is certain that other, later people were here. In the soil layers above those mammoth and camel bones, scientists have found younger materials—stone flakes, tools, pieces of mammoth bone—that date to 12,900 to 13,000 years ago, a time known as the Clovis age. Among the finds is a bead made from the iron-based mineral hematite, perhaps a sign of more settled, domestic activity.

Clovis-age materials, such as spear points, have been found in Kansas before, but washed up on gravel bars along streams, and not “in place,” where they were originally abandoned, the way they are at Kanorado. Finding materials “in place” means everything in science. It allows you to date them, to glimpse the context of the time when the people were here.

Kanorado doesn’t stop with Clovis artifacts and possible material prior to Clovis. Above the Clovis horizon the

“Right now, this is one of the most important paleo-Indian sites being worked on...it may be the most important. Every year we find something new and really significant here.”

the high school in Goodland. Allen Wiechert, assoc., former director of facilities planning at KU, was one of those volunteers.

“At one of the places where I worked, volunteers found two mammoth bones,” Wiechert says. “It was exciting, because we knew there was material there to be found, and we found it.”

Using those and other finds, along with carbon-14 dating, here’s what researchers know now: The mammoth bones at Kanorado, which may have been fractured by people, date to 14,200 years ago and could represent the earliest evidence of humans on the Great Plains.

Before Kanorado, the earliest evidence of humans on the Great Plains was dated at 13,000 to 13,500 years ago.

“If we have evidence of people here more than 14,000 years ago, we have to rethink our ideas about human colonization of North America,” Hofman says. “We can no longer assume we know when people came onto the Plains for the first time, or which direction they came from.”

The broken bones don’t absolutely



“These early Native Americans were small groups of people, family units really, who moved quickly across the landscape,” Mandel says. “They were here for only a few days or maybe a week at a time, probably in the spring, summer, and fall, because winters were tough out here. They processed hides from the animals they killed and moved on. They didn’t leave things behind.”

“One thing we know for sure, though: These people had a really high knowledge of the landscape.”

While the jury is still out on the evi-

researchers have found younger material, Folsom age. They refer to these three groups (Folsom, Clovis, and the people before Clovis) as paleo-Indians.

What kept attracting people back to this spot? The same thing that’s precious out there today—water.

“To find material from all three aspects here is really remarkable,” Mandel says. “I could spend the rest of my life working here.”

Holen agrees.

“Right now, this is one of the two or three most important paleo-Indian sites



TRAVIS HEYING/WICHTA EAGLE



JOURNAL CHARLTON

■ It wasn't just deer and antelope playing on the ancient High Plains: Mandel (above) examines mammoth bones at the Sherman County site where bones and rock fragments show evidence of human occupation up to 14,000 years ago, about 1,000 years earlier than previously thought. Volunteers from the Kansas Anthropological Association and the Kansas State Historical Society worked the site in June (left and far left).

being worked on," he says. "And because of the three different aspects found here, it may be *the* most important. Every year we find something new and really significant here."

These materials are not just from three different ages. The rock flakes come from all over North America.

"Here we have flint from Wyoming, chalcedony from Colorado, flint from Texas," Mandel says. "This really confirms what we thought about the amount of long-distance movement of materials."



All of this means that Kanorado is in for more intensive study. Mandel is using geology to guide the search for additional materials.

"If we get to know the geology, if we know which layers of silt and soil produce which artifacts, we can use that to focus our search for more sites," he says. "With a knowledge of geology to guide us, the search is more systematic, we're not just wandering around looking for

something." There are other possible sites to investigate nearby, he says, and in Cheyenne and Rawlins counties to the north of here.

"Also, the archaeological record here has been filtered by geologic processes—burial and erosion," he says. "We can use our knowledge of that filtering process to understand these artifacts and to find more."

Through all the archaeological attention, traffic hums by on I-70, only 100 yards from the spot where families killed and butchered bison. Though the prairie here has never been cultivated, the construction of I-70 rearranged this landscape just 50 years ago, adding another layer to the complex changes in this land. Yet without I-70, the mammoth bones that led everyone here would almost certainly never have been found in the first place.

Plenty more remain. Even today, a piece of a bison leg bone juts out of a cutbank. The bone is off-white, its color contrasting against the surrounding gray-brown soil, the bone's cellular structure apparent to the naked eye.

Holen, Mandel and colleagues return regularly to Kanorado, excavating and drilling to piece together the mosaic of the subsurface, systematically collecting more materials, trying to understand what life was like when these ancient people first moved out onto the Plains.

Why?

"The arrival of people in the New World is just as important to history as the time when Christopher Columbus arrived," Mandel says. "If you want to understand the history of North America, you have to know more about the people who were early on the Plains."

The researchers warn that they may never pin down the exact date that people came here. The paucity of evidence may prevent us from truly understanding the ways of these early Plains people.

But if answers do come, they may be found in this windswept little streambed in western Kansas.

—Buchanan is a science writer at the Kansas Geological Survey.