

SHELTER

From The

Prehistoric Storm

**The Bonneville Estates
Rockshelter was occupied
for thousands of years.
Its remarkable preservation
is affording archaeologists
a view of the distant past.**

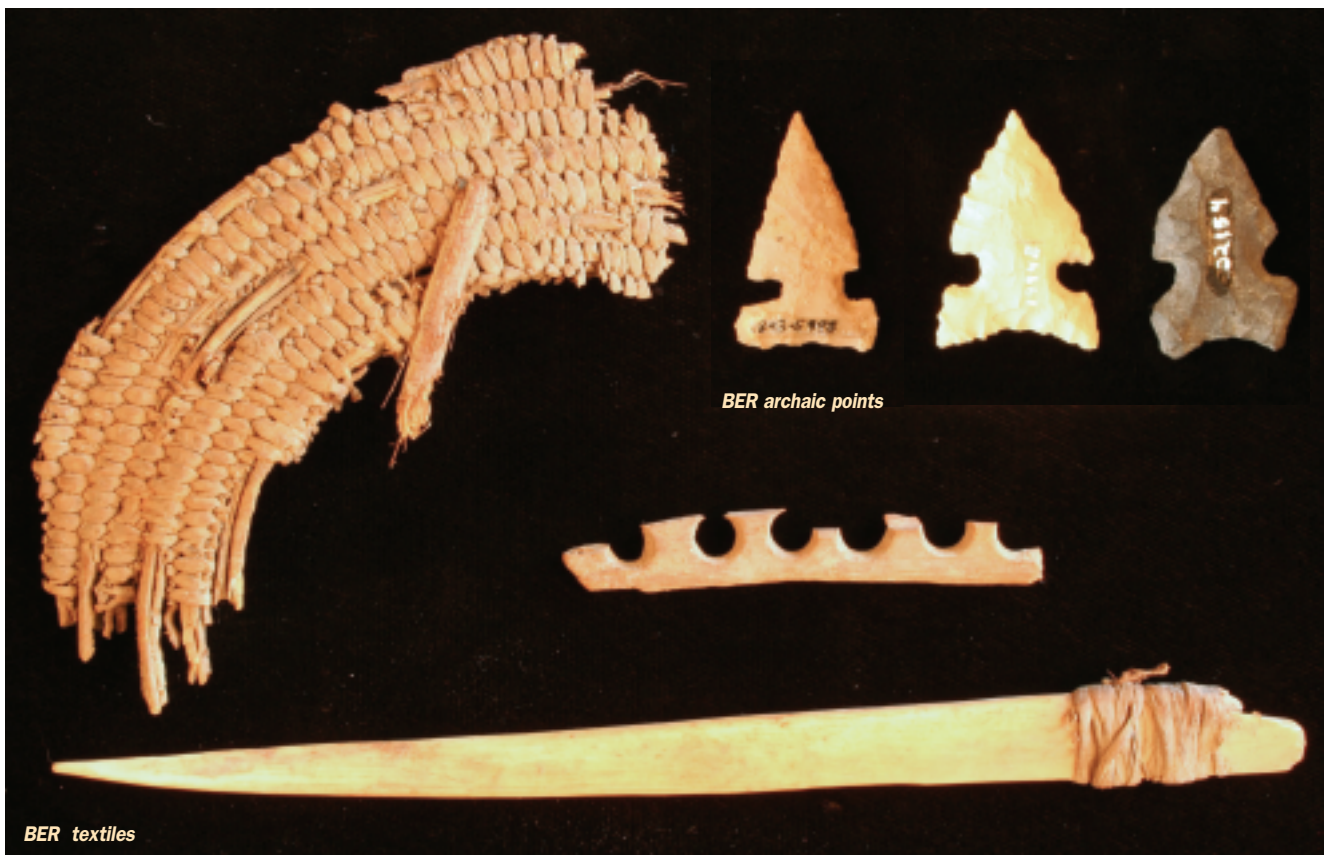
By Kurt Repanshek



It was a relatively small fire, most likely fed by sagebrush and pine limbs, one that flickered brightly in a scooped out pit near the rear of the shallow rock shelter. The warmth it cast not only helped the shelter's inhabitants ward off the chill, but also left an indelible mark in the form of a thin, oval-shaped rim of charcoal and ash burned into the soil. When Ted Goebel unearthed that hearth 13,000 years later, the flames kindled again, if only figuratively. This time they cast a glow on the possibility that the Clovis people, or some contemporary population, had sought harbor under the rock overhang with its views of prehistoric Lake Bonneville.

Goebel, an archaeologist at Texas A & M University, is codirecting an investigation of the Bonneville Estates Rockshelter, located on U.S. Bureau of Land Management (BLM) property in the arid high desert of eastern Nevada. "I've always wanted to first-hand investigate Clovis culture and Clovis people and this would certainly give me the opportunity to do that," he says, explaining why he was attracted to the site. "And it would also help clear up some issues about whether Clovis existed in the Great Basin at the same time as elsewhere in North America."

The rockshelter was occupied, with a few interruptions, from Paleo-Indian to historical times, and its archaeological evidence is exceptionally well preserved. Around 18,000 years ago the cave was at the high-water mark of Lake Bonneville, a veritable inland sea that, during the late Pleistocene Epoch, covered 20,000 square miles in western Utah, southern Idaho, and eastern Nevada and reached depths of 1,000 feet. Waves from the lake likely carved out the shelter from the mound of dolomite and deposited a fine layer of pebbles and sediment on the cave floor. About 17,500 years ago the lake burst a natural dam at Red Rock Pass in southeastern Idaho, unleashing a massive flood that dropped



BER textiles

BER archaic points

TED GOEBEL

the lake's elevation an estimated 350 feet. That flood left the cave above the lake's new high-water mark and created an attractive shelter.

Down through the millennia the shelter's overhang, coupled with its south-southeast orientation, largely prevented storms and erosion from washing away any archaeological artifacts from the cave. While a portion of the shelter's extreme eastern edge shows some signs of moisture intrusion, the western half is dry, a key reason why the cave is so archaeologically rich. "On the western side, it's clearly had virtually no water impacting those sediments over the last 12,000 to 13,000 years; everything is there," says Bryan Hockett, a BLM archaeologist who is Goebel's codirector. "That is extremely rare, even for the Great Basin. So this is really a nice site to open our eyes in terms of what kind of subsistence patterns these guys might have had."

In addition to the 13,000-year-old hearth

Goebel uncovered, his crew has found about a dozen other hearths that are between 10,600 and 12,800 years old. The archaeologists have also recovered juniper-bark cordage possibly used for nets to trap small game such as rabbits and grouse, an antler hammer, bone needles, scrapers, and projectile points associated with these hearths.

These items tell the story of "the best-preserved early Holocene and late Pleistocene record of human occupation ever found in the Great Basin," according to Hockett, who has been analyzing the faunal remains. "We had 12,000-year-old grasshoppers sitting around these hearths that look like

they flew into the shelter yesterday they are so well-preserved," he says. "So, for having the whole package of hearths, of which we've been able to get multiple radiocarbon dates, and tools of that age and subsistence remains of what they were eating, there's nothing like it in the Great Basin from that time period."

The researchers found that, in some ways, these Paleo-Indians didn't conform to archaeologists' assumptions of typical Paleo-Indian behavior. There is the long-accepted belief that they and early Archaic people relied largely on mammoths and prehistoric bison for their sustenance. But Goebel and Hockett determined that the rockshelter's earliest occupants had a more diverse diet. Hockett has been sorting through bones from bighorn sheep, pronghorn antelope, mule deer, and sage grouse. There is even evidence that their taste ranged to grasshoppers. Eighteen grasshopper carcasses were found in association with animal bones around the hearths. Most of these carcasses were missing their rear legs. Hockett says the grasshoppers' rear legs may have been removed so the Paleo-Indians wouldn't choke on them.

"You often hear this thing like, 'Oh, well, these guys obviously were large-game hunters, you know,'" Hockett says. "But in fact that's not the case. Sites like Bonneville Estates are indicating that these guys didn't really eat a whole lot of large game. They ate a little bit of everything, a very eclectic diet."

Adds Goebel, "Some of the bones very clearly have cut marks and patterns in butchery, repeated breaks over and

over again on the same kinds of bones suggesting that the folks were really gathering animals out on the landscape and then hauling parts of their carcasses into the rock shelter, and then systematically butchering them and eating them.

“We went into the whole project thinking that if we found fauna associated with these artifacts, they would be large mammals, some of which are now extinct,” he went on. “But that doesn’t seem to be the case at all. We’ve found no evidence for extinct fauna. And the bone assemblages aren’t dominated by those large mammals. Instead, they’re dominated by the small bunnies and the sage grouse bones, which is really unique and suggests that these folks were doing different things than what we originally thought.”

Some researchers believe that over-hunting by the Paleo-Indians caused the extinction of certain types of large animals such as mammoths and mastodons. But at Bonneville there’s no evidence to support this theory. Goebel says it’s commonly thought that the Great Basin Paleo-Indians consumed the wildlife of the lakes and marshes, however, the absence of fish and waterfowl remains at Bonneville Estates challenges this assumption.

While Goebel talks,

work on the dig continues behind him as Kelly Graf, a doctoral candidate in archaeology at the University of Nevada at Reno and another of the project’s codirectors, gingerly gathers a sample of charcoal from one of the shelter’s hearths. Dust billows into the desert’s kiln-dry early morning air as crew members take turns at a trio of screens to sift the dirt for artifacts, animal bones, and insect remains, clues that portray how Paleo-Indian and early Archaic peoples survived day to day in the



caption

Great Basin. So far nearly 30,000 items have been plucked from the site, placed in plastic bags, and tagged with coordinates detailing exactly where they were found.

After about 11,000 years ago until 8,000 years ago “the rockshelter experienced an extended hiatus in human occupation,” Graf says. “Paleo-ecological data from the region signals a much drier climate at this time, in which Lake Bonneville receded.” People returned during the early Archaic



Grasshoppers

period, and their use of the rockshelter differed from the earlier inhabitants.

The early Archaic occupants appear to have been more sedentary than their predecessors, “focusing on local materials,” according to Goebel, and they often stayed in the rockshelter for longer periods of time. The Paleo-Indians made their projectile points from obsidian and basalt, and Goebel’s students searched the region for possible sources. One of those sources is an obsidian outcrop near Jackpot, Nevada, about 125 miles north of the shelter, and a basalt flow near the Deep Creek Mountains by Ibapah, Utah, about 30 miles to the south. By analyzing the points’ chemical composition with a technique known as x-ray fluorescence, they were able to tie these sources to the artifacts found in the shelter. The archaeologists also believe that the Paleo-Indians fashioned their points at these quarries.

Early Archaic people, conversely, quarried a lower-quality obsidian from about five miles away and fashioned their tools in the rockshelter. Goebel theorizes that there were more people during that time and they may have been more territorial, and consequently they stayed closer to their settlements. It’s also possible that they simply made do with inferior resources, he says.

While the Paleo-Indians seemingly found grasshoppers to be agreeable, the early Archaic occupants had a taste for seeds. They apparently ground the seeds in the rockshelter to break them open so they could be eaten. The archaeologists have found myriad charred seeds of Indian rice grass, Great Basin wild rye, pinion, pickle weed, and buckwheat. They have also discovered 8,000-year-old human coprolites that are full of seeds. Intact seeds have been discovered in the Paleo-Indian deposits, especially in the hearth, so it’s possible that they ate them as well.

Basketry was also introduced during the early Archaic period; the archaeologists have recovered the oldest known coiled basket pieces in Nevada, dating to about 8,000 years ago.

No diagnostic artifacts have been found in association with the 13,000-year-old hearth, and consequently the archaeologists aren’t assuming it’s Clovis. They have recovered a Clovis point fragment, but it was found out of context. While evidence of the Clovis people has been found throughout what is now the United States, there are few known sites in the Great Basin, a sprawling, roughly 200,000-square-mile bone-dry portion of western America that touches parts of Utah, Wyoming, Idaho, Nevada, California and Oregon. “We can only say these were Paleo-Indi-

TED GOEBEL



Bryan, Kelly and Ted

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ans, but we can't say exactly who they were," says Goebel. "And because of some of the competing theories related to Clovis origins, it could be that they were someone else and not Clovis at all."

The "someone else" Goebel refers to are the people who produced the stemmed points and scrapers that have been found in the Paleo-Indian sediments. The Great Basin stemmed points are clearly distinguishable from Clovis points, and, some researchers speculate, of equal age. While excavating the Smith Creek Cave, about 100 miles south of Bonneville Estates, archaeologist Alan Bryan identified hearths and associated stemmed points that, he said, ranged from 13,000 to 16,000 years old. This would make them as old, and even older, than Clovis, which dates from approximately 13,000 to 13,500 years ago. But there are doubts about the accuracy of Bryan's dating, Goebel says. So one of the objectives of the Bonneville Estates investigation was to see if they could replicate Bryan's conclusions that stemmed and Clovis points are contemporaneous. But thus far, the stemmed points they have recovered are slightly younger than the Clovis period.

The archaeologists have several other goals to accomplish. Some researchers theorize that, having overhunted artiodactyls (hoofed, even-toed mammals such as deer and antelope), humans resorted to agriculture about 2,000 years ago to sustain themselves in certain areas of North America. The dates of the artiodactyls remains at Bonneville Estates span thousands of years, so the archaeologists can test that hypothesis by analyzing the dates and quantities of those remains, and gauge if artiodactyls were eradicated at the site over time.

They're now examining the Fremont culture (A.D. 600



Bone jutting out of wall

to 1350) occupation, and they will eventually be able to compare the technologies used by these people with the cultures that followed them. Due to the remarkable preservation and the extraordinarily long occupation, Goebel thinks they can reveal the big picture of how humans used the rockshelter over the millennia. "We can address just about every significant issue in Great Basin archaeology today."

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