The Great Basin

People and Place in Ancient Times

Edited by Catherine S. Fowler and Don D. Fowler

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The Early Peopling of the Great Basin

Bryan Hockett, Ted Goebel, and Kelly Graf

Who were the earliest inhabitants of the Great Basin, and how did they make a living? These are deceptively simple questions. In truth, we do not know precisely when the first people arrived and where they came from, although we do know they were hunter-gatherers. Many archaeologists have devoted their careers to answering these questions. Each generation has benefited from the knowledge and experience of previous researchers, steadily building a richer portrait of environments and the peoples who lived in them in the distant past.

The history of research on the earliest inhabitants of the Great Basin must be seen in relation to searches for the earliest human inhabitants of the Western Hemisphere. The first demonstrated relationship between ancient humans and late Ice Age animals came at the Folsom site in eastern New Mexico in the 1920s. An even earlier human occupation was found in the 1930s at the Clovis site, also in New Mexico. Radiocarbon dating later allowed archaeologists to define a Clovis "era" dating from about 13,100 to about 12,800 years ago. The Folsom interval was dated around 12,800 to 12,000 years ago.

The Clovis Era

For more than seven decades, from the 1930s until very recently, the earliest clearly documented archaeological artifacts and sites all across North America dated from the Clovis era, actually a brief span of about 400 years. The people of that time practiced a remarkably uniform set of lifeways continent-wide. They made distinctive spear points, skillfully flaked on both sides with a long groove, or "flute," down the center (fig. 5.2), which they effectively used to hunt large game animals such as mammoths and bison. Some researchers theorize that the relatively sudden, widespread appearance of Clovis artifacts represents the rapid spread of people traveling from northeast Asia across the Bering land bridge into Alaska and down into what is today the continental United States. Others argue that it represents the spread of a new technology among small populations of hunter-gatherers who had already been in North America for a thousand years and perhaps longer. Given the current state of evidence, either interpretation might be valid.

Clovis points turn up in the Great Basin, but none has ever been found in a well-stratified, well-dated context, and none has ever been found with

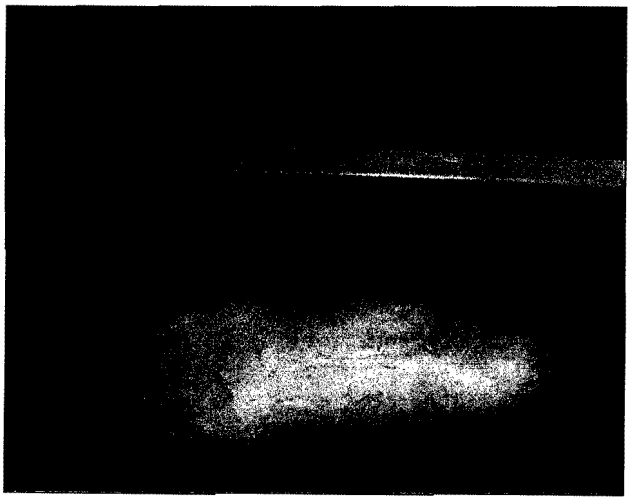

Figure 5.2. A Clovis point made of white chert from northeastern Nevada.

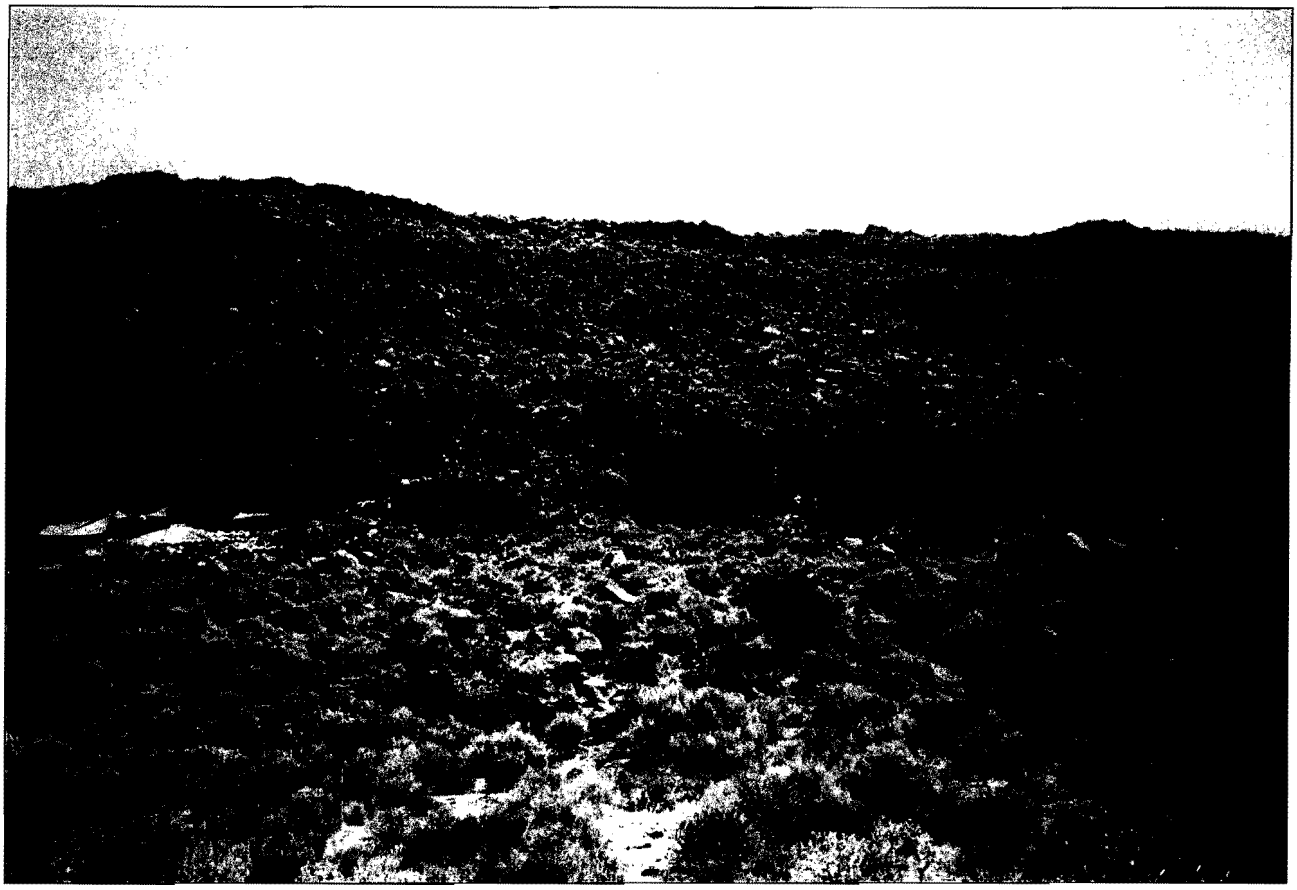

Figure 5.1. The Paisley Five-Mile Point caves in south-central Oregon. In 2005 archaeologist Dennis Jenkins found human coprolites in one of the caves that were radiocarbon dated to 14,300 years ago.

the bones of now-extinct animals. This lack of context means that we don't really know when or how people used them. Even surface finds are exceedingly rare. Only two Clovis points have been found in Elko County, northeast Nevada, an area roughly the size of Massachusetts, Connecticut, and Rhode Island combined, despite more than three decades of intensive archaeological survey.

The scattered, isolated spear points suggest that Clovis hunters were few and spent little time in the Great Basin. Only a few "hot spots" of Clovis activity have been found—China Lake in southeastern California, Lake Tonopah–Mud Lake in western Nevada, the Dietz locality in south-central Oregon, and the upland basins of Long Valley and Jakes Valley in east-central Nevada (map 3). Why Clovis hunters were drawn to these places remains a mystery. Perhaps they were staging areas of some sort, as David Anderson suggests, places from which bands of hunter-gatherer explorers could search surrounding uncharted lands for rapidly disappearing herds of mammoths and other big game or for high-quality stone for tool manufacture. Their exploration of the Great Basin might have been short-lived and encouraged them to seek greener grasslands elsewhere, for reasons yet unknown.

Further clues that only a few nomads traversed the Great Basin during the Clovis era come from tracking the tool stones used to make Clovis points back to their places of origin. If we know where a tool stone came from, we can trace the movements of the people who carried it to the place where they abandoned a spear point or other implement made from that stone. Obsidian and other fine-grained volcanic rocks are especially useful for this purpose.

At the Jakes Depression site in east-central Nevada, for example, Clovis people discarded two broken fluted points of obsidian that originated in two different volcanic flows in southwestern Utah—those in Modena Canyon and Wild Horse Canyon. Surprisingly, another Clovis point made of Wild Horse Canyon obsidian was found at Blackwater Draw, a famous Clovis site nearly 1,000 miles away in eastern New Mexico. Perhaps the point is evidence of a very early, widespread trade network. Perhaps the same Clovis hunters who visited Jakes Depression some 13,000 years ago also visited Blackwater Draw. Were they truly just passing through the Great Basin in search of mammoths and other big game animals, which they later found in abundance on the Llano Estacado of the southern Great Plains? We need to find more of their "calling cards," especially in buried contexts that can be radiocarbon dated, to answer these and other questions about Clovis people's transitory use of the Great Basin.

Buried Clovis sites likely do occur in the Great Basin, and archaeologists need to keep looking for them. The problem is that they may be so deeply buried under waterborne sediments that we cannot get at them with shovels and trowels, the conventional archaeological tools. Backhoes might solve the problem. At the Sunshine Well locality in east-central Nevada, Charlotte Beck and Tom Jones employed the services of a skilled backhoe operator to expose some late Pleistocene marsh sediments buried under many feet of gravel and sand. In one of the trenches they found a fluted point lying in stream gravels just below some wood charcoal that was radiocarbon dated to about 12,300 years ago. The point was not a typical Clovis fluted point. But the implication of the discovery is that the more we keep looking for and sifting through "old dirt," the better our chances of finding elusive, buried Clovis or even earlier sites that will tell us more about early peoples.

Seeking Earlier Great Basin Peoples

Archaeologists have sought clues to "pre-Clovis" people in North America for many decades. Many felt that the sophisticated stone tools of the Clovis culture should have had earlier, simpler precursors. In the Great Basin the search was coupled with a search for evidence of interactions between humans and big game animals. In the early 1930s Mark Harrington argued that artifacts uncovered in association with bones of extinct sloths at Gypsum Cave near Las Vegas and with bones of extinct horses and llamas at Smith Creek Cave in east-central Nevada suggested that early humans had hunted these long-gone animals. The Gypsum Cave artifacts, however, were later radiocarbon dated to about 3,000 years ago, eight or nine millennia after sloths had last entered the cave. Later work at Smith Creek Cave

failed to make a convincing case for humans having killed ancient horses and llamas there.

Luther Cressman conducted the first large-scale survey and excavation program in south-central Oregon between 1932 and 1940. He found stone tools and flakes beneath a thick layer of volcanic ash in Paisley Five-Mile Point Cave 3 (fig. 5.1). The ash came from the eruption of Mount Mazama, now dated to about 7,600 years ago but at the time thought to have been much earlier. Just as astonishing was the apparent association of the early stone artifacts with bones of extinct horses and camels. Cressman interpreted this association to mean that early humans at Paisley Five-Mile Point had hunted now-extinct big game. Analysts have recently reexamined the surface marks and breakage patterns of the bones and believe that some of them were left in the cave by carnivores rather than humans.

Cressman also excavated Fort Rock Cave. Again he found evidence of human habitation before the eruption of Mount Mazama. Most interesting were dozens of intact sandals made of sagebrush bark. By 1951 one of these had been directly radiocarbon dated to about 11,000 years ago, establishing the Fort Rock sandals as the oldest footwear known anywhere in the world (see chapter 9).

Between 1949 and 1953, Jesse Jennings, of the University of Utah, led excavations at Danger Cave. The oldest occupation dates ranged between 12,000 and 13,000 years ago. Later research confirmed the date of the earliest hearths to be about 12,300 years ago. Although researchers found no bones of extinct animals in the cave, Jennings concluded from the other bones dug up that the hunting of large game, mainly bighorn sheep, was the principal subsistence activity in early times.

In the early 1950s Phil Orr dug at Fishbone Cave in western Nevada and uncovered bones of now-extinct camels and horses. Other items included a bone awl apparently manufactured from a piece of a lower leg bone of a horse, a human burial, fragments of netting, and a stone tool. Pieces of juniper roots and bark from the cave were dated to about 13,200 years ago, suggesting that the earliest human occupants of Fishbone Cave had lived there at a time when they could have hunted now-extinct big game. Later radiocarbon dating of a piece of the netting proved it to be only about 9,000 years old. Other fiber artifacts were dated to less than 8,000 years ago. The bone awl was directly dated to only 3,100 years ago, and a careful reanalysis suggested that it was made not of horse bone but of bighorn sheep bone. Today most archaeologists agree that the human burial and artifacts are at least 3,000 years younger than the extinct large animal bones.

Archaeologists continued to search vigorously for early humans in the Great Basin in the 1960s and 1970s. Stephen Bedwell returned to Fort Rock Cave, Alan Bryan led several expeditions to Smith Creek Cave, and Richard Shutler led a large team of scientists in thorough investigations of Tule Springs near Las Vegas. At Fort Rock Cave, Bedwell reportedly found charcoal from campfires associated with artifacts lying on ancient lake gravels. The charcoal was an astonishing 15,200 years old. But Bedwell's excavation methods left little clear evidence that would allow experts to judge whether the charcoal and the artifacts were really closely associated with each other.

At Smith Creek Cave, Bryan uncovered charcoal and artifacts lying alongside llama hair. Charcoal from hearths was dated between 12,000 and 13,200 years ago, whereas the llama hair dated between 13,000 and 16,000 years ago. Bryan argued that humans might have hunted these small camels as early as 16,000 years ago, but most archaeologists think the hair and artifacts were mixed together by natural forces, perhaps by burrowing marmots. The human use of Smith Creek Cave probably dates more recently than 12,700 years ago, although it might have begun as early as 13,200 years ago.

In the 1930s Mark Harrington claimed to have found human artifacts and extinct animal bones at Tule Springs. Richard Shutler's later Tule Springs studies failed to produce clear evidence that humans lived along Las Vegas Wash before 12,000 years ago or were associated with any extinct forms of animals. But the project did yield much new information about the Pleistocene environments of the Great Basin.

After seven decades of searching for Clovis or earlier sites that could be dated, Great Basin archaeologists recently found what appears to be good evidence for a pre-Clovis human population. Dennis

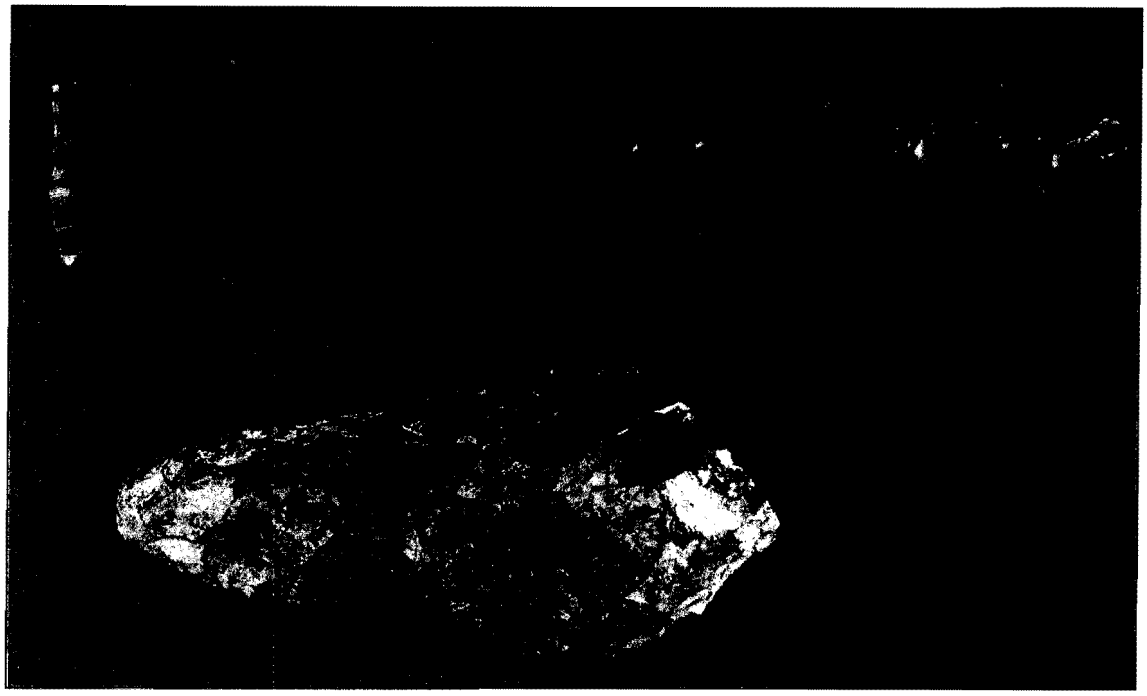

Figure 5.3. Typical stemmed projectile points dating to the Paleoarchaic period. Such points are found throughout the Great Basin.

Jenkins, of the University of Oregon, in 2005 unearthed human coprolites (dried feces) from Paisley Five-Mile Point Cave 5 in south-central Oregon that were dated by accelerator mass spectroscopy to about 14,300 years ago, at least a thousand years before Clovis times. DNA analysis suggests that the person who used the Paisley caves for a latrine so long ago had recently eaten bison meat—at last some evidence that ancient Great Basin residents preyed on big game.

The search for the earliest human inhabitants of the Great Basin has been long and frustrating. Excitement over new finds has repeatedly given way to disappointment once those finds received closer scrutiny. But that is the nature of scientific research. New data are collected, hypotheses are advanced to account for those data, and both are subjected to rigorous testing in light of current theories. In 2008 that process was under way for the Paisley find. Close scrutiny by Jenkins and his team and other archaeologists and specialists was intended to determine the scientific validity of the find. If validated, it would be the first clear evidence that people hunted big game in the Great Basin as much as 1,000 years before Clovis times.

A Picture Emerges: The Paleoarchaic Period

Despite the unanswered questions in pre-Clovis and Clovis archaeology, the past 70 years of research have produced a great deal of knowledge about the early inhabitants of the Great Basin after the Clovis era, between about 12,700 and 8,500 years ago. Most archaeologists refer to this time as the Paleoarchaic period.

Paleoarchaic people lived in a world very different from that of today. The Great Basin was considerably cooler and wetter then, and small lakes and shallow marshes covered many valley floors. Sagebrush was even more prevalent than it is now, and piñons and junipers grew at lower elevations. Cool-adapted small animals such as pikas and marmots lived in more places and at lower elevations than they do today.

Paleoarchaic people left many more clues about their lives than did those who came before them. They manufactured several styles of large, stemmed projectile points (fig. 5.3), quite unlike the earlier Clovis points. Archaeologists call these points by a number of different names, but most have a narrow leaf shape, distinct shoulders at the base end, and square to tongue-shaped stems—the part inserted

Mysterious Crescents
Eugene M. Hattori

Chipped stone artifacts called crescents (fig. 5.4) are relatively common in Great Basin archaeological sites older than 7,000 years ago, but we have no idea why. We lack convincing evidence for the crescents' function, despite some creative speculation.

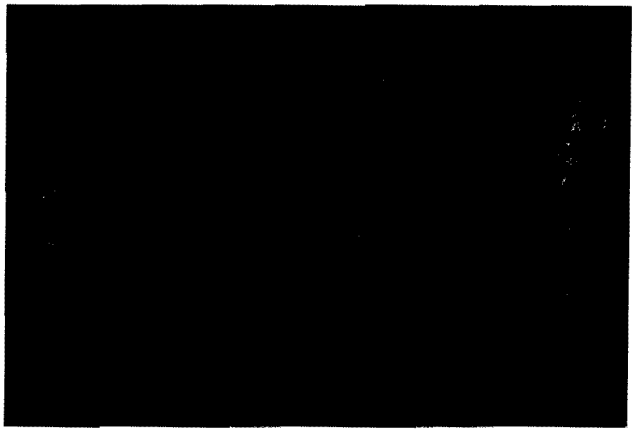

Figure 5.4. Crescents. Object on left is 2.5 inches long.

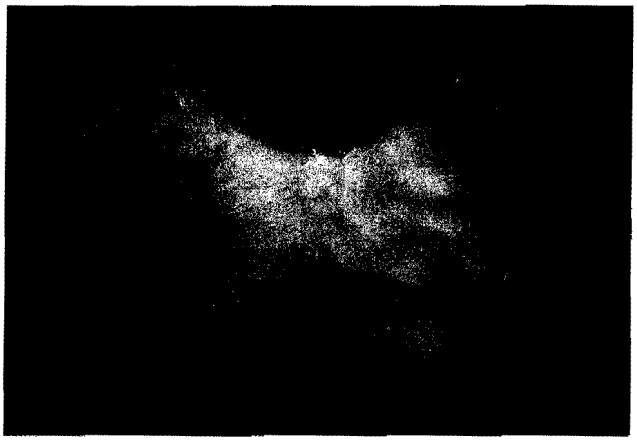

Figure 5.5. "Winged" crescent. Maximum width 2.4 inches.

Crescents are found only in western North America, from central Washington to southeastern California and eastward to Arizona. Adding to the puzzle, they are found on the Channel Islands off California and near Santa Barbara along the Pacific Ocean. The greatest concentration by far is in the Great Basin, and the majority come from sites near former wetlands. Some sites, such as the Sunshine Well locality in Nevada, have yielded dozens of examples.

Some crescents are shaped roughly like a butterfly in outline (fig. 5.5), but most have a true crescent shape. The "wings" on either side are usually sharp, whereas the central "body" was intentionally dulled. People at the time frequently dulled the bases of projectile points to prevent their edges from cutting the thong or cord that bound them to a spear or dart. So we are fairly certain that crescents were bound to another element, possibly a shaft or handle.

Crescent wing edges, however, were not clearly meant for cutting. We have no good evidence of edges being damaged from use or being resharpened. People often did resharpen projectile points during the Paleoarchaic period, so we know what that looks like. Faced with these puzzles, researchers have proposed that the crescents might have been any of a lot of things: projectile points mounted at an angle meant to stun water birds, knives for cutting tule stalks, scrapers for peeling roots, side blades mounted on sickles or throwing sticks, fish gouges, scalpels, and ornaments.

Crescents drop out of the archaeological record after about 7,000 years ago. Perhaps the drying of the marshes had something to do with their disappearance; possibly their makers left the region. Was the crescent replaced by another tool? Was its function no longer needed? Whatever the case, the utility of crescents was lost to later people, as it is to us today.

into a spear shaft for hafting (see fig. 6.2). The typical stone tool kit also included chipped stone scrapers for tasks such as hide working, sharp-pointed gravers for incising wood or bone, and knives, possibly including the enigmatic artifacts known as crescents. Dry caves and rockshelters have preserved a wealth of textiles dating to this period, including mats made in a unique diamond-shaped plain weave, basketry, sandals, rabbit-skin blankets, cordage, rope, string, and netting fragments. Bone tools include awls, needles, and flakers, pointed tools used to push small flakes off stone implements. Obviously, Paleoarchaic residents of the Great Basin were well equipped to

capture and collect a large variety of animals and plants and turn them into food, clothing, and tools.

In the 1970s Stephen Bedwell proposed a "Western Pluvial Lakes Tradition" to explain the hunting and gathering practices of Great Basin people living in caves near lakes and marshes, such as Fort Rock Cave. He envisioned people "tethered" to marsh habitats, exploiting a diversity of resources including waterfowl and fish for food. We now know that Bedwell's concept is too narrow to describe the subsistence practices of the earliest residents of the Great Basin. It is true that waterfowl and fish bones are found at several early sites, some dating to 11,000 years ago. According to David Madsen, as many as 500 ancient sites may lie alongside and near the terminus of the Old River Bed in the Bonneville Basin in Utah, where marshlands existed before 9,500 years ago and waterfowl and fish would have been abundant.

Figure 5.6. Entrance to Bonneville Estates Rockshelter, eastern Nevada.

But we also find Paleoarchaic stemmed points in upland habitats, where resources such as deer and bighorn sheep, chokecherries, currants, and rose hips were plentiful. Clearly people did not rely solely on the marshes for their survival. Recent excavations at Bonneville Estates Rockshelter in eastern Nevada (fig. 5.6), led by the three of us, have shown that people hunted deer, bighorn sheep, pronghorn, jackrabbit, and sage grouse and collected grasshoppers for food between 12,800 and 11,000 years ago. Open-air sites in Buffalo Flat in the greater Fort Rock Basin, Oregon, area also offer abundant evidence that people hunted jackrabbits before 9,500 years ago.

Plant remains do not preserve as well as animal bones, and their presence in early cave and rockshelter sites does not necessarily mean that humans consumed them. Charred seeds of rice grass and dropseed sandgrass were found in some of the early hearths in Bonneville Estates Rockshelter. But none of the seeds appears to have been ground for meal, and indeed we find few grinding tools in Paleoarchaic sites. It is possible that pack rats brought these seeds into the shelter and they were later charred by fires built above them.

There is little reason to doubt, however, that humans played some role in collecting the plants whose remains are excavated from hearths at many open-air sites in the Great Basin. An open-air site far from any ancient marsh has produced such evidence. At the Paulina Lake site, 30 miles north of Fort Rock Cave, chokecherry pits, sedge seeds, and edible fruit tissues were extracted from a hearth dated to about 10,200 years ago. Like the Bonneville Estates animal remains, the Paulina Lake plant finds demonstrate that Paleoarchaic people frequented upland habitats and did not collect solely lowland marsh foods.

The concept of early people being "tethered" to marshes does not fit what we now know about Paleoarchaic settlement patterns. The people who left stemmed points here and there across the Great Basin were nomads who did not live at any one place for long. Most of their sites are small scatters of just a few stone tools and associated waste flakes. Even large sites with hundreds of stone

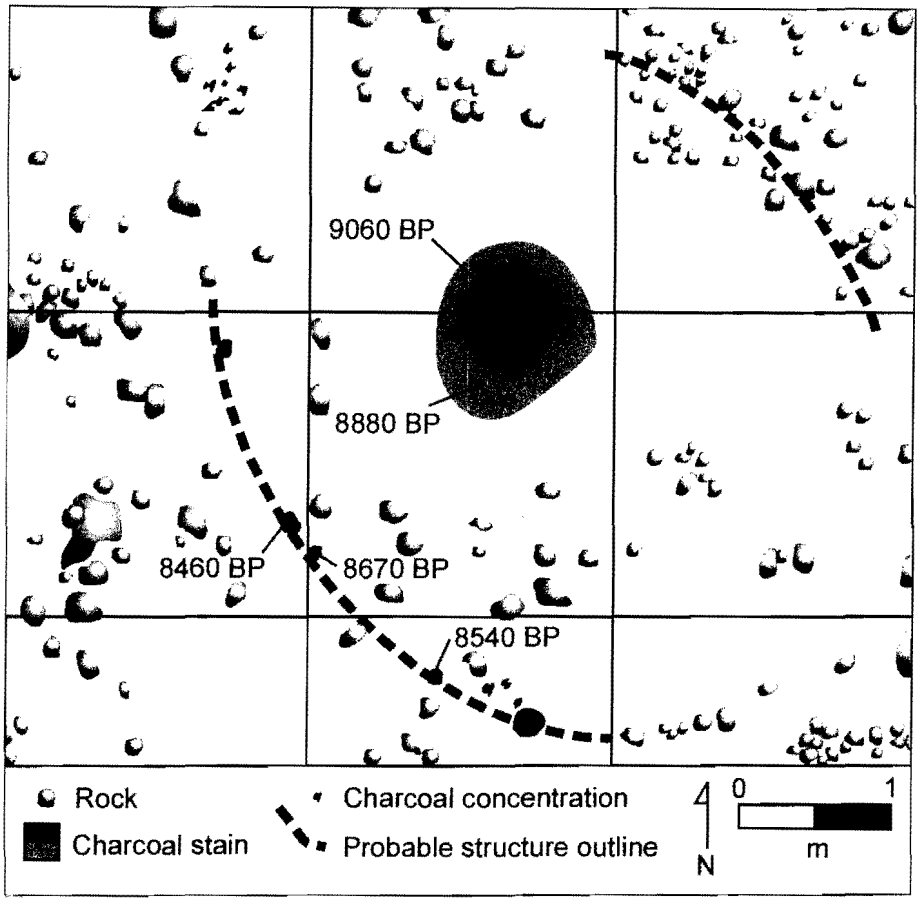

Figure 5.7. Diagram of structure at Paulina Lake site, eastern Oregon. Materials from the structure were dated between 8,460 and 9,060 years ago.

tools, such as the Sadmat, Coleman, and Parman localities in western Nevada, seem to be the results of repeated short stays, not of long-term residence. People made many of their tools well in advance of using them and carried them from place to place as they traveled long distances. In the central Great Basin, researchers have found that obsidian and chert tool stone was traded or carried for hundreds of miles along the region's north-south-trending valleys.

Although Paleoarchaic dwelling structures are extremely rare, one has been excavated at Paulina Lake. The structure had a hearth at its center and five charred posts that formed a semicircular outline (fig. 5.7). The living floor appeared to have been cleared of stones but was not dug into the ground. The structure probably was a simple windbreak or wickiup-style hut, lightly constructed. The contents of the hearth—the seeds and fruit already mentioned—imply that people used it during the summer.

It seems clear that the Paleoarchaic people of the Great Basin before 8,500 years ago were mobile hunter-gatherers who used the many Great Basin environments and ate a wide variety of foods including marsh-related animals, large and small terrestrial animals, and plants. This far-ranging lifestyle based on a diverse diet did not last. Things were about to change dramatically.

The Transition to the Archaic Period

The climate of the Great Basin warmed steadily after about 12,000 years ago, and by about 9,500 years ago this warming significantly affected the basin's residents. Several important cave sites that contain thousands of bones of rodents, rabbits, hares, and pikas deposited by predatory birds such as owls record a dramatic shift in animal populations. Much of this shift was complete by 9,500 years ago. The shift from a cool, wet climate to a warm, indeed hot climate forced some types of animals out and made the region hospitable to others. Cool-loving small mammals had disappeared by 9,500 years ago from Homestead Cave in the vicinity of the Great Salt Lake. Similar evidence of change was found at Pintwater Cave, north of Las Vegas (fig. 5.8), where the hot climate was probably coupled with heavier summer rains. These warm but seasonally wet conditions led to the spread of modern Mojave Desert lizards such as the chuckwalla and the desert iguana into southern Nevada from their ranges to the south.

This warming trend lasted for more than 3,000

years, although short periods of cooler or wetter climate developed at approximately thousand-year intervals, around 8,000, 7,000, and 6,000 years ago. Archaeologists are only now beginning to fully comprehend the complexities of this climatic phase, called the Altithermal, as well as its effects on humans.

We know that by 8,500 to 8,000 years ago, Great Basin people no longer made the large stemmed projectile points that characterized the early Paleoarchaic period. Instead, they made notched points—specifically, large side-notched varieties—for the first time (fig. 5.9). They largely abandoned the driest parts of the Great Basin, such as the central portions of Nevada. Other areas, such as the Fort Rock Basin of south-central Oregon, continued to be inhabited regularly. A few sites, such as Bonneville Estates Rockshelter, reflect intermittent, short-term occupations during times of relatively cooler or wetter climate, followed by long abandonments during warmer, drier times.

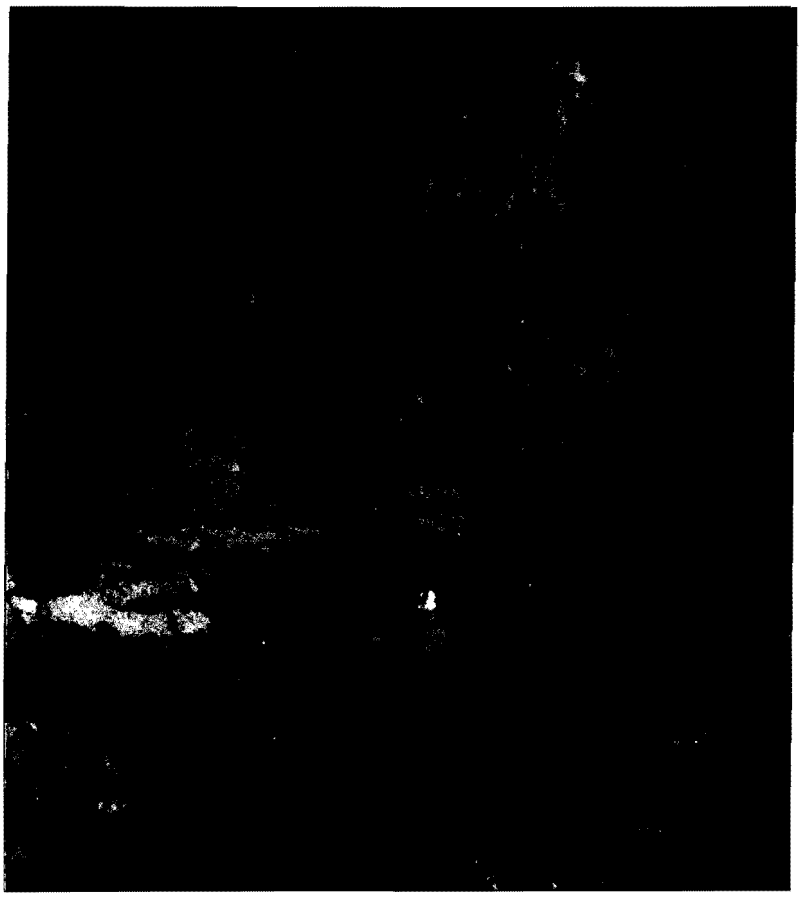

Figure 5.8. Pintwater Cave, southern Nevada.

Figure 5.9. Side-notched projectile points, characteristic of the early Archaic period in the Great Basin.

As would be expected in a time of climate change, people's diets became highly variable. The overall diversity of animals eaten diminished across the Great Basin. The widespread hunting and gathering of animals such as waterfowl, fish, and sage grouse dried up along with the lakes and streams. Jackrabbit hunting remained common at sites in south-central Oregon and north-central Utah. At Sudden Shelter, along the border between the southern Great Basin and the northern Colorado Plateau, large-game hunting dominated. At Bonneville Estates Rockshelter, two of the three occupations dating to this period show heavy reliance on large game, whereas one occupation shows greater reliance on small game.

After about 9,500 years ago, people throughout the Great Basin began to use milling stone technology—manos, or hand-held stones, and metates, or grinding slabs—to grind seeds. Milling stones are rarely found in Paleoarchaic sites but appear often in early Archaic sites and thereafter.

So far the evidence suggests that no one-size-fits-all description characterizes the way human groups contended with the difficulties of making a living during the trying times of drought and warmer climate in the early Archaic period of the Great Basin. But things were about to change drastically once again. The cooler and wetter climate of the late Holocene was right around the temporal corner.

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