

Chapter 3

Columbia Plateau

Aboriginal life in the Columbia Plateau was shaped by the great river system that gives the region its name (Figure 3.1). Excavations at The Dalles of the Columbia River have shown that salmon fishing was already flourishing there nearly 10,000 years ago; some elements, at least, of the historic way of life were even then in place. The Columbia River forms the northern boundary of Oregon, except in the farthest northeast. East of the Cascade Range, the Oregon side of the river was occupied by the Wasco, Tenino, Tygh Valley, Umatilla, Cayuse, and Nez Perce, whose salmon-fishing, root-gathering, and hunting way of life typified that of the Plateau as a whole. Plateau culture also extended deep into central and northeastern Oregon, up the drainages of the Deschutes and John Day rivers. The lower John Day drainage was used variously by Tenino, Tygh Valley, Umatilla, Cayuse, and Nez Perce. The lower Deschutes was used primarily by Tenino and Tygh Valley people. The Molala and Klamath, whose homelands lay south along the upper Deschutes drainage and beyond, spoke languages clearly though distantly related to those of the Columbia River people, and their river and lake-oriented cultures shared much with the Plateau. The Northern Paiute peoples who moved into the Deschutes and upper John Day river areas during late prehistoric



Key to Sites

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| 1 - The Dalles, Roadcut Site | 10 - Lower Deschutes River, Mack Canyon |
| 2 - Wildcat Canyon, John Day Narrows | 11 - Sherar's Bridge |
| 3 - Umatilla Rapids | 12 - Round Butte |
| 4 - Lower John Day Canyon | 13 - Lava Island Rockshelter, Lava Butte |
| 5 - Pine Creek | 14 - Wickiup Dam, Odell Lake |
| 6 - Mitchell Cave | 15 - Bezuksewas Village, Williamson River Bridge |
| 7 - Hall Creek | 16 - Kawumkan Springs |
| 8 - Pilcher Creek | 17 - Pininsula Site |
| 9 - Stockhoff, Marshmeadow | 18 - Nightfire Island |

Figure 3.1 Map showing site locations in the Columbia Plateau region of Oregon.

and early historic times represent a distinct language and culture that grew out of the Great Basin to the south, and is treated in the previous chapter.

Ethnographic Life Way

The native occupants of the vast Columbia River system had access to incalculable numbers of salmon, which annually ran up the main stem to spawn in numerous tributary rivers and their feeder streams. The region around The Dalles, immediately east of the Cascades, was particularly favored as a fishing ground. There the salmon appeared earliest in the spring, and the runs included the greatest variety of species. The fish intercepted there, in the first 150 miles or so of spawning runs that carried some of them into headwaters a thousand river miles upstream from the Pacific, were at their plump and most delicious. The Chinook salmon run has three peaks, in April, July, and September. Sockeye salmon run in August, and Coho mostly in October. The early runs were welcomed for immediate consumption and short-term storage. The fall fish were leaner and less oily, making them the best to dry and preserve for winter stores (Schalk 1977).

Although the salmon harvest varied in abundance from time to time it never failed, and the wealth it supplied to the native peoples is lyrically described by the early anthropologist Lewis Henry Morgan:

But the crowning advantage of this favored area was found in the inexhaustible salmon fisheries of the Columbia River, which, at stated seasons, filled the land with super-abundance of food. If the current representations with reference to these fisheries may be credited, they are unequaled in any part of the earth, in the quantity and quality of fish annually supplied. They enter this river in myriads, and penetrate its several branches, even into the mountain elevations (Morgan 1871: 241-242).

To participate in the salmon harvest, and to obtain the best fish, people came to The Dalles from all over the Plateau. It must have been a fine sight, and a scene of great excitement, when diverse people speaking many languages gathered there at the end of long journeys filled with anticipation of the event. When Alexander Ross passed The Dalles during the fall salmon run of 1811, he saw an estimated 3000 people congregated there.

The big river, at The Dalles or other fisheries, was the dominant focus of economic efforts during spring and summer. Besides salmon there were lamprey eels, sturgeon, trout, suckers, squawfish, chiselmouth, shiners, and daces to be had from the rivers. For people whose home territory lay along the river, the runs gave opportunity not only to accumulate winter stores, but also to develop wealth through catching and processing surpluses for trade. Individuals or small family groups from the

hinterlands would come out seasonally to fish for themselves, relying on the hospitality of relatives married into river communities.

Dip nets and pronged spears were used along narrows and places where fish ran close to shore; bag nets were set in eddies; gill nets were used with wooden floats and notched stone sinkers to hold them vertically in open water; and willow fences or weirs were placed across smaller tributaries to channel fish into funnel-shaped basketry traps. Farther into the interior, where streams were smaller, people might use the hook and line, shoot fish with the bow and arrow, or wade into streams to catch fish by hand. Where a stream could be dammed, fish might be stupefied by throwing crushed leaves and roots of a certain toxic wild parsley into the water, then gathered by hand as they rose to the surface. A labor that went on continuously with the catching was splitting the fish open down the back and drying them on racks; in this way 25 pounds of fresh fish might be reduced to three or four pounds for transport and storage. For trade, as Lewis and Clark observed at The Dalles in 1805, the air-dried fish might be pounded into a powder using large wooden mortars and stone pestles, then packed into large baskets (Lebow et al. 1990: 24-27).

Another central focus in the Columbia Plateau was the gathering of vegetable foods (Hunn 1990). A comprehensive listing of native food plants from the Plateau portion of north-central Oregon includes nearly 100 varieties, which variously yielded roots, seeds, berries, and herbs (Lebow et al. 1990: Table 3.3). Plant harvesting was an activity primarily of women, although men often came along to hunt deer, elk, or other animals in the same settings. Native crops such as biscuitroot and bitterroot became available in early spring, and between April and June parties split off from the riverine fishing camps to dig these "Indian potatoes" in the often extensive patches of shallow, rocky soil where they thrive. Roots were obtained with crutch-handled digging sticks of hard wood, collected in woven bags or baskets, peeled with stone knives, and sun-dried for winter stores. Camas, yampa, and hyacinth bulbs were dug somewhat later in the season, from wet meadows at higher elevations. Camas was baked in earth ovens. These were large pits where quantities of the onion-like bulbs were spread over heated stones, then covered with earth to cook for two or three days. Baking not only prepared the bulbs for eating, but greatly reduced their weight and bulk for transport and storage. Large numbers of people gathered annually at some of the more favored camas grounds, where collecting parties might remain for several weeks. By September, gathering groups were in the highest mountain meadows for the huckleberry harvest. With the berries dried and packed, people descended to the riverine villages for the winter.

Hunting was done primarily in the fall, though to some extent it went on throughout the year. Along the Columbia, where the fall salmon runs kept people occupied during the most favorable season for taking large game, hunting was of lesser significance. Deeper in the hinterlands, farther from the best salmon streams, the fall hunting season was more important. Elk, deer, and bear were taken in the wooded Cascades and Blue Mountains, while antelope and desert sheep were sought in the lower-lying, more open country between. Small game included jackrabbits, cottontails, ground squirrels, grouse, and quail, taken at opportunity. Far to the south, waterfowl were of great importance in the upland lakes and marshes of the Klamath country. Carnivores such as fox, raccoon, and badger were valued for both meat and furs. A tabulation of mammals used for food in north-central Oregon includes 5 kinds of lagomorphs, 11 kinds of rodents, 7 kinds of carnivores, and 5 kinds of hoofed animals (Lebow et al. 1990:Table 3.4).

The bow and arrow was the principal hunting weapon, used to take game carefully stalked and shot at close range. Antelope were taken in some numbers by driving the animals into corrals or surrounds made of brush, then dispatching them with arrows. Jackrabbits were driven into funnel-shaped enclosures formed by long nets woven of plant fiber. With the rabbits inside, the mouth of the funnel was closed off and the trapped animals killed with wooden clubs. Nets were also strung low across the water to enmesh waterfowl skimming along the surface of a lake or stream. Squirrels and other rodents were caught with string snares or deadfalls.

Harvesting and hunting perforce slowed greatly during the winter season, but did not entirely cease. Winter was a time when people stayed close to their main settlements, occupied with domestic tasks and the repair and manufacture of clothing and equipment. It was also a season for ceremonies and dances, though some went on at other times of the year as well.

Residence patterns throughout the Plateau centered on villages of substantial houses. Here group members congregated in winter, and here they stayed between the comings and goings of a more mobile period from spring through fall. These winter villages were almost invariably sited along the rivers, both the main stem of the Columbia and larger tributaries such as the Deschutes and John Day (Ray 1939). In the Klamath country to the south, villages might be placed on marsh edges as well as river courses.

Large gabled cedar-plank longhouses of Northwest Coast type were seen up the Columbia as far as The Dalles during the 19th century. These buildings housed large communal families. Farther upstream, the Umatilla and Nez Perce made large communal pole-framed lodges covered with woven mats. Smaller pithouses sheltering usually two nuclear families were also made along the Columbia, and throughout the Plateau as a whole. They were the more ancient form in this region, traceable deep into prehistoric times. Among the Tenino of the lower Deschutes and John Day rivers, each family had both a pithouse and a mat lodge at its winter village. The pithouse was used for sleeping, and the mat lodge for cooking and everyday matters. In summer the Tenino dismantled the winter earth lodge and removed themselves to a summer village, where light mat structures doubled for both residence and the drying of salmon (Murdock 1980). Among the Klamath farther south, lightly built mat-covered lodges were made for summer use, while the more substantial pithouses were partially dismantled and left to dry out after the soggy winter season (Spier 1930). Klamath pithouses were very similar in architecture to those of the Columbia region (Southard 1970).

During the warm part of the year many families would remain at riverside villages to catch and dry salmon, while others ranged out to root grounds, berrying localities, hunting camps, toolstone quarries, and sources of tule to be collected for matting. These special-purpose camps, visited seasonally by small task groups, were returned to year after year, though often a group's destination was a general area rather than a certain spot. At such places simple lean-tos or small mat-covered tipis might be erected, or perhaps no structures at all if the stay were to be very brief. The Blue Mountains and other like regions drew occupation mostly of this kind. Such hinterlands served as joint-use areas for a number of different seasonally mobile groups (Zilverberg 1983).

The basic features of Plateau social organization were widely shared. Communities varied considerably in size, from several hundred people along the Columbia down to 50 or so in more remote areas. Local groups were everywhere autonomous. In the larger settlements around The Dalles, social distinctions between a chiefly class, commoners, and slaves were recognized; elsewhere status differences were not so sharply drawn. Throughout the area, kinship was reckoned equally from both mother's and father's sides. A prohibition on marriage between blood relatives led people to seek mates from often quite distant localities, and in this way kinship networks were extended over broad regions.

Trade was extremely important in the Plateau (Wood 1972). During the annual congregations of hundreds or even thousands of people at the great fisheries, people bartered local products and manufactures from all over the Plateau, and beyond (Figure 3.2). In pre-horse days, overland exchange of bulky items—such as the 90-pound “bricks” of pounded and dried salmon that Lewis and Clark saw stockpiled at The Dalles in 1805—must have been uncommon. The same is no doubt true of the traffic in bison hides, which in the 19th century were brought back from the Plains by mounted Plateau peoples. Nevertheless, the far-reaching exchange network seen historically can hardly have sprung into being during the few decades between the time that Columbia Plateau peoples acquired the horse, and the time of Lewis and Clark’s observations. Prehistoric antecedents are clearly implied, as trade would have been a natural concomitant of people’s regular trips to and from the salmon fisheries.

A compelling account of intergroup relations between southern Plateau peoples during the period 1805-1855 is provided by Anastasio (1972). Though the high degree of interaction that he documents was surely brought to its peak by the historic adoption of the horse, the discussion has important implications for prehistory as well. A partial listing of items exchanged during the 19th century is given in Table 3.1.

Table 3.1 Items traded among Plateau peoples of the 19th century. (Anastasio 1972: 120, 136).

<u>Source area</u>	<u>Items</u>
Upper Columbia and western Plateau	Camas roots, hazel nuts, huckleberries, beargrass fibers, basketry, tule mats, dried berries, hemp, stone artifacts, freshwater shell ornaments, hemp twine
Middle Columbia-Lower Snake	Salmon, camas, baskets, hats, freshwater shells
Northwest Coast	Marine shells, dried salmon, salmon oil, deerskins, wapato root
Great Basin	Edible roots, skin lodges, elk and buffalo meat
Klamath River	Wocas lily seeds, elk skins, beads, shells, bows
Great Plains	Catlinite and catlinite pipes, buffalo skin tents, painted buffalo hide bags, pemmican, buffalo horn and robes, parfleches, dressed moose skins, buffalo bone beads, feather headdresses

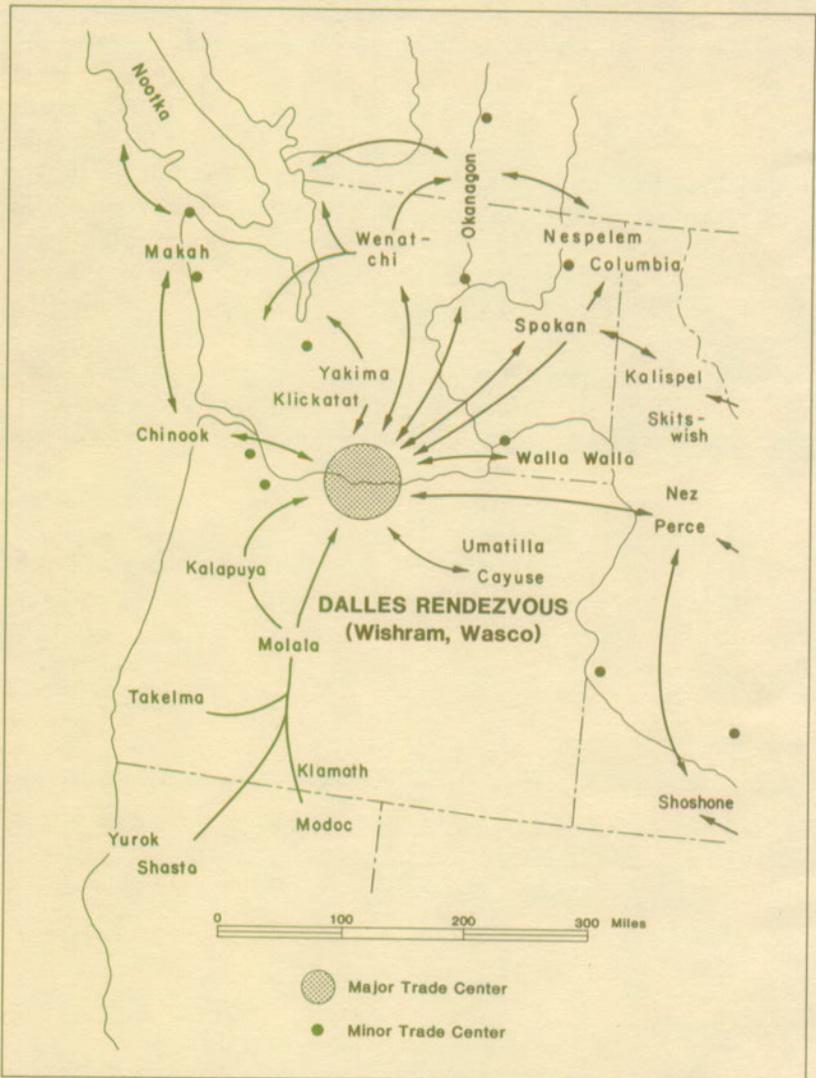


Figure 3.2 Selected aspects of the Plateau trading system centered on The Dalles. (Wood 1972: Figure 1).

Landscape and Natural Resources

The Plateau way of life was intimately linked to the natural environment. This provided the resource base for the human population, and thereby shaped people's daily and yearly cycles of activity. Climatic change, by affecting precipitation and runoff, also altered the shape of the landscape and the flora and fauna that could live in a given place.

The Columbia River generally flows in a deep canyon, incised several hundred feet into the vast lava flows that form the surrounding upland plains. The canyon is broad, over a mile wide in places. Human settlement is now, and was in the past, concentrated on alluvial terraces or benches along its sides. These are the remnants of an ancient floodplain, through which the river has cut to reach its modern level.

South of the big river is the Deschutes-Umatilla Plateau. This is a nearly flat landscape that slopes gradually upward from an elevation of about 300 feet along the Columbia to about 3000 feet along the southern plateau edge 50 miles or so inland. Much of this is natural grassland, now converted to domestic cultivation. The Blue Mountains lie behind the Deschutes-Umatilla Plateau to the south and east. Topographically, this is the most diverse region in Oregon; elevations range from 300 to over 9000 feet, and landforms include rugged mountains, alluvial basins, deep canyons, and dissected plateaus. Most of the area is wooded, but large upland meadows are also common. From east to west the area is drained by the Umatilla, John Day, and Deschutes rivers, all of which flow into the Columbia. On the west the Deschutes River drainage links the Columbia valley to the forested Cascades.

Local climates vary markedly over the Oregon portion of the Columbia Plateau. Along the Columbia River itself, where elevations do not exceed a few hundred feet, summers are hot, winters are cold, and precipitation is very limited the year around. The Deschutes-Umatilla Plateau is also subject to hot summers and cold winters, but the extremes are not as great as along the Columbia; precipitation is higher, though the region remains a dry one. The altitudinally varied Blue Mountains province has correspondingly varied temperature and moisture regimes. Lower elevations are more or less comparable to the Deschutes-Umatilla Plateau, but higher elevations are significantly cooler and moister the year around. During winter, extensive snow packs accumulate in the mountainous highlands. The Klamath country is generally an upland plateau, with warm but not hot summers, and cold, snowy winters.

Time and Environmental Change

The Columbia River and its upper tributaries drain the vast winter snowfields of the Northern Rocky Mountains. During the late glacial age, catastrophic floods of scarcely conceivable magnitude repeatedly boomed down the Columbia. As Lake Missoula in the Montana Rockies periodically rose high enough to breach the dam of glacial ice which contained it, it would suddenly release up to 500 cubic miles of water.

These incredible floods eroded the channelled scablands of northeastern Washington; they backed water up the Snake River for miles above its confluence with the Columbia; and they carried boulders of Rocky Mountain granite, rafted in chunks of glacial ice, almost to Eugene on a huge surge of water that was driven up the Willamette River from the Columbia's main channel at Portland (Baldwin 1976).

These events have been variously called the Spokane Flood, the Missoula Flood, and the Scabland Floods. It is now known that there was not just one event, as some of the popular terms imply, but several. The last such flood is now dated to some time after 13,000 BP (Hammatt 1977). Silt and sand deposits perched 500 feet above the historic level of the Snake River contain cobbles with fresh glacial striations, showing their origin in the glaciated Rockies. Two ¹⁴C dates, one of 14,000 BP and one of 13,000 BP, were obtained from beneath the flood deposits.

These floods have important implications for our understanding of Plateau prehistory. First, if people lived along the Columbia before 13,000 years ago, their archaeological traces surely have been swept away. And catastrophic erosion of the river valley left a raw alluvial topography that would have taken centuries to recover as a productive human habitat.

A geological sequence for the Lower Snake River in Idaho shows that sands and silts began accumulating on the old flood surfaces after about 10,000 BP. A period of geological stability followed, between about 8000 BP and 5000 BP. During this interval, volcanic ash from the 7000 BP eruption of Mount Mazama fell and was preserved in places as part of the geological record. Between 5000 and 4000 BP came another erosional episode, minor in comparison with the late glacial floods, but certainly significant. This was followed by renewed deposition and then another period of relative geological stability that began about 2500 BP and has lasted until the present. Evidence from the Rocky Reach of the Upper Columbia River suggests a similar sequence of alluvial episodes there, during which the base level of the river rose and fell (Mierendorf 1983). Comparable research has not been done along the Oregon stretch of the Columbia, but geological events there surely paralleled those known upstream.

Climatic history in the Plateau during this same period generally paralleled the sequence previously outlined for the Northern Great Basin. Postglacial warming and drying reached a peak between about 7000 and 4000 BP, and a moderate reversal of this trend established a climate roughly like that of the present after about 4000 BP.

Cultural Chronology and Time Markers

Different projectile point types mark sequent periods in Plateau prehistory. The diagnostic types and their dates are closely similar to those reported in the previous chapter for the Northern Great Basin. In some cases the types are identical, and the same names are used. In other cases, regional specialists have given different names to highly similar if not completely identical types; where this has happened, both names are mentioned.

Clovis fluted spear points found near The Dalles (Strong 1969) indicate human presence about 11,500 BP. Subsequent cultural phases, though defined for the Lower Snake River region, are broadly applicable to the Columbia Plateau as a whole (Leonhardy and Rice 1970; Leonhardy 1975). The Windust Phase, 10,000-8,000 BP, is marked by the Windust point type, and by large lanceolate points. The Cascade Phase, 8,000-4,500 BP, is marked by Cascade and Northern Side-notched types. The Tucannon Phase, 4,500-2,500 BP, is marked by triangular points with contracting stems, and triangular points with side notches or corner notches; these correspond roughly to the Pinto and Elko types of the Great Basin sequence. The earlier part of the Harder Phase, 2,500-700 BP, is characterized by Snake River Corner-notched points, large basal-notched points, and small basal-notched points. These correspond respectively to the Elko, Eastgate, and Rose Spring series of the Great Basin sequence. The end of the sequence is represented by the later part of the Harder Phase, 700-100 BP. This period is marked by Columbia Valley Corner-notched and Wallula Rectangular Stemmed types, which are reminiscent of the Rose Spring series of the Great Basin. Representative specimens are illustrated in Figures 3.3-3.6.

As elsewhere, the sequence of point types for the Columbia Plateau reflects the history of projectile weapons in the region. The large Clovis and Windust points were probably used to tip thrusting spears. The somewhat smaller Cascade, Northern Side-notched, and Snake River Corner-notched types were used on small, light javelins or darts that were hurled with the aid of a spear-thrower or atlatl. Very small projectile points, used with the bow and arrow, are latest in the sequence. They first appeared while dart points were still common, then became the dominant form when the atlatl and dart passed out of use.



Figure 3.3 Projectile points of the Early period from the Columbia Plateau region of Oregon. Top row: Windust points; Bottom row: Windust point (left), Cascade Willowleaf (center); lanceolate (right).

The Dalles Roadcut Site

The Roadcut Site records nearly 10,000 years of human occupation in a locality that was, by early historic times, the greatest fishery and trading center in the Northwest. The reach of the Middle Columbia River that



Figure 3.4 Projectile points of the Early Middle period from the Columbia Plateau region of Oregon. Top row: Northern Side-notched; Bottom row: Cascade Willowleaf.

was called The Dalles by early French-Canadian voyagers includes the low, horseshoe-shaped Celilo Falls; a chute of white water below it that Lewis and Clark named the Long Narrows; and the Big Eddy at the downstream end of the chute. The Roadcut Site is at the head of the Long Narrows, about five miles upstream from the modern town of The Dalles, Oregon. The narrows and falls concentrated salmon by the millions, and offered places from which they could be taken in quantity (Figure 3.7).

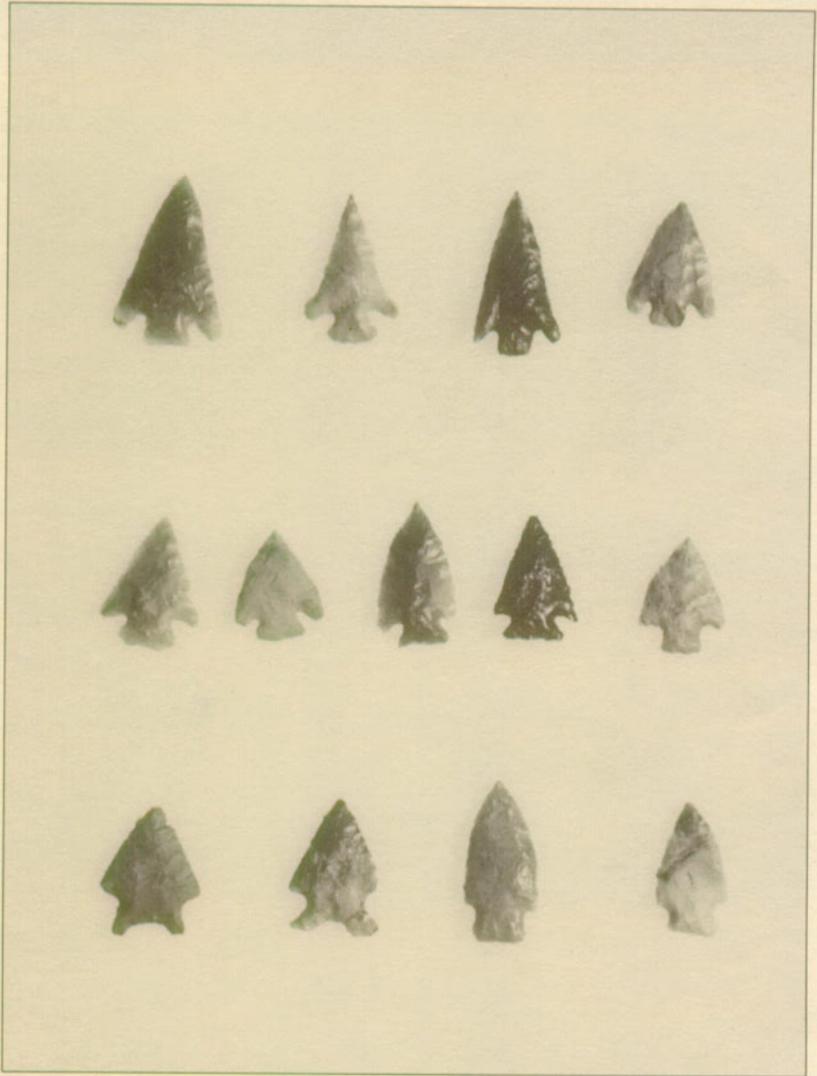


Figure 3.5 Projectile points of the Late Middle Period from the Columbia Plateau region of Oregon. Top row: basal-notched; Middle row: corner-notched; Bottom row: side-notched and stemmed.

Construction of The Dalles Dam during the 1950s fostered archaeological study in the reservoir area (Cressman et al. 1960). Excavations into the side of a cutbank along the edge of U.S. Highway 30 sampled a deep deposit rich in cultural remains. The Initial Early specimens from the base of the deposit included a few large lamellar blades of flaked stone, some flaked stone scrapers, and a few worked bone pieces.

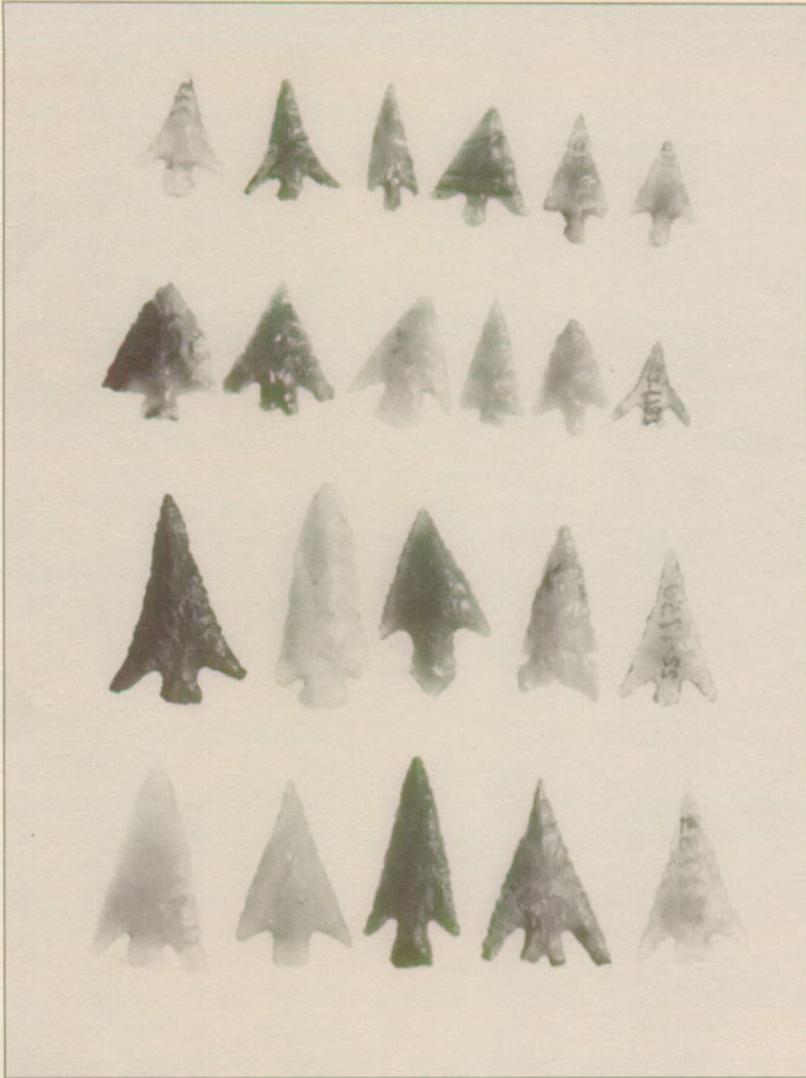


Figure 3.6 Projectile points of the Late period from the Columbia Plateau region of Oregon.

The Full Early period, ^{14}C dated between about 9800 and 7900 BP, is known from a much greater array of evidence. Most important is the great quantity of salmon vertebrae found (Figure 3.8). Some 125,000 individual bones were counted, which represented roughly half the amount observed during excavation. A study critically examining whether these bones actually indicate human fishing, or may have been only a natural accumulation, leaves little doubt that the collection resulted from human



agency (Butler 1990). Bones of rabbit, beaver, otter, muskrat, marmot, and badger were also recovered, as well as remains of fox and raptorial birds. Projectile points included the Windust type and large leaf-shaped forms. Heavy choppers made on large flakes, ovate biface knives, stone graving tools or burins, pebble net sinkers girdled by incised grooves, edge-ground cobbles, and worked bone and antler pieces were also part of the cultural inventory (Figures 3.9, 3.10). The Full Early period at The Dalles corresponds to the Windust Phase, dated between 10,000 and 8,000 BP.

The record of occupation at the Roadcut Site between 7900 and 6100 BP is scanty, perhaps because this time was represented in the stratigraphic sequence by tough, cemented earth which made artifact recovery extremely difficult (D.L. Cole., personal communication). Some choppers and scrapers and a few projectile points were retrieved. In deposits ¹⁴C dated after 6100 BP were projectile points of the Cascade phase, 8000-4500 BP; the Tucannon phase, 4500-2500 BP; and the Harder phase, 2500-100 BP. The specimens collected indicate that human use of the Roadcut Site was more or less continuous throughout the last ten millennia, though the intensity of occupation may have varied over time (Figures 3.11-3.14). The record for the last 2500 years was quite rich, with artistic and craft items added to the inventory of utilitarian specimens. Small stone sculptures, mortars and pestles with carved ornamental designs, carved bone, nicely shaped charm stones, and ornamental beads of bone and stone, together illustrate growing social and ceremonial concerns during the later occupation (Figures 3.15-3.17).

Copper and glass beads, iron knives, hatchets, fish hooks, firearms, and gunflints from the Roadcut Site signalize the Euro-American incursion. (Figures 3.18-3.20). The outside contacts were at first indirect. When Lewis and Clark landed in the October of 1805 at Wakemap Village—just across the river from the Roadcut Site—they saw in use Euro-American goods that had previously entered the region via native trade routes. These items had come from sources farther east and farther west; Euro-American traders had long been established east of the Rockies, while Spanish, English, and American sailing ships had been trading along the Northwest Coast for some time. Foreign objects from these sources traveled inland through native networks before Euro-Americans were ever seen in the interior.



Figure 3.7 The Long Narrows at The Dalles of the Columbia River.

Wildcat Canyon

A cultural sequence of comparable length was discovered at Wildcat Canyon, about 30 miles upstream from the Roadcut Site. The site is on the south bank of the Columbia, several miles above the mouth of the John Day River. It lies on a terrace at the base of high basalt cliffs, overlooking the river. Traces of occupation were found over an area several hundred feet across, and excavations were initiated at several promising spots (Cole 1968; Dumond and Minor 1983).

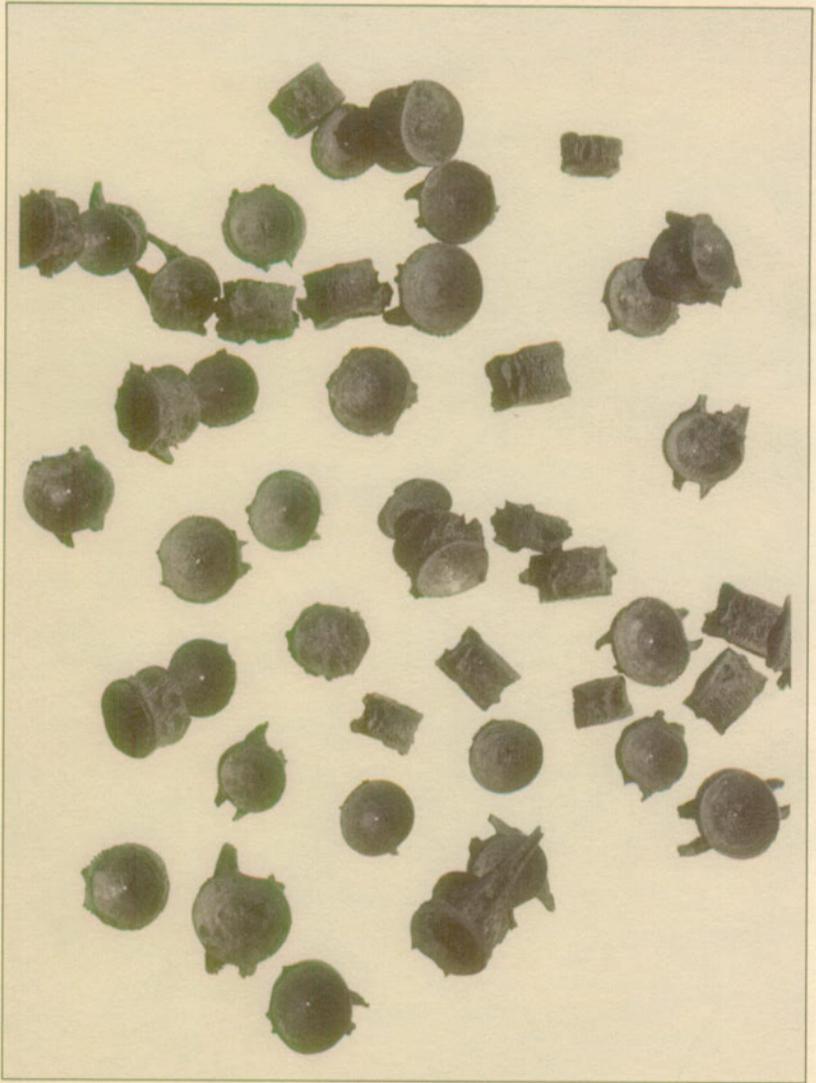


Figure 3.8 Salmon vertebrae from the Roadcut Site at The Dalles.

The earliest cultural remains at Wildcat Canyon are of the Philippi Phase, 9000-7500 BP. This phase is cognate with the Full Early period at The Dalles, and the Windust Phase of the lower Snake. Large lanceolate, leaf-shaped and stemmed points, and large scrapers and knives, indicate hunting. Occasional milling stones and manos indicate the grinding of vegetal foods. A few living surfaces have been discovered, but no structures. The sparse remains suggest that, at this period, Wildcat Canyon saw only occasional brief visits.

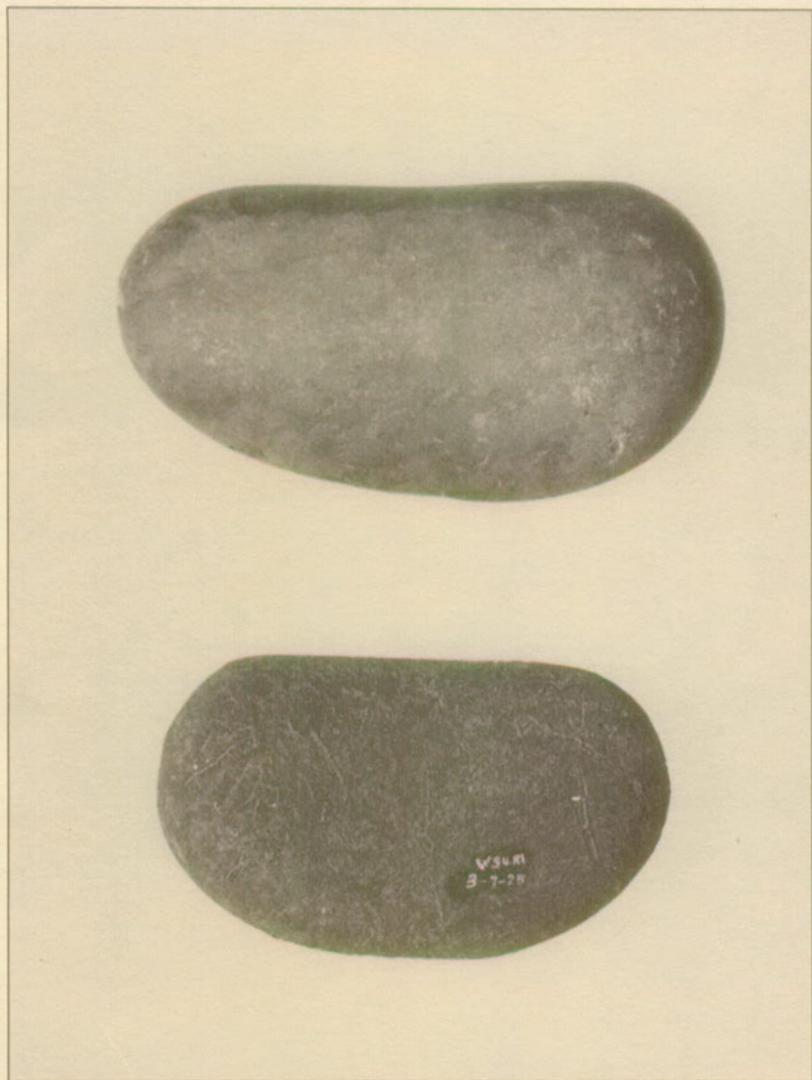


Figure 3.9 Edge-ground cobbles of the Full Early period from The Dalles. Note flattened upper edges.

After an apparent hiatus of about 1000 years, the site was again occupied during the Canyon Phase, 6500-5000 BP. The diagnostic artifacts—most notably Cascade and Northern Side-notched projectile points—demonstrate an equivalency with the Cascade Phase of the Lower Snake River sequence. Eight deep, narrow shafts dug into the site by its users were the most interesting features of this occupation. Upon re-excavation by archaeologists, the shafts filled with water. Perhaps they represent

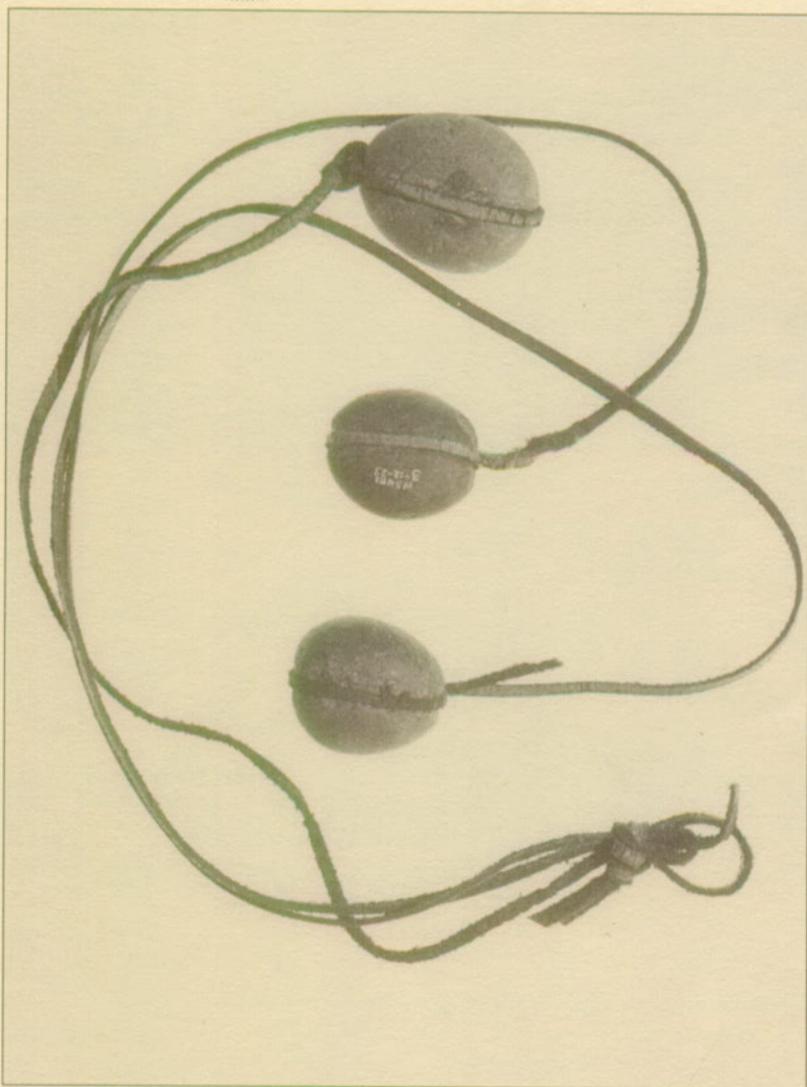


Figure 3.10 Grooved pebbles from The Dalles. Possibly used as bolas weights (as shown), but more probably as net sinkers.

ancient wells, originally dug as the flow of nearby Wildcat Creek diminished with the growing aridity of mid-Holocene times.

After a long period of non-occupation, the heaviest use of the site occurred during the Wildcat Phase. Dated 2500-1000 BP, this is generally cognate with the Harder Phase. Large corner-notched dart points dominated early, with smaller arrowpoints appearing later and ultimately becoming predominant. Clearly it was during this phase that the bow



Figure 3.11 Handled maul and grooved maul head from The Dalles.

and arrow replaced the more ancient atlatl and dart. Other artifacts include mortars and pestles, milling stones, mauls, flaked stone bifaces, knives, scrapers, choppers, drills, gravers, and net sinkers. Bone awls and toggling harpoon heads of both one-piece and composite types were also represented. In short, the specimens comprise a domestic inventory of household tools for a variety of tasks. Some relate to food-getting and preparation, others to the manufacture of leather, wood, and textile items which were not themselves preserved in the moist deposits of the site (Figures 3.21-3.25). Exotic and artistic items included beads of *Dentalium*

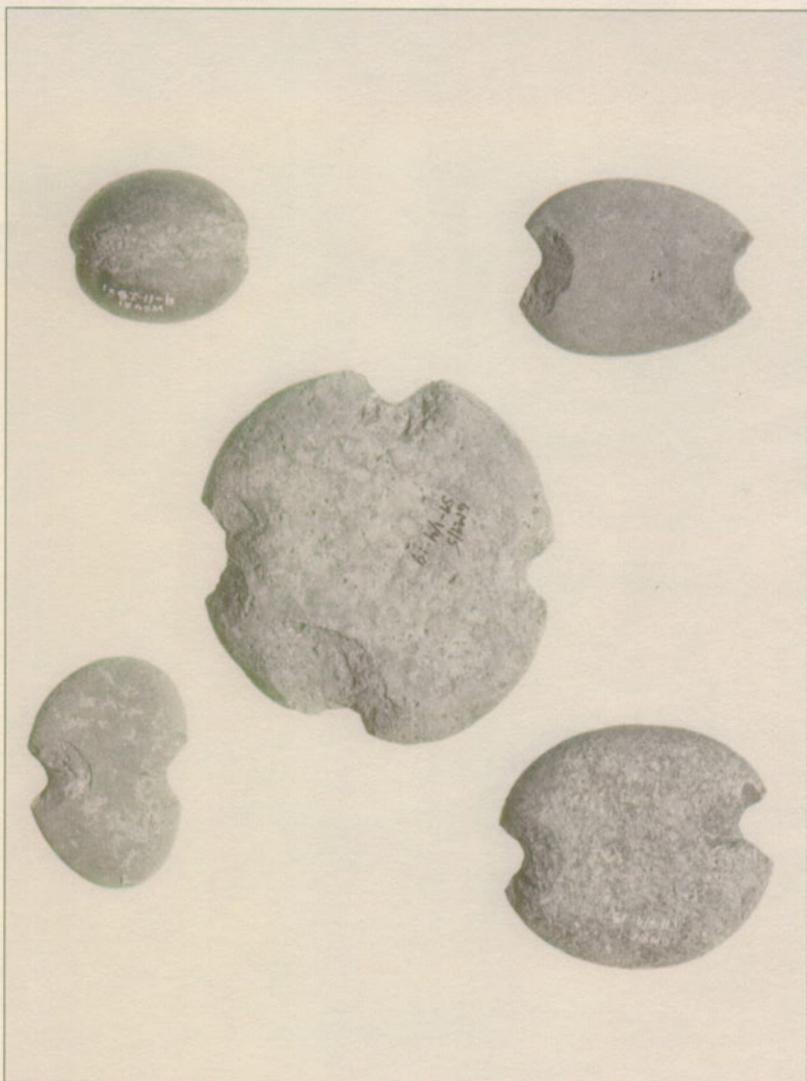


Figure 3.12 Notched and girdled stones from The Dalles and Wildcat Canyon.

shell brought in from the Pacific coast, bone and shell beads and pendants, and ochre or other pigment stones.

People of the Wildcat Phase enjoyed a diverse diet. Fish bones give evidence of chinook salmon, steelhead trout, bridgelip sucker, largescale sucker, mountain sucker, chiselmouth, northern squawfish, and peamouth. This variety suggests that people were exploiting all major habitats of the river by various angling methods. Freshwater mussel was

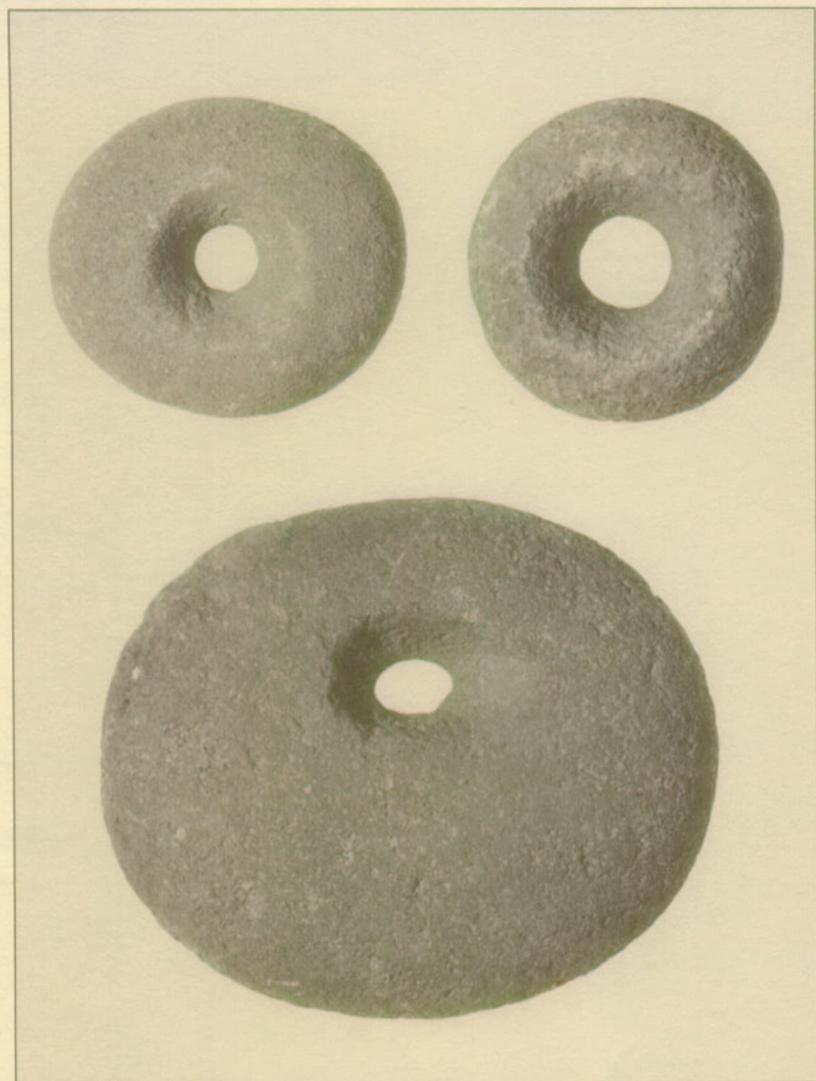


Figure 3.13 Biconically perforated stones from The Dalles.

collected as well. Deer and bighorn sheep were best represented among the larger animals, but elk, goat, and bison were also present. Jackrabbit was predominant among the smaller forms, which also included a miscellany of small rodents and birds. Vegetal remains were not recovered, but the artifact assemblage, as noted above, included a significant number of pestles and hopper mortars, of types which were used in historic times to pound the roots of camas and other plants into meal. The traditional

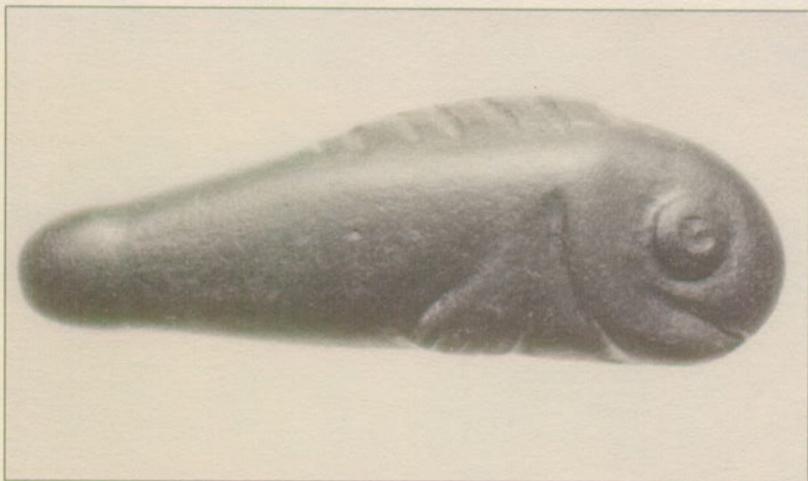


Figure 3.14 Fish effigy of ground stone from The Dalles.



Figure 3.15 Anthropomorphic stone pipe bowl from The Dalles.

Plateau diet of fish, roots, and game was well established by the time of the Wildcat Phase.

Living floors, charred timbers, and other indicators show that people of the Wildcat Phase lived in roughly circular houses. These had floors scooped out of the earth, and timbered superstructures that were probably covered with mats, or with brush and earth. Two housepits had pit walls lined with basalt slabs. Inside, hearths that were either encircled by stones

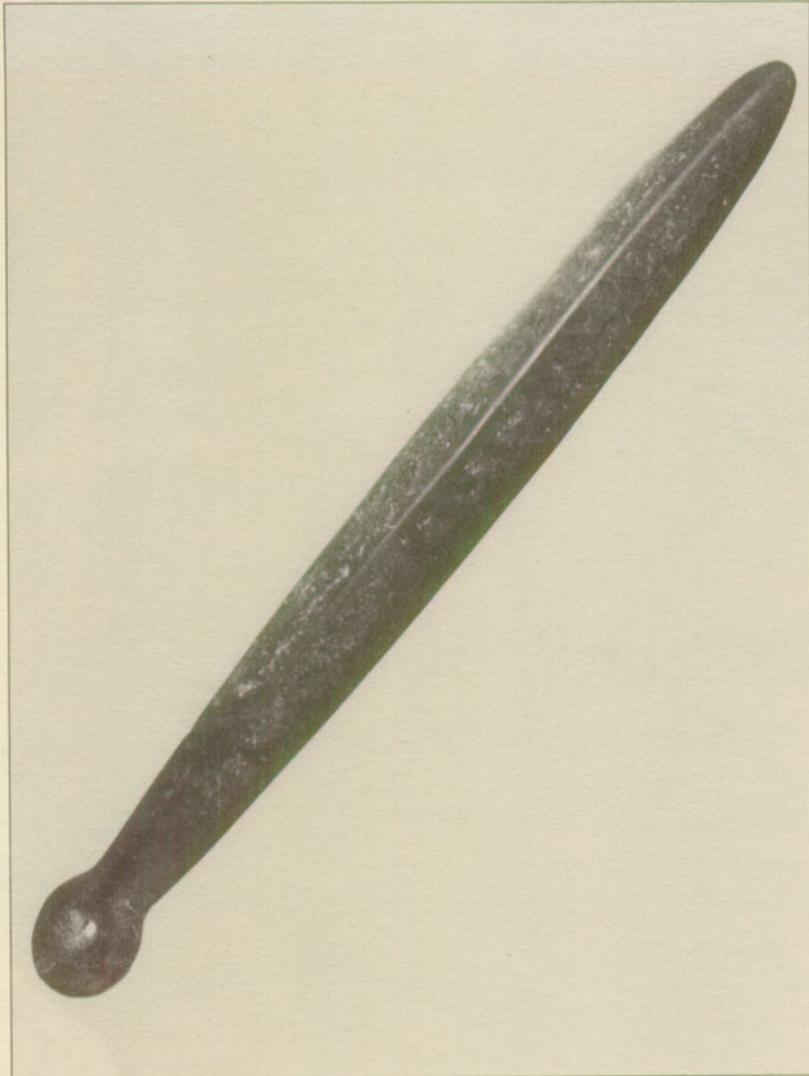


Figure 3.16 Stone club from The Dalles.

or simply laid on the floor provided heat and light. Pits dug into the floors apparently served as footings for posts supporting the house superstructure. A reasonably complete floor outline of one such building suggests that these dwellings were roughly 20 to 25 feet in diameter. The more substantial of these were no doubt semisubterranean earth lodges, or pithouses, of a type which historically served as winter dwellings. Indications of more lightly built lodges, perhaps of tipi-like construction, suggest that summer habitations were also made at the site.

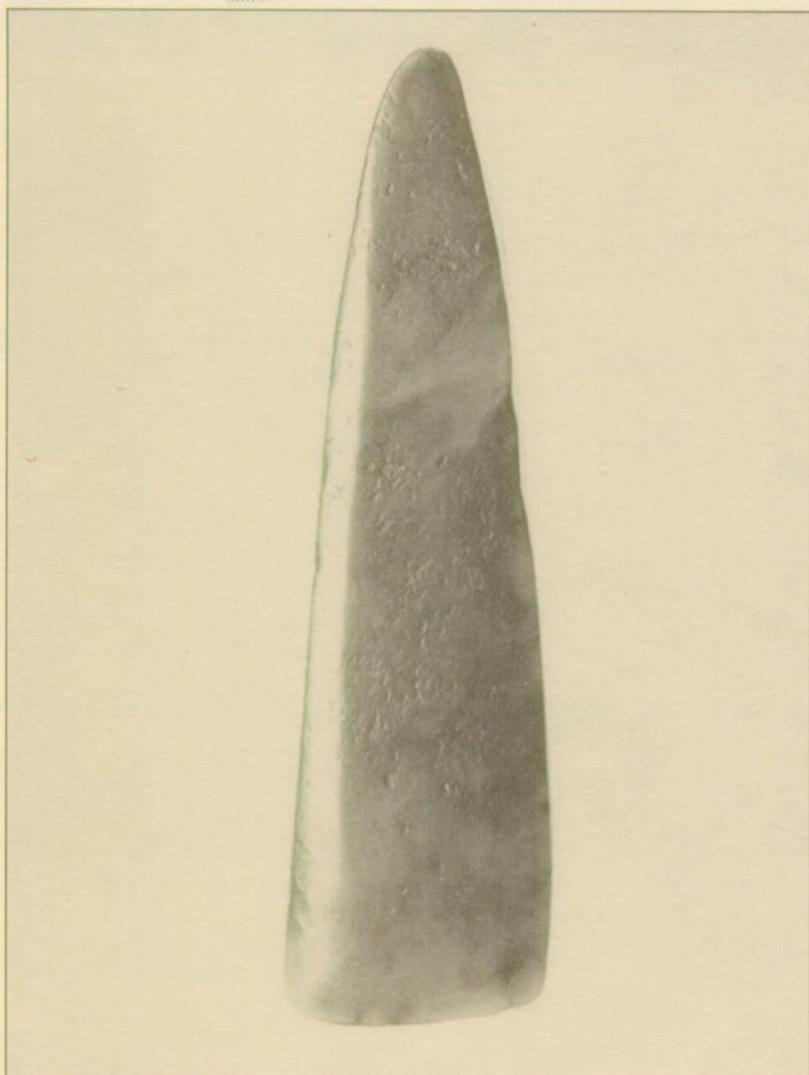


Figure 3.17 Polished jadeite celt from The Dalles.

The remains suggest that year-round village occupation may have been established at the site during the Wildcat Phase, especially if the remains are taken to suggest that people moved out of winter earthlodges into lighter, more airy structures during summer, as was done historically. It is not clear how many households may have comprised the settlement at any one time. But it is evident, from the overlapping of structural remains in excavated portions of the site, that houses were built and rebuilt in

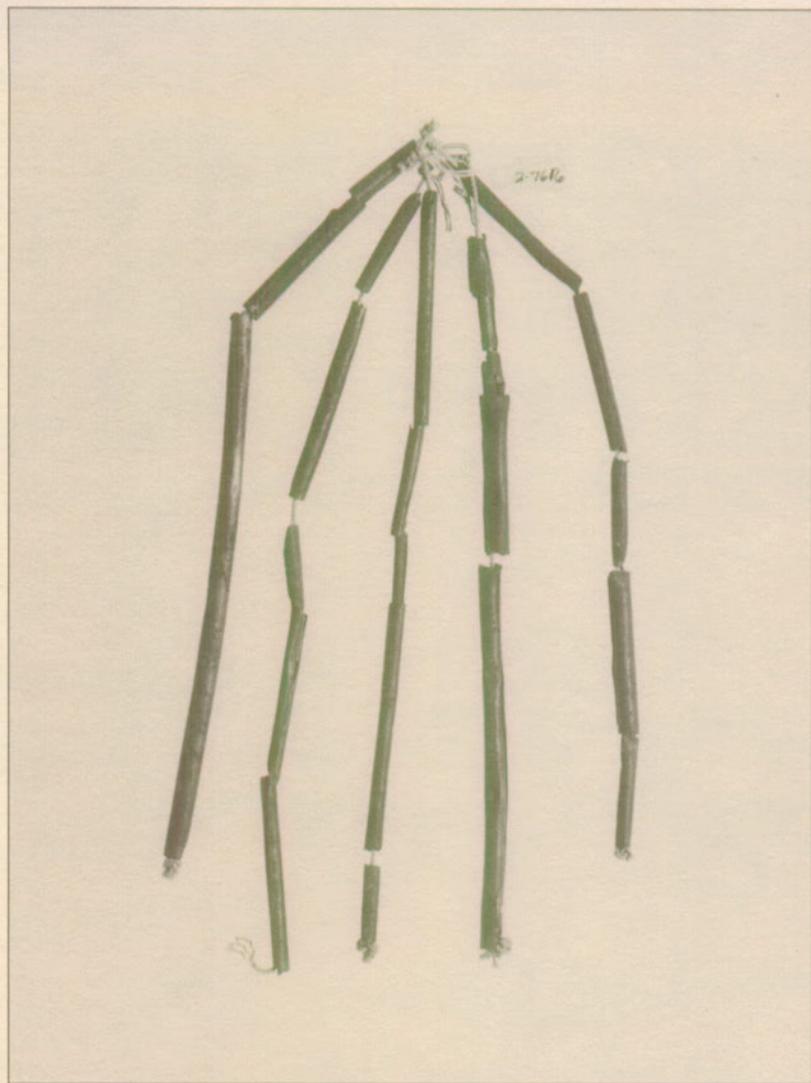


Figure 3.18 Tubular copper beads from the Middle Columbia (historic).

essentially the same places over a considerable period. From a separate cemetery nearby were recorded over 80 human burials, another indication of long-continued occupation.

The Quinton Phase, 1000 BP to historic times, is represented by a shallow, disturbed component which seems to lack semisubterranean winter houses; at this period, the site may have been a summer encampment only. Further, the predominance of a distinctive pin-stem projectile point

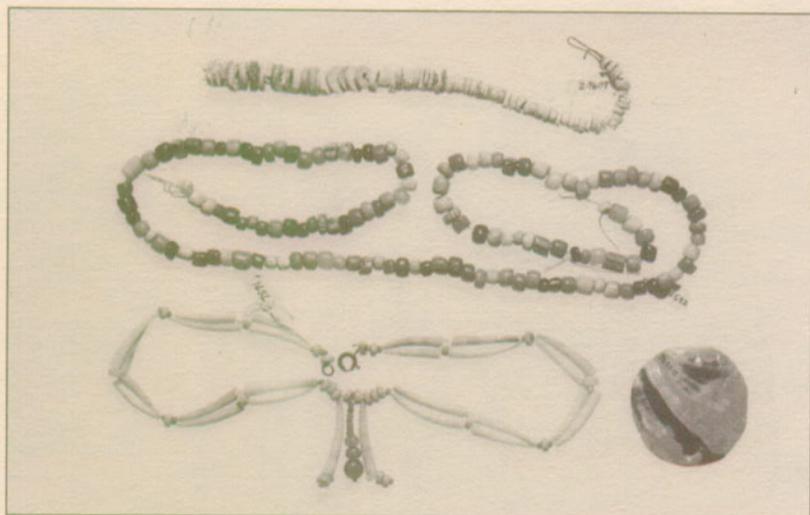


Figure 3.19 Upper, shell disc beads; middle, glass trade beads; lower, aboriginal *Dentalium* and glass trade beads; lower right, abalone pendant.



Figure 3.20 Historic metal artifacts from The Dalles. Left, phoenix buttons; center, Chinese coin; right, military uniform buttons.



Figure 3.21 Large biface knives from Wildcat Canyon.



Figure 3.22 Historic fishing at Celilo Falls represents a culmination of the Plateau fishing pattern (courtesy of Oregon Historical Society, #ORH 165990).

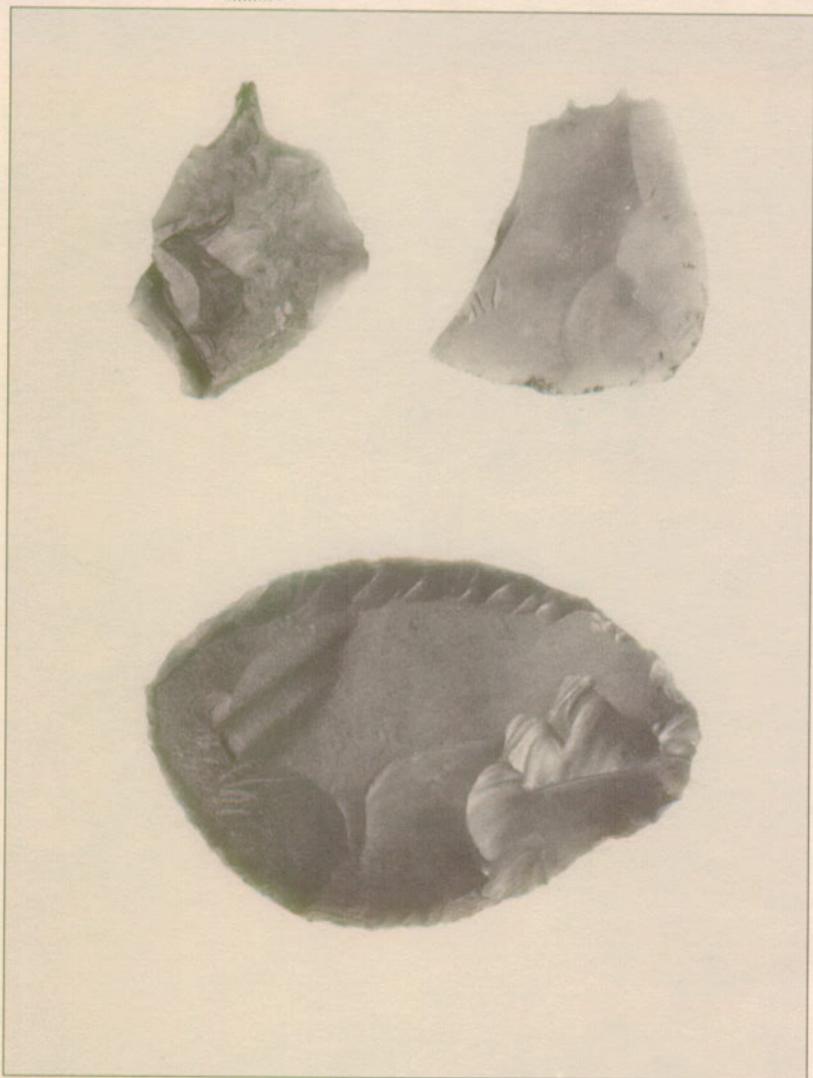


Figure 3.23 Single-bitted graver, double-bitted graver, and scraper of the Philippi Phase from Wildcat Canyon.

type suggests that during this interval the main contacts of the site's occupants seem to have shifted downriver, towards the west, whereas in all earlier periods they had been oriented upriver, to the east and north.

Umatilla Rapids

At Umatilla Rapids, about 60 miles up the Columbia from the mouth of the John Day, was another long-occupied site. A village with "a great

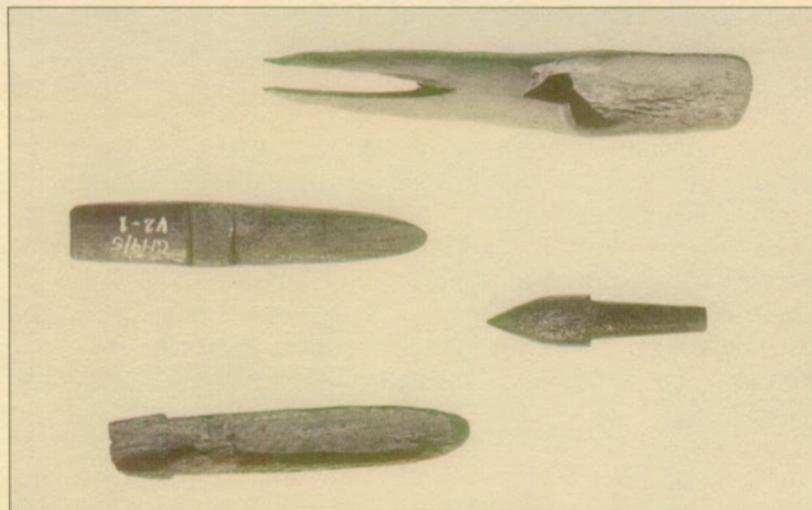


Figure 3.24 Bone harpoon heads of the Harder Phase from Wildcat Canyon. Top, composite harpoon with valves and armature. Bottom, toggling harpoon; in use it would be armed with a stone point.

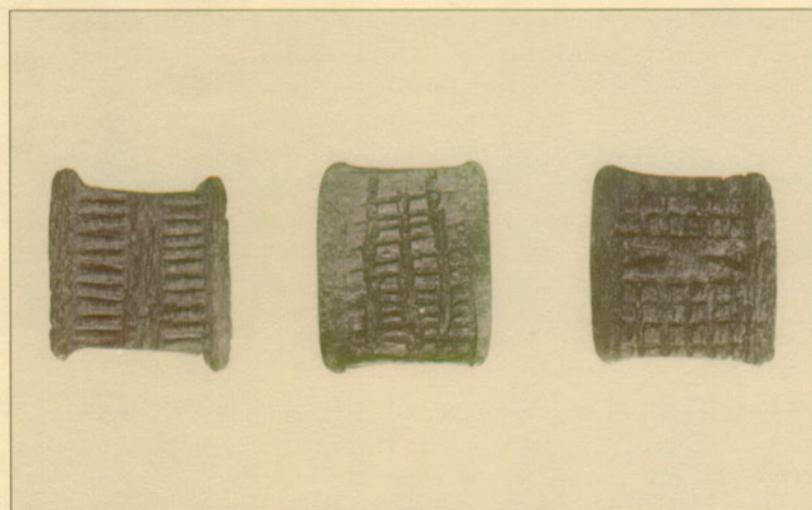


Figure 3.25 Bone gaming pieces from the Middle Columbia Alderdale Site.

number of lodges" was noted on the Washington shore of the Columbia below the two mile-long rapids when Lewis and Clark passed downstream in the fall of 1805. When the expedition returned upriver in the spring of 1806, an even larger aggregation, comprising some 50 lodges and an estimated 700 people, was there awaiting the spring salmon run. A historic village on the Oregon side, where the Umatilla River enters the Columbia, preceded the modern town of Umatilla. The modern town is

the latest in a series of occupations that are traceable deep into prehistoric times (Schalk 1980).

Archaeological remains occur on both sides of the Umatilla River mouth, extending along the shore of the Columbia for over a mile, and inland for about a quarter-mile. Deposits containing artifacts, bones, and other occupational remains, sometimes in dense concentrations, reach depths of 5 to 10 feet in places. The earliest of these remains were found beneath a layer of volcanic ash from Mount Mazama, establishing human presence there before 7000 BP. But ^{14}C dates place the major occupation between 3600 and 200 BP. Most of these dates come from a deposit in which many house floors were identified, showing that a stable village was established there.

The remains of over 30 houses—surely a fraction of the total contained in the site—have been identified. The earliest structures were predominantly circular, with deeply excavated floors and raised benches encircling the base of the housepit wall. Firehearths were present, and interior storage pits were common. Houses found stratigraphically above units of this type were also circular, but had floors only shallowly excavated into the earth, and lacked benches and storage pits. A small rectangular structure from nearby 35UM35, ^{14}C -dated at 2420 BP, shows that this historically-known Plateau style house was also quite early in the area. In addition to these house finds were numerous firehearths and storage pits. These could not be positively related to well-defined house structures, but nevertheless contribute to an impression of intensive occupation over a long period of time. More deeply buried deposits, which have not been dated, contain artifacts but apparently no dwelling structures. This suggests that perhaps the earliest use of the locality was ephemeral, less sedentary than later occupations became.

A cemetery area, from which over 230 burials were identified by the Mid-Columbia Archaeological Society and the University of Idaho, occurred not far from the mouth of the Umatilla River. Projectile point types associated with the burials suggest that this cemetery dates between about 2500 and 250 BP, making it essentially the same age as the dwelling remains, and giving additional evidence of the relatively permanent, sedentary character of the occupation.

The technology of the Umatilla Site inhabitants cannot yet be described in detail. Excavations by the Mid-Columbia Archaeological Society are said to have recovered some 36,000 prehistoric items, and other research has produced additional specimens. Detailed accounts of this wealth of

material will be of great interest when they appear. At present it can only be said that the specimens generally resemble those from the later levels of the Roadcut and Wildcat Canyon sites, giving evidence of various hunting, gathering, food processing, and manufacturing tasks, and indicating a significant level of aesthetic and ceremonial activity.

Animal bones from the Umatilla Site show that people drew their food from both the river and its hinterlands. Salmon vertebrae attest the fishery at Umatilla Rapids. Jackrabbit and cottontail could have been taken in the near vicinity as well. The bones of deer, elk, bighorn sheep, and antelope indicate hunting in the uplands behind the site. This evidence is illuminated by ethnographic accounts telling that the Umatilla, as well as their Nez Perce and Cayuse neighbors, regularly hunted south into the Blue Mountains, where elk, antelope, and deer were abundant (Ray 1936:150).

Deschutes and John Day Rivers

In addition to the villages along the big river, many important sites are known from the Columbia's major tributaries. The Deschutes River enters the Columbia immediately above Celilo Falls, and the John Day comes in only 15 miles farther up. Ascension of the John Day River leads first south across the Deschutes-Umatilla Plateau, then far to the east into the rugged Blue Mountains. Ascension of the Deschutes River leads directly south along the flanks of the Cascade Range, into upper head waters in Crescent and Odell lakes, less than 40 miles from Klamath Marsh. Prehistoric sites with housepit depressions and other evidence of stable occupation occur at a number of places along the lower reaches of both rivers, suggesting a pattern of life generally comparable to that on the Columbia. The upper reaches of both rivers were high-elevation hinterlands where small and scattered sites are the rule, probably the hunting and gathering camps of small groups ranging out from village centers.

John Day Narrows

The Narrows of the John Day River, only several miles up this main tributary from the Columbia confluence, was a prime fishing locality before water backed up by the John Day Dam drowned the rapids there. Archaeological studies have identified a series of sites along both sides of the river that are believed to have served as spring/summer residential bases, field camps, and activity locations. The Wildcat Canyon site, not far downstream, probably was one of the winter villages relating to this

complex. Projectile points found are of types that span a long period, but the bulk of the occupation is assignable to the time of the Wildcat Phase and later, that is after 2500 BP (Wilde et al. 1983).

Excavations at the Morris Site, on a terrace just below the Narrows, yielded no firm evidence of house structures, but hearths and living floors were detected. The economic purposes of the site—probably typical of others in the vicinity as well—were revealed by much fish bone, many pestles and fragments of grinding stones, traces of edible roots, and a fragment of charred cake probably made of biscuitroot. A ^{14}C date of 4935 BP was obtained for the earlier occupation of the site, and a date of 3100 BP was obtained on the rootcake just mentioned. Other evidence suggests occupation until some time after 2000 BP (Schalk 1987).

Lower John Day Canyon

A cultural resource inventory survey of a 160 mile stretch of the lower John Day River canyon above the Narrows recorded 76 prehistoric sites (Polk 1976). Non-residential locations included rock art panels, rock alignments, and a number of small pits and cairns found in talus slopes. It was speculated that these talus pits and cairns represent burials, though it is not clear why the pits would be found open if they were burial spots. Habitation sites included 47 at which housepit depressions were noted, as well as some rockshelters and open sites. Among the major habitation sites were observed 230 depressions thought to represent pithouses. The number of probable dwellings identified varied from 1 to 17 per site, most locations having between three and six. These sites await further study, but the surface evidence clearly indicates a pattern like that along the Columbia, with stable pithouse villages and a variety of associated subsidiary activity sites.

Pine Creek

Sampling surveys along Pine Creek, which flows into the John Day some 80 miles above its confluence with the Columbia, have recorded 68 sites and a number of isolated finds. Housepit sites were again common. Also found were various activity loci of other kinds, including rockshelters, lithic flake scatters, isolated finds of projectile points and grinding stones, talus pits, cairns, pictographs, and toolstone quarries. Pithouse structures excavated but not yet fully reported have given evidence of living floors and firehearths, and ^{14}C dates between 2500 and 300 BP. A few projectile points of early type show human presence more than 7500 years ago, but

the bulk of the evidence apparently dates to middle and late prehistoric times (Atherton and Houck 1976; Endzweig 1991).

Indian Canyon 2, on a small tributary to Pine Creek, was a special plant processing site. Excavations in a culture-bearing deposit about three feet deep collected specimens and fragments of some 110 flat stones with battered circular facets that were probably hopper mortar bases, and over 50 pestles and manos. In the deepest levels of the excavation, where a ^{14}C date of 1460 BP was obtained, clusters of such milling stones were the dominant feature. Higher up, in addition to more milling stones, were many clusters of blackened and fire-cracked rocks and charcoal. These are believed to represent earth ovens. They lay for the most part above the level from which a ^{14}C date of 1020 BP was obtained, and continued to the top of the deposit, where a ^{14}C date of 335 BP and the finding of a glass trade bead indicate late prehistoric and historic period occupation. Plant food remains were not recovered from the excavations, but the processing of root crops is indicated by the hopper mortar bases and earth ovens which dominate the site (Mazany 1980).

Pine Creek, with its pithouse sites and various associated activity loci, enters the John Day just at the southern edge of the Deschutes-Umatilla Plateau. As noted, few sites have been excavated and reported in detail along the lower John Day. Nevertheless, such data as are available show that a pattern of riverine life, centered on pithouse residential sites, extended upstream from the Columbia about as far as Pine Creek. Beyond this point, however, as the John Day crosses from the Deschutes-Umatilla Plateau into the Blue Mountains, pithouse settlements dwindle abruptly. It appears that in prehistoric times as now, the higher mountains were a hinterland, exploited in brief forays by people whose main settlements were elsewhere.

Mitchell Cave

One such hinterland site is Mitchell Cave, a small rockshelter on a minor tributary of the John Day a few miles above Pine Creek. It lies at about 4000 feet elevation on the northern flank of the Ochoco Mountains, in the transition zone between juniper woodland and ponderosa pine forest. The main intervals of human use are indicated by ^{14}C dates of 1430, 1020, 280, and 140 BP. The principal artifacts were small arrowpoints, point fragments, and point preforms, along with flakes and informal tools. Some larger, broad-necked points were also recovered. The dominant activity was clearly hunting and the processing of meat and hides, though a mano, a metate, and a pestle suggest some vegetable food processing as

well. Faunal remains were varied. A number of small creatures including mice, voles, pocket gophers and squirrels were probably brought in by coyotes or other predators, but the bones of artiodactyls such as mule deer and elk surely represent the quarry of human hunters.

Of particular interest in suggesting the diverse areas from which people came to Mitchell Cave is a geochemical analysis of obsidian artifacts that identified raw materials from possibly 20 different geologic sources. The locations of most of these sources remain to be discovered through future research, but several artifacts were identified with known obsidian flows 50 to 80 or more miles away. Two pieces of obsidian came from Whitewater Spring to the northeast, in the headwaters of the Silvies River. Two came from Glass Mountain, and one from Glass Buttes, both sources to the south. Finally there was one specimen each from two different sources in the Cascades, to the west and south. Although the known obsidian flows all lie south of Mitchell Cave, it would be premature to conclude that the site's users came principally from that direction, given the many unknown sources and the relative lack of obsidian research in the region generally. Further, many small pin stem arrowpoints from the site suggest contacts to the north, where such points are common. Further research is clearly needed; for the present, the important and supportable conclusion is that Mitchell Cave attracted visitors from many different and quite distant places (Connolly, Jenkins, and Benjamin 1993).

Hall Creek

Farther up the John Day drainage, many small sites have been recorded in the higher elevations of the Silvies Plateau, which lies along the ragged divide between Plateau and Great Basin watersheds. These are sparse lithic scatters that attest only occasional, ephemeral occupation (Reid et al. 1989). The Hall Creek Site provides a good example. It is a thin, patchy scatter of flaked stone artifacts that extends broadly along the flanks of the stream for well over a half-mile. Test excavations showed the deposit to be generally shallow, but in one locality a cut well over a meter in depth exposed a stratum of volcanic ash deposited by the 7000 BP eruption of Mount Mazama, and flaked stone artifacts beneath it.

Stone tools found from bottom to top of the excavation at Hall Creek suggest recurring human occupation from the pre-Mazama period up to historic times. Dart points and arrowpoints from the site are of types that span the same time range. A detailed analysis of the obsidian cobbles, cores, flakes, bifacial blanks, and broken projectile points found at Hall

Creek showed that the site was primarily a quarry/workshop. Stone from the local stream gravels was used to refurbish hunting gear, the hunters replacing their broken or exhausted points with new ones made on the spot (Reid et al. 1989:146). There was little to indicate any other kind of activity at the site, except for the finding of a single mortar and pestle.

Other sites in the vicinity of Hall Creek that were test-excavated or studied from surface remains did not differ greatly in character. Owen's Spring yielded another quarry/workshop assemblage, and a Pinto point suggesting occupation as early as 5000 years ago. A locality near Craddock Meadow yielded a similar array of specimens, made from locally available obsidian cobbles and pebbles. Projectile points collected on the surface were of Great Basin Stemmed, Pinto/Gatecliff, and Rose Spring/Eastgate types, which taken together represent most of postglacial time.

Pilcher Creek

Beyond the easternmost reach of the John Day watershed, on the edge of the Grand Ronde valley, Pilcher Creek gives evidence of very early upland occupation. Excavations there revealed an ancient soil containing large stemmed and shouldered Windust points and large leaf-shaped points assignable to the Windust Phase. One of the shouldered points was found with volcanic ash identified as coming from the eruption of Glacier Peak (in the Washington Cascades) 11,200 years ago. A diverse assemblage of bifacial knives, scrapers, drills, cores, flakes, hammerstones, edge-ground cobbles, and soapstone pendants also belonged to this lower component. An upper component contained most of the same kinds of tools, but large stemmed points were rare; Cascade points were dominant, and a few corner-notched points were present. These artifacts, and bones of deer- and elk-sized animals, were found in earth that contained mixed volcanic ash from the Mount Mazama eruption of about 7000 BP (Brauner et al. 1985).

Stockhoff and Marshmeadow

Another important site is the Stockhoff Quarry, in the Grand Ronde valley near modern LaGrande. Here fine-grained basalt suitable for tool-making is abundant. In addition to great quantities of stone-flaking debris, the site has yielded specimens broken at various stages of manufacture, from cores and initial rough-outs to nearly finished artifacts. The quarry saw its greatest use between about 8000 and 4000

years ago, as shown by the finding of specimens there beneath volcanic ash from the Mount Mazama eruption, by ^{14}C dates of 7660 BP and 5750 BP, and by large lanceolate and side-notched projectile points. Other traces indicate continuing activity since then.

The adjacent Marshmeadow Site has ^{14}C dates of 10,700 BP, 6100 BP, 3410 BP, 2260 BP, 690 BP, and 480 BP, along with artifacts of types that together span all of Holocene time. The meadow near the site currently supports camas lilies in abundance. The artifacts from the site give evidence of tool manufacturing and the repair and discard of damaged hunting tools. Milling stones and pestles indicate vegetal food processing. Fire-cracked rock and charred bulbs dated after about 3400 BP indicate camas processing, and the bones of mountain sheep, pronghorn, and bison directly document hunting during this time (Womack 1977; McPherson et al. 1981).

Lower Deschutes River

Back on the lower reaches of the Deschutes River, the archaeological evidence is quite similar to that from the lower John Day. An inventory survey of the 100 miles or so of riverbank between Warm Springs Bridge and the Columbia located 135 prehistoric sites. Among them were rock art panels, rock piles, and excavated pits in talus slopes (Hibbs et al. 1976). The investigators suggest that the talus pits may have been hunting blinds, since they tended to be near the junctures of major game trails. Midden concentrations made up of freshwater mussel shell were found at a number of locations. Lithic quarry and workshop sites, rockshelters, open surface scatters of artifacts, and village sites with well-marked housepit depressions were also found. Two villages showed some 30 housepit depressions each; 25 other sites contained from one to six definite depressions, and 10 more sites were identified as probable pithouse villages. The best-known among all these sites is that at Mack Canyon.

Mack Canyon

About 20 miles above the Deschutes' confluence with the Columbia is the Mack Canyon Site, where 29 housepit depressions have been mapped along an alluvial terrace overlooking the stream (Cole 1967, 1969). Excavations in three of these depressions suggest the nature and age of occupation there. House pits 1 and 3, most extensively dug, represented shallow circular pithouses essentially identical to those known along the Columbia. The housepit floors measured roughly 20 feet and 15 feet in

diameter respectively, and were made with a more deeply excavated central area, encircled by a less deeply excavated bench. In the depressed central area were found the remains of fires, and such domestic tools as hopper mortars, pestles, milling stones, pounding stones, flaked stone cutting and scraping tools, and projectile points. Some artifacts were also found scattered on the upper benches. No doubt these concentrations reflect use of the central portion of the floor as the main domestic activity area, while the raised bench around it probably served for sleeping and storage.

Over 1000 pieces of bone were excavated at Mack Canyon. Most were so broken up that the species represented could not be determined, but the identifiable specimens were of deer, elk, bighorn sheep, jackrabbit, cottontail, beaver, coyote, and bobcat. Rare fish bones and fragments of freshwater mussel shell also indicated the taking of aquatic fauna.

The artifact inventory from Mack Canyon was quite large and varied. Projectile points belonged to the Snake River Corner-notched, Columbia Valley Corner-notched, and Wallula Rectangular Stemmed types defined for the late Harder Phase of the southern Plateau region. Correspondingly, they closely resemble those of the Wildcat Phase from the mouth of the John Day. Other flaked stone specimens were scrapers, knives, drills, and graters. Food-grinding implements included hopper mortars, pestles, and milling slabs. Bone awls, bone beads, and a fragment of a composite harpoon were also recovered. A ^{14}C determination of 1900 BP on charcoal from the floor of House Pit 1, and a date of 700 BP from the floor of House Pit 3, are congruent with the Harder Phase age indicated by the projectile point types.

Sherar's Bridge

Upstream from Mack Canyon is Sherar's Bridge, which crosses a stretch of the Deschutes River where the stream rapidly descends a long, rocky chute that evokes in miniature The Dalles of the Columbia. This is currently an important summer fishing area for native people, where platforms are erected along the edges of the channel just as they were at The Dalles before the dam was built there. Several archaeological sites are known in the vicinity of Sherar's Bridge, manifested by surface scatters of lithic flakes, cores, choppers, and the shell of river mussels. In the absence of detailed archaeological study, the antiquity and character of these sites is uncertain; they surely contain, however, valuable records that carry the contemporary use of this important fishing station back into prehistoric times.

Round Butte

Farther up the Deschutes, occupation beginning in quite early times is documented at rockshelter sites near Round Butte. A ^{14}C date of 7990 BP was obtained from beneath a layer of volcanic ash in Three Sheep Shelter, where leaf-shaped projectile points and other flaked stone artifacts were recovered. Another rockshelter (35JE1) produced a ^{14}C date of 2675 BP in association with flakes and projectile point fragments. A third (35JE2) yielded a ^{14}C date of 2650 BP in association with lithic cores and flakes, a hand grinding stone, and bone tools including a needle, some awls, and six fish hooks. From overlying levels came dart points, small arrow points, and an arrowshaft, among other specimens. Hopper mortar bases and pestles, fresh-water mussel shell, and fish bones are also reported from these and other sites in the vicinity. The finds are sufficient to establish long human use of the riverine setting, but much research is still needed to give a fuller picture of cultural patterns there (Ross 1963).

Lava Island Rockshelter

Near the modern city of Bend, Lava Island Rockshelter yielded a cache of projectile points made of obsidian that trace element analysis shows to have come from nearby Newberry Crater (Minor and Toepel 1984, 1989). Lanceolate points were most common, but small notched dart and arrow points were also recovered. Much flaking debris in the site indicates that tool-making was a major activity of its occupants. Deer bone, a fish bone, and river mussel shell also give evidence of hunting, fishing, and gathering. Charcoal from Lava Island Rockshelter gave ^{14}C dates of 2150 BP, 1420 BP, and 140 BP. The excavators suggest, however, based on the typology of the lanceolate points, that the site may have been occupied as early as 7000 to 10,500 BP. Others, however, contend that very thin obsidian hydration rinds on points from the cache indicate a relatively limited age. They suggest that the lanceolate specimens are not projectile points of early type, but rather generic tool blanks manufactured for trade in much more recent times. These same authors note the discovery in the general area of other, similar caches, which they interpret in the same way (Scott, Davis, and Flenniken 1986). However the dating question is resolved, Lava Island Rockshelter is significant as an example of a stone tool manufactory, based on the abundant Newberry Crater obsidian obtainable a few miles to the south.

Another rockshelter site on the Deschutes River near Bend is Peninsula 1, where a bone fish hook, a harpoon fragment, and mussel shell traces indicate use of riverine resources. The site was used over a long period,

as indicated by ^{14}C dates of 4080 BP and 2980 BP, and by dart and arrow points of types made between about 4500 BP and late prehistoric times (Stuemke 1989).

Lava Butte

Also near Bend is Lava Butte, an open site that produced an abundance of flaked stone projectile points and other hunting tools, as well as many metates, hopper mortar bases, and pestles (Ice 1962). Occupation apparently began after the eruption of nearby Lava Butte about 6200 BP; dart points of generally Elko type, and arrowpoints of Rosegate and Desert Side-notched types, suggest that the site was visited thereafter down to late prehistoric times. A relative abundance of projectile points indicates hunting, and it is notable that contemporary deer herds moving between a summer range in the Paulina Mountains and a winter range in the Fort Rock Valley are drawn to the site area by a break nearby in the extensive lava flows that otherwise obstruct their passage between the two ranges. The large number of milling stones indicates that plant food processing was also important in the Lava Butte vicinity (Davis and Scott n.d.).

Wickiup Dam and Odell Lake

In the uppermost reaches of the Deschutes River drainage are the Wickiup Dam and Odell Lake sites, where large leaf-shaped and shouldered points, corner-notched points, and other flaked stone specimens were discovered under volcanic ash deposited by the 7000 BP eruption of Mount Mazama. The specimens from these sites are few, but they nevertheless document clearly the presence of people in the Cascades lake country in early Holocene times (Cressman 1948). In historic times this zone was the homeland of the Molala, whose range extended to the north, and the Klamath, who occupied the country to the south (Spier 1930; Stern 1966). In one influential interpretation, Klamath culture is traced back to pre-Mazama times, as an early adaptation to upland lakes, marshes, and rivers that has persisted for thousands of years (Cressman 1956).

Kawumkan Springs

Excavations at Kawumkan Springs Midden, on the Sprague River in the heart of Klamath territory, show that a hunting/ fishing/ gathering lifeway like that of the historic Klamath people is ancient there. Projectile

points like those found beneath Mazama pumice at Odell Lake suggest that accumulation of the midden might have begun more than 7000 years ago. No Mazama pumice was detected, however, in the excavations at Kawumkan Springs (Cressman 1956). More conservatively, obsidian hydration measurements on projectile points from the site suggest an initial occupation about 5000 BP, and occupation thereafter down to late prehistoric times (Aikens and Minor 1978). Recent Klamath occupation at Kawumkan Springs is also documented. The Lalos, a native family, built a house of Euro-American type at the site in 1915, and people continue to live there today.

The site is named for a large spring, and numerous smaller ones, that well up in an open flat adjacent to the Sprague River. The springs feed a considerable pool that drains a very short distance into the river. The waters, said to maintain a constant 52° temperature year around, have never been known to freeze over. The warm spring discharge also keeps the river open at that point, even in hard winters. This suggests that Kawumkan Springs was a good wintering location, and the fact that 21 apparent housepits were visible as depressions in the midden's surface indicates that it was once a village of considerable importance.

Excavations in five of these housepits showed them all to be roughly circular, one to two feet in depth. The largest measured nearly 30 feet across, the smallest about 8 feet across, and intermediate examples were about 20 feet across. Two had well-defined benches around part or all of the interior circumference. All contained small notched and stemmed arrowpoints that probably date to the last 1000 to 1500 years, while four contained a few metal artifacts that were apparently intrusive refuse from modern occupation of the site. The ages of the unexcavated structures are not known.

Fish bones were present throughout the 4 to 5 feet of midden deposit at Kawumkan Springs, and more abundant in upper levels. The bones of birds and large mammals, and shells of river mussels, also occurred consistently. No plant remains were preserved, but many milling stones, mortars, and pestles give evidence for the processing of seeds and roots. Technology remained essentially stable throughout the life of the site. Of 15 kinds of artifacts used in hunting, hide working, fishing, and root or seed grinding, 12 were represented from the bottom to the top of the archaeological deposit. Manifestly, the way of life practiced at Kawumkan Springs changed little over millennia, in terms of either dietary economy or basic technology. Effectively the same patterns have been described for the ethnographic period of traditional Klamath culture (Cressman 1956).

Bezuksewas Village and Williamson River Bridge

Bezuksewas Village is an ethnographically described Klamath settlement situated just below the confluence of the Sprague and Williamson rivers, a few miles west of Kawumkan Springs. It is shown by archaeological excavations to have been occupied throughout much of the last 2000 years. The Williamson River Bridge Site, about three miles downstream from Bezuksewas, was a major fishing station occupied during the same period. From mid-March through mid-June, several species of suckers from Klamath Lake migrate one after another to spawning grounds up the Williamson and Sprague rivers, passing these sites in the thousands. In ethnohistoric times, a dam was made in the river opposite Bezuksewas to catch the fish of the spring migration. In the vicinity of Williamson River Bridge, a shallow rapids about a quarter-mile long affords excellent fishing opportunities (Cheatham 1991).

Excavations at Bezuksewas Village recovered a rich and diverse archaeological assemblage. It included projectile points and various tools of flaked stone; mortars, pestles, grinding slabs, and net weights of ground stone; and fish hooks, awls, and beads of bone. Concentrations of stone, bones, and tools indicate domestic activities, and fish, shellfish, bird, and mammal remains demonstrate a diversified subsistence base. A dozen ^{14}C dates span a range from 1960 BP to 200 BP. Many historic Euro-American items of the late 19th century were also found—including a U.S. ten-cent piece dated 1892—bringing the occupation up to very recent times. No housepits were excavated, but probable housepit depressions were observed in the vicinity.

At the Williamson River Bridge Site, digging exposed a considerable midden deposit of freshwater mussel shell, a fire hearth, and several concentrations of fire-cracked rock. One of these latter was ^{14}C dated to 1810 BP, the shell midden to 1600 BP, and another fire-cracked rock feature to 70 BP. Other dates, as well as historic artifacts, suggest two major periods of occupation—one between about 1800 and 1000 BP, the other about 100 years ago. Three wooden posts or stakes found near a large hearth may represent racks for drying fish. Artifacts included small arrow points, larger dart points, bifaces, scrapers, ground stone net weights, large bone points probably used to tip fish spears, and small bone points like those used by ethnographic Klamath to make composite fish hooks.

Of nearly 14,000 excavated bones identified to taxonomic class from the Williamson River Bridge Site, 84% are of fish, 15% of mammals, and 1% of birds. Of the fish bones identified to the genus level, 96% were of

suckers. A number of tui chub bones and a few of salmon or trout were also identified. Excluding some 900 bones of pocket gophers that probably lived and died in the site independent of human agency, the most common mammals were ground squirrels and domestic dog. Only five deer bones were found, indicating that large game were no significant part of the human diet at this site. Shells of freshwater mussel were recovered in some quantity, an estimated 4500 individuals being represented by the excavated remains. Analysis of shell growth increments shows that the season of death for all specimens studied was between mid-April and mid-June. This period corresponds closely to the time of the annual sucker spawning runs.

Lost River and the Peninsula Site

Archaeological investigations in the uplands overlooking Lost River, southeast of the Klamath heartland near the California border, carry the account into Modoc territory. The Klamath and Modoc languages are closely related, and the traditional lifeway of the two peoples was very similar. Like the Klamath, the Modoc relied heavily on river and marsh for their subsistence. But they tended to hunt and gather plant foods rather more, and to fish rather less, occupying as they did a more diversified habitat that reached into montane woodlands but encompassed much lower-elevation sagebrush steppe as well. Historically, Modoc winter villages were placed on lowland streams and marshes, and upland exploitation was mainly a summer activity. In terms of comparative ethnography, the Klamath/Modoc way of life is intermediate between Plateau culture to the north and Californian culture to the south, with Klamath diverging more toward the Plateau, and Modoc more toward California (Ray 1963; Stern 1966). In the present book, this cultural bridging is reflected by the fact that Klamath culture also comes into the discussion of Californian relationships in Chapter 6, where the focus is on southwest Oregon.

The Peninsula Site, on an upland plateau that drains southwest into the Lost River, displays some 28 boulder-outlined house circles. These are scattered along a ridge that once bordered a marshy meadow, now beneath the waters of Gerber Reservoir (Silvermoon 1989). The boulder circles, mostly about 14 feet in diameter, apparently served as bases against which to foot pole frameworks for perishable superstructures. They are founded on a shelving rocky surface with very shallow soil, that would not have allowed excavation for the construction of more typical pithouses. Outside the house circles, pecked or ground into the boulders and bedrock of the site surface, were 26 hopper mortar depressions, 9

deep mortar pits, and 6 grinding slicks. A number of natural rock depressions also showed some signs of grinding. A few stone pestles and manos, and numerous fist-sized pounding and abrading stones, lay scattered on the site surface among these features. In the same area, several petroglyph motifs were pecked into a boulder and a low rocky ledge.

The artifact assemblage, recovered from the surface and excavations in areas of shallow soil, included an abundance of flakes that had been used for cutting and scraping. A striking characteristic of this assemblage was the predominance of small flake tools with multiple use-faceting, suggesting that stone tool material was "used and reused, worked and reworked, until individual pieces became so small that they were discarded (Silvermoon 1989: 111)." A few obsidian cores represent the sources of these flakes. The projectile point collection included predominantly small Desert Side-notched and Rosegate arrowpoints, with some larger specimens that may have been dart points. Three ^{14}C dates, one of 1080 BP, one of 540 BP, and one modern, are quite congruent with the established ages of the arrowpoint types. Some dart points could indicate earlier occupation as well, but they were so few as to leave the issue in doubt.

The Peninsula Site was probably occupied during the biotically productive warm half of the year, when the wet meadow and rocky soils nearby would have provided a variety of grasses and sedges, and root crops such as camas and ipos. Plant food processing is clearly indicated by the site's bedrock grinding features, and hunting by the projectile point assemblage. Local residents say that waterfowl in some numbers once frequented the marshy area where the reservoir now lies. Larger game such as deer and antelope are regularly seen around Gerber Reservoir today, and the Oregon-California interstate deer herd moves through the area each spring and fall. During the season of cold and snow, better locations for residence were available in nearby lowland settings, and it is known that the Modoc of historic times preferred to winter in such places (Burnside 1987).

Nightfire Island

On the western edge of Lower Klamath Lake just below the Oregon-California state line is Nightfire Island, a lowland site in the heart of traditional Modoc territory. An extensive series of ^{14}C dates, 27 in all, demonstrates occupation there between about 6000 and 1000 BP. The dates show that people returned to the spot consistently over millennia,

although occasional gaps of a few hundred years suggest intervals of abandonment when lake waters may have been too high, or too low (Sampson 1985).

The history of occupation at Nightfire Island reflects changing uses of the locality by its human visitors. Lower Klamath Lake, shown by high shorelines and diatomaceous clays to have once been considerably larger and deeper, had shrunk to approximately its historic size by shortly after 7000 years ago. This is seen in the fact that the basal clay layer at the site, which was deposited in a swampy shoreline setting, contained a lens of volcanic ash from the Mount Mazama eruption. Artifacts and stone rubble began to accumulate above this layer, along with food refuse that included the bones of many species. During its initial period of occupation the site was apparently a seasonal hunting, gathering, and fishing station.

As the Nightfire Island deposits continued to thicken, there grew a little platform of rubble-rich earth that helped stabilize and elevate the marshy ground. This platform was greatly enlarged and solidified about 4400 BP by quantities of stone that were brought into the site from nearby sources. Between about 4000 and 2000 BP substantial pithouses were built at the site, as indicated by clay-lined floors and post holes. Charcoal from a hearth in one of these floors yielded a ^{14}C date of 4030 BP, and a charred timber from the floor of a house destroyed by fire gave a date of 2220 BP. During the period of house construction, the platform continued to be augmented with stone rubble. The site at this time probably functioned as a sedentary winter village and year-around base of operations. Two cemetery areas, with the remains of 45 individuals cremated according to historic Modoc custom, apparently came into use toward the end of this period. Arrowpoints found among some remains suggest that deaths due to violent raids occurred late in the site's history. Only lightly-built structures seem to have been made during the final period of occupation, and apparently the site served once again as primarily a warm season fishing/hunting/gathering camp until it passed out of use about 1000 years ago.

The bones of coots, grebes, scaups, mallards, mergansers, and geese were varyingly common throughout the accumulated deposits. Marked fluctuations in the ratio between ducks that feed by diving in deep water, and those that dabble in shallow marshy settings, suggest a complex history of changes in the local environment. Common mammals included elk, deer, antelope, mountain sheep, jackrabbit, cottontail, mink, otter, coyote, and dog. Bison occurred during the middle period of occupation. Fish bones were found in some abundance, virtually all of the identified

sample being of the cyprinid or minnow family. Fish bones were best represented in the later part of the occupation, though some traces go back to early times. A broad range of additional bird and mammalian species was represented by limited numbers of recovered specimens. In general the faunal remains are of animals that can be found even today in the immediate or near vicinity of Nightfire Island.

The artifact assemblage from Nightfire Island was extensive. Plant food processing is attested by numerous ground stone mortars and pestles, flat milling slabs and handstones, and hopper mortar bases. Hunting technology included an older complex of atlatl dart points identified to Northern Side-notched, Humboldt, Pinto, Elko, and Gold Hill types; and a younger complex of small arrow points belonging to the Rose Spring, Gunther, and Siskiyou or Desert Side-notched types. Fishing technology included grooved stones that were probably sinkers or net weights, and bone prongs for fish spears. Numerous cores and abundant flakes of obsidian, along with pebble hammerstones, gave evidence of a well-developed stone working industry. Stone mauls, antler wedges, stone drills, and serrated cutting tools, along with such products as handles and bevelled bone points, attest the making of wood, bone, and antler artifacts. Eyed needles and bone awls, along with stone flake scrapers and knives, tell of hides being worked and sewn.

An X-ray fluorescence analysis of some 300 projectile points showed that the Nightfire Island people used obsidian from sources 20 to 35 miles south in the Medicine Lake Highland, 35 to 85 miles northeast in the region of Sycan Marsh and Tucker Hill, and 110 to 120 miles east-northeast in the Warner Mountains and at Quartz Mountain (Hughes 1985). Some 80% of the Northern Side-notched points, generally the earliest type in the sample, were of southern obsidian from the nearby Medicine Lake Highland. The somewhat younger Elko points also included many specimens of Medicine Lake Highland obsidian, but 37% were made of stone from more distant sources to the north and east. The youngest specimens, arrowpoints of the Gunther series, showed a return to the pattern of the Northern Side-notched specimens, with 81% made of nearby southern obsidian from the Medicine Lake Highland. This evidence of shifting obsidian procurement clearly indicates greater contact by Nightfire Islanders with areas to the north and east during the middle period, prior to the time the bow and arrow were introduced. Among possible reasons for this shift, it has been suggested that competitive relationships among local groups may at times have facilitated Nightfire Islanders' access to the Medicine Lake Highland sources, but at other times limited it, forcing them to seek elsewhere for toolstone.

During the final centuries of occupation, when the Nightfire Islanders were once again depending heavily on Medicine Lake Highland obsidian, they also became notably involved in the exchange of seashells and finely crafted stone pipes from the west and south. This development presages the extensive trading network maintained by the Modoc and Klamath in early historic times, when it reached as far west as the Pacific coast, and as far north as the great summer rendezvous at The Dalles of the Columbia River.

Artistic and Symbolic Forms

Tsagagl'alal, "she who watches" in the Wishram language, is a large, dramatic image pecked into a basalt ledge overlooking the Long Narrows of the Columbia (Figure 3.26). A Wishram tale describes her as an ancient chief who was turned to stone by Coyote, that she might stay and watch over the people of that place. The image, representing a face or mask with large round eyes and small ears high on the head, closely resembles the bear figures of carved wooden masks made historically along the British Columbia coast. More generally, the Tsagagl'alal petroglyph shares artistic details with petroglyphic and other representations that extend from The Dalles of the Columbia down to the Pacific coast, and north along the coast as far as Alaska. Some elements are traceable even farther, into coastal Siberia. In many representations human and animal merge, often to a degree that anthropomorph and zoomorph cannot be distinguished (Hann 1989).

Archaeological excavations near The Dalles have yielded anthropomorphic bone and antler carvings that share motifs with this striking image, and the age of these sites suggests that the petroglyph probably dates from late prehistoric times, after about 1000 years ago. Other motifs, ¹⁴C dated at sites on the British Columbia coast, indicate that the basic style is probably 3000 to 4000 years old (Lundy 1976).

In addition to anthropomorphic / zoomorphic beings with stylized faces, the Columbia River region displays an abundance of naturalistic animal figures, including sheep, deer, birds, and lizards. Simple anthropomorphic figures without facial features also occur. Abstract elements such as simple, concentric, and rayed circles, zigzags, rakes, and reticulated patterns are also common. A few examples consist only of pits pecked into a stone, or of pits connected by grooves. These various petroglyphs are allied in motif and style with a tradition that is widespread in the intermontane region, from the Plateau in the north to the Great Basin in the south (Steward 1927, 1929; Cressman 1937). In the Great Basin, where



Figure 3.26 Tsagaglatal, "she who watches," on an outcrop overlooking the Long Narrows of the Columbia (courtesy of Jerry Magee).

efforts to date these elements have been most extensive, pit and groove petroglyphs are thought to date as early as 7000 BP. The abstract style probably dates from about 4000 BP, and the animal figures from about 2000 BP (Heizer and Baumhoff 1962).

Portable art in stone, bone, antler, and even wood is also a notable characteristic of Plateau culture sites around The Dalles. Besides the above-mentioned bone and antler anthropomorphic carvings, there are such items as stone fish effigies, full-figure human effigies, human faces and heads, stone mauls ornamented with carvings of anthropomorphic heads, bird figures, and lizards. So distinctive are many of the human representations that it has been suggested they represent a special ritual pattern for the area (Butler 1957; Strong 1943).

Southward up the Deschutes River, petroglyphs near Sherar's Bridge include simple anthropomorphs, deer, sheep, rayed concentric circles, and other motifs. Rock art along Jones Creek included simple anthropomorphs, birds, sheep, and rayed circles, as well as non-representational curvilinear designs. A number of sites farther south, around the modern city of Bend, display simple anthropomorphic figures, rayed circles, sheep, and various curvilinear and rectilinear abstract designs. Sites along the lower John Day display abstract designs, circles, zoomorphs, and anthropomorphs. Picture Gorge, on the upper reaches of the John Day River, includes simple anthropomorphs, lizards, rayed circles, and various curvilinear and rectilinear designs. Farther south still, rock art around Klamath Marsh includes pitted boulders, simple anthropomorphs, circles, and abstract curvilinear and rectilinear designs. At sites on the Sprague River, concentric circles with dots at the center are quite common (Loring and Loring 1982).

It is notable that the rock art seen along the Columbia, especially near The Dalles, includes elements shared over a vast area of the Northwest Coast and intermontane west. In general the stylized faces and elaborate zoomorphs seen along the Columbia do not occur much to the south or east of the big river, but the other forms noted for the region of The Dalles are found farther afield (Figure 3.27). The rock art thus shows that The Dalles region had ties over millennia of prehistory both to the Northwest Coast and the interior Plateau hinterlands.

Future Research

This chapter has shown that the Plateau way of life common to much of northern and central Oregon east of the Cascades has a clear culture-

correspondingly a focus of human activity. It drew together people from all over the Plateau, and in later prehistory people from the Northwest Coast culture sphere as well.

The origins of this cultural phenomenon are under continuing investigation. One influential interpretation, which hews closely to evidence currently available, suggests that the earliest people of the Plateau must have been primarily terrestrial hunters and gatherers who foraged widely, moved frequently, and used riverine resources comparatively little—and then only in exceptionally favored places like The Dalles. According to this theory it was probably during the relative warmth and dryness of mid-postglacial time, around 5000 BP, that Plateau groups came to establish relatively sedentary lifeways in optimal locations where hunting, root collecting, and fishing could all be profitably accomplished within a small radius of travel. Once this more settled way of life was established, based on intensive harvest collecting and food storage, it led to population growth and eventually to the widespread establishment of settled villages with permanent houses after about 4000 BP (Ames and Marshall 1981; Schalk 1987).

A competing interpretation argues that early people, entering a region with some of the richest salmon runs in the world, would have come quickly to rely upon fishing rather than going into it gradually over thousands of years. Evidence from The Dalles does indeed show an association of salmon bones and human artifacts that indicate fishing soon after 10,000 BP. In this view, the extremely limited evidence of occupation along the Columbia between about 8000 and 4000 BP may be due simply to flood destruction of the river terraces that existed during this period. As briefly noted at the beginning of this chapter, an erosional episode is known to have occurred along the Lower Snake River between 5000 and 4000 BP, with renewed deposition thereafter and relative geological stability after about 2500 BP. Perhaps these same conditions would have pertained downstream on the Columbia as well. Pithouse settlements occupied by salmon fishers along the rivers may have been present in much earlier times, but remained unknown to us because flooding destroyed the river terraces they were built on. The sudden “appearance” of houses and villages between 4,000 and 2500 BP might thus be understood as more apparent than real, simply reflecting an end to major flooding episodes that destroyed earlier archaeological traces.

Future archaeological work in the region will ultimately resolve this question, and surely introduce new questions as well. As knowledge increases it should also prove possible to address questions of group organization and interaction that have not been archaeologically treated in the present account at all, except by reference to the far-flung trading and exchange system of the 19th century, which implies a prehistoric evolutionary sequence leading up to it.