

# THE ARCHAEOLOGY OF A LATE PREHISTORIC VILLAGE IN NORTHWESTERN CALIFORNIA

By  
Frank Leonhardy

BULLETIN NO. 4

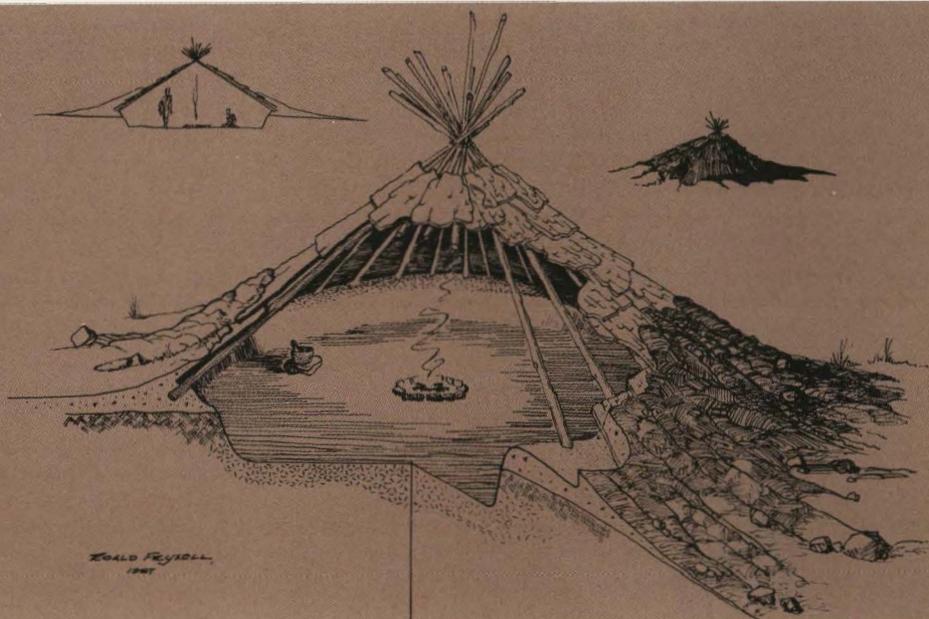
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# THE ARCHAEOLOGY OF A LATE PREHISTORIC VILLAGE IN NORTHWESTERN CALIFORNIA

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## ABSTRACT

The Iron Gate site is a single component village located on the Klamath River in Siskiyou County, California. On the basis of radio-carbon dates occupation is estimated to have been between 1400 A.D. and 1600 A.D. The excavated houses were conical, bark-covered structures differing from the house type recorded in the area in historic time but resembling those recorded further south. Artifacts, particularly projectile points, are similar to those found in northwestern California and Oregon. Stone working traditions appear more closely related to those of the Klamath Lakes and Columbia Plateau regions of Oregon than to those of central California. Analysis indicates patterns of community organization and economy virtually identical to those of the ethnographic period. The site is considered representative of a phase in Shasta culture history even though direct historical connections cannot be established. In terms of cultural affiliations on a larger scale, the culture represented by the Iron Gate site is viewed as transitional between the Columbia Plateau and central California. There is no evidence of close affiliations with the cultures of the northwest California coast.

## INTRODUCTION

The Iron Gate site is one of three sites discovered by a University of Oregon survey of the Iron Gate Reservoir in Siskiyou County, California. It is a small village situated on a terrace on the south bank of the Klamath River about 100 meters above the confluence of the Klamath River and Jenny Creek. The location is in the SE $\frac{1}{4}$  of the NE $\frac{1}{4}$  of Sec. 34, T48N, R5W, Mt. Diablo Meridian, only three miles south of the Oregon border and nine miles east of Hornbrook, California (Fig. 1).

On the east end of the terrace were thirteen house pit depressions varying from 6 to 10 meters in diameter and 20 to 50 centimeters in depth. Most depressions had clusters of rocks in the center and, occasionally, on the edge. Cultural debris was visible on the surface. No house pits were found on the west end of the terrace, although artifacts were found in an eroding bank. Because of time limitations, excavation was limited to the house pits.

Vegetational cover on the site was grass and sagebrush; around the site, and in the immediate vicinity, grow manzanita, mountain mahog-

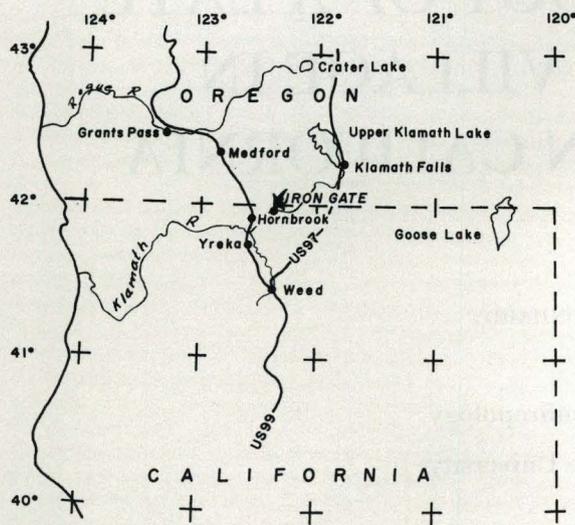


Figure 1. Locality map.

any, oak, juniper, cedar, and pine. The vegetation of the area may be classed in the Transition Life Zone (Bailey, 1936). Animal life observed was varied and plentiful. Deer are surprisingly numerous, but to what extent this might reflect the aboriginal condition is not certain. Among the smaller mammals noted were rabbits, skunks, marmots and ground squirrels. Reptiles observed were turtles, small lizards and a variety of snakes. Crayfish, mussels and trout are plentiful in the river and salmon and steelhead migrate in large numbers. The birds observed included blue herons, buzzards, and a diving duck.

Crews from the University of Oregon worked at the site on two separate occasions: from June 11 to June 21 and from September 5 to September 14, 1960. During the first session House Pits 1 and 2 were partially excavated and House Pit 3 was tested. During the second session House Pit 4 was completely excavated and additional work was done in House Pit 2. In all, 785 artifacts, details of 11 house floors and abundant cultural debris were recovered.

Comparative data are not plentiful for there are few excavated sites in northwestern Cali-

formia and southwestern Oregon.<sup>1</sup> Sites which have been excavated are usually of limited time depth and the artifacts are not greatly different from ethnographic material culture. Archaeological data on prehistoric houses in the region are virtually non-existent and, as a consequence, the discussion of the Iron Gate houses depends almost exclusively on ethnographic data.

The site is located in the eastern part of the tribal area of the Shasta Indians. To the east was the boundary between the Shasta and the Modoc; to the north, generally following the summit of the Siskiyou Mountains, was the boundary between the Shasta and the Takelma. To the south and southeast the Shasta were in contact with the Wintu and Achomawi; to the west, down river, they were in contact with the Karok and, through them, the Yurok. Kroeber (1939: 55) classed Shasta culture as transitional between the Northwestern Californian and Central Californian Culture Provinces and Holt (1947: 348) described it as basically Central Californian but having developed under strong influences from Northwestern California.

#### ACKNOWLEDGEMENTS

Field work in the Iron Gate Reservoir was supported by grants from the California-Oregon Power Company (now the COPCO Division of Pacific Power and Light Company). To COPCO, Mr. J. C. Boyle, Vice-President and General Manager, and Mr. Robert L. Byer, Project Engineer, I express thanks. Members of the crews who worked at the site were Mr. and Mrs. Don L. Dumond, Lionel A. Brown,

<sup>1</sup> Since completion of the Iron Gate Project, the University of Oregon conducted a three-year program of excavation along the Klamath River in the Salt Caves Reservoir area, only a few miles upstream from Iron Gate. The data recovered by the Salt Caves Project have not yet been completely analyzed and are not available for detailed comparison. The collections were examined in January, 1966, and no information which would alter the conclusions of this report was found. Indeed, LeRoy Johnson, Jr., (personal communication) feels that some of the houses in the Salt Caves area are closely comparable to those herein reported.



**Plate 1.** *View of the Iron Gate site from the north, across the Klamath River. The area shown in the photo is slightly less than the area shown in Figure 2.*

Ted L. Murphy, James A. Lehman and James Gillis; David L. Cole was field director. The hospitality of Mr. and Mrs. Al Kutzkey made our stay on the Klamath River a memorable one.

This report is a condensed and modestly revised version of a 1961 Master of Arts thesis written under the direction of Dr. L. S. Cressman. The guidance of Dr. Cressman and the assistance of David L. Cole and W. Raymond Wood are sincerely appreciated—all were extremely generous with their time and experience. Dr. J. Arnold Shotwell identified the

mammal remains from the site; Dr. Loye Miller identified the bird remains; and Dr. Leroy Detling identified the botanical specimens. Mr. James Lehman prepared the artifact illustrations used in Figures 12 (d-g) and 14. I also express appreciation to Deward E. Walker, Roald Fryxell, Mrs. Barbara Purdy and David Rice for reading and criticizing various parts of the revised manuscript. James Lehman prepared the illustrations used in Figures 1-14, 16-17; Roald Fryxell made the drawing of the reconstruction of the Iron Gate house type (Figure 15 and cover).

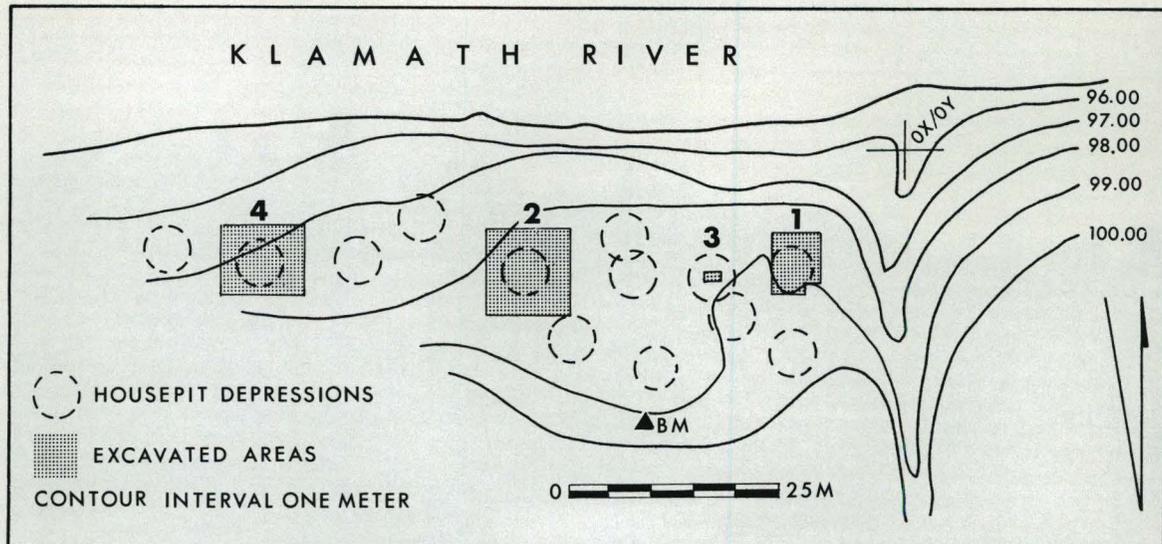


Figure 2. Contour map of the Iron Gate site.

## DESCRIPTIVE ARCHAEOLOGY

### EXCAVATION TECHNIQUES

Although the house floor was the primary unit of excavation, a grid of 2-meter squares was established on the site to facilitate horizontal control. Excavation of each floor proceeded one square at a time in order to minimize any error and to provide an accurate record of artifact provenience. All fill was sifted through 4-mesh screens to insure complete recovery of artifact material and cultural debris.

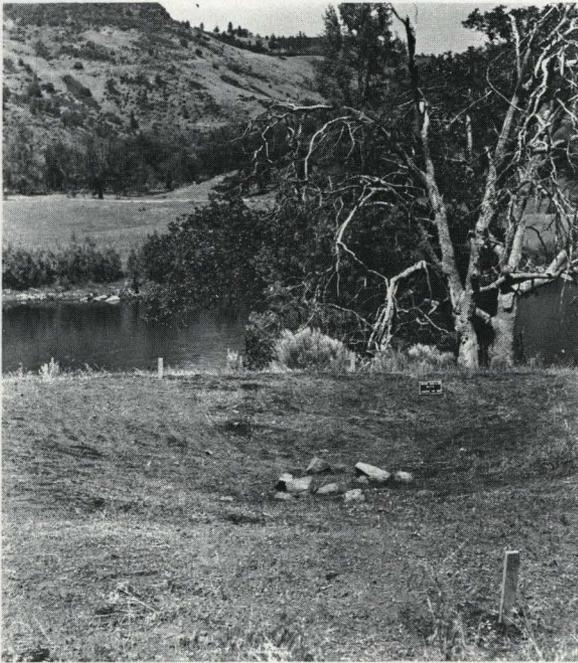
The surfaces of the house pits to be excavated were first cleared of grass and brush and the sod was removed; any large stones associated with the surface were left *in situ*. At first an attempt was made to find the rim of House Pit 1 by excavating one square by arbitrary 10-centimeter levels. A rim was found, but higher floors which had not been distinguished during excavation were found in the profiles. A second test pit was then excavated in the center of House Pit 3 to determine the characteristics of the floors, the location of firepits, and a possible sequence of floors. On the basis of information about the composition of house

pits gained from the tests, the technique adopted was to begin excavation in the center, find the top floor, and then follow it to the outside of the pit. Because floors were generally more distinct in the center where they were marked by a layer of ash or an abrupt change in fill, this method proved successful.

During excavation the floors in each house pit were numbered in sequence from the top. In this report, however, the floors have been renumbered in sequence of occupation. Thus, Floor 1 in each house pit is the lowest, and earliest, floor.

### HOUSES

The houses at the Iron Gate site differ from those used in the area during the ethnographic period. Shasta houses were basically rectangular plank structures, whereas the Iron Gate houses were circular, bark-covered structures. Further, the Iron Gate houses differ in details of construction from the circular houses found upriver among the Klamath and Modoc. The data described below indicate a house form very similar to the conical, bark-covered house which had a wide distribution in northern California.



**Plate 2.** House Pit 1 before excavation. Note the cluster of rocks in the center of the depression.

#### HOUSE PIT 1

**SURFACE FEATURES:** In the center of the depression was a cluster of 12 rocks ranging in size from 15 x 15 cm. to 30 x 50 cm. None were artifacts. Directly beneath the rocks, but separated from them by 3 to 4 cm. of fill, was a firepit associated with Floor 3.

**FLOOR 3 (Fig. 3):**

*Maximum diameter:* 5.25 m.

*Depth from surface:* 5 to 15 cm.

*Description of firepit:* An oval, rock-lined firepit 40 cm. long, 25 cm. wide and 4 cm. deep was centrally located. It was surrounded by a large, thin layer of ash.

*Features noted:* The remains of two large, incompletely burned pieces of wood, large pieces of charcoal and fragments of burned bark were found in the northwest quadrant. Small pieces of charcoal and burned bark marked the rim on the west and south sides of the floor. A mano, a metate, and a hopper mor-

tar stone were closely associated in the north-east quadrant.

**FLOOR 2 (Fig. 3):**

*Maximum diameter:* 6 m.

*Depth from surface:* 15 to 35 cm.

*Description of firepits:* (1) A layer of ash, as much as 5 cm. thick, covered the center of the floor. This was directly beneath, but separated from, the ash covering Floor 3. (2) An oval firepit, 52 cm. long, 40 cm. wide and 5 cm. deep, was located on the south side of the floor. The earth around it was oxidized to a bright orange color. (3) An area of ash and burned earth approximately 45 cm. long and 35 cm. wide was near the rim in the southeast quadrant associated with burned bone, antler, and wood.

*Features noted:* There were two very distinct layers of fill between Floor 3 and Floor 2. The uppermost of these was a discontinuous stratum of hard, yellowish-colored fill which lay around the circumference of the pit extending inward a maximum of 2 meters. In plan view this layer was generally circular; the outside edge, although irregular, generally coincided with the rim of the floor; the inside edge was very irregular and not always well defined. The cross section was lenticular, about 10 cm. thick at the outside, tapering toward the inside. This stratum could have been formed by earth falling into the pit from around the outside. If the house had burned and collapsed, an occurrence for which there is good evidence, then any earth banked up on the outside would have fallen into the pit, forming a circular band of fill such as this stratum. Beneath the hard fill, and immediately above the floor, was a layer of loose, black dirt containing large numbers of bone fragments and artifacts.

Part of the southwest quadrant was covered with partially burned bark which lay just above the floor beginning at the rim and extending into the pit (Fig. 3; Plate 3). Under the bark were the remains of at least three wooden beams or poles. The bark was not well enough preserved to permit specific identifica-

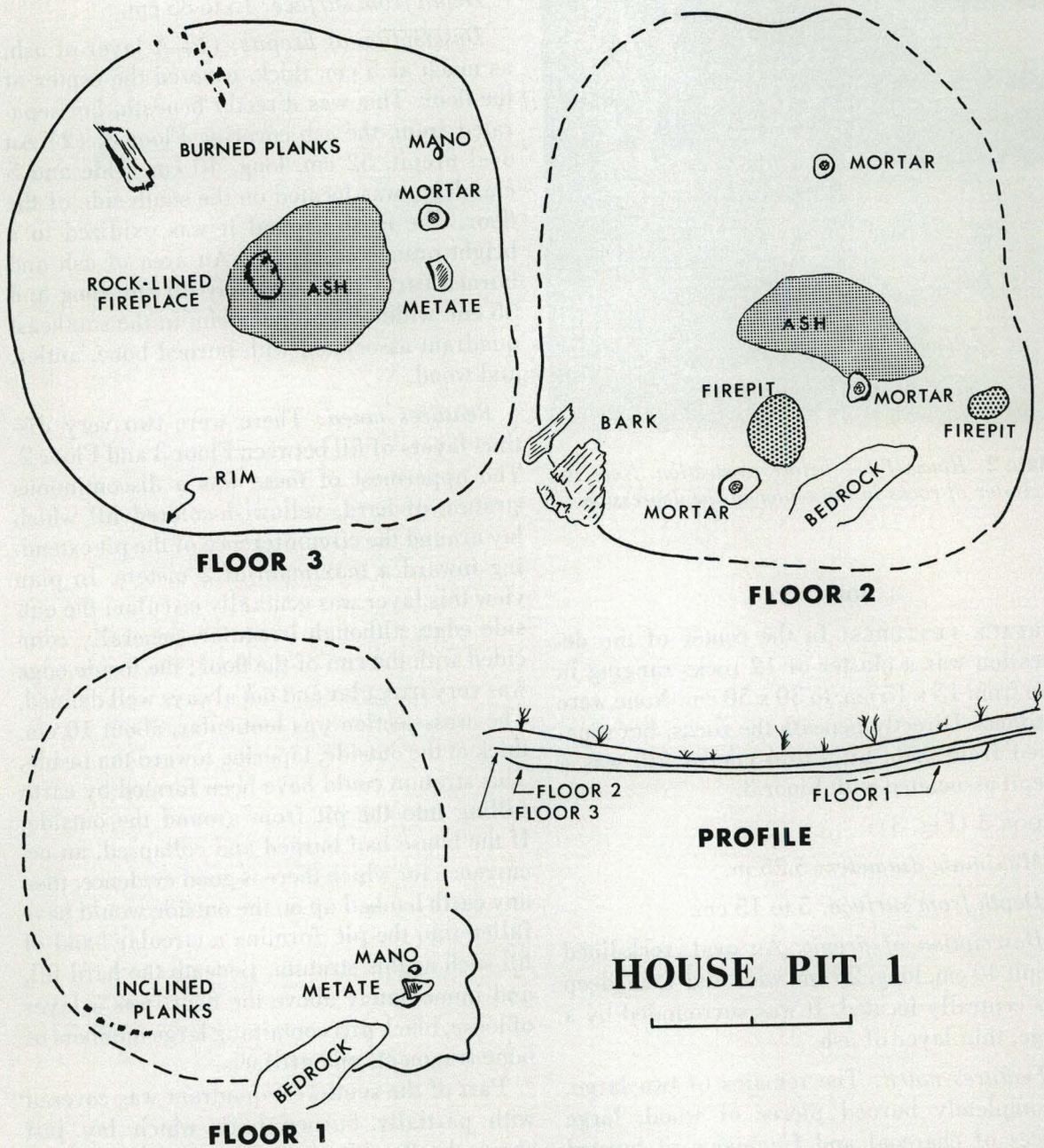
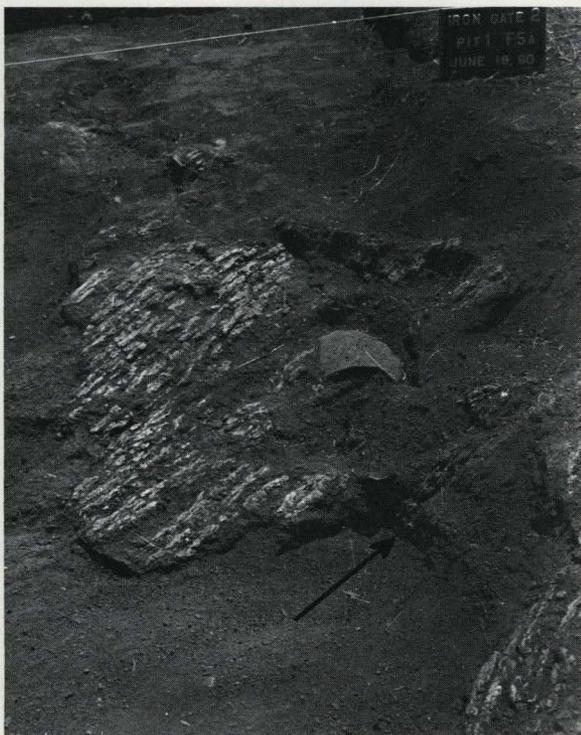


Figure 3. Floor plans and profile, House Pit 1. Scale is 2 meters.



**Plate 3.** Burned bark above Floor 2, House Pit 1. Arrow indicates a pole beneath the bark. Compare Figure 3 for scale.

tion, but Dr. LeRoy Detling (personal communication) considered pine a likely possibility.

Two small, adjacent depressions were found in the floor beneath the bark. Both were oval, 30 cm. long, 20 cm. wide, and 5 cm. deep, with rounded bottoms. What function these might have had in the construction of the house, if any, is not certain.

Just beneath the floor, near the rim in the southwest quadrant, was a series of poles, or narrow planks, in a nearly vertical position, leaning slightly toward the outside of the pit. Projecting through Floor 2 on the south side of the pit was an outcrop of stone which continued downward through Floor 1.

#### FLOOR 1 (Fig. 3):

*Maximum diameter:* 4.5 m. (estimated)

*Depth from surface:* 35 cm.

*Description of firepit:* Unknown

*Features noted:* The rim was quite irregular where it was excavated, and the outline of the floor shown in Figure 3 is no more than a guess. A mano, a broken metate, and two large stones were in close association in the one square excavated. Two shotgun shell bases and an incised *Dentalium* shell were found near the rim in an area of extensive rodent burrowing.

The wood beneath Floor 2, mentioned above, was probably associated with this floor and, perhaps, marked part of the rim. The outcrop of stone which projected through the floor seems to have been partially inside and partially outside the house. Floor 1 was dug into the hard, cemented subsoil which formed the base of the site and was the lowest floor in the house pit.

#### HOUSE PIT 2

House Pit 2 was the most prominent of the depressions on the site and the one floor which was completely excavated was 3 meters larger than any other excavated floor. Other than size, however, there is no indication that the houses built over this pit were unlike the others, nor are there any differences in the artifact inventory indicative of differing functions for the structures.

**SURFACE FEATURES:** Small rocks were scattered about the surface of the pit. Those near the rim were generally larger than those in the center.

#### FLOOR 4 (Fig 4):

*Maximum diameter:* 9 m.

*Depth from surface:* 5 to 15 cm.

*Description of firepits:* (1) A circular firepit, 40 cm. in diameter and 11 cm. deep, was centrally located. It was covered and surrounded by an ash layer 2 to 3 cm. thick. (2) A small, oval firepit, 25 cm. long, 15 cm. wide and 5 cm. deep, was near the east rim.

*Features noted:* A pestle and two hammerstones were closely associated with the layer of ash in the center of the floor. Several clusters of small rocks were near the periphery, and two clusters of rocks were near the center.

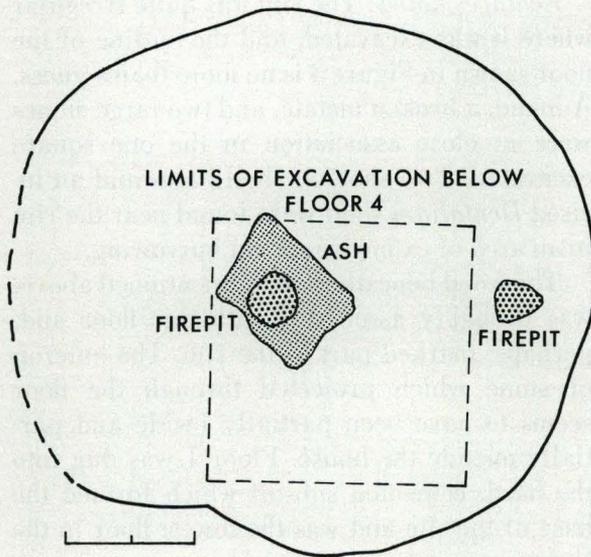


Figure 4. Floor 4, House Pit 2. Scale is 2 meters.

#### FLOOR 3 (Fig. 5):

*Maximum diameter:* Not determined

*Depth from surface:* 15 to 20 cm.

*Description of firepit:* The one firepit uncovered was in the center of the depression, but its size is not known. It had not been completely excavated during the first session at the site and was destroyed by pothunters.

#### FLOOR 2 (Fig. 5):

*Maximum diameter:* Not determined

*Depth from surface:* 40 cm.

*Description of firepit:* A roughly triangular firepit, 58 cm. long, 50 cm. wide and 4 cm. deep, was centrally located.

*Features noted:* A profusion of burned and partially burned beams, large rocks, and artifacts was on and above the floor. The fill around the beams was yellowish in color and very hard, but next to the beams the fill was black and quite soft. Inclusions of soft black dirt were scattered throughout the harder fill. Several large stones and a metate were on the floor beneath the beams. A depression, 15 cm. in diameter and 10 cm. deep, was found in the northeast corner of the excavation.

#### FLOOR 1 (Fig. 5):

*Maximum diameter:* Not determined

*Depth from surface:* 50 cm.

*Description of firepit:* A centrally located firepit was found, but its size and form were not determined.

*Features noted:* Remains of three beams in a remarkably good state of preservation and the remains of two nodules of obsidian were on the floor. This floor, like the lowest floors in the other house pits, was dug into the subsoil.

#### HOUSE PIT 3

Excavation in House Pit 3 consisted of a 1 x 2 meter test pit in the center of the depression. The test revealed the presence of a minimum of three floors, two of which were marked by ash lenses.

#### HOUSE PIT 4

**SURFACE FEATURES:** The surface of the depression had been disturbed to some extent by a pothunter and by a bulldozer. Except for the pothole, the disturbed fill was only 2 or 3 cm. deep. Unlike the other pits, there were no stones on the surface. The first assumption was that these might have been removed by the pothunter, but when excavation began the usual cluster of rocks was found just beneath the surface, separated from the top floor by 3 to 4 cm. of fill.

#### FLOOR 4 (Fig. 6):

*Maximum diameter:* 6 m.

*Depth from surface:* 10 to 15 cm.

*Description of firepit:* Charcoal stain and fire-cracked rocks were found on either side of the pothole in the center of the floor. No ash was found in the back dirt, indicating that if any firepit was present, it was probably not very large.

*Features noted:* Most of the floor was composed of a light yellow clay resembling that found in the river bank west of the site. The clay was 10 cm. thick in the center, tapering only slightly toward the outside; the edges

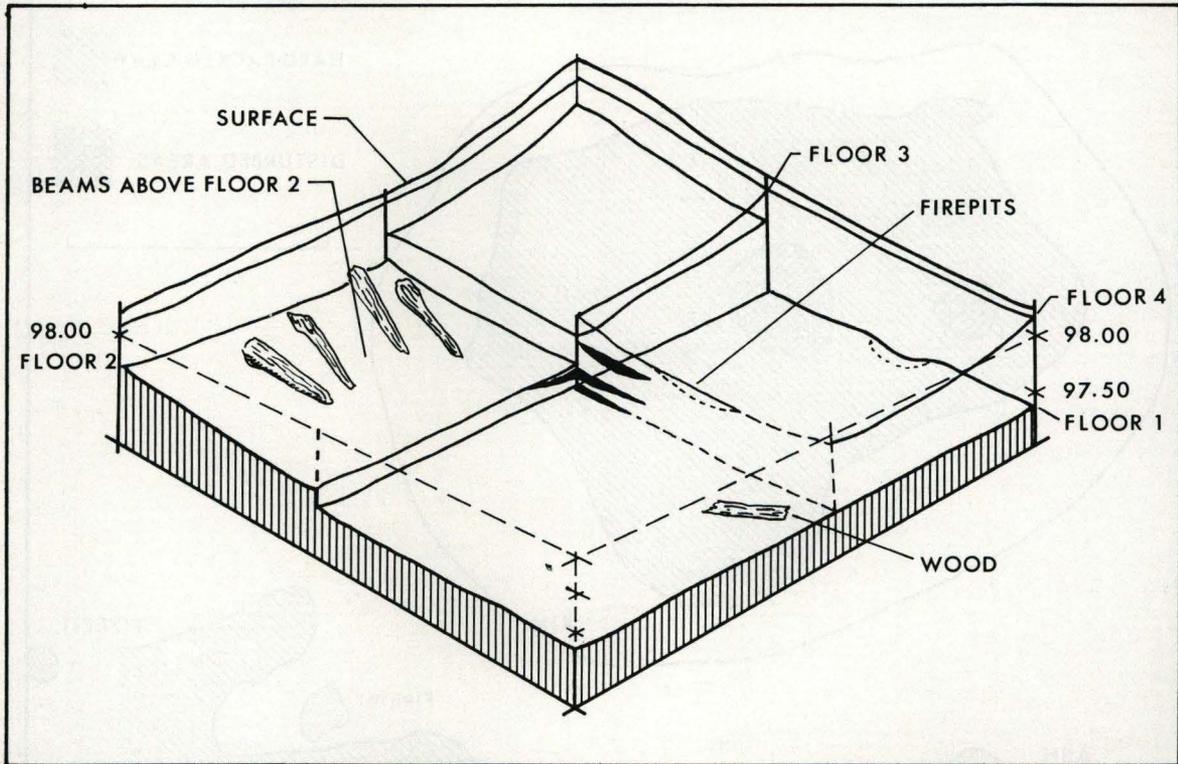


Figure 5. Diagram of excavation in House Pit 2 below Floor 4.

were irregular but distinct. An irregular area of yellow clay, presumably part of a separate structure, and two small firepits were found south of the rim. A small depression 10 cm. in diameter and 5 cm. deep was found on the north side of the floor; two similar depressions were found outside the rim. An extensive area of ash was outside the rim in the southern part of the excavation. If this were associated with the floor, it could account for the absence of a firepit inside the house. The only human skeletal remains found in the site, the right malar, part of a right maxilla and the upper-right third molar of a single individual, were found just outside the rim in the northeast quadrant.

FLOOR 3 (Fig. 7):

*Maximum diameter:* 6 meters

*Depth from surface:* 15 to 20 cm.

*Description of firepit:* None

*Features noted:* A piece of wood, 45 x 15 x 5 cm. was near the rim in the southwest quadrant; near the center of the floor was a concentration of stones.

FLOOR 2 (Fig. 7):

*Maximum diameter:* 8.85 m.

*Depth from surface:* 20 to 30 cm.

*Description of firepit:* A small, oval firepit 60 cm. long, 25 cm. wide and 2 cm. deep, was centrally located.

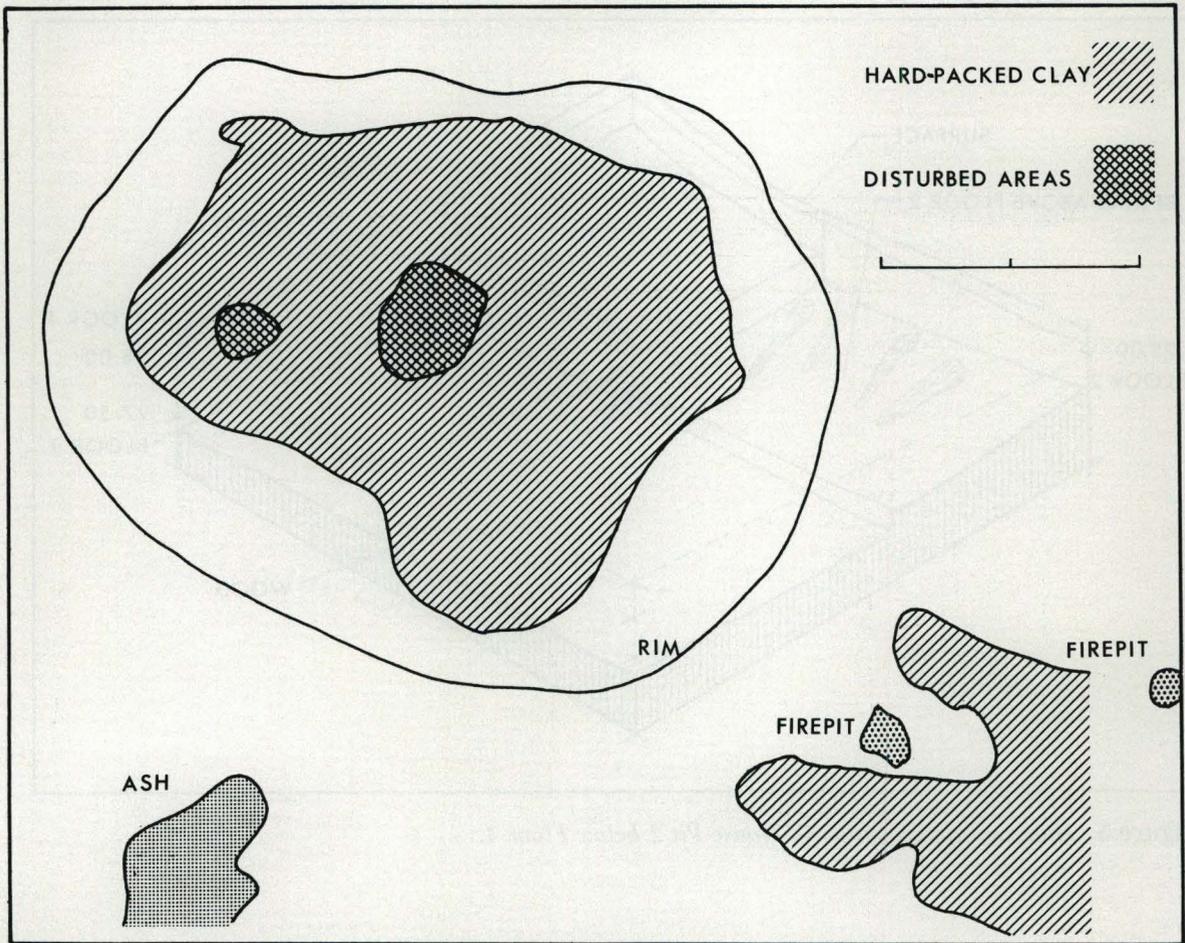
*Features noted:* A large rock was near the rim in the northwest quadrant.

FLOOR 1 (Fig. 8):

*Maximum diameter:* 5 m.

*Depth from surface:* 30 to 50 cm.

*Description of firepits:* (1) A rock-lined fireplace, 70 cm. in diameter, was centrally



**Figure 6.** Floor 4, House Pit 4. Scale is 2 meters.

located. (2) A small, oval firepit, 50 cm. long, 25 cm. wide and 3 cm. deep, was in the southeast quadrant near the center.

*Features noted:* A rock-lined cache pit containing a projectile point, two manos, and several fragments of bone was located on the south side of the floor next to the rim. Opposite this, near the rim on the north side of the floor, was a second cache pit. Both were 25 cm. deep.

A mano, a metate, and two pestles were closely associated in the southeast quadrant; a hopper mortar stone was near the rim on the north side of the floor. The remains of a deer skull, several stones and a piece of bark were on the south side of the pit, next to the rim, but above the floor. Near the center of the pit

were several stones and what appeared to be an outcrop of bedrock.

#### DISCUSSION

There are no marked differences in floor plan among the three house pits excavated except that Floor 4 of House Pit 2 was larger than any other excavated floor. All floors were round or slightly oval in general outline, ranging from a conservatively estimated 4.5 meters to 9 meters maximum diameter. Between the two extremes, diameters range from 4.85 to 6 meters. Although firepits were found in various parts of the floors, a centrally located firepit, sometimes elaborately made, was found on most. Cache pits were found in one floor only.

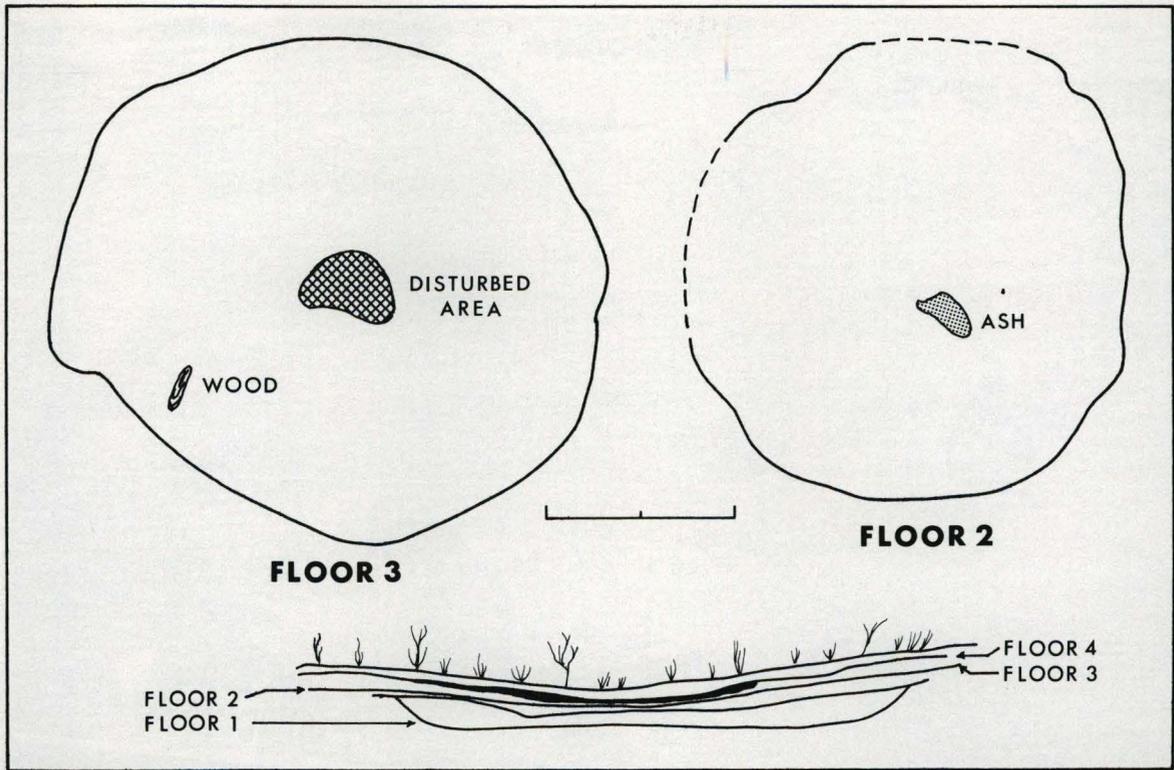


Figure 7. Floor 3, Floor 2 and profile, House Pit 4. Scale is 2 meters.

Much of the fill between the floors appears to have been washed into the pits, although in some instances part of the fill was probably formed by earth falling into the pits with a collapsing wall. Some dirt may have been thrown into the pit deliberately to cover debris from a preceding occupation. Clusters of rocks on the floors and in the center of each of the house pits were recurrent, but unexplained, features. The clay floor in House Pit 4 was not a completely unique detail, for what was presumably part of another clay floor was found nearby.

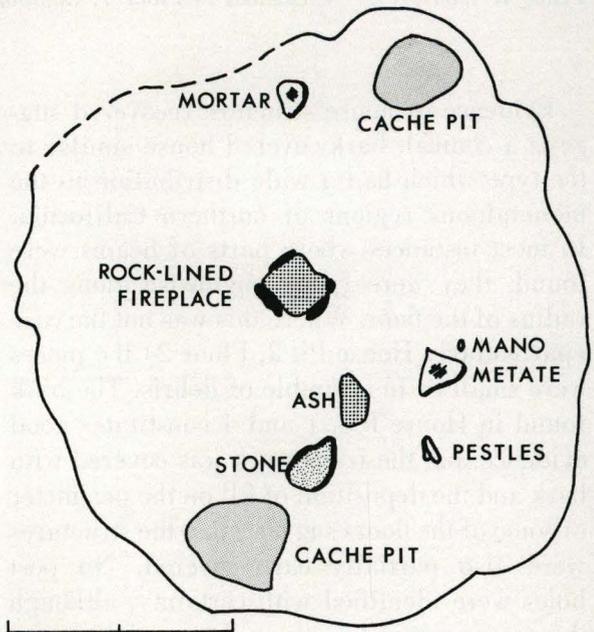
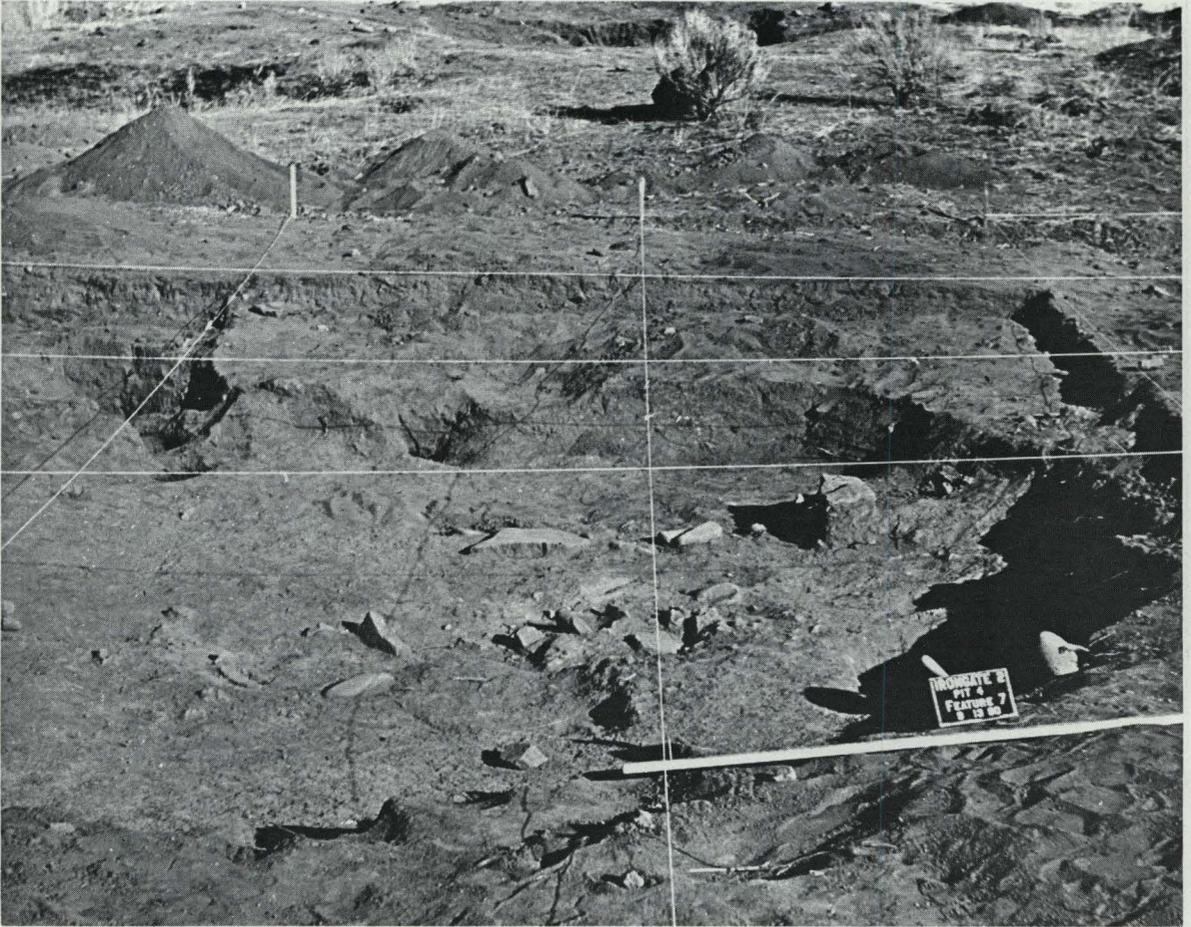


Figure 8. Floor 1, House Pit 4. Scale is 2 meters.



**Plate 4.** *House Pit 4 excavated to Floor 1. Compare Figure 8.*

Evidence of house structure recovered suggests a conical, bark-covered house similar to the type which had a wide distribution in the mountainous regions of northern California. In most instances where parts of beams were found, they were lying lengthwise along the radius of the floor. Where this was not the case (particularly House Pit 2, Floor 2) the pieces were small or in a jumble of debris. The bark found in House Pits 1 and 4 constitutes good evidence that the framework was covered with bark and the deposition of fill on the perimeter of some of the floors suggests that the structures were also partially earth-covered. No post holes were identified with certainty, although depressions found on some floors might be in-

terpreted as such. The positions of these depressions do not, however, suggest any pattern of post placement in the construction of the houses.

Two large pieces of wood found on Floor 3 of House Pit 1 had the appearance of planks, but whether they were planks rather than large splinters could not be determined. Since there are no wedges in the artifact inventory, techniques for splitting planks were probably not well developed, if they were known.

Reconstructing the archaeological data, the houses at the Iron Gate site are described as follows: A conical framework of poles was erected over a circular pit 5 to 6 meters in diameter and 20 to 30 centimeters deep. Large

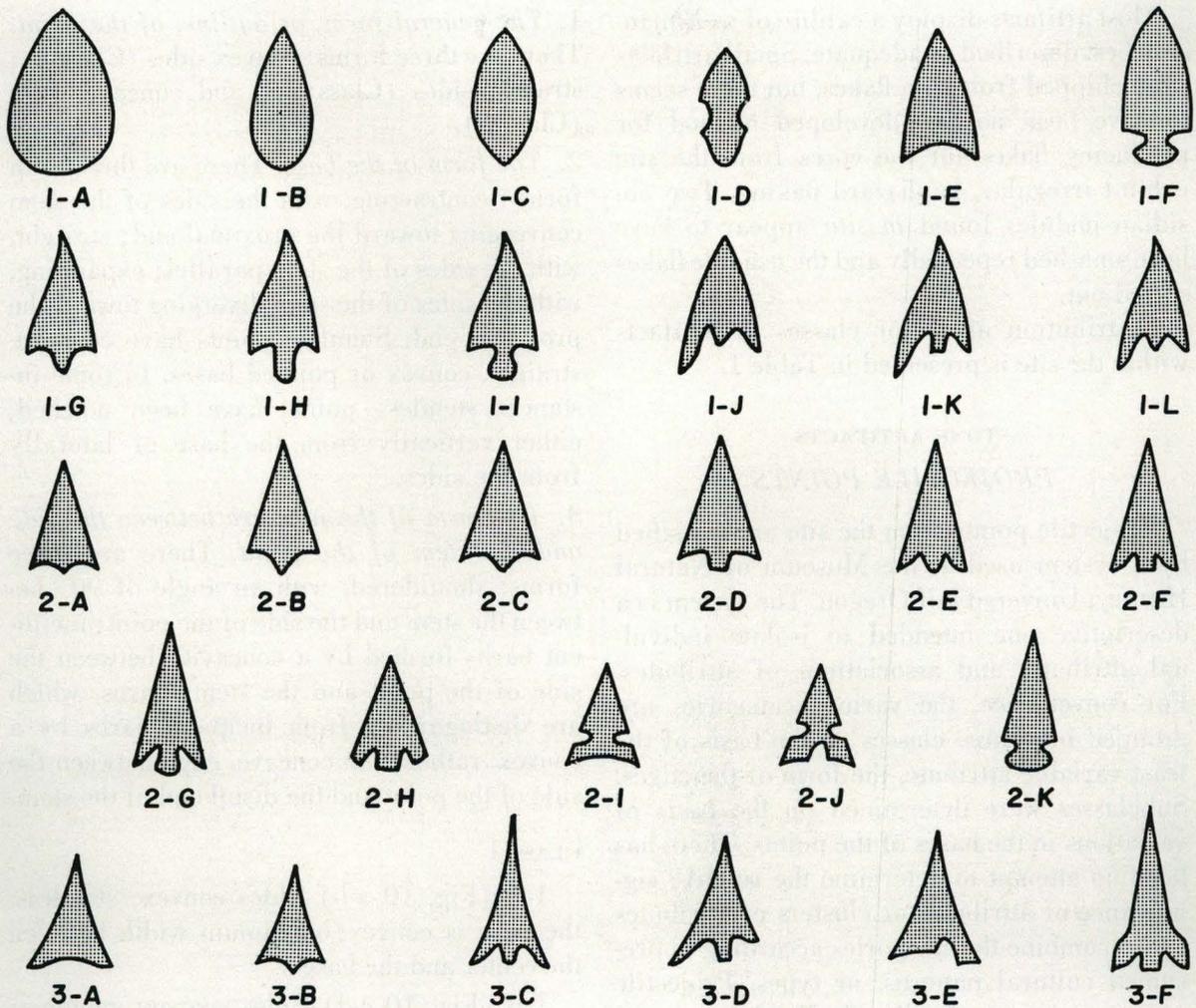


Figure 9. Projectile point forms.

slabs of bark and perhaps planks or large splinters of wood were laid over the framework. Dirt was banked up against the sides of the house and rocks may have been set on the walls to hold the bark in place. Vertical posts may have been used occasionally to support the framework. No information about the entry to the house was recovered. House pits were reused, but when a new house was constructed over an abandoned pit, the debris and accumulated fill from the previous occupation were not removed.

#### ARTIFACTS

The artifacts from the site are generally categorized on the basis of the material from which they were manufactured—stone, bone and antler, shell and wood. Of these, stone implements are by far the most common. Chipped artifacts were made primarily of obsidian, but artifacts of jasper and chalcedony are also plentiful. Basalt was used for larger implements. The limited variety of stone is notable, and is interpreted as indicating that very few sources of raw material were regularly utilized by the inhabitants of the site.

Most artifacts display a calibre of workmanship best described as adequate. Small artifacts were chipped from thin flakes, but there seems to have been no well-developed method for producing flakes for the cores from the site exhibit irregular, haphazard flaking. Two obsidian nodules found *in situ* appear to have been smashed repeatedly and the usable flakes sorted out.

Distribution of major classes of artifacts within the site is presented in Table 1.

#### STONE ARTIFACTS

### PROJECTILE POINTS

Projectile points from the site are classified by a system used at the Museum of Natural History, University of Oregon. The system is a descriptive one intended to isolate individual attributes and associations of attributes. For convenience, the various categories are grouped into three classes on the basis of the least variable attribute, the form of the edges. Subclasses were determined on the basis of variations in the bases of the points. There has been no attempt to determine the relative significance of attributes or clusters of attributes and recombine the categories according to presumed cultural patterns, or types. Projectile point typology in the Pacific Northwest is not yet well developed and comparison was facilitated by comparing minimal groups of attributes rather than general patterns. The groupings of projectile points reported here are sufficiently atomistic that others should have no great problem utilizing the data for comparative or typological studies. Metric attributes of the projectile point categories are summarized in Table 2. Data included in the table are number of specimens; mean length, width and thickness; range of variation; and mean deviation. Distribution of projectile points within the site is given in Table 3; the forms are illustrated in Figures 9 and 10.

The descriptive criteria for segregating the categories are based on those defined by Cole (1954: 86-89):

1. *The general form, or outline, of the point.* There are three forms: convex sides (Class 1); straight sides (Class 2); and concave sides (Class 3).

2. *The form of the base.* There are three stem forms: contracting, with the sides of the stem converging toward the proximal end; straight, with the sides of the stem parallel; expanding, with the sides of the stem diverging toward the proximal end. Stemless points have concave, straight, convex or pointed bases. In some instances stemless points have been notched, either vertically from the base or laterally from the sides.

3. *The form of the juncture between the side and the stem of the point.* There are three forms: shouldered, with an angle of 90° between the stem and the side of the point; incipient barbs formed by a concavity between the side of the point and the stem; barbs, which are distinguished from incipient barbs by a convex, rather than concave, edge between the side of the point and the distal end of the stem.

#### CLASS 1

1-A (Fig. 10 a-b) Sides convex; stemless, the base is convex; maximum width between the center and the base.

1-B (Fig. 10 c-d) Sides convex; stemless; the base is convex; maximum width between the center and the base.

1-C (Fig. 10 e) Sides convex; the base is pointed; maximum width approximately at mid-length.

1-D (Fig. 10 f) Sides convex; the base is pointed; shallow side notches removed at mid-length.

1-E (Fig. 10 g-h) Sides convex; stemless; the base is concave.

1-F (Fig. 10 i) Sides convex; shouldered; expanding stem with a rounded butt.

1-G (Fig. 10 j-k) Sides convex; one side formed by a compound curve convex at the base, becoming straight or slightly concave near the tip; incipient barbs; contracting stem with a rounded butt.

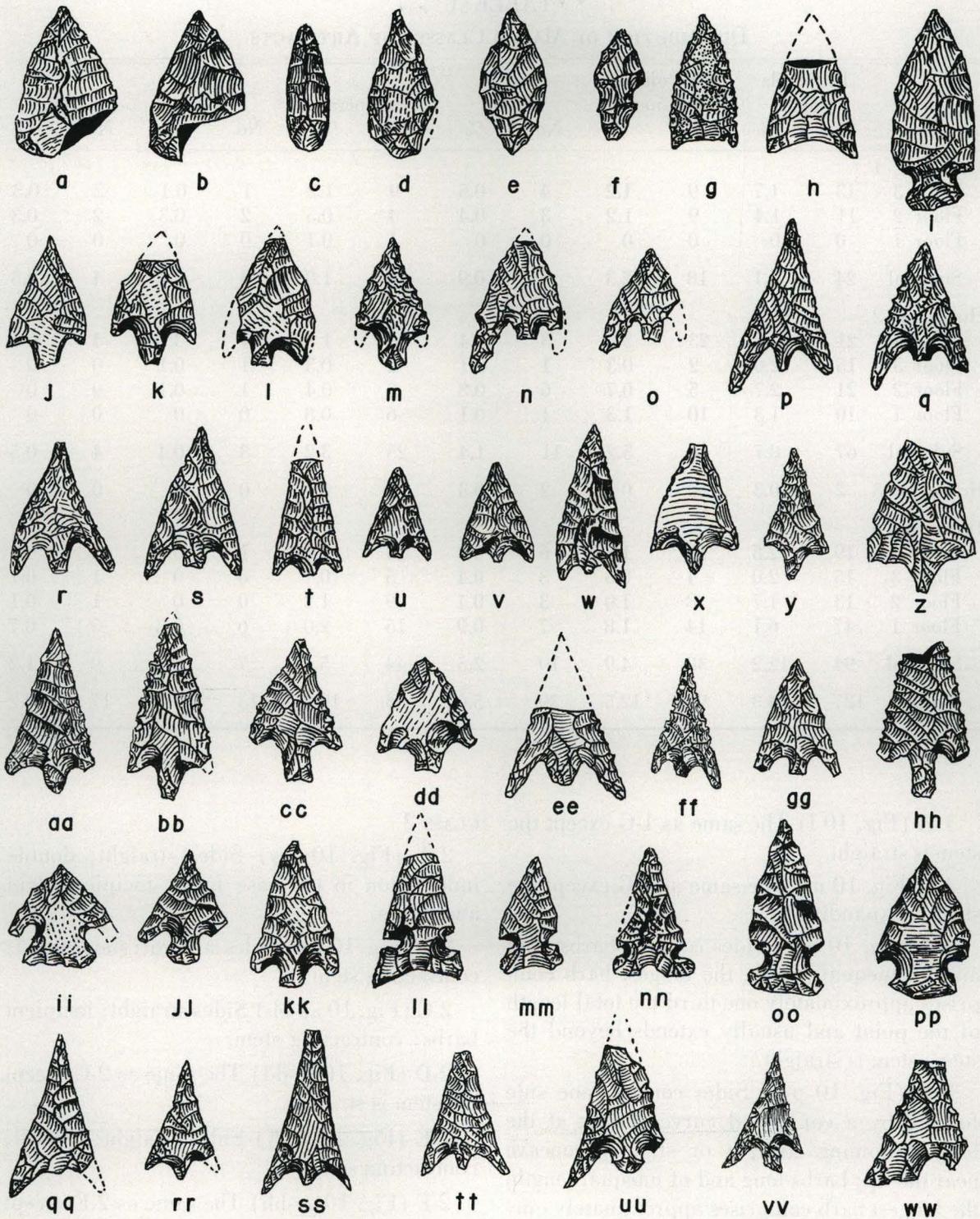


Figure 10. Projectile points. a-b Class 1-A; c-d 1-B; e 1-C; f 1-D; g-h 1-E; i 1-F; j-k 1-G; l 1-I; n-o 1-J; p-q 1-K; r-s 1-L; t-w Class 2-A; x-z 2-B; aa-bb 2-C; cc-dd 2-D; ee-ff 2-E; gg-hh 2-F; ii-jj 2-G; kk 2-H; ll-mm 2-I; nn 2-J; oo-pp 2-K; qq Class 3-A; rr 3-B; ss-tt 3-C; uu-vv 3-D; ww 3-E. All specimens natural size.

TABLE 1  
DISTRIBUTION OF MAJOR CLASSES OF ARTIFACTS

	Projectile Points		Point Fragments		Knives		Scrapers		Drills		Gravers	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
House pit 1												
Floor 3	13	1.7	9	1.2	4	0.5	9	1.2	1	0.1	2	0.3
Floor 2	11	1.4	9	1.2	3	0.4	4	0.5	2	0.3	2	0.3
Floor 1	0	0	0	0	0	0	1	0.1	0	0	0	0
Subtotal	24	3.1	18	2.3	7	0.9	14	1.8	3	0.4	4	0.5
House pit 2												
Floor 4	21	2.7	23	3.0	3	0.4	14	1.8	1	0.1	4	0.5
Floor 3	15	2.0	2	0.3	1	0.1	2	0.3	1	0.1	0	0
Floor 2	21	2.7	5	0.7	6	0.8	3	0.4	1	0.1	0	0
Floor 1	10	1.3	10	1.3	1	0.1	6	0.8	0	0	0	0
Subtotal	67	8.7	40	5.2	11	1.4	25	3.2	3	0.4	4	0.5
House pit 3	2	0.3	0	0	2	0.3	0	0	0	0	0	0
House pit 4												
Floor 4	19	2.5	12	1.6	6	0.8	15	2.0	1	0.1	2	0.3
Floor 3	15	2.0	4	0.5	3	0.4	5	0.7	0	0	1	0.1
Floor 2	13	1.7	8	1.0	3	0.4	9	1.2	0	0	1	0.1
Floor 1	47	6.1	14	1.8	7	0.9	15	2.0	6	0.8	5	0.7
Subtotal	94	12.2	38	4.9	19	2.5	44	5.7	7	0.9	9	1.2
Total	187	24.3	96	12.5	39	5.0	83	10.8	13	1.7	17	2.2

1-H (Fig. 10 l) The same as 1-G except the stem is straight.

1-I (Fig. 10 m) The same as 1-G except the stem is expanding.

1-J (Fig. 10 n-o) Sides convex; barbs long and of unequal length, the longest barb comprises approximately one-third the total length of the point and usually extends beyond the stem; stem is straight.

1-K (Fig. 10 p-q) Sides convex; one side formed by a compound curve convex at the base, becoming straight or slightly concave near the tip; barbs long and of unequal length, the longest barb comprises approximately one-third the total length of the point and usually extends beyond the stem. Contracting stem.

1-L (Fig. 10 r-s) The same as 1-K except the stem is straight.

#### CLASS 2

2-A (Fig. 10 t-w) Sides straight; double indentation in the base forms incipient stem and barbs.

2-B (Fig. 10 x-z) Sides straight; shouldered; contracting stem.

2-C (Fig. 10 aa-bb) Sides straight; incipient barbs; contracting stem.

2-D (Fig. 10 cc-dd) The same as 2-C except the stem is straight.

2-E (Fig. 10 ee-ff) Sides straight; barbed; contracting stem.

2-F (Fig. 10 gg-hh) The same as 2-E except the stem is straight.

2-G (Fig. 10 ii-jj) The same as 2-E except the stem is expanding.

2-H (Fig. 10 kk) Sides straight; base slight-

TABLE 1  
Continued

	Worked Flakes		Unclassifiable Fragments		Choppers		Worked Basalt Flakes		Pestles		Mortars	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
House pit 1												
Floor 3	10	1.3	5	0.7	1	0.1	1	0.1	1	0.1	2	0.3
Floor 2	9	1.2	0	0	1	0.1	3	0.4	0	0	3	0.4
Floor 1	0	0	1	0.1	0	0	0	0	0	0	0	0
Subtotal	19	2.5	6	0.8	2	0.3	4	0.5	1	0.1	5	0.6
House pit 2												
Floor 4	22	2.9	9	1.2	3	0.4	3	0.4	2	0.3	0	0
Floor 3	4	0.5	4	0.5	1	0.1	2	0.3	0	0	0	0
Floor 2	5	0.7	5	0.7	0	0	4	0.5	1	0.1	0	0
Floor 1	6	0.8	1	0.1	4	0.5	0	0	1	0.1	0	0
Subtotal	37	4.8	19	2.5	8	1.0	9	1.2	4	0.5	0	0
House pit 3	2	0.3	0	0	0	0	0	0	0	0	0	0
House pit 4												
Floor 4	18	2.3	6	0.8	9	1.2	3	0.4	1	0.1	0	0
Floor 3	17	2.2	5	0.7	4	0.5	2	0.3	0	0	0	0
Floor 2	12	1.6	5	0.7	1	0.1	2	0.3	1	0.1	0	0
Floor 1	27	3.5	5	0.7	3	0.4	2	0.3	2	0.3	1	0.1
Subtotal	74	9.6	21	2.7	17	2.2	9	1.2	4	0.5	1	0.1
Total	132	17.2	46	6.0	27	3.5	22	2.9	9	1.2	6	0.8

ly convex; two notches removed vertically from the base form a straight stem.

2-I (Fig. 10 11-mm) Sides straight; base concave; narrow notches with parallel edges removed laterally from the side of the point.

2-J (Fig. 10 nn) The same as 2-I except that a single notch has been removed vertically from the base of the point.

2-K (Fig. 10 oo-pp) Sides straight; expanding stem; the butt is straight or slightly concave and is nearly as wide as the maximum width of the point.

#### CLASS 3

3-A (Fig. 10 qq) Sides concave; stemless; base concave.

3-B (Fig. 10 rr) Sides concave; incipient barbs; contracting stem.

3-C (Fig. 10 ss-tt) Sides concave; long barbs

generally extending beyond the stem; contracting stem.

3-D (Fig. 10 uu-vv) Sides concave; long barbs of unequal length, the longest is approximately one-third the total length of the point; stem straight.

3-E (Fig. 10 ww) Sides concave; stemless; base concave; a single notch removed from the base to one side of the center line.

3-F A reworked point with straight sides which expand abruptly near the distal end to form a "wing"; notches removed from the base form a straight stem.

In addition to the 187 classifiable projectile points, there are 86 fragments which could be separated on the basis of only one or two of the three criteria. An estimated 50 percent of these would have been included in Class 2.

TABLE 1  
Continued

	Manos		Metates		Fragments of Grinding Stones		Bone and Antler		All Other		Totals	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
House pit 1												
Floor 3	3	0.4	1	0.1	2	0.3	7	0.9	2	0.3	73	9.5
Floor 2	4	0.5	0	0	1	0.1	1	0.1	2	0.3	55	7.2
Floor 1	1	0.1	1	0.1	0	0	0	0	2	0.3	6	0.8
Subtotal	8	1.0	2	0.3	3	0.4	8	1.0	6	0.8	134	17.4
House pit 2												
Floor 4	2	0.3	2	0.3	2	0.3	2	0.3	7	0.9	120	15.6
Floor 3	0	0	0	0	0	0	2	0.3	5	0.6	39	5.0
Floor 2	0	0	0	0	0	0	2	0.3	5	0.6	58	7.5
Floor 1	0	0	1	0.1	1	0.1	4	0.5	0	0	45	5.8
Subtotal	2	0.3	3	0.4	3	0.4	10	1.3	17	2.2	262	33.5
House pit 3	0	0	0	0	0	0	0	0	0	0	6	0.8
House pit 4												
Floor 4	4	0.5	0	0	2	0.3	2	0.3	3	0.4	103	13.4
Floor 3	6	0.8	0	0	0	0	2	0.3	2	0.3	66	8.6
Floor 2	0	0	0	0	0	0	6	0.8	3	0.4	64	8.3
Floor 1	4	0.5	1	0.1	0	0	7	0.9	5	0.5	150	19.5
Subtotal	14	1.8	1	0.1	2	0.3	17	2.2	12	1.6	383	49.8
Total	24	3.1	6	0.8	8	1.0	35	4.6	36	4.6	785	

## KNIVES

CLASS 1: *Bifacially worked pieces of vein chalcidony* (Fig. 11 a-b)

Small pieces of translucent vein chalcidony which have been retouched along the edge form a distinct group of artifacts which are classed as knives because their function was almost certainly cutting and slicing. Most specimens have been worked on one edge only, but a few have two edges worked to a point. The largest specimen measures 57 x 31 mm. 21 specimens.

CLASS 2: *Shaped knives* (Fig. 11 c-d)

The "shaped knives" have a generally lanceolate form and were manufactured by overall percussion or pressure flaking, although some specimens are large, thick flakes worked on one end only. The largest complete specimen is 45 x 23 mm. 18 specimens.

## SCRAPERS

CLASS 1: *Crude scrapers*

The "crude scrapers" were made from cores or large flakes by percussion flaking. Some exhibit secondary percussion flaking; only one is flaked overall. The largest complete specimen measures 60 x 52 mm. 17 specimens.

CLASS 2: *End scrapers* (Fig. 11 e)

The "end scrapers" were made from relatively thick flakes and, characteristically, have a blunt, rounded end. These are often referred to as snub-nosed scrapers, plane scrapers or plano-convex scrapers. However, the forms incorporated in this class are not distinct enough to permit more specific classification. 13 specimens.

CLASS 3: *Triangular end scrapers* (Fig. 11 f-g)

The "triangular end scrapers" are triangu-

TABLE 2  
METRIC ATTRIBUTES OF PROJECTILE POINT CLASSES  
(Measurements in Millimeters)

Class	No.	Range	Length		Range	Width		Range	Thickness	
			M	MD		M	MD		M	MD
1-A	2	26.0 .....	26.00	0.00	16.0-19.5	17.75	1.75	4.0-4.5	4.25	0.25
1-B	3	22.0-30.0	26.00	4.00	12.0-13.5	12.80	0.56	3.0-6.0	4.30	0.76
1-C	1	.....	25.00	.....	.....	12.00	.....	.....	5.50	.....
1-D	1	.....	19.00	.....	.....	9.00	.....	.....	3.50	.....
1-E	6	23.0-38.0	30.25	6.00	12.0-19.5	14.60	2.45	3.0-4.0	3.50	0.30
1-F	1	.....	34.00	.....	.....	14.50	.....	.....	6.00	.....
1-G	6	22.0-30.5	24.75	3.15	12.5-16.0	14.40	1.10	2.5-3.5	3.10	0.35
1-H	1	.....	22.00	.....	.....	16.50	.....	.....	3.50	.....
1-I	1	.....	22.50	.....	.....	13.00	.....	.....	3.00	.....
1-J	7	19.0-37.0	26.25	5.30	16.0-18.0	16.75	0.75	3.0-3.5	3.18	0.23
1-K	6	25.0-30.5	27.75	1.83	16.0-21.5	18.50	1.41	3.0-4.0	3.50	0.50
1-L	6	22.0-29.0	24.30	1.30	17.0-20.0	18.60	1.15	3.0-4.0	3.60	0.40
2-A	29	15.5-28.0	22.92	4.09	10.0-25.0	13.70	2.60	2.0-6.0	3.30	0.68
2-B	14	12.0-45.5	24.46	6.10	9.0-22.0	14.80	2.55	2.0-6.0	3.46	2.55
2-C	21	17.0-32.0	24.43	4.02	11.5-17.0	14.43	1.48	2.0-5.0	3.30	0.79
2-D	5	19.5-25.0	21.90	1.95	16.5-22.0	18.00	3.20	3.0-4.0	3.60	0.32
2-E	26	17.0-47.0	26.44	5.80	12.0-29.0	17.70	3.14	3.0-5.0	3.70	0.63
2-F	7	20.0-38.0	25.60	4.50	12.0-18.0	15.20	1.46	2.5-4.0	3.10	0.45
2-G	6	17.0-29.0	21.10	3.90	14.5-18.0	15.70	1.10	2.5-3.0	2.75	0.25
2-H	4	17.5-25.0	22.40	2.62	15.5-22.0	17.60	2.17	3.0-4.0	3.25	0.50
2-I	5	15.0-30.5	21.10	4.70	11.5-15.0	11.10	2.50	2.0-4.0	3.10	0.62
2-J	3	18.0-30.0	23.60	4.20	14.0-22.5	17.80	3.43	3.0-5.0	3.80	0.76
2-K	8	16.5-40.5	27.00	7.00	13.0-17.0	14.40	1.55	3.5-7.0	4.90	1.08
3-A	4	19.0-25.0	22.60	1.80	13.0-17.5	14.50	2.00	2.0-5.0	3.66	1.25
3-B	3	15.5-25.0	20.00	3.15	11.5-13.0	12.00	0.66	3.0 .....	3.00	0.00
3-C	7	15.0-35.5	23.20	5.50	12.0-19.0	14.85	2.02	2.5-4.5	3.50	0.77
3-D	2	21.0-26.5	23.75	2.75	16.5-21.0	18.75	2.25	2.0-3.5	2.75	0.75
3-E	1	.....	24.00	.....	.....	13.00	.....	.....	3.00	.....
3-F	1	.....	42.50	.....	.....	22.00	.....	.....	3.50	.....

lar in plan view and bi-convex in cross section. The base, or working edge, varies from slightly concave to convex. All specimens are bifacially pressure flaked overall. Some of these implements might seem to be projectile points, but the thickness of most specimens would have made hafting difficult. Further, microscopic examination revealed wear and use fractures along the basal edge of most specimens. Size varies from 18 x 12 x 3 mm. to 37 x 28 x 8 mm. 28 specimens.

#### CLASS 4: *Flake scrapers*

Flake scrapers are relatively large, but ir-

regular, flakes with a worked edge similar to that found on scrapers with a well-defined form. Size varies from 27 x 18 mm. to 65 x 43 mm. 25 specimens.

#### DRILLS

(Fig. 11 h-i)

Of the 13 drills recovered, three appear to be reworked projectile points. Only five, including the reworked points, are flaked overall; the remainder consist of a drill shaft worked onto a flake. The largest specimen is 26 mm. long.

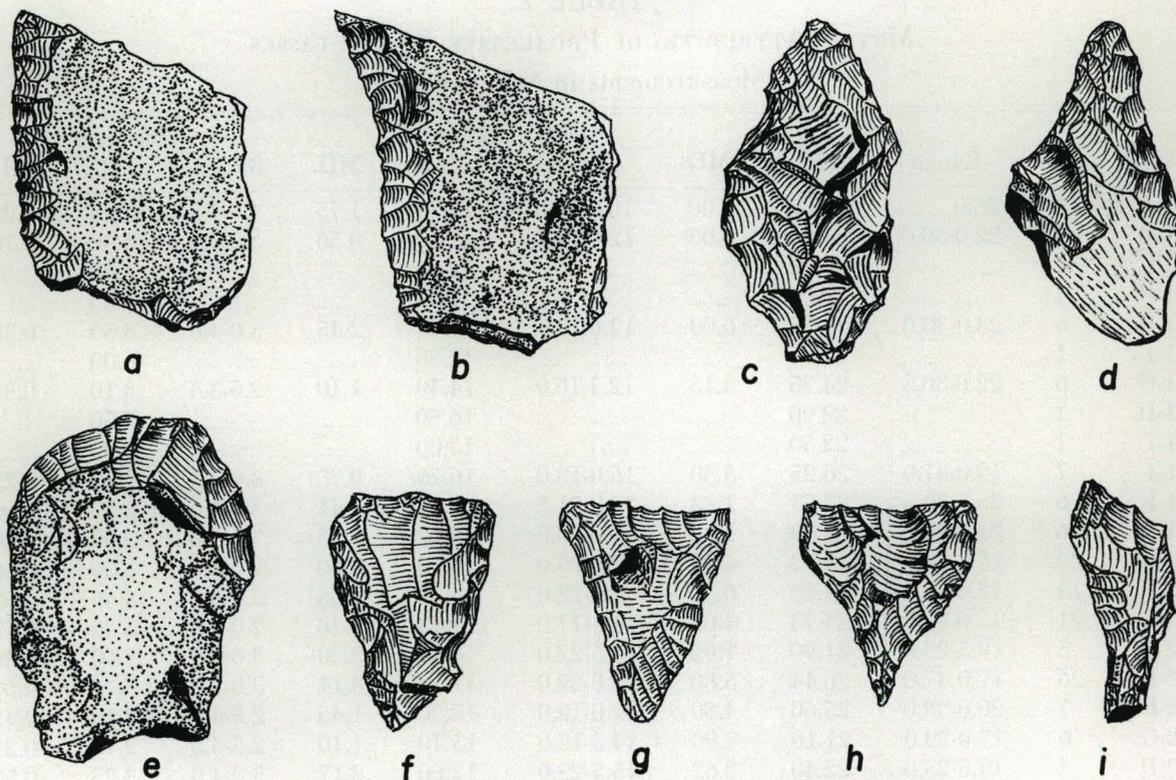


Figure 11. Knives, scrapers and drills. a-b worked pieces of vein chalcedony; c-d shaped knives; e large end scraper; f-g triangular end scrapers; h-i drills. All specimens natural size.

### GRAVERS

(Fig. 12 a)

There is nothing distinctive about the gravers in the collection. All are flakes with a point worked onto a convenient projection. The few pieces of cut bone recovered were apparently cut by gravers.

### WORKED FLAKES

Most flakes with a worked or retouched edge are unifacially flaked, but it is often impossible to determine if the modification was intentional or the result of use. The implements were probably made and discarded as a matter of momentary expedience, but 17 of them have a concave, or "spokeshave" edge (Fig. 12 b) which may have served a specific purpose. Cosner (1956: 300-301) suggests that such spoke-

shave-like implements were possibly saws for cutting arrow shafts. 132 specimens.

### PROBLEMATICAL STONE ARTIFACTS

(Fig. 12 c)

There are three chipped-stone artifacts of uncertain function. The form is an elongated oval in plan view; the cross section is approximately diamond in two instances and flat in the third. These could have been drills, but none shows signs of wear or use on either end. The sizes are 24 x 8 mm.; 19 x 7 mm.; and 16 x 7 mm.

### CHOPPERS

(Plate 5 a-c)

Two of the choppers in the collection are unifacially percussion flaked; the remainder are bifacially percussion flaked. One specimen

## MANOS

### CLASS 1: *Unshaped manos*

The unshaped manos are river cobbles with a conveniently flat surface used for grinding. The largest specimen measures 135 x 105 mm. 11 specimens.

### CLASS 2: *Shaped manos* (Plate 5 d)

Five of the shaped manos are distinctive in that they were flaked into a tear-drop shape. Three of these are made of a green conglomerate, the others are made of a fine-grained basalt. Six of the shaped manos were formed by grinding the edges of a flat river cobble more or less perpendicular to the grinding surface. The outline of the tools shows no consistent pattern and, in all probability, follows the shape of the original cobble. The remaining two shaped manos are pieces of coarse-grained sandstone battered down to a convenient size. Materials, except as noted, are river cobbles of fine-grained basalt or metamorphic rock. Total number of specimens: 13.

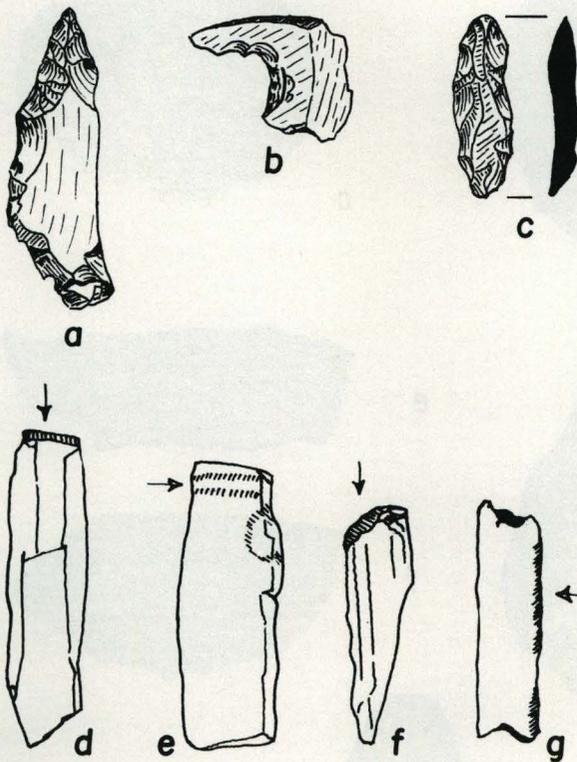


Figure 12. Miscellaneous stone artifacts. a graver; b spokeshave; c problematical object; d-g pieces of fossil wood inscribed with red pigment. All specimens natural size.

is chalcedony; the others are basalt. One specimen (Plate 5 a) which is trapezoidal in outline, rather than round or oval, might be considered an axe or an adz. 27 specimens.

## WORKED BASALT FLAKES

(Plate 5 e-f)

Large basalt flakes with a crudely retouched edge were found throughout the site. In some instances modification may have been the result of use, but in most instances it appears intentional. In these latter instances all flaking is unifacial. The largest specimen is 101 x 88 mm. 22 specimens.

## METATES

The unusual aspect of most of the metates from the site is their thinness—about 3 cm. The largest complete specimen measures 45 x 40 x 6 cm. Material is basalt. 6 specimens.

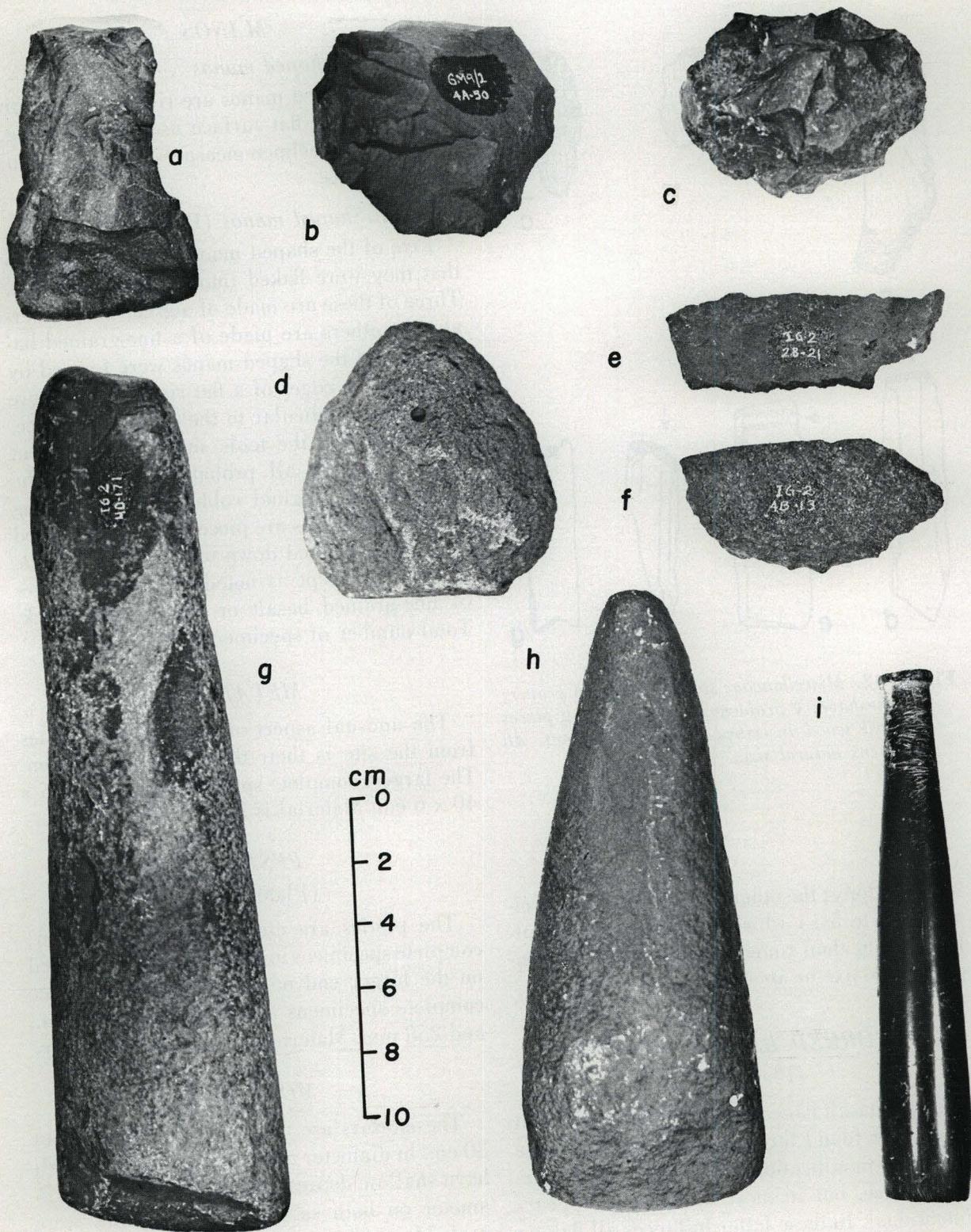
## PESTLES

(Plate 5 g-h)

The pestles are circular in cross section; complete specimens are tapering and were used on the larger end only. Lengths of the three complete specimens are 185 mm., 215 mm., and 258 mm. Material is basalt. 6 specimens.

## MORTARS

The mortars are round river cobbles about 30 cm. in diameter and 10 to 15 cm. thick; all have shallow depressions about 10 cm. in diameter on both surfaces. These stones were probably used in conjunction with a basket to form a hopper mortar and are referred to as "hopper mortar stones." 6 specimens.



**Plate 5.** Large stone artifacts. **a-c** choppers; **d** shaped mano; **e-f** worked basalt flakes; **g-h** pestles; **i** steatite pipe.

TABLE 3  
DISTRIBUTION OF PROJECTILE POINTS  
CLASS 1

	1-A		1-B		1-C		1-D		1-E		1-F		1-G	
	No.	%	No.	%	No.	%								
House pit 1														
Floor 3	1	2.4	.....		.....		.....		.....		.....		.....	
Floor 2	.....		1	2.4	.....		.....		2	4.8	.....		.....	
Floor 1	.....		.....		.....		.....		.....		.....		.....	
House pit 2														
Floor 4	.....		.....		.....		.....		.....		.....		1	2.4
Floor 3	.....		.....		.....		.....		1	2.4	.....		1	2.4
Floor 2	1	2.4	.....		.....		.....		1	2.4	.....		.....	
Floor 1	.....		.....		.....		.....		.....		.....		.....	
House pit 3	.....		.....		.....		.....		.....		.....		.....	
House pit 4														
Floor 4	.....		1	2.4	.....		.....		.....		.....		2	4.8
Floor 3	.....		.....		.....		.....		1	2.4	.....		.....	
Floor 2	.....		.....		.....		.....		.....		.....		1	2.4
Floor 1	.....		1	2.4	1	2.4	1	2.4	1	2.4	1	2.4	1	2.4
Total	2	4.8	3	7.2	1	2.4	1	2.4	6	14.4	1	2.4	6	14.4

TABLE 3  
Continued  
CLASS 1

	1-H		1-I		1-J		1-K		1-L		Class 1 Total			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
House pit 1														
Floor 3	.....		.....		1	2.4	.....		.....		2	4.8		
Floor 2	.....		.....		1	2.4	1	2.4	.....		5	12.0		
Floor 1	.....		.....		.....		.....		.....		.....			
House pit 2														
Floor 4	.....		1	2.4	1	2.4	.....		.....		3	7.2		
Floor 3	.....		.....		.....		2	4.8	1	2.4	5	12.0		
Floor 2	.....		.....		.....		.....		1	2.4	3	7.2		
Floor 1	.....		.....		.....		.....		2	4.8	2	4.8		
House pit 3	.....		.....		.....		.....		.....		.....			
House pit 4														
Floor 4	.....		1	2.4	.....		2	4.8	.....		1	2.4	7	16.8
Floor 3	.....		.....		.....		1	2.4	.....		2	4.8		
Floor 2	.....		.....		.....		.....		.....		1	2.4		
Floor 1	.....		.....		2	4.8	2	4.8	1	2.4	11	26.4		
Total	.....		1	2.4	1	2.4	7	16.8	6	14.4	6	14.4	41	

TABLE 3

Continued

CLASS 2

	2-A		2-B		2-C		2-D		2-E		2-F	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
House pit 1												
Floor 3	3	2.4	.....		1	0.8	1	0.8	1	0.8	1	0.8
Floor 2	1	0.8	.....		1	0.8	.....		1	0.8	.....	
Floor 1	.....		.....		.....		.....		.....		.....	
House pit 2												
Floor 4	2	1.6	.....		2	1.6	.....		4	3.2	3	2.4
Floor 3	.....		2	1.6	2	1.6	.....		4	3.2	1	0.8
Floor 2	2	1.6	2	1.6	2	1.6	1	0.8	6	4.8	1	0.8
Floor 1	.....		2	1.6	2	1.6	.....		2	1.6	.....	
House pit 3	.....		.....		1	0.8	.....		.....		.....	
House pit 4												
Floor 4	2	1.6	3	2.4	1	0.8	1	0.8	1	0.8	.....	
Floor 3	5	4.0	1	0.8	1	0.8	1	0.8	.....		.....	
Floor 2	5	4.0	1	0.8	.....		1	0.8	.....		.....	
Floor 1	9	7.2	3	2.4	8	6.4	.....		7	5.6	1	0.8
Total	29	23.2	14	11.2	21	16.8	5	4.0	26	20.8	7	5.6

TABLE 3

Continued

CLASS 2

	2-G		2-H		2-I		2-J		2-K		Class 2 Total	
	No.	%	No.	%								
House pit 1												
Floor 3	1	0.8	.....		2	1.6	.....		.....		10	8.0
Floor 2	.....		.....		1	0.8	.....		1	0.8	5	4.0
Floor 1	.....		.....		.....		.....		.....		.....	
House pit 2												
Floor 4	2	1.6	.....		1	0.8	.....		1	0.8	15	12.0
Floor 3	1	0.8	.....		.....		.....		.....		10	8.0
Floor 2	.....		2	1.6	.....		.....		1	0.8	17	13.6
Floor 1	1	0.8	.....		.....		.....		1	0.8	8	6.4
House pit 3	.....		.....		.....		.....		1	0.8	2	1.6
House pit 4												
Floor 4	.....		.....		.....		.....		.....		8	6.4
Floor 3	.....		.....		1	0.8	1	0.8	1	0.8	11	8.8
Floor 2	.....		1	0.8	.....		2	1.6	.....		10	8.0
Floor 1	1	0.8	1	0.8	.....		.....		2	1.6	32	25.6
Total	6	4.8	4	3.2	5	4.0	3	2.4	8	6.4	128	

TABLE 3  
Continued  
CLASS 3

	3-A		3-B		3-C		3-D		3-E		3-F		Class 3 Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
House pit 1														
Floor 3	1	5.5	.....		.....		.....		.....		.....		1	5.5
Floor 2	1	5.5	.....		.....		.....		.....		.....		1	5.5
Floor 1	.....		.....		.....		.....		.....		.....		.....	
House pit 2														
Floor 4	.....		.....		1	5.5	1	5.5	.....		1	5.5	3	16.5
Floor 3	.....		.....		.....		.....		.....		.....		.....	
Floor 2	.....		.....		1	5.5	.....		.....		.....		1	5.5
Floor 1	.....		.....		.....		.....		.....		.....		.....	
House pit 3	.....		.....		.....		.....		.....		.....		.....	
House pit 4														
Floor 4	.....		1	5.5	2	11.0	.....		1	5.5	.....		4	22.0
Floor 3	.....		.....		2	11.0	.....		.....		.....		2	11.0
Floor 2	1	5.5	1	5.5	.....		.....		.....		.....		2	11.0
Floor 1	1	5.5	1	5.5	1	5.5	1	5.5	.....		.....		4	22.0
Total	4	22.0	3	16.5	7	38.5	2	11.0	1	5.5	1	5.5	18	

#### MISCELLANEOUS STONE ARTIFACTS

The remaining stone artifacts in the collection recovered from the Iron Gate site are:

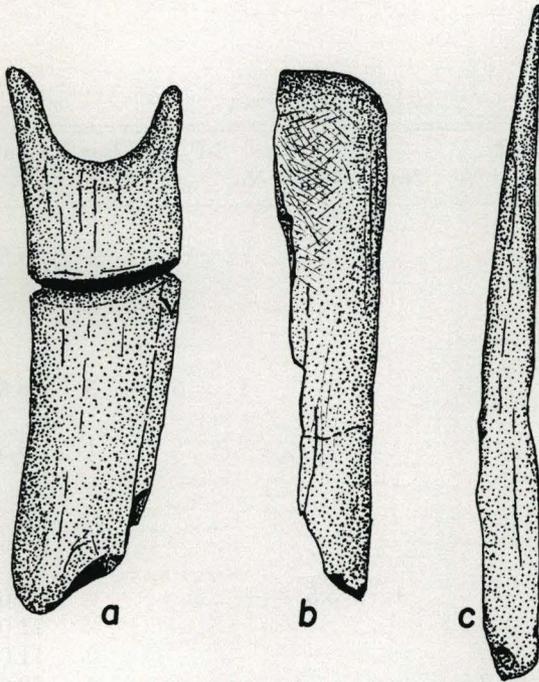
1. Unclassifiable fragments of chipped stone. 46 specimens.
2. Fragments of grinding stones. These could be either mano or metate fragments, but their size precludes determination. 8 specimens.
3. Pounding stones, i.e., cobbles or pieces of basalt with a worn and battered edge.
4. Small round stones which show abrasion. 2 specimens.
5. Sinkers made from flat, oval pebbles. Notches are on the smaller axis. 4 specimens.
6. Small grinding or abrading stones. 3 specimens.
7. A piece of fine-grained sandstone, 125 mm. long and 45 mm. in diameter, which was flaked and mashed, probably to shape it preparatory to grinding and polishing.

The intended form is not apparent.

8. A fragment of polished serpentine (?).
9. A small rod of serpentine (?) 34 mm. long and 4 mm. in diameter.
10. A tubular steatite pipe (Plate 5 i). The tube is 132 mm. long; the outside diameter of the mouthpiece is 13 mm.; the outside diameter of the bowl is 24 mm.
11. A fragment of stone tube made of scoriaeous basalt (?). The fragment is 26 mm. long; the outside diameter is 15 mm.; the diameter of the hole is 7 mm. Parallel longitudinal striations are visible on the inside of the tube.

#### BONE AND ANTLER ARTIFACTS

Like the stone artifacts, artifacts made of bone and antler show little elaboration beyond the requisites of necessity. Because bone recovered in the excavation was well preserved, it may be assumed that the artifacts of bone and antler from the site are a representative sample.



**Figure 13.** Bone Implements. **a** "net shuttle"; **b** fragment of spatulate implement; **c** splinter awl. All specimens natural size.

### BONE AWLS

#### CLASS 1: *Ulna awls*

There are three awls made of deer ulnae. Two are broken. The complete specimen is 114 mm. long.

#### CLASS 2: *Splinter awls* (Fig. 13 c)

Two splinter awls were recovered. One is a splinter 90 mm. long worked to a sharp point. The second is a splinter 104 mm. long with a natural point worn and polished by use.

### NET SHUTTLE

(Fig. 13 a)

One bone artifact is called a "net shuttle" because the form of one end is suggestive of such an implement. The other end was broken and then subsequently worn and polished. The piece is 72 mm. long and 23 mm. wide. It is flat in cross section. The distal end is concave with an indentation 12 mm. deep. A transverse V-cut nearly encircles the piece 30 mm. below the distal end.

### SPATULATE BONE IMPLEMENTS

(Fig. 13 b)

Three fragmentary implements of bone have rounded, highly polished ends. One is quite well made and was probably worked overall; the other two are utilized splinters. Artifacts similar to these have been called variously "sweat scrapers" or "hide polishers." The well-made specimen is reminiscent of the "louse killer" illustrated by Loud (1918: Plate 20, No. 17).

### FLAKED BONE SCRAPER

(Fig. 14 d)

A scraper-like implement was made from a fragment of bone by bifacial flaking. The end is slightly worn and polished. It measures 20 x 15 mm.

### BONE BEADS

Two tubular bone beads found in the site were cut from the long bone of a small mammal (rabbit?). One was worked into a square cross section; the other is unmodified except for polishing on the ends. Lengths are 16 mm. and 13 mm., respectively.

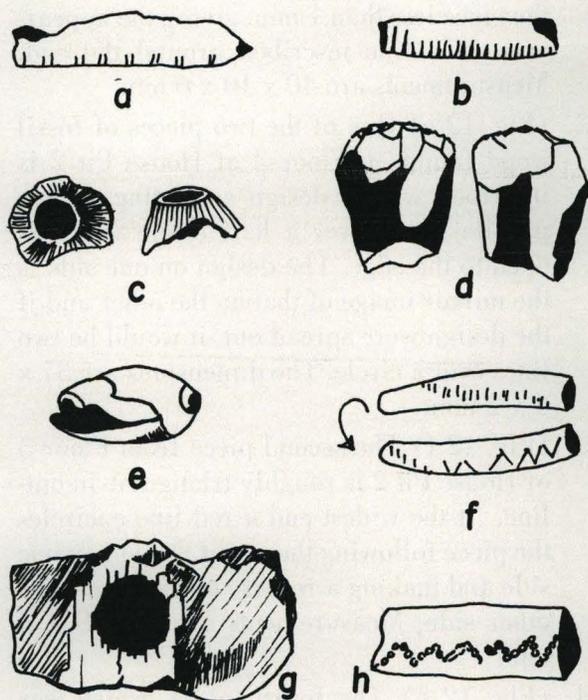
### INCISED BONE FRAGMENTS

(Fig. 14 a-b)

Two small splinters of bone have short parallel incisions on the edge. One is 32 mm. long and 7 mm. wide; it has eight pairs of incisions which are about 2.5 mm. long and spaced about 3 mm. apart. The other is 24 mm. long and 5 mm. wide; it has 22 incisions of unequal length irregularly spaced along one edge. The decoration on these fragments is very much like that on a bone tube and bone pins found in a cave in Lassen County (Riddell, 1956: Plate 1).

### FRAGMENTS OF BONE ARTIFACTS

1. A rod with a rounded end. Cross section is oval; length is 78 mm.; maximum diameter is 9 mm.; minimum diameter is 6 mm.



**Figure 14.** Miscellaneous artifacts. a-b incised bone fragments; c fragment of horn tube; d flaked-bone end scraper; e *Olivella* bead; f incised *Dentalium*; g charcoal with drilled hole; h baked clay rod with punctate design. All specimens natural size.

2. A fragment of bone with a transverse V-cut. Dimensions are 30 x 13 mm.
3. Small bone rods. In the six instances where a worked end is present, four are rounded and two are pointed. The largest fragment measures 25 x 6 x 3 mm. 9 specimens.
4. A piece of bird bone, 31 mm. long, worked to a sharp point. This was, perhaps, an awl or needle.
5. Two fragments of longitudinally cut bone. In both instances the cut edges are rounded and polished. The larger piece is 41 mm. long.

### ANTLER TINE FLAKERS

Four antler tines with rounded tips were found. Three are broken; one is complete. The complete specimen is 102 mm. long.

### PROBLEMATICAL ANTLER ARTIFACT

An unfinished antler artifact is 106 mm. long, 21 mm. wide and 8 mm. in maximum thickness. The dorsal side has been hacked or chopped, but lacks smoothing; the ventral side is a fracture surface. In dorsal view, the right side has been cut or sawed and there is an incomplete cut on the proximal end of the left side which has a corresponding cut on the ventral side. The distal end is rounded and somewhat smoothed.

### ANTLER FRAGMENT

A fragment of longitudinally cut antler with the cancellous tissue cut away is 47 mm. long and 22 mm. wide.

### MISCELLANEOUS ARTIFACTS

#### SHELL ARTIFACTS

1. An *Olivella* (*O. biplicata*) bead (Fig. 14 e) was made from a small, whole shell by grinding the spire off square to the axis of the shell. This specimen is of Type 1a in the bead typology of Lillard, Heizer, and Fenenga (1939: 12).
2. A pendant was made from a *Protothaca* shell by grinding the umbo off square to the axis of the shell to make a perforation. *Protothaca* is a marine genus found in estuarine or intertidal areas.
3. An incised *Dentalium* (Fig. 14 f) bears two sets of incisions. The first is a row of short parallel cuts which runs the full length of the shell and which makes a nearly complete spiral around it. The second is a zig-zag line which runs two-thirds of the length. The shell is 25 mm. long.

#### HORN ARTIFACT

(Fig. 14 c)

The end of a tube made of horn was found on Floor 1 of House Pit 4. The length is 7 mm.;

external diameter of the smaller end is 7 mm.; diameter of the orifice is 5 mm.; diameter of the broken end is 13 mm. The inside of the object is quite soft and stained grey and black. The only source of horn in aboriginal times would have been the mountain sheep and, interestingly enough, the teeth of a mountain sheep (*Ovus*) were found on the same floor as this artifact.

### CERAMIC ARTIFACTS

1. A fragment of a ceramic artifact is too small to determine anything other than that it was possibly part of a rod. The piece is 15 mm. long; the maximum diameter is 12 mm. In cross section it is oval at one end, expanding to round at the other. Hardness of the material is between Moh 3 and 4.
2. A fragment of tapering rod (Fig. 14 h) is 29 mm. long; maximum diameter is 9.5 mm.; minimum diameter is 7 mm. The piece is decorated with a zig-zag line of dots made by impressing the unfired clay with a hollow shaft of very small diameter. Hardness of the piece is Moh 3.

### WOODEN ARTIFACT

(Fig. 14 g)

On Floor 1 of House Pit 1 was a piece of charcoal with a hole in it which seems to represent a hole drilled in the original wood. The charcoal measures 36 x 20 x 16 mm.; the grain is along the width. The diameter of the hole is 8 mm.; depth is 7 mm. The bottom seems to have been concave, but precise determination is impossible. The hole is not natural for it cuts through a straight grain and has parallel sides whereas if it were a knot hole the grain would separate and go around the hole and the sides of the hole would taper. Also, there would be some sign of grain separation on the side of the wood opposite the hole. Such is not the case.

### INSCRIBED FOSSIL WOOD

1. (Fig. 12 d) One end of a piece of fossil wood found on Floor 4 of House Pit 2 is

stained red; the stain extends up the side of the piece less than 1 mm. giving the appearance of a line inscribed around the end. Measurements are 40 x 10 x 6 mm.

2. (Fig. 12 e) One of the two pieces of fossil wood found on Floor 3 of House Pit 2 is inscribed with a design consisting of two parallel lines over a half circle which is open to the edge. The design on one side is the mirror image of that on the other and if the design were spread out, it would be two lines over a circle. The dimensions are 37 x 6 x 2 mm.
3. (Fig. 12 f) The second piece from Floor 3 of House Pit 2 is roughly triangular in outline. At the widest end a red line encircles the piece following the arc of the end on one side and making a reverse of the arc on the other side. Measurements are 30 x 9 x 3 mm.
4. (Fig. 12 g) The fourth piece, which was found on Floor 2 of House Pit 2, has lines of red pigment along two edges. On one side the line has been partly obliterated, probably from grinding in the sifter. Measurements are 30 x 7 x 3 mm.

### DISCUSSION

Probably the most notable aspect of the artifact inventory is the extremely high percentage of projectile points which, including fragments, comprise 36.8 percent of the total artifact count. The low percentage of knives contrasts sharply with the high percentage of projectile points for, including the bifacially flaked pieces of vein chalcedony, knives comprise only 5 percent of the total artifact count. Further, the knives are all small and without well-defined forms. The significance of this disparity is not immediately apparent, but it may relate to the importance of small, waste flakes used as cutting implements.

The lack of artifacts connected with fishing is also notable, for fishing was of major importance along the Klamath River in historic times. Most fishing, however, was done with nets, rather than with hook and line (Kroeber

TABLE 4  
IDENTIFIED FAUNAL REMAINS  
MINIMUM NUMBER OF INDIVIDUALS PER FLOOR

House Pit Floor	1			2				4			
	3	2	1	4	3	2	1	4	3	2	1
Fox ( <i>Vulpes</i> )	..	..	..	..	..	..	1	..	..	..	..
Porcupine ( <i>Erethizon</i> )	..	..	1	..	..	1	..	..	1	..	..
Raccoon ( <i>Procyon</i> )	..	..	..	..	..	..	..	1	..	..	..
Mountain Sheep ( <i>Ovis</i> )	..	..	..	..	..	..	..	..	..	..	1
Coyote ( <i>Canis</i> )	1	..	..	1	..	..	1	..	..	..	..
Wood Rat ( <i>Neotoma</i> )	..	..	1	..	..	..	..	..	..	1	2
Marmot ( <i>Marmota</i> )	..	..	..	..	..	..	..	..	..	..	2
River Otter ( <i>Lutra</i> )	..	..	..	..	..	..	..	..	..	1	1
Badger ( <i>Taxidea</i> )	..	..	..	..	..	..	..	..	..	..	1
Beaver ( <i>Castor</i> )	1	..	..	..	..	1	..	1	..	1	1
Bear ( <i>Ursus</i> )	..	..	1	..	..	..	..	..	..	..	..
Brush Rabbit ( <i>Sylvilagus</i> )	2	2	1	2	1	1	2	2	2	3	5
Jack Rabbit ( <i>Lepus</i> )	3	2	..	2	..	1	1	2	1	2	1
Gopher ( <i>Thomomys</i> )	1	..	..	..	..	..	..	..	1	..	2
Ground Squirrel ( <i>Citellus</i> )	1	1	..	1	..	1	1	1	2	1	6
Deer ( <i>Odocoileus</i> )	2	6	1	2	2	2	1	1	1	1	2
Turtle	1	1	1	1	1	1	1	1	1	1	1

and Barrett, 1960). Therefore, it is doubtful if the lack of fishing gear in the artifact inventory is to be construed as indicative of the unimportance of fishing in the economy.

Hopper mortar stones indicate the use of acorns as a foodstuff, an indication supported by charred acorns (*Quercus garryana*) recovered in the excavations. The distribution of these artifacts is virtually coterminous with the use of acorns in California and their presence is suggestive of a Californian orientation in the economy.

#### FAUNAL REMAINS (Table 4)

Bird bone from the site was sent to Dr. Loye Miller of the University of California at Davis for identification. In a letter dated April 7, 1961, Dr. Miller made the following statement:

Practically all of the bird bones are from small goose and a variety of ducks. One exception is a single ulna of a flicker.

Dr. J. Arnold Shotwell of the Museum of Natural History, University of Oregon, identified the mammal bone. The identified remains are predominantly deer and rabbit, indicating the importance of these animals in the economy. Whether or not the small rodents were used for food is uncertain. Burrows of these animals were found throughout the excavations, so many of the bones could be intrusive. The remains of ground squirrel (*Citellus*), however, are numerous enough to warrant the supposition that this animal was used for food as it was during the ethnographic period. The minimum number of individual animals represented by the identified faunal remains is presented in Table 4.

### CHRONOLOGY

Two radiocarbon dates were obtained through the facilities of Isotopes, Incorporated, of Westwood, New Jersey:

1. I-230 510±75  
1440 A.D.

*Sample:* Charcoal

*Provenience:* Burned pole from fill between Floor 2 and Floor 3 of House Pit 2.

*Significance:* Dates a pole used in the structure associated with Floor 2 of House Pit 2.

2. I-231 400±75  
1550 A.D.

*Sample:* Wood

*Provenience:* Fragment of pole found on Floor 1 of House Pit 2.

*Significance:* Dates a pole presumably used in the structure associated with Floor 1 of House Pit 2.

The two dates conflict in the sense that the earlier date is from the higher floor. However, the combined range is only 260 years, which is no greater than might be obtained on two samples from the same tree. The conflict is likely a result of the age of the trees used in the structures and is not considered significant.

Because the dates are relevant to the wood used in the construction of houses, they can only be considered as limiting dates for the floors with which the poles were associated. On this basis the occupation of Floor 1 began during or after the period 1475 A.D. to 1625 A.D. and the occupation of Floor 2 began during or after the period 1365 A.D. to 1515 A.D. For convenient reference, the approximate median of the combined ranges, 1500 A.D. (450±75), is considered the minimum initial date for occupation of the house pit and, by association, the site.

No trade goods or other artifacts of non-aboriginal manufacture were found associated with the houses, indicating that the site was abandoned before 1850 when contact with Whites became frequent in northern California.

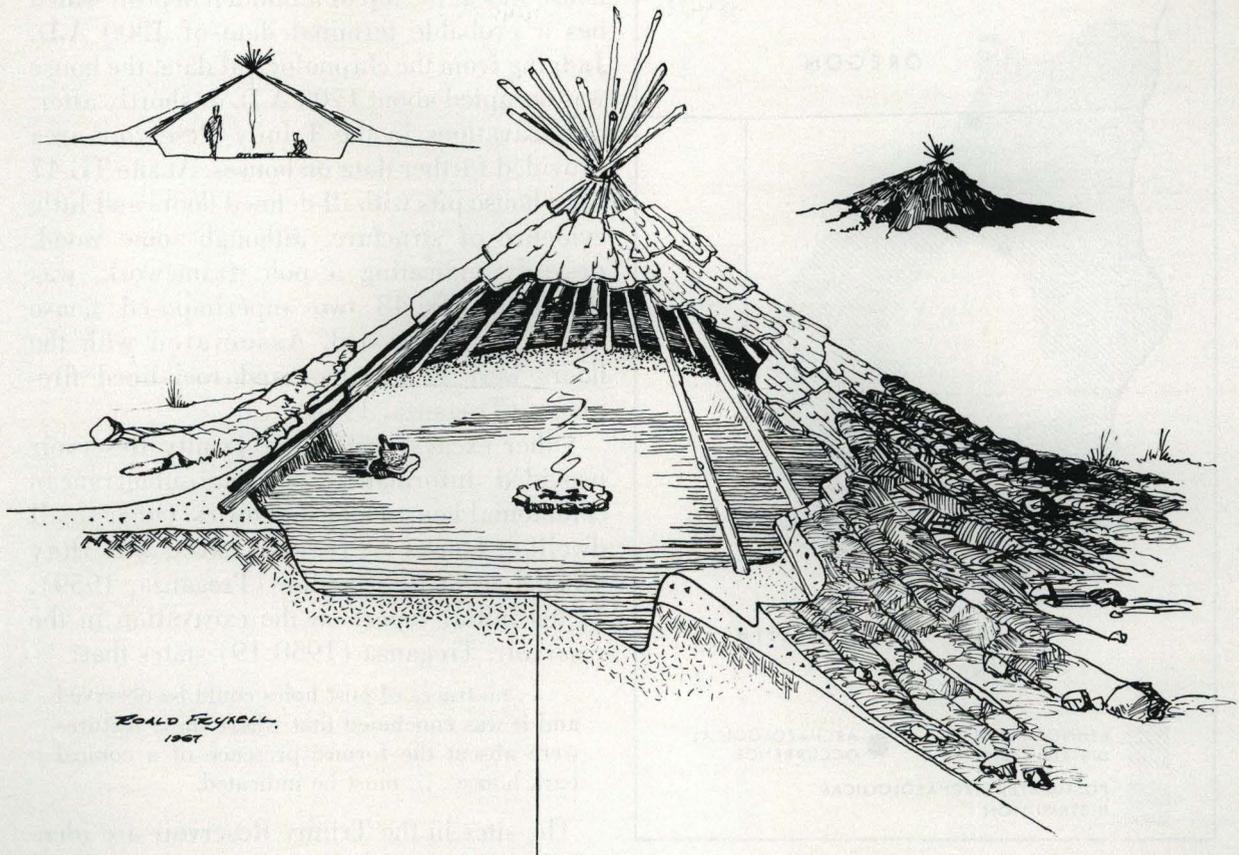
Furthermore, the site was apparently not known as a place of habitation by Shasta informants. It neither is mentioned in Shasta ethnographies nor noted on maps of Shasta territory, whereas a village located just west of Jenny Creek, no more than 200 meters downstream, is noted by Holt (1947: Map 1). Thus, it might be assumed that the site was abandoned for a considerable time before 1850.

### COMPARISON AND INTERPRETATION

#### DISTRIBUTION OF HOUSES

The Iron Gate houses have been reconstructed in the form of a conical framework of poles, perhaps with center supports, set over a shallow depression. The framework was covered with bark and, perhaps, planks, and the walls were banked with earth. The position or form of the entrance is not known, but it was probably no more than an opening in the side. This is nearly identical to the more elaborate versions of the conical, bark-covered houses widely used in the northern half of California, particularly in the mountainous regions surrounding the Sacramento Valley. The distribution of this house type is not mutually exclusive with other house types in northern California since most of the people for whom it is reported used two or three types of houses, and even the types themselves were not always too distinct:

The houses of native California are difficult to classify except in summary fashion. The extreme forms are well differentiated but are all connected by transitions. The frame house of the Yurok and the Hupa is a definite type whose affinity with the larger plank house of the North Pacific is sufficiently evident. Southward and eastward from the Yurok it becomes smaller and more crudely made. Bark begins to replace the split or hewn planks, and before long a conical form made wholly of bark slabs is attained. This in turn also, provided with a center post, need only be covered with soil to serve as the simple prototype of the large semisubterranean house of the Sacramento Valley. Again, the bark is often partly replaced with poles and sticks. If these are covered with thatch we have a simple form of the conical brush house (Kroeber, 1925: 809).



**Figure 15.** A reconstruction of the Iron Gate house type showing details of construction as inferred from archaeological data and ethnographic comparison. (Drawing by Roald Fryxell)

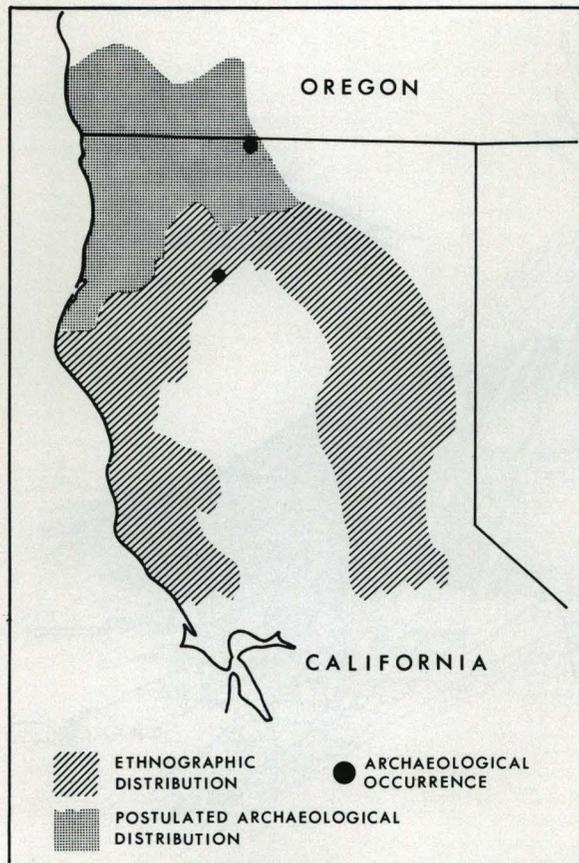
Of the several descriptions of conical houses in the literature, the best is probably that of the Northern Maidu *höbö* given by Dixon (1905: 172):

The second type of house, or *höbö*, was a much ruder affair than the earth lodge. In its simplest form, an excavation was made to a depth of from twenty-five to fifty centimeters over a circular area from two-and-a-half to five meters in diameter. Several poles (usually, when obtainable, of second-growth pine) were leaned together from the circumference and securely tied in the center, forming a conical frame. On this frame, branches, slabs of bark and splinters of wood from large fallen trees were leaned, and then pine needles and leaves added; the final touch being given by banking up around the edge, to a height of about one

meter, the earth removed in excavating. At one side an opening was left for a door, closed by pieces of skin or a slab of bark. At the apex of the rude conical structure thus constructed, a smoke hole was left. In this type of house, however, this neither served as an entrance or exit. In some cases apparently, a center pole was erected, and to it the other poles were tied. . . .

A comparison of details of the Maidu *höbö* and the Iron Gate houses is presented in Table 5. Close parallels are evident and where the comparison is uncertain it is because of lack of data and not contradiction of data.

Reports are available for similar houses from three different archaeological sites. For the Thomas site (4-Mrn-115) in Marin County, California, the following summary description



**Figure 16.** *Distribution of conical, bark-covered houses.*

of an excavated house is given by Meighan (1953: 4):

To sum up the traits observable from the house ruin, the structure had a circular plan, conical or dome shape (probably the former), a pole framework of redwood, grass covering, central fire hearth, and clay plastered over part of the interior (probably just over the fire area). This type of house is closely similar to that ethnographically described for Central California.

This house, although smaller, compared with the Iron Gate houses in general detail: probably conical structure of poles; central fire-place; excavated pit; and earth banked up at the base of the house. The major difference was the use of grass rather than bark for covering the framework, a detail already noted as variable in the ethnographic descriptions. This

house was at the top of a midden deposit which has a probable terminal date of 1800 A.D. Judging from the chronological data, the house was occupied about 1700 A.D. or shortly after.

Excavations in the Trinity Reservoir area provided further data on houses. At site Tri-47 were house pits with ill-defined floors and little evidence of structure, although some wood, possibly indicating a pole framework, was found. At Tri-48 two superimposed house floors were excavated. Associated with the floors were rock cairns and rock-lined fireplaces (Treganza, 1958).

Other excavations in the Trinity Reservoir provided information on semi-subterranean ceremonial houses and sudatories. Other small dwelling houses were excavated but they yielded scant information (Treganza, 1959). In his initial report on the excavation in the reservoir, Treganza (1958:19) states that:

... no traces of post holes could be observed and it was concluded that where these features were absent the former presence of a conical bark house ... must be indicated.

The sites in the Trinity Reservoir are identified as ancestral to the culture of the Wintu people who inhabited the area in historic times. Although specific chronology of the sites was not determined, the area was probably first occupied about 900 A.D. There is little or no change evident in the subsequent archaeological record (Treganza, 1959: 26).

The Iron Gate houses are different from the ethnographic descriptions given for the semi-subterranean houses of the Klamath (Spier, 1930: 197-203) and are generally different from the Klamath houses excavated by Cressman (1956), although in some cases the differences may be more apparent than real. As Cressman describes them, the houses excavated in the old Klamath villages are considerably larger than the Iron Gate houses, ranging in diameter from 4 meters to nearly 18 meters. Further, the house pits were more deeply excavated than those at Iron Gate and were marked by a pronounced "bench," a feature totally lacking in the Iron Gate houses. Some

TABLE 5  
COMPARISON OF HOUSE TRAITS

Trait	Maidu <i>Höbö</i>	Iron Gate Houses
House pit diameter	2.5-5 meters	4.5-9 meters
depth	25-50 centimeters	6 meters most common up to 50 centimeters
Framework poles	Yes	Yes
centerpost	Optional	Uncertain
conical form	Yes	Inferred
Covering bark	Yes	Yes
wood	Yes	Uncertain
leaves	Yes	Not determined
Door	Simple opening	Not determined
Smokehole	Yes	Inferred
used as entrance	No	Unknown
Pits re-used	Not stated	Yes
Fireplace	Not stated	Central
Storage pits	Not stated	In one floor

of the Klamath house pits had post holes, but these were generally more conspicuous by their absence, even in some of the very large house pits. Apart from the "bench," the single most significant difference between the Klamath house pits and those excavated at the Iron Gate site is the presence of stratified floors in the latter.

Because the Iron Gate site is in an area where rectangular plank houses were used in historic times, it is necessary to conclude that the conical house was once more widely distributed than the ethnographic data indicate. Aside from the Iron Gate site there are hints of a former distribution of circular houses further down the Klamath River. In several Yurok villages were shallow, round depressions which the people referred to as the house pits of their folklore characters. Waterman (1920) states that these are natural, not artificial, depressions, an opinion which should be verified by archaeology. H. G. Barnett (personal communication) reports that he also collected state-

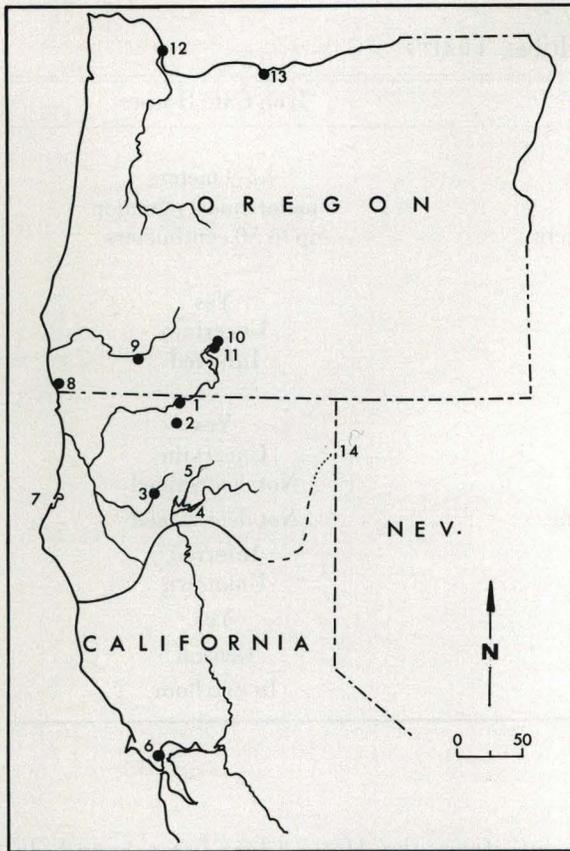
ments from the Hupa identifying round depressions in their villages as the house pits of supernatural beings.

Reetz (1948: 78) has argued that the plank houses of northwestern California are more closely related to the circular semi-subterranean houses of California and the Columbia Plateau than to the plank houses of the Northwest Coast Culture Area. Such an argument is supported by Newman's work on the Oregon coast. In his conclusions Newman (1959: 95) states:

No direct historical relationship is seen between the cultures of the northern and southern segments of the Oregon coast. Cultures from about the Coquille River southward into California appear to form an internally related unit with an independent history.

Such evidence, although indirect, is sufficient to warrant the hypothesis that circular houses, probably similar to those at the Iron Gate site, preceded the plank houses in northwestern California in time and were replaced

## COMPARISON OF ARTIFACTS



**Figure 17.** *Archaeological sites and areas mentioned in this report. 1. Iron Gate site; 2. Sis-13; 3. Trinity Reservoir; 4. Shasta Dam area; 5. McCloud River; 6. Thomas site; 7. Humboldt Bay; 8. Lone Ranch Creek (Chetco); 9. Gold Hill; 10. Klamath villages; 11. Kawumkan Springs; 12. Sauvies Island; 13. The Dalles; 14. Southern limit of comparable artifacts (approximate). Refer to text for explanation.*

by the latter. Both the ethnographic distribution of conical, bark-covered houses and the postulated archaeological distribution form a large arc around northern California (Fig. 16). Just how far this house type may have extended into Oregon is uncertain, but the Rogue River seems a fair guess for the approximate northern limit. Chronology is not considered in the hypothesis. The only certainty is that the rectangular house had not replaced the conical house in Shasta territory before 1500 A.D.

As a whole, the artifacts from Iron Gate are not greatly different from artifacts of late pre-historic age in much of California and Oregon. The well-developed assemblage of bone artifacts typical of the coastal maritime and riverine cultures is absent, but the small, pressure-flaked projectile points, knives, scrapers, drills, splinter and ulna awls, manos and metates are common to many sites dating from the past 1,000 years. When compared in detail, however, a well-defined idea of cultural affinities emerges. There is a southern limit in California beyond which the Iron Gate artifacts are not closely comparable. This limit is not sharply defined, but it seems to extend roughly through Mendocino County from the coast to the edge of the Sacramento Valley and then north to the Klamath Mountains. The eastern limit is the Great Basin; the southeastern limit includes Lassen County and probably does not extend much farther south (see Fig. 16).

There are two facets to this lack of comparability: the first is a marked difference in artifact inventory; the second is a difference in projectile point forms. The charmstones in their many varieties, clam shell disc beads, the many types of *Olivella* shell beads and *Haliotis* ornaments, the variety of large, well-worked knives and the varieties of pestles and bowl mortars characteristic of archaeological sites in central California are conspicuously absent from sites north of the Sacramento Valley. Only a few of the projectile points of central Californian types are comparable with those from northern California. The projectile points from central California are generally larger; the most common forms are ovate (Class 1) rather than triangular (Class 2) and the deep serration characteristic of most Late Horizon points is lacking in the north. Serration on the Iron Gate points, for instance, is rare. Of the point types illustrated in Lillard, Heizer and Fenenga (1939: 13) only eight or nine of the 25 types can be duplicated, in general form, at least, in the Iron Gate collection. However,

TABLE 6  
COMPARISON OF PROJECTILE POINT FORMS,  
IRON GATE AND THE DALLES

IRON GATE	THE DALLES <sup>1</sup>
Class 1, 12 varieties	Type I, 17 varieties
1-A	I-A
1-B	I-F
1-C	.....
1-D	I-Q
1-E	.....
1-F	I-L
1-G	.....
1-H	.....
1-I	.....
1-J	.....
1-K	.....
1-L	.....
Class 2, 11 varieties	Type II, 17 varieties
2-A	II-B
2-B	II-D
2-C	II-I
2-D	II-H
2-E	.....
2-F	II-J
2-G	II-K
2-H	.....
2-I	..... <sup>2</sup>
2-J	..... <sup>2</sup>
2-K	II-L
Class 3, 6 varieties	Type III, 9 varieties
3-A	.....
3-B	III-H
3-C	III-F
3-D	III-E
3-E	.....
3-F	.....

<sup>1</sup> Data from Cressman *et al.*, 1960: 44-46

<sup>2</sup> Found elsewhere on the Columbia River

of the Late Horizon points illustrated (Lillard, Heizer and Fenenga, 1939: Plate 24) only six fit the Iron Gate classification. Beardsley (1954a: Fig. 2; 1954b: 108-109) describes ten projectile point types of which three or, at most, four are comparable to the Iron Gate forms.

On the other hand, most of the Iron Gate points can be duplicated form for form by points from sites in northern California, the Klamath Lakes region and from sites along the Columbia River (and, presumably, from sites in between). Of the 187 classifiable projectile points from the Iron Gate site, all but 23 can

be classed in eight of the nineteen point types from Kawumkan Spring midden on the Klamath Reservation (Cressman, 1956: Fig. 45).

Because the Iron Gate points were classified by the same criteria used for material from WS-1 and WS-4 at The Dalles, Oregon, a close comparison can be made (Table 6). Of the seven basic forms found at The Dalles, three are found at Iron Gate. Of the 27 varieties of points from Iron Gate, fourteen, or slightly more than 50 percent, are specifically comparable to the points from The Dalles. The remainder, for the most part, differ only in slight detail, such as the form of the stem. To reverse the comparison, of the 45 varieties of Type I, II and III points found at The Dalles, fourteen, or 31 percent, were found at Iron Gate. These percentages must be considered minimal, for there are chronological differences in the material from The Dalles which were not considered in the typological descriptions. The percentages of comparable forms might be higher if groups of the same approximate temporal order were compared.

This comparison does not imply direct cultural affiliation, but in view of the general lack of comparability with projectile points in other areas in California, both in terms of "style" and specific detail, the implications of relationships to the north, with the Klamath-Modoc region and the Columbia Plateau, are strong.

Projectile points with one short barb and one long barb which extends beyond the stem (Classes 1-J, 1-K, 1-L and 3-D) may well be an index artifact for northwestern California and adjacent regions. The Class 1 varieties of these points are found in northwestern California and southwestern Oregon with a probable center of distribution near the mouth of the Klamath River. They have been illustrated by Loud (1918: Plate 15) for sites around Humboldt Bay and Gunther Island; by Berreman (1944: Plate 7) for the Lone Ranch Creek site near Brookings, Oregon; by Cressman (1933: Plate 6) for the Gold Hill burial site; by Wallace and Taylor (1952) for Sis-13, a rock shelter near Iron Gate; and by Treganza

(1958: Fig. 1) for sites in the Trinity Reservoir area. In his 1958 report, Treganza proposed the name "Gunther Barbed" for these and other, less distinctive, projectile points. These forms have not been found in excavations in Curry and Tillamook Counties on the Oregon coast, but there are specimens in the University of Oregon survey collections from Coos County. The southern limit to the distribution of these forms is uncertain, but Meighan (1955) illustrates no examples for sites in Mendocino County.

The Class 3 (concave-sided) variety of these points is evidently rare. One specimen from Gold Hill is illustrated by Cressman (1933). Similar forms have been found along the Columbia River at The Dalles (Cressman *et al.*, 1960: Fig. 19) and as far east as Blalock, Oregon. Neither the Class 1 nor the Class 3 variety was found in collections from Sauvies Island at the confluence of the Columbia and Willamette Rivers (Brown, 1960). The break in the distribution of this particular form is both large and puzzling. Cressman (1933: 16) thinks they may have been points for fish spears. If so, the occurrence of identical forms in widely separated areas may be a result of parallel development. Such a development would be a good hypothesis when one considers that the stone-working traditions may have been related and that in both areas there was a hunting-gathering-fishing economy exploiting a common food resource—salmon. But, one must also consider that there are few excavated sites between the two areas and that the break in distribution could well be a function of the comparative sample.

Other artifacts have not been as useful for determining cultural relationships as projectile points, but they provide additional information, none-the-less. The hopper mortar stones have a wide distribution in California, Oregon and Washington. The *Olivella* and *Protothaca* shell beads are indicative of trade relations with the coast, either through the Sacramento Valley or up the Klamath River, and the baked clay rods may be indicative of contacts to the

south. The shaped manos are similar to some illustrated by Cressman (1956: Fig. 13) but the bell-shaped and two-horned manos found in the Klamath area do not occur in the Iron Gate collection.

#### COMPARISON WITH OTHER SITES

At Sis-13, a rock shelter about 20 miles south of Iron Gate, artifacts were found which, with the exception of basketry, cordage, and wooden implements, compare closely with the Iron Gate material. The collection from the rock shelter probably dates to the 18th century and the first half of the 19th century and is virtually identical with ethnographic material culture. A comparison of 39 traits demonstrates the close parallels with historic cultures of northern California. Primarily on the basis of basketry, the trait comparison:

... strongly hints that the shelter people were intruders from the east or northeast [Achomawi or Modoc] who came each year to hunt mountain sheep and perhaps to raid or trade. It is, of course, equally plausible that they were Eastern Shasta strongly influenced by their neighbors across the mountains (Wallace and Taylor, 1952: 33).

Of the 39 traits, 20 can be compared to the Iron Gate collection. Of these 20, 18 correspond, indicating the close similarity in the material cultures from the two sites. The closest similarities are between the projectile points and drills, for of the projectile point forms from Sis-13, only one is not found at Iron Gate. An unusually high percentage of projectile points and a low percentage of knives is also notable in the artifact inventory. No direct historical connection can be established between these two sites, but the close similarity of lithic artifacts and their geographical proximity suggests that the cultures represented are related.

The sites in the Trinity Reservoir area were mentioned earlier in conjunction with the discussion of houses. Iron Gate and Trinity Reservoir artifacts compare favorably: hopped mortar stones, pestles, metates and small manos occur in both. Further, there is a virtual iden-

tity in projectile point forms, although some of the infrequent Iron Gate varieties were not reported for the Trinity area. The asymmetrically barbed projectile points which comprise 12 percent of the Iron Gate points, comprise an estimated 5 percent of the points from all of the Trinity reservoir sites, and, except for some serrated varieties, there are no forms from the Trinity area which are not found in the Iron Gate collection.

Excavations along the McCloud River in the reservoir area of the Shasta Dam revealed that the area probably had not been occupied much more than 350 years ago by people probably directly related to the historic Wintu (Smith and Weymouth, 1952: 29-31). The excavated materials from this area are generally comparable to the Iron Gate materials, but they appear transitional between artifacts from the Sacramento Valley and those from further to the north and northeast. Hopped mortar stones, pestles, tubular steatite pipes and at least 11 of the 21 projectile point forms from the McCloud River sites compare with the Iron Gate collection. Artifacts from this area which were not found at Iron Gate include slate pallets, large knivers, and pine nut beads as well as a variety of non-aboriginal artifacts.

#### RELATIONSHIP TO HISTORIC CULTURES

The Iron Gate site is in the territory of the Western Shasta, but because of a fundamental difference in house type it is not possible to demonstrate a historical connection between the two. Nor will a comparison of items of material culture aid in demonstrating such a connection for directly comparable data are not included in the ethnographic accounts of Shasta material culture.

Two alternative relationships to historic cultures are possible. The first possibility is that the site was occupied by a southern group, perhaps ancestors of the Pit River tribes. The implications of this are that the Shasta moved in from down river, displacing people who had lived in the area for possibly as long as 200

years. On the other hand, there is the possibility that the culture represented by the Iron Gate site might well be antecedent to that of the Shasta. The implication, of course, is that in the years between the termination of occupation at Iron Gate and the first contact with the Anglo-Americans, the Shasta had adopted an approximation of the down-river rectangular house and used it to the complete exclusion of the circular type. Either of these possibilities would account for the circular house outside the range of the ethnographic distribution. The problem is to decide which is the more likely; the first is the more obvious, and easier, explanation, but the second, in view of other evidence, may just as well be the correct interpretation.

All ethnographers who have worked with the Shasta, beginning with Dixon (1907) in the first decade of the century, and later Kroeber (1925) and Holt (1947), have noted that Shasta culture was transitional between the Central and Northwestern California Culture Provinces. Holt (1947: 348) describes Shasta culture as one which was basically central Californian but which had undergone development under strong influences from down river. Of primary interest here is the fact that the Shasta house was a poor copy of the Karok house retaining such central Californian features as the use of bark in the construction and the use of peeled poles rather than hewn beams for ridge poles. Given the central Californian character of Shasta culture, it is not unreasonable to suppose that a central Californian house type was used before the rectangular house. On this supposition it is reasonable to hypothesize that the people who inhabited the Iron Gate site were ancestral to the historic Shasta, and that the site represents a phase in the development of Shasta culture.

#### ETHNOGRAPHIC PARALLELS

Ethnographies of the peoples of northwestern California indicate lifeways of a very similar pattern. The general description below is for the Shasta, but, excepting the Modoc, it

would differ only in detail for neighboring groups.

The Shasta lived in small villages of substantial houses which were occupied principally during the winter months. In other seasons the people were partially dispersed on various economic pursuits. During these times the villages were by no means abandoned, but served as centers of activity. Village populations were small. A population of 40 persons would have been a maximal one; the average population was probably considerably less. Even though most information indicates that only a nuclear family resided in one house, the basic residential unit was likely an extended family. Data are conflicting, but men, especially unmarried men, may have slept either in the sweat house or the "big house," a separate structure which was a center of community activity in a village large enough and rich enough to have one. Community organization was probably on a kinship basis, for such is the general pattern among hunting-gathering peoples everywhere. Villages were autonomous. The local leader was, presumably, an influential individual. There were also regional headmen who settled disputes between communities and individuals of different communities. Among the Shasta the shamens were women and had no political power as did male shamans among the Klamath, for instance.

Recreations were simple, consisting of informal dances and games for the most part. Formalized social ceremonies were girls' puberty ceremonies, shamans' ceremonies, war dances and burials. Of these, the girls' puberty rites were singularly important, for friends and relatives from distant villages would attend.

Ethnographic accounts indicate that the Shasta were about equally dependent on hunting, fishing and gathering plants for their food. The principal plant food utilized were acorns and a tuberous root called *ipos* (*Calochortus* sp.). The only economic activity in which the entire village took part was the acorn harvest. Except for occasional cooperative hunting par-

ties, food collecting seems to have been essentially a family activity.

Food resources were abundant enough to support a semi-sedentary existence. Fish, acorns and roots could be accumulated and preserved in quantities sufficient to last through the winter. Deer, the principal game animal, was hunted in the fall and winter. Ground squirrels, rabbits and other game were utilized principally during the spring and summer. Bears were also hunted, but seemingly more as a matter of prestige than economy. In all, the economic resources were rich enough that the Shasta could afford such institutions as bride price and blood money and could trade for such luxury items as *Dentalium* and *Olivella* shells. The *Dentalium* served as a form of money.

The Iron Gate site suggests a very similar, if not identical, pattern of existence. The community was a small village of houses large enough for a single family. Assuming that no more than five houses were occupied at any one time and assuming an average family size of six, the population would have been 30 people. There is no functional evidence to support such a statement, but House Pit 2, because of its size, may have been a "big house," or ceremonial center for the community. In such a village there would have been one or two men who served as leaders and, undoubtedly, shamans to care for illnesses and accidents. If the ethnographic analogies hold, the shamans would have been women.

There is evidence that much of the day-to-day activity took place within the house. Grinding stones and fireplaces attest to food preparation, while the artifacts and debitage found on the floors indicate tool manufacture inside the house. Such domicile-centered activities imply winter residence. The abundant deer remains also indicate fall and winter occupation but turtle and ground squirrel remains indicate at least some occupation during the spring, summer or fall.

Faunal remains indicate a subsistence pattern similar to that recorded in the ethnograph-

ies. Deer were an obviously important resource, but other animals—rabbits, ground squirrels, mountain sheep, bear and turtles—were utilized. Acorns, hopper mortars and food grinding implements indicate the utilization of plants. The importance of fishing has been assumed.

Such parallels between ethnographic and archaeological data are necessarily generalized. They indicate, however, that the basic community and economic patterns recorded in the ethnographies of northwestern California were established and well-developed by the time the Iron Gate site was occupied, nearly 500 years ago.

#### TAXONOMIC CONSIDERATIONS

The homogeneity within the various classes of artifacts, including houses, and the short timespan inferred from chronological data are indicative of but a single component in the site. Following McKern, Willey and Phillips (1958: 21) regard a component as a manifestation of a phase, so the existence of one component implies other, related, components. A phase is:

. . . an archaeological unit possessing traits sufficiently characteristic to distinguish it from all other units similarly conceived, whether of the same or other cultures or civilizations, spatially limited to the magnitude of a locality or region and chronologically limited to a relatively brief interval of time (Willey and Phillips 1958: 22).

Given these criteria, one site is not sufficient basis for definition of a phase.

Even though a formal definition would be premature, at least a preliminary characterization of a phase based on the Iron Gate site can be made. Basic communities would be small villages with evidence of a combined hunting-gathering-fishing economy. The house type would be a well-made conical, bark-covered structure set over a shallow pit. Ideally, there should be a rock-lined firepit in the center of the floor. Secondary characteristics would include small, basically triangular, stemmed and

barbed projectile points made from thin flakes and an assortment of crudely shaped cutting implements. Food processing tools would include thin slab metates, manos which show some attempt at shaping, simple pestles and hopper mortars. The houses, of course, would be the primary basis for distinguishing this phase from "other units similarly conceived." The minimal distribution of the postulated phase will probably be centered along the Klamath River at least from its confluence with the Shasta River upstream into Oregon; its temporal distribution would be from sometime before 1300 or 1400 A.D. to about 1600 A.D. Hypothetically, this phase would succeed one characterized by a less well-developed house type and possibly differing artifact forms; it would be replaced by one nearly identical in all respects but house type. Succeeding houses should be rectangular plank structures similar to those recorded ethnographically, although there might be an intervening period when both house types were used.

#### SUMMARY AND CONCLUSIONS

The Iron Gate site is a prehistoric village believed to have been occupied sometime between 1400 and 1600 A.D. The lower occupation of one house pit is placed at 1500 A.D. on the basis of two radiocarbon dates. The houses at the site were conical, bark-covered structures typical of northern California; the artifacts from the site are more comparable to those from the Klamath Lakes region and the Columbia Plateau than to those from central California.

Primary cultural affiliations are evident with northwest California, meaning, generally, that part of California west of the Cascade-Sierra ranges and north of the Sacramento Valley, but excluding the coastal region. This conclusion is based on the close similarities between the Iron Gate site and other sites reported in the region. Close parallels are evident in terms of corresponding house forms, projectile point forms and general artifact inventories. With the exception of a single distinctive form

of projectile point there is no evidence of affiliation with the culture center on the Lower Klamath River. Lack of an assemblage of bone artifacts and large obsidian blades and the presence of circular, rather than rectangular, houses precludes any close relationships with the Northwestern California Culture Province proper, at least on an archaeological basis.

In terms of cultural affiliations on a larger scale, the culture represented by the Iron Gate site may be viewed as one which is transitional between central California and the Klamath Lakes-Columbia Plateau regions. The house type and the utilization of acorns and hopper mortars are Californian traits, whereas the artifact inventory and the projectile point forms are more like those to the north and northeast. Kroeber (1939: 55) classed the ethnographic groups inhabiting the area of the site as transitional between the Central California and Northwestern California Culture Provinces. The differing interpretations may be because of the limitations of the archaeological data or they may be because there were significant changes in the three or four hundred years since the Iron Gate site was occupied. The Iron Gate houses are good evidence for the latter. It is not known when the rectangular houses replaced the circular house in the area, but it is certain that it was after 1500 A.D., thus indicating that strong cultural influences from the lower Klamath River are probably late in the Iron Gate region.

The culture represented by the Iron Gate site cannot be directly associated with the culture of the Shasta Indians, in whose territory the site is located. However, the site is considered to represent a phase in Shasta culture history.

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