

## EXCAVATION OF Sis-13, A ROCK SHELTER IN SISKIYOU COUNTY, CALIFORNIA

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### Introduction

The site described here lies about 5 miles east of Yreka, Siskiyou County. It is on the north side of a deep ravine, drained by a small stream (Cash Creek). There are several other rock shelters in the vicinity.<sup>1</sup> These were formed by the weathering out of a layer of basaltic cinders from beneath a harder overlying stratum of fine-grained basalt. Two (Sis-13 and Sis-14) contain undoubted evidence of prehistoric occupation.

The rock shelters lie at an elevation of 3600 feet on the eastern fringe of territory held in historic times by the Eastern (Shasta Valley) Shasta. This is a rugged volcanic region which constitutes part of the Cascade Range. Eastward the summits of the Higher Cascades rise well into the snow-line, 7000 to 8000 feet above sea level. Immediately to the west is the great oval basin of Shasta Valley at an altitude of 2400 to 2800 feet. The climate is semi-arid with a mean annual rainfall of less than thirteen inches in Shasta Valley. There is a rainy season from October to April with moderate to low temperatures, dropping to zero or below at times. Snow falls each year but is heavy only on the higher peaks. During the dry season, May to October, the daily temperatures are high, with summer days above 100° Fahrenheit often recorded.

The craggy hillsides are covered with pines, oaks, and junipers. Between the stands of timber are bushes -- manzanita, hazel nut and berry. Deer and elk formerly ranged over the mountain slopes and bighorn or mountain sheep were frequently seen in small herds. In the more open sections, as in Shasta Valley, antelope were plentiful. Small mammals such as rabbits and squirrels abounded. Several varieties of fish were available in the sluggish streams and rivers in the valley below. Fresh-water mussels were also present, though not in quantity.

### The Site: Discovery and Excavation

The largest of the rock shelters (Sis-13) is a shallow, well-lighted recess, irregular in outline measuring roughly 36 feet long and 17 feet wide. (Plate 1.) The ceiling at the front is 10 feet 6 inches above the present floor and this height is maintained almost to the back wall. The entrance faces a few degrees off due south and overlooks a wide expanse of timber and rocky hillsides with Shasta Valley and Mount Shasta beyond. A narrow shelf strewn with boulders runs along the bluff for a short distance at the level of the opening.<sup>2</sup> From here a talus slope drops 60 feet to the floor of the stream valley. Above, the rim rock rises to a height of 40 feet. The shelter can be reached from above or below, but with some difficulty.

A layer of dusty, gray camp refuse mixed with fallen slabs of rock and recent animal manure covered the floor. The debris, ranging in depth from 18 inches at the front to 40 inches or deeper at the rear, rested upon an uneven

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<sup>1</sup>Superior numbers refer to "Notes" at end of text.

surface of disintegrated basalt. Near the entrance the deposit was moist but toward the back wall, and particularly in the upper 2 to 3 feet of the west corner, it was relatively dry. Seepage along the slope of the floor made the deeper levels, even at the rear, somewhat damp. Roof and wall detritus was heavier in the lower levels and in the west portion. The entire ceiling was thickly coated with soot.

The site was discovered over fifty years ago by a local rancher named Cash. In the summer of 1949, Walter D. Pollock, his son, Walter D. Pollock, Jr., of Yreka, and C. K. Kay of Montague relocated it. The Pollocks and Kay excavated on weekends during July, 1949, and returned in the summer of 1950 for an additional day of digging. Several hundred artifacts were recovered. Dr. Howel Williams, Department of Geology, University of California, reported their finds to the University of California Archaeological Survey and in November, 1950, William J. Wallace, Edith S. Taylor and Alex D. Krieger representing the Archaeological Survey visited the site with the Pollocks. Three days were spent digging in the shelter.

Excavation was begun at the east end of the shelter by the usual method of starting at the outside edge and working backwards toward the rear. A cut 5 feet wide was made in undisturbed deposit from a little beyond the entrance to the back wall, a distance of over 18 feet. (Fig. 1.) A second trench, 5 feet wide and 10 feet long, was cut at right angles to this near the rear, and a third, 5 by 5 feet, was dug at the mouth of the cave. The excavation was carried to bedrock in all trenches and the material was sifted as it was shoveled out. The large number of enormous boulders at the west end of the shelter made operations in this area slow and laborious.

No true strata in the physical composition of the debris were observed but, as the work progressed, various features were encountered. Several large ash lenses were exposed, one of which consisted of solid white residue measuring over 24 inches in depth. Fire-blackened stones in scattered, unspecialized hearths occurred around the ash deposits and bits of charcoal were abundant. Two unique formations of unworked stone slabs were exposed adjacent to fire pits. Each consisted of several horizontal and two nearly vertical rocks. It is likely that these were utilized by the aborigines for baking small cakes of acorn meal or other foods. No recognizable storage or cache pits were located but several curious masses of grass, pine needles, and fragments of matting, 5 to 7 inches thick and firmly packed together, were uncovered. These can only be explained by assuming that they served as beds for the inhabitants of the shelter.

The finder of the shelter described "Indian writing" on the walls, presumably indicating the presence of pictographs. None was visible at the time of our visit, but the rock surface weathers so rapidly that if painting was present, it could easily have disappeared during the half century or so since the site was first located. A fallen slab seemed to show faint traces of a red disk surrounded by an indistinct black circle. Northern California, particularly that portion lying east of the crest of the Sierras, is a region in which petroglyphs have been noted in and around caves or rock shelters. Often, however, these are pecked rather than painted.

The Pollocks dug briefly at the site later in the winter of 1950 and, with Kay, in early spring, 1951. Their entire collection from these and earlier excavations were made available for study to the University of California Archeological Survey and the present report is based on the full collection.

Cultural Remains

Despite its small size the site was culturally productive and 493 artifacts were recovered. The abundance of man-made objects was, of course, due in part to the general absence of moisture. From the dry top layer basketry, cordage, matting and wooden implements, items which rarely escape decay in open sites, added to the fullness of the inventory. The number and diversity of the cultural remains is indicated in the following summary list:

Objects of Stone

Projectile points	193
Spear (?) points	2
Scrapers	55
Drills	3
Knives	5
Gravers	5
Prismatic flakes	5
Metates	13
Pestles	2
Hammerstones	3

Objects of Bone

Awls	4
Flakers	4
Bird bone tubes	2
Miscellaneous implements	11

Objects of Shell

Olive shell beads	3
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Objects of Wood

Arrow foreshafts	9
Arrow shafts	4
Fire drill	1
Awl	1
Grooved stick	1
Skin scraper (?)	1
Pointed sticks	3
Miscellaneous implements	8

Objects of Plant Fiber

Basketry fragments	19
Miniature cradle (?)	1
Tule matting	12
Grass matting	1
Cordage	110

Objects of Clay

Unfired clay bead	1
Unfired fragment of figurine (?)	1
Pottery sherd	1

### Miscellaneous Objects

Buckskin bag	1
Sinew cordage	2
Sinew ring or seizing	1
Wrapped buckskin thong	1
Seed beads	2
Quartz crystals	2

### Objects of Chipped Stone

Chipped stone artifacts were found in abundance. The predominant material selected for their manufacture was obsidian; chert, jasper, chalcedony, and fine-grained basalt, substances somewhat less amenable to controlled flaking, were occasionally utilized. Thousands of obsidian flakes and a smaller number of chips of other stone indicate that lithic implements were made within the shelter.

Projectile points - Projectile points were plentiful and represent the most diversified class of artifacts. A total of 193 more or less complete specimens and 98 unclassifiable tips, blade and basal fragments, and rejects were found. (Table 1). About 87 per cent are obsidian and, with a few exceptions, are made from relatively thin, flat flakes. The chipping is well-controlled pressure flaking and flake scars are small.

The majority of the points are broken, undoubtedly while hunting. Damage to most was the loss of the tip or one tang. Two arrowheads retain traces of pine pitch indicating that this material was employed to help affix them to the wooden shaft. Although the projectile points exhibit some differences in dimensions, the range is not great, and all fall well within the size class of arrowheads.

Stemmed points - Nearly 90 per cent of classifiable specimens have stems, the majority of which are tapering. Serration of the margins is general, but in only a few cases are the dentations exaggerated. Six descriptive groups, with some variations within each, can be distinguished; triangular blades are characteristic of all.

1. Tapering stem with pointed or rounded base; deep corner notches approach V-shape, though occasionally somewhat rounded; long pointed asymmetrical tangs with one or both extending beyond stem; average length 26 mm; 66 specimens. (Pl. 1C - a, b)

Most numerous of all forms, these points exhibit variability in proportions. Some are relatively short and broad; others long and narrow. The latter have a tendency to waist near the tip and are conspicuous because of their delicate form and fine chipping.

2. Tapering stem with pointed or, rarely, rounded base; shallow U-shaped corner notches; short pointed or rounded tangs which do not extend beyond stem; average length, 23 mm; 40 specimens. (Pl. 1C - c)

Second in order of abundance, this form is quite similar to the preceding and, conceivably, may represent a variant of it. The major distinction between the two is in the shape and depth of the corner notches and length of the tangs.

3. Stem varies from straight to somewhat converging or expanding sides with square or, in a few instances, slightly rounded base; corners removed giving sharp lateral tang; average length 33.5 mm; 17 specimens. (Pl. 1C - d)

Still fairly plentiful, these points are longer than any other stemmed variety. Long and narrow blades are characteristic.

4. Expanding or flaring stem with square or slightly rounded base; moderately deep U-shaped corner notches; short pointed or slightly rounded tang; average length 28 mm; 19 specimens. (Pl. 1C - e)

Some disparity is manifested within this group and the specimens included may not represent a single pattern of construction. Not only is there variation in dimensions but in details of manufacture as well.

5. Expanding stem equal to or greater than blade with square base; large U-shaped side notches; rounded blunt tang; average length 27 mm; 7 specimens. (Pl. 1C - f)

While not numerous, these points are, nevertheless, of interest because they form a homogeneous group with a distinctive shape. They tend to be broad in proportion to their length.

6. Expanding stem broader than blade with concave base; U-shaped side notches; short pointed or rounded tang; average length 27 mm; 22 specimens. (Pl. 1C - g)

This is a well-made projectile point with a standardized outline. Two aberrant specimens have tapering stems in the center of the basal notch.

Stemless - Points without stems were rare with only 22 examples brought to light. The number of varieties is much smaller than in the stemmed class with two categories represented. Serration occurs consistently.

1. Triangular; broad U-shaped basal notch; pointed tang; greatest breadth at base; average length, 23 mm; 18 specimens.

These concave-based arrowheads display considerable diversity and, with two exceptions, lack symmetry. It is quite possible that some originally were stemmed but when broken the bases were retouched. (Pl. 1C - h)

2. Leaf-shaped; square base; maximum width about midpoint of blade; average length 35 mm; 4 specimens.

Thicker flakes were used in manufacturing these four points, giving them a more rounded cross section. The average length exceeds that of the other forms by several millimeters. (Pl. 1C - i)

Table 1. Analysis of Projectile Points

<u>Form</u>	<u>Number</u>	<u>Length (mm)</u>			<u>Width (mm)</u>		
		Max.	Min.	Aver.	Max.	Min.	Aver.
<u>Stemmed</u>							
1. Tapering stem long projecting tangs	66	38	20	26	25	11	16
2. Tapering stem short tangs	40	29	16	23	17	11	13.5
3. Straight stem right angle shoulders	17	42	25	33.5	19	12	15
4. Slightly expanding stem corner notches	19	38	25	28	19	13	17
5. Expanding stem side notches	7	35	21	27	23	16	18
6. Expanding stem, concave base side notches	22	29	18	23.5	19	11	15
<u>Stemless</u>							
1. Triangular, concave base	18	26	18	23	18	12	15
2. Leaf-shaped, square base	4	42	21	35	15	12	13.5

It is somewhat difficult to account for the multiformity of projectile points. It is possible that some functional differentiation may be involved. On the other hand, it may merely be the result of diffusion from diverse sources. The shelter is marginal to several distinct ethnic provinces--northwestern California, central California, the Klamath-Modoc, and the Great Basin--and each may have been the source of one or more specific forms.

No difference in depth frequency was noted as all varieties seemed to range throughout the occupational stratum. Points were more numerous in the upper twelve inches of the debris. The vertical distribution of forty-nine arrowheads for which there is depth information shows a gradual decline in frequency in the deeper levels.

<u>Depth (inches)</u>	<u>Number of Points</u>
0 - 6	14
6 - 12	11
12 - 18	9
18 - 24	7
24 - 30	7
30+	1

Most of the projectile points found conform to the usual varieties reported for the recent prehistoric and historic tribes of northern California and adjacent regions. The tapering stemmed form with projecting tangs, or one closely resembling it, for example, is known prehistorically on the coast of northwestern California and in the Upper Sacramento River Valley. The side-notched, concave-based shape occurs in the Great Basin to the east and southward along the Sierra Nevada Mountains. No significant statements concerning the distribution of the forms can be made, however, because adequate descriptive and statistical data are lacking. A precise comparison with ethnographic forms is difficult because published information is incomplete and often contradictory. A detailed study of this sort would be desirable because where essentially non-pottery cultures are being dealt with, as in this region, projectile points might provide a good, and possibly the only reliable, index of cultural and temporal relations.

Spear (?) points - A crude, heavy stemmed chert point, presumably the tip of a thrusting spear was recovered. (Pl. 1E) The irregular stem tapers to a rounded base and the corners are removed giving more or less right angle shoulders. Both surfaces are covered with large primary flake scars and there is secondary retouching on both edges. The sample measures 5 cm. in length, 2.5 cm. wide, and 6 mm. thick. A basal fragment of a second bulky chert point has a squared base and is somewhat flatter in cross section. Its original dimensions were probably 4.7 cm. in length, 2.1 cm. wide, and 4 mm. thick.

Scrapers - A quantity of scrapers, 55 in all, was unearthed. Of these, 48 are made from flakes and 7 from cores. With a few exceptions, they appear to be hastily produced implements, used for a short time and then discarded.

1. Thin flake scrapers - irregular flakes retouched along one or more edges; no effort made to shape flake; lengths, 2 to 4 cm; 45 specimens, mostly obsidian though other siliceous rocks occasionally utilized.
2. Thick flake scrapers - heavy flakes with large scars along one edge; some attempt to shape surface; lengths 6 to 9 cm; 3 specimens, all of fine-grained basalt.
3. Core scrapers - small cores with working edge produced by inter-section of somewhat irregular flutings with a flat plane surface resulting from removal of a large flake below; no apparent endeavor to alter surface of core; lengths 3.5 to 9.5 cm; 7 specimens, of chert, jasper, and chalcedony.

The scrapers from the Sis-13 shelter are too generalized to serve as diagnostic traits for determining cultural affiliations. Sharp-edged flakes without deliberate retouching also were utilized for scraping and/or cutting and many exhibit small "use" flake scars along one edge.

Drills - Three fragmentary obsidian drills were found. These have long, parallel-sided shafts which are round in cross section and show careful chipping all around. The bases expand and are less meticulously worked. The largest is 4.5 cm. long and 2.5 cm. at the base. The smallest is 2.8 cm. long with a base measuring 2 cm. across. These drill points were probably fastened to a simple shaft or hand drill, though no evidence of hafting remains.

Gravers (?) - Five tools, 2 complete and 3 fragmentary, ranging from 7 to 10.5 cm. in length, are made from thick, slightly curved obsidian flakes. (Pl. 1, F,G,H) The flakes are oval or triangular in cross section and worked on one surface. Both edges are retouched by secondary flaking to terminate in a more or less pointed tip. The butt ends are heavy and unfinished. These objects suggest use in the incising of wood, bone, or other soft substances, though they may have been used as knives.

Knives - An obsidian blade, 10 cm. long and 5 cm. wide, presumably served as a knife. (Pl. 1D) It has a flat underside which is a plain flake surface. The upper face has a longitudinal groove and a few large primary flake scars, intersecting with the flat underside to form straight and sharp cutting edges. The tip is roughly square as is the butt end. The medial section of a second obsidian blade, is similarly constructed, but smaller in size with an estimated length of 6 to 7 cm. and a width of 3 cm. The rounded bases of 3 other blades, presumably knives, are also of obsidian with one flat, plain flake surface and the other rounded and chipped. One is 3.7 cm. wide; the other 2.5 cm. Their lengths could not be accurately determined. Each blade may have had a buckskin wrapping around the center section or end to provide a handle and to protect the hand. There is no indication of hafting.

Prismatic flakes - Five long, narrow prisms of obsidian were found. These were not retouched but may have been utilized as perforators, drills or gravers. They vary in length from 3 to 3.5 cm. and from 4 to 5 mm. in width.

#### Objects of Ground and Unworked Stone

Implements made by pecking and grinding constituted only a small percentage of all stone tools. Included are metates, manos, and pestles. These are rough stone work and, excepting the pestles, they seem to have been ground smooth through usage rather than by deliberate shaping.

Metates - Thirteen slabs of fine-grained basalt, apparently metates, were uncovered. Shaping of the stones was not practiced. A suitable flat slab with one fairly smooth surface was selected, used temporarily as a grinding base and then rejected. A few are only slightly smoothed whereas others exhibit evidence of longer service. None, however, is worn thin and only two display slight grinding depressions. The metates are large and heavy, averaging about 45 cm. long, 21 cm. wide, and 3.5 cm. in thickness. Natural slab metates have been reported for the Eastern Shasta and for the Modoc, Achomawi and Atsugewi,<sup>3</sup> their neighbors across the mountains to the east and northeast.

Manos - Only nine definitely identifiable handstones for grinding were recovered. Eight are flattish, unshaped pieces of fine-grained basalt, the same substance used for metates. All are small, of the one-hand variety, and have only a single



smoothed grinding face. The largest is 13 cm. long and 9 cm. wide; the smallest 10 by 9 cm. The proximal end of a mano shaped from coarse basalt is apparently a fragment of the conical, single-horned muller used by the Klamath, Modoc and Eastern Shasta.<sup>4</sup>

Pestles - The distal portion of a finely finished pestle was uncovered. The fragment, 4 cm. in diameter, tapers to a blunt point and has a well-finished surface. A second distal end is from a blunt-ended or cylindrical pestle of hard sandstone. It is somewhat flattened on one side, perhaps through use as a mano, and has a diameter of about 6 cm. The surface is not well smoothed.

Hammerstones - Three unspecialized river cobbles with one or more battered edges indicate use as hammers or percussion tools. One specimen, an elongated pebble of hard sandstone, 11 cm. long and 4 cm. in diameter, has one bruised edge. A second, of the same material, 10 cm. long and 6 wide, is spheroid and exhibits two utilized edges. The third, roughly ovoid, is of coarse but hard basalt, and has two battered surfaces. All conveniently fit the hand.

#### Objects of Bone

The deposit was rich in mammal bone but manufactured articles of this material were few. Of worked bone, only 21 distinguishable objects were obtained, and some of these are questionable as to function. The failure of the aborigines to use more bone artifacts seems unusual and scarcity of bone objects may be a distinctive trait of this cultural manifestation. There were no artifacts of antler or horn though these materials were available.

Awls - Four single-pointed bone tools, evidently awls or perforators, were uncovered. Three, from splinters of leg bones of large mammals, are modified only by the grinding of one end to a point. The butt ends are cut or broken off unevenly. The awls vary in length from 6 to 11.2 cm. The fourth, a rather unusual specimen, is fabricated from the ulna of a carnivore (coyote ?), has an unworked butt end and a shaft which is ground and polished to a point. It is 9 cm. long.

Flakers - A blunt-ended splinter of mammal bone about 9 cm. long presumably functioned in chipping stone by pressure. The proximal ends of two identical objects were also found. The well-worn tips of all three suggest long usage. A fourth similar fragment, however, shows no sign of wear.

Miscellaneous bone objects - There are a number of bone objects, the use of which is quite problematical. These are all cut and split sections of the leg bones of large mammals, apparently elk or deer. Three have irregular and somewhat blunted points which give evidence of use, possibly as chisels or wedges. The butt ends are unworked except for the original uneven severance. The lengths are 6.5 to 15 cm. widths 1.5 to 3 cm. Eight pieces cut so as to have one or more sharp edges may have been employed as fleshers or scrapers. These range in length from 5 to 7.5 cm.

### Objects of Shell

Shell items were exceedingly rare. Three beads fashioned from Olivella biplicata shells comprise the total. Two, each about 1 cm. long, are fashioned from whole specimens with the spires ground off and constitute beads made without drilling. An irregular and calcined portion of the body of a larger Olivella retains the inner whorl and appears to be a portion of a crude "half-shell" bead. There is no indication of perforation on the fragment.

Unworked freshwater mussel (Margaretifera sp.) shells, thirteen large fragments of which were found, may have served a utilitarian purpose as spoons or knives. The Shasta, Klamath, Modoc and Achomawi used Margaretifera shells for spoons<sup>5</sup> and the Klamath occasionally utilized unmodified shells for knives.<sup>6</sup> Freshwater mussels were eaten by all the tribes in the region and the shells may be merely discarded debris. Abalone, dentalium and clam shell, valued by the historic Indians, were not represented.

### Objects of Wood

Twenty-eight wooden implements were recovered. As in most rock shelters of this region, foreshafts and shafts of arrows were numerous.

Foreshafts - Nine arrow foreshafts of a straight-grained, knotless hardwood (mountain mahogany ?) were found. (Pl. 3 B, C, D, G) All are smoothly finished and taper to a point for insertion into a hollow cane shaft. Eight have V-shaped notches for receiving arrowheads and several still retain sinew seizings for holding the points firm. One is decorated with a geometric design consisting of slanting lines and crosses in red paint. The ninth specimen is sharpened at both ends and was never intended to have a stone point. (Pl. 3 F) The foreshafts are 8.5 to 10.2 cm. long and 5 mm. in diameter.

Shafts - Four fragmentary reed (Phragmites sp.) shafts were unearthed (Pl. 3 H, K). Each has a tapering hole at one end for receiving the foreshaft and a wrapping of sinew to hold it in place and to prevent the reed from splitting. The most complete example (Plate 3 K) 22 cm. long and 6 mm. in diameter, has a shallow V-shaped notch at the butt end for the bowstring. The entire shaft is painted with encircling black bands and lines and the ends are bound with rows of fine sinew, also colored black. A section of another shaft has a broad squared nock and traces of three radial feathers.

Fire drill - A single fire drill (Plate 3 P) is made from a peeled twig, apparently willow. Its blunt rounded ends are slightly charred. The drill is 24 cm. long and measures 1 cm. in diameter. No accompanying hearth was discovered.

Awl - A wooden implement, 9.5 cm. long, with a long slender point, presumably served as an awl or perforator. Its shaft is round in cross-section and well-polished; the flattened butt end is cut off square.

Gaming-sticks - Two carefully made, spindle-shaped, hardwood sticks are evidently gaming pieces. (Pl. 3 L, M) Each has three central encircling grooves about 1 cm. apart, incised and painted with black pigment. The spindles are 8 cm. long and 5 mm. in diameter. The sticks used by the Shasta Indians in the men's gambling game are almost identical.<sup>7</sup> Nearby tribes also employed such pieces.

Grooved stick. - A unique specimen, a smooth, flat oblong of wood with rounded corners and grooves 3 cm. from each end, (Plate 3 N), may have functioned as a mesh measure for netting. Well-smoothed from use, it is made from a soft wood (cedar ?) and measures 20 cm. in length and 3 cm. in width.

Skin-scrapers (?) - A hardwood stick (Plate 3 Q), 32 cm. long and 2 wide, is highly polished by continued usage. It is flattish in cross section and somewhat irregular in shape. The ends are cut off at a slight angle. This implement may have been employed in graining animal hides. Sticks exhibiting the same type of polish were used for scraping deer and elk skin by the tribes of northwestern California. The Western Shasta and Atsugewi also utilized these.<sup>8</sup>

Miscellaneous wooden objects - Four peeled hardwood twigs, cut off square at one end and roughly sharpened at the other, may be unfinished arrow foreshafts (Plate 3 E). The lengths vary from 9 to 11 cm.; the average diameter is about 5 mm. A similar though much longer (25 cm.) stick was also found. Two small peeled and grooved twigs were recovered (Plate 3 J). These, 3 cm. in length and 5 mm. in diameter, have central grooves and squared ends. Conceivably, these are from a stick-work bunt made by lashing two or more short pieces just back of the arrowhead to prevent deep penetration or to sideswipe and stun an animal if the arrow misses its mark. A long peeled twig, 26.5 cm. long and 7 mm. in diameter, is of unknown function. Seventeen worked pieces of wood could not be identified as implements and doubtless include a variety of artifactual remnants too fragmentary to be recognized.

#### Objects of Plant Fiber

Basketry, matting, and cordage remnants were encountered primarily in the upper levels of the dry west corner with a few additional pieces collected at varying depths to 38 inches in other sections of the rock shelter.

Basketry - The shelter yielded 18 basketry fragments and approximately one-half of a tray. All are twined but three basic techniques are represented.

1. Plain close twining on a two-ply twisted warp; tule used for both warp and weft; warp two-ply twisted cord rolled in clockwise direction; weaves range in texture from finest which has 18 to 19 warps and 29 to 30 wefts per 5 cm. to 14 to 15 warps and 15 to 16 wefts in the coarsest; pitch of stitch regularly down to right; impossible to determine direction of work from smaller fragments, but on plaque seems to be counterclockwise; rim finished by bending warps over to right and catching them under last course of twining; two fragments decorated with four courses of overlay in contrasting color with one strand covered so shows only as crosses alternate warps; 10 fragments, 1 plaque (Pl. 2A, E, H).

The tray (Pl. 2 A), serviceable for winnowing, sifting and parching, is charred on both sides and burned through in several spots. It is tightly woven with 12 to 14 warps and 18 to 19 wefts per 5 cm. The starting technique is difficult to determine accurately because a small section of the central portion is worn through. Apparently a bundle of warps was encircled with a loop of weft material and then spread out radially in a haphazard manner so that some elements were

sharply bent whereas others were left almost straight. The warps were then bound together with courses of twining. New elements were added by simple insertion as needed. No decoration is visible on the surface.

This is the soft, pliable basketry of the Klamath and Modoc.<sup>9</sup> The Achomawi and Atsugewi also manufactured this ware but it has not been reported for the Shasta living within the borders of California.<sup>10</sup> It is also the "Catlow twine" of the Oregon caves which is said to differ from Klamath-Modoc baskets in starting technique, a slight deviation in mechanical detail which may not be culturally significant.<sup>11</sup> Twining on a flexible two-ply warp has been reported from a number of archeological sites--Massacre Lake and Lovelock caves in Nevada, and in California at Tule Lake, Tommy Tucker cave in Lassen County, Buena Vista Lake in Kern County and from a cave 40 miles north of Barstow,<sup>12</sup> to mention a few.

2. Diagonal close twining on a two-ply twisted warp; like plain twining except that wefts pass over two warps and under one with alternation in successive courses; 15 warps and 15 wefts per 5 cm.; 1 fragment.

Diagonal twining, which differed from plain only in that the wefts crossed over two, three, or even four warps at a time, was occasionally made by the Klamath and Modoc.<sup>13</sup>

3. Plain close twining on a single warp; single rigid peeled warp of willow or hazel and weft of pine root (?); texture ranges from 12 to 13 warps and 17 to 18 wefts to 15 warps and 20 wefts per 5 cm.; pitch of stitch down to left; direction of weaving could not be determined; no recognizable bottom fragments preserved so could not determine method of starting; plain rim finish with warps cut off flush with last row of twining; no indication of decoration; 6 fragments. (Pl. 2 F, G)

Close twining on a single-rod rigid warp was practised by all the recent tribes of this region.<sup>14</sup> The rock shelter specimens are of a generalized type, and it is impossible to determine specific relationships.

Except of the tray, which measures 46 cm. across, there are few clues to the size and form of the baskets. The actual number represented is also conjectural, but remnants of at least five distinct specimens were found. All are well-worn and soiled and probably were discarded when no longer serviceable.

A section of a willow hoop bound with bark wrappings evidently is a remnant of the reinforcement rim of a large burden basket. Such baskets are normally made in an open twine weave on a framework of sturdy rigid warps. A crudely woven object, 7 by 12 cm., in open twine has the appearance of being a miniature cradle of the sitting variety (Pl. 3 A). The framework of unevenly cut, unpeeled willow twigs is held together by a single diagonal course of wefts.

Matting - Twelve fragments of tule matting occurred. (Pl. 2 C, D) The round-stemmed tule (*Scirpus lacustris*) was used most often. There is considerable variation in texture, ranging from coarse matting with 5 warps per 5 cm. to the finest with 12 per 5 cm. Unmodified tule stems laid side by side are held together, occasionally in pairs, by rows of twining 4 to 6 cm. apart. Wefts are two strands of tule twisted in a counterclockwise direction with the pitch of the weaving

consistently downward to the right. The fragments are so small, the largest being 19 by 23 cm., that over-all dimensions could not be definitely determined. It is reasonable to assume, however, that they represent sections of the large rectangular mats so extensively used by the Indians in this section of California. The border finish is simple--warps are cut off 1 to 2 cm. beyond the last row of twining. One specimen is strengthened by two courses of twining 1 cm. apart near one end. The edges of the mats are reinforced by twisting the weft into cord. A single specimen has a loose two-strand rope along one side which is caught under the courses of twining.

A portion of a mat made from coarse swamp-grass (*Carex* sp.) was recovered. (Pl. 2 B) Bundles of blades are twined together by twisted wefts, also of grass clusters. The courses of weaving are 2 to 3 cm. apart and the pitch of the stitch is downward to the left. Three close rows of twining give additional strength to the edge. Swamp-grass mats are known ethnographically for the Modoc and archaeologically from Tule Lake.<sup>15</sup>

Cordage - An unusual amount of cordage was found (Table 2). Isolated bits were strewn through the camp refuse but were most numerous in the upper inches of the dry zone. All told, 110 remnants were recovered. The material represents practically all stages of manufacture from the unmodified raw material to the final twisting of the finished string. The two-ply strand is dominant but there is some range in diameter and in direction and firmness of twist. A diversity of materials was employed but identification of the fibers, except tule leaf, is difficult because of the poor condition of many of the fragments and the lack of a wide range of comparative samples.

1. Two-ply tule, counterclockwise (left, or "Z") twist; made from two separate strips of tule or a single flat piece split to form two elements, or, a narrow strand doubled; both elements usually equal in diameter though occasionally one is larger than the other; each element is twisted in a clockwise direction and then the two are twisted around each other in a counterclockwise direction; 29 specimens (Pl. 3 W).

2. Two-ply tule, clockwise (right, or "S") twist; made same as above but each element first is rolled in a counterclockwise direction before being twisted together in a clockwise direction; averages somewhat less in diameter than preceding type and is more tightly spun; 49 specimens (Pl. 3 X, Y, AA, BB).

Cat-tail (*Typha latifolia*), a fiber quite similar in texture to tule, was occasionally substituted. For the most part these are prepared basketry warps, though some were apparently used for other purposes.

3. Single-ply tule, clockwise twist; on thin strand, rather loosely twisted; 1 specimen.

This fragment may be a single strand from a two-ply cord, though it is somewhat greater in diameter than the elements normally employed in making double-ply cordage.

4. Four-ply tule, counterclockwise twist; a basic single element is doubled and twisted clockwise into a two-ply strand; 2 two-ply strands rolled counterclockwise form completed cord; 5 specimens (Plate 3 T).

The elements of the four-ply cordage are very loosely wound around each other resulting in a rather fragile, skein-like product. Its function is unknown, though it may be for convenience in storing prepared warps.

5. Two-ply cedar bark (?), counterclockwise twist; two bundles of fiber loosely twisted in clockwise direction, then rolled tightly one about the other in a counterclockwise direction to produce a thick two-ply strand; 5 specimens (Pl. 3 R, U).

This cordage has the greatest diameter and probably justifies being called rope. It is strong enough to have served for making deer or elk snares.

6. Two-ply wild hemp (Apocynum sp.), clockwise twist; two bundles of fiber, equal in diameter are rolled to produce two-ply cordage; 5 specimens (Pl. 3, CC).

This is the finest of the fiber cordage and perhaps was utilized in making nets or snares for birds, rabbits, and other small mammals, or even for weaving fish nets.

7. Two-ply nettle (Urtica sp.) fiber, clockwise twist; two elements unequal in diameter twisted in clockwise direction; 5 specimens (Pl. 3 Z).

Like the wild hemp cordage, these examples are well-made. Their use is conjectural.

A miscellaneous group includes a cord of unidentified grass wound in a circle (Pl. 3 V); another, apparently of shredded sagebrush bark (Artemisia sp.); a knotted withe consisting of two thin, unpeeled, twigs; and eight remnants of unidentified material. All are two-ply.

Table 2. Analysis of Fiber Cordage\*

<u>Type</u>	<u>No. of Pieces</u>	<u>Diameter</u>			<u>Firmness (No. of twists per 2 cm.)</u>		
		<u>Min.</u>	<u>Max.</u>	<u>Aver.</u>	<u>Min.</u>	<u>Max.</u>	<u>Aver.</u>
2-ply tule, Z twist	29	1.5	6	3.2	2	8	5
2-ply tule, S twist	49	1	4	2.5	3	12	6
4-ply tule	5	3	4	3.5	2	2	2
1-ply tule	1	4	4	4.	1?	1?	1?
2-ply cedar (?) bark	5	5.5	15.	10.	1.5	2.5	2
2-ply wild hemp	5	1	3	2	7	12.	10.
2-ply nettle bark	5	3	4	3.5	6	10.	8

\*(Miscellaneous, single specimens omitted)

Knotted Elements - Thirty-one cordage specimens exhibit a total of 48 knots; one each has 6, 5, 4, and 3 knots apiece; 3 have 2 knots; 24 have a single knot (Table 3). These function as finishing knots to prevent cords from untwisting (end knots); for fastening two cords together to lengthen a unit (joining knots); for tying bundles of cordage or for encompassing objects (binding knots); for manufacturing nets or snares (netting knots). The knots on the whole are not skillfully executed and some must have been inefficient.

1. End Knots - By far the most common end knot is the single hitch, actually one-half of a clove hitch. In 18 tule specimens, the end of one ply takes a single turn around the second ply and is then tucked in and held secure under its own turn. A variant form, in which each ply end is held fast by the other ply instead of being caught under itself, occurs 6 times. Four of the latter are on four-ply cordage (Plate 3 T). The overhand knot is employed in a single tule specimen. The overhand also occurs twice on the ends of two-ply twisted sinew string, apparently to keep the cord from unreeving and possibly as a stopper to prevent the thread from pulling through fabric.

2. Joining Knots - A variety of knots unite short pieces of cordage. The sturdy square or reef knot is used once (Plate 3 V). There is one example of the granny or false knot (Plate 3 CC) on an Apocynum cord and two probable occurrences. The uncertainty in regard to the latter is due to the deterioration of the specimens. The granny consists of two identical (both left, or both right) half hitches tied one on top of the other. Two pieces of tule cordage are joined by an overhand knot, which is insecure for the purpose as it pulls apart easily. Another specimen has two variant single hitches uniting two cords.

3. Binding Knots - The half hitch is the basic knot for tying or holding together bundles of fiber cordage and for fastening one cord around another. A piece of rope is bound about a smaller section with a half-hitch; an overhand knot on the end of the shorter rope prevents it from slipping through the half hitch (Plate 3 R). Incorporated in the overhand is a tiny (1.2 cm.) gray feather. The half hitch also is utilized to bind together two skeins of tule cordage. The first is a single-ply half-hitched around a bundle of 4 four-ply cords (Pl. 3 T); the second utilized the longest of the 4 two-ply strands to hold them together.

4. Netting Knots - Two sheet bends are on an Apocynum cord, united in the middle by a granny (Pl. 3 CC). The first is 1 cm. from one end, the other is 4.5 cm. from the opposite end, with about 4 cm. between the two. This is probably a remnant of a net or snare.

One complex specimen (Pl. 3 S), of unknown function, consists of five separate cordage fragments fastened together. It has a two-ply sinew string wrapped about a bark cord and around another, now absent, object, and held by two identical half-hitches. In addition, an Apocynum string is looped about the bark cord with one end twice half-hitched. Also its other end is worked in and out of another bark cord fragment and then half-hitched to it, thus binding a whole series of strings together.

Table 3. Analysis of Knotted Elements

<u>Type</u>	<u>Number</u>	<u>End</u>	<u>Joining</u>	<u>Binding</u>	<u>Netting</u>
Single hitch	21	19	2	-	-
Variant single hitch	8	6	2	-	-
Overhand	5	4	1	-	-
Square (Reef)	1	-	1	-	-
Granny (False)	3	-	3	-	-
Half hitch	8	2	-	6	-
Sheet bend	<u>2</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>2</u>
	48	31	9	6	2

The rock-shelter occupants seem to have relied mainly on the single hitch, or a variant thereof (Table 3). Second most frequently employed was the half hitch. Other knots may have originally been half hitches because a single half hitch becomes an overhand knot if the object it surrounds is removed. Two half hitches, each tied in the same direction, can pull into a granny knot. Thus the original form and function of some of the knots may have been lost.

#### Objects of Clay

Two unfired clay objects and a potsherd were brought to light in the occupational refuse.

Spherical clay bead - A slightly flattened sphere of unburned, brownish clay with a large peripheral perforation is probably a bead. One side is broken away but the original diameter appears to have been about 3 cm.

Modeled clay object - A modeled ball of gray clay, also not fired, approximates a female breast in form and, conceivably, is a portion of an unfinished or broken female figurine. It measures 1.8 by 2 cm.

Pottery - A small, 2.5 by 2.7 cm., rim fragment of a crude, brown-surfaced pottery vessel was found.

#### Analysis of Potsherd<sup>16</sup>

Construction: Indeterminable

Fired: Oxidized

Core color: Light brown

Temper: About equal amounts of small to large rounded opaque fragments and small to medium angular fragments ranging in color from red, black, to purple; no way of ascertaining whether the temper was intentionally added; minute crystals visible on both surfaces of sherd; organic material originally present.



Analysis of Potsherd (Cont.)

Texture of core: Medium coarse  
Vessel wall: Evidently not strong  
Fracture: Crumbly  
Surface finish: Rather rough; very crudely smoothed  
Form: ?  
Thickness: 5 to 7 mm.  
Rim: Specimen is rim sherd, but one fragment not sufficient to establish form of rim.  
Painted decoration: None  
Remarks: This specimen is unquestionably a pottery fragment though a crude example; an inferior grade of paste (clay) was used, as evidenced by the large chunks present which did not permit manufacture of a strong vessel; sherd evidently fired at low temperature.

The sherd resembles somewhat the coarse, granular "Shoshonean" pottery of the Basin tribes, though it is, of course, impracticable to seek cultural affiliations from a single undecorated sherd. Fragments of fired clay containers, described as non-Shoshonean, were recovered from the upper level of Catlow Cave in southern Oregon and it is possible that the Cash Creek specimen may be of this type.<sup>17</sup> In any event, Siskiyou County is well beyond the known limits of pottery distribution and ceramic vessels have not been reported for any of the modern tribes. The chance diffusion of a cultural object or trait outside its normal range must always be considered.

Miscellaneous Cultural Objects

Buckskin - A small bag of thin, pliable buckskin evidently served as a pipe case and tobacco pouch. It is sewn around the top and down one side, and seems originally to have had a drawstring. The sewing thread is double-strand sinew twisted in a clockwise direction. The bottom is missing but the original dimensions were approximately 8.5 to 9 cm. long and 3 to 3.5 cm. wide. This type of pipe sack is known ethnographically from all the tribes in this area.<sup>18</sup> An untwisted buckskin thong, 3 mm. in diameter and 4.5 cm. long, is entirely covered with a wrapping of plant fiber. Its use is unknown.

Sinew - Two particles of sinew cordage are fabricated from two exceedingly fine strands of unequal diameter, tightly twisted in a clockwise direction. The first has an overhand knot at one end; the other, loosely wound about a fiber cord, is also knotted. A ring, 2.3 cm. in diameter, is made up of a series of superimposed layers of untwisted sinew. It is probably the seizing from a large, round-shafted implement.

Seed beads - A single bead made from the shell of a Digger pine (Pinus sabiniana) nut was unearthed. One end is ground off at right angles to the long axis to form a peripheral perforation; a second, larger hole, is ground into one side at an angle.<sup>19</sup> A smaller bead is a Western Chokecherry, (Prunus demissa) seed with both ends ground off.

Quartz crystals - Quartz crystals, found in many sites throughout the west and so frequently associated with the shaman's or doctor's outfit, are represented by two small specimens. The first is about 3 cm. long; the second 1.5 cm. The use of quartz crystals by the historic tribes in this area has been denied.<sup>20</sup>

Human Remains

No burials were encountered during excavation. A single human tooth was recovered from the 12 to 18 inch level. A first premolar from the upper jaw, the sample is so badly worn it could not be determined from which side of the jaw it came.<sup>21</sup> A bunch of human hair was also found. Evidently cut or chopped off unevenly with a somewhat dull implement, the hair ranges from 3.5 to 4 cm. in length and is coarse in texture and somewhat depigmented showing a brownish tinge.<sup>22</sup>

Faunal Remains

There was a great wealth of mammal bone, both calcined and unburned. The bulk consisted of splinters and scraps, 1 to 5 cm. long, bearing marks of cutting, the result of butchering or splitting to obtain marrow. A few fragments may represent rejectage from manufactured tools.

The vast majority of the animal bones cannot be distinguished as to genus and species because of their fragmentary condition. The identifiable specimens consist primarily of teeth and jaws. Nine genera are represented by the 41 recognizable mammalian bones.<sup>23</sup>

Mammalian Faunal Remains

Summary List

<u>Canis latrans</u> (?) (coyote)	2
scapulae frags. - 2	
<u>Lynx rufus</u> (?) (bobcat)	1
mandible frag. - 1	
<u>Citellus</u> sp. (ground squirrel)	8
mandible frags. - 7	
maxilla frag. - 1	
<u>Thomomys</u> sp. (pocket gopher)	1
mandible frag. - 1	
<u>Neotoma</u> sp. (?) (wood rat)	4
mandible frags. - 4	
<u>Sylvilagus</u> sp. (?) (rabbit)	11
innominate bones - 5	
mandible frags. - 4	
maxilla frag. - 1	
ulna frag. - 1	
<u>Odocoileus</u> sp. (deer)	1
mandible frag. - 1	
<u>Ovis canadensis</u> (Mt. sheep)	12
horn sheath - 1	
mandible frags. - 2	
maxilla frags. - 2	
teeth - 7	
<u>Bos bos</u> (domestic cattle)	1
tooth - 1	

Of these the gopher, wood rat, and ground squirrel may have been recent visitors to the site and not associated with the prehistoric occupants. Mountain sheep and rabbit bones are most numerous, occurring at practically all levels. The dearth of deer remains is noteworthy and may reflect a special custom in regard to their disposal because the deer was rather consistently one of the staple animal foods of the California Indian. The depth occurrence of the mammalian bones is as follows:

0 to 6 inches

Sylvilagus sp. (?) - 2

Bos bos - 1

6 to 12 inches

Ovis canadensis - 2

Sylvilagus sp. (?) - 1

12 to 18 inches

Citellus sp. - 2

Sylvilagus sp. (?) - 2

Canis latrans - 2

18 to 24 inches

Ovis canadensis - 1

Thomomys sp. - 1

Sylvilagus sp. (?) - 1

24 to 30 inches

Sylvilagus sp. (?) - 1

Ovis canadensis - 1

The find of a domestic cattle tooth in the 0 to 6 inch level suggests that one of these animals may have fallen prey to the human inhabitants. It is plausible, of course, that the tooth and perhaps other remains of the beast may have been carried into the shelter at a later date by a predator. The shelter's remote and inaccessible situation argues against it having been left by any recent traveler. Two small bits of rabbit fur with the integument still adhering were removed from the dry portion of the deposit.

A few bird bones were located but all were too fragmentary to permit specific identification. Two feathers of the red-shafted flicker (Colaptes cafer), the type widely used by the California Indians for manufacturing headdresses and other ornaments, an unidentified gray feather, and a cut quill from the wing of a large unknown bird species, were recovered.



### Conclusion

A few generalizations concerning the mode of life of the people who occupied the rock shelter are derivable from the data presented. The finds suggest that small bands of hunters with their families lived in the shelter seasonally. A primary dependence on large animal species for food is indicated by the numerous projectile points. Stone arrowheads were normally employed by the recent California Indians only for the hunting of big game or in warfare. The abundance of animal bones and the kinds represented point to a well-developed hunting pattern. The presence of grinding slabs and the varied vegetal remains denote the collecting of wild plants as a secondary source of subsistence. That residence was non-continuous is evidenced by the occurrence of mountain sheep and deer dung throughout the refuse. These animals obviously frequented the place only when humans were not present.

There is no evidence of a general cultural change and it is probable that members of the same ethnic group returned to the site year after year. Products from the hands of the people were most numerous in the upper part of the stratum but the types were much the same from top to bottom. The difference in relative frequency may be indicative of changes in human occupancy as in the numbers of the population or more extended residency during certain periods.

An incompleteness of knowledge makes broad archaeological comparisons difficult. Little material is available from this region and on all sides lie areas which, prehistorically, are little explored or entirely unknown. The Cash Creek implement assemblage is most similar to that found at Tule Lake in the territory of the Modoc Indians in northeastern California.<sup>26</sup> Basketry, twined tulle matting with tulle weft, swamp-grass matting, whole Olivella shell beads with spires removed, pine nut and Prunus fruit-pit beads, tapering stone pestles, flaked obsidian knives, notched and stemmed points are among the shared traits. The Tule Lake archaeological remains are assigned to a late prehistoric phase of Klamath-Modoc culture.

The majority of the Sis-13 objects can be matched with modern ethnographic types. A comparison with some of the principal cultural traits reported for the surrounding historic tribes -- the Eastern Shasta, in whose territory the site is located, the Western Shasta, Modoc, Achomawi, Atsugewi, and the Wintu of the upper Sacramento River -- demonstrates how closely the shelter's cultural manifestation parallels that of the recent Indians of northern California. (Table 4)<sup>27</sup> Of 39 traits, 32 are in common with the Achomawi, 31 with the Modoc, 27 with the Atsugewi, 25 with the Eastern Shasta, 24 with the Western Shasta, and only 19 with the Wintu. The number of specific correspondences with the technological equipment of the Achomawi and Modoc, particularly in such a diagnostic item as basketry weaving, strongly hints that the shelter people were intruders from the east or northeast 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.

No precise date can be assigned to the rock shelter material but in all likelihood it falls within the latter years of the 18th century and the first decades of the 19th. Its essential identity with the culture of the historic native tribes signifies that it is not much earlier. The apparent lack of European items among those found would indicate that it could not have been much later, for

white traders entered the region as early as 1827.<sup>28</sup> The absence of objects of Caucasian manufacture does not necessarily preclude white contact but it does argue strongly against it. An estimate of elapsed time from first occupation to abandonment of the shelter as a dwelling is difficult to make with any degree of accuracy. The depth of the archaeological stratum and the number of man-made products in it attest to the passage of a fairly long span of time, perhaps a century or even more.

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Table 4. Comparison of Sis-13 Types With Those of Neighboring Tribes

Sis-13	Eastern Shasta	Western Shasta	Modoc	Achomawi	Atsugewi	Wintu
Flaked stone arrowheads	+	+	+	+	+	+
Stemmed, deep corner notches	-	+	-	+	+	-
Stemmed, right angle shoulder notches	+	-	+	-	-	-
Stemmed, concave base, side notches	-	-	-	+	-	-
Stemless, concave base	-	-	-	-	-	-
Flaked stone spear head	-	-	+	-	-	-
Flaked obsidian knife	+	+	+	+	+	+
Metate	+	-	+	+	+	-
Natural slab	-	-	+	+	-	-
Used on one side only	+	-	+	+	+	-
Mano	+	-	+	+	+	-
Natural stone	-	-	-	-	-	-
Conical (1-horn)	+	-	+	-	-	-
Pestle	+	+	+	+	+	+
Tapering	+	+	+	+	-	+
Cylindrical	-	-	-	+	+	-
Bone awl	+	+	+	+	+	+
Bone flaker	-	-	+	-	+	+
Olivella beads, whole	-	+	-	+	+	+
Fresh water musselshell (spoons?)	+	+	+	+	-	-
Cane arrow shafts	-	+	+	+	+	-
Foreshaft, no other head	-	+	+	+	+	+
Foreshaft plus stone head	-	+	-	+	+	+
Radial arrow feathering, 3	+	+	+	+	+	+
Arrows painted	+	+	-	+	-	+
Fire drill	+	+	+	+	+	+
Twined baskets	+	+	+	+	+	+
1-rod stiff warp	+	+	+	+	+	+
2-ply flexible warp	-	-	+	+	+	-
Tray, closework	+	-	+	+	+	+
Overlay twined decoration	+	+	+	+	+	+
Two-ply cordage	+	+	+	+	+	+
Wild hemp	+	+	+	+	+	-
Nettle	-	-	+	-	-	-
Tule Matting, twined	+	+	+	+	+	-
Buckskin pipe sack	+	+	+	+	-	+
Pine nut beads	+	+	+	+	+	+
Pine pitch adhesive	+	+	+	+	+	-

Notes

1. The rock shelters are on the Lema Hereford Ranch (Macdoel Quadrangle, Township, 44 N, Range 4 W, SE 1/4 of SW 1/4 of Section 15).
2. Some of the stones may have been deliberately piled up to form a low, protective wall. Many, however, have fallen from the formation above; other undoubtedly were rolled out by the occupants to clear habitation space.
3. Voegelin, 1942, p. 74.
4. Voegelin, 1942, p. 74.
5. Voegelin, 1942, p. 75.
6. Spier, 1930, p. 73.
7. Dixon, 1907, p. 441; Holt, 1946, p. 314.
8. Voegelin, 1942, p. 81.
9. Barrett, 1910, pp. 253-254, describes the manufacture of Klamath-Modoc basketry. Spier, 1930, p. 177-193, adds some details.
10. Voegelin, 1942, p. 77. Dixon, 1907, p. 401, however, reports the use of a double warp by the Shasta living in Oregon.
11. Cressman, 1942, p. 33. Cressman, 1943, pp. 340-341.
12. Heizer, 1942, pp. 121; Loud and Harrington, 1929, p. 69; Heizer, 1942, p. 124 ff.; Fenenga and Riddell, 1949, p. 206; Wedel, 1941, p. 120; Peck, 1950, p. 70.
13. Spier, 1930, p. 178.
14. Voegelin, 1942, p. 77.
15. Heizer, 1942, p. 129.
16. The potsherd was analyzed and described by Dick Shutler, Jr., Preparator, Museum of Anthropology, University of California.
17. Cressman, 1942, p. 91.
18. Voegelin, 1942, p. 92.
19. Heizer, 1942, p. 126, describes the distribution and temporal position of Pinus sabiniana beads.
20. Voegelin, 1942, p. 167.
21. The human tooth was examined by Dr. Sheilagh Thompson, Research Fellow, Department of Anthropology, University of California



22. A microscopic investigation of the hair was made by James G. Roney, Jr., M.D.
23. The mammalian faunal remains were identified by J. Arthur Freed, Department of Anthropology, University of California.
24. Botanical identifications were made by Dr. Carter of the University of California Herbarium.
25. Spier, 1930, p. 195.
26. Heizer, 1942, pp. 123-134.
27. The culture elements are derived from the lists in Voegelin, 1942.
28. The Shasta Valley region was first visited by Europeans in 1827, when Peter Skene Ogden with a party of trappers wintered on the streams to the north and east of Mount Shasta. Fur hunters continued to visit the area for some years. In the 1840's the central California-Oregon trail was initiated through Shasta Valley and in the fifties became a well-defined route thronged by gold-seekers in their mad rush to the California mines. Gold was discovered in the vicinity of Yreka as early as 1850 and the white population increased rapidly. The sudden flood of whites resulted in rapid reduction in the native Indian population almost to the point of extinction.

EXPLANATION OF PLATES

Plate 1.

- A. View of site Sis-13.
- B. Plan of site showing excavated areas.
- C. Projectile point types.
- D-H. Chipped stone implements (slightly reduced; exact size given in text).

Plate 2. (Size scale on right is for figs. A-D; scale on left for figs. E-H)

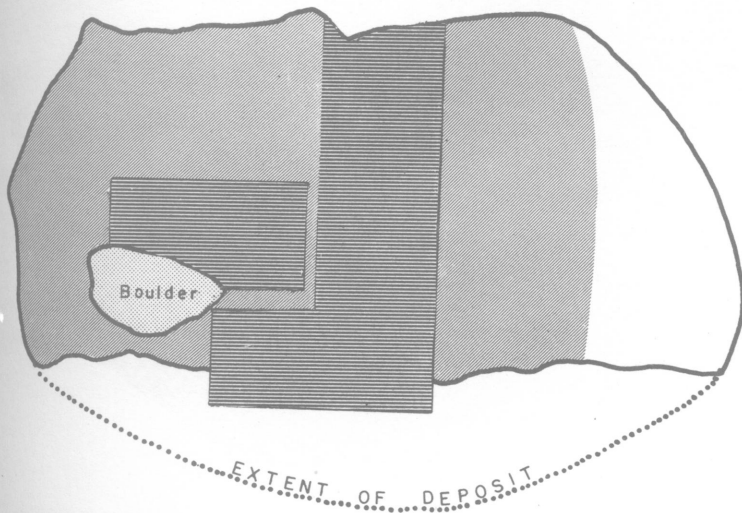
- A. Basketry plaque.
- B-D. Fragments of matting.
- E-H. Basketry fragments.

Plate 3.

- A. Miniature cradel (?), length 11 cm.
- B-M. Arrow fragments and wooden objects (all to same scale; length of K 22 cm.)
- N-Q. Wooden objects (all to same scale; length of P 24.5 cm.)
- R. Fiber cordage (l. 30 cm.)
- S. Fiber cordage (l. 11 cm.)
- T-CC. Fiber cordage (all to same scale; length of X 25 cm.)



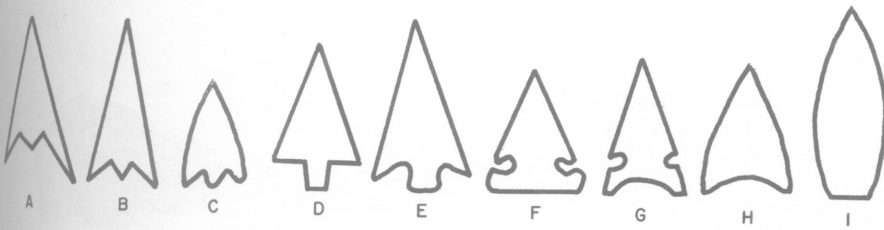
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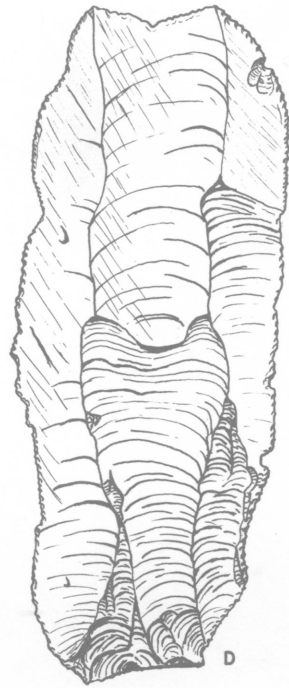
AREA EXCAVATED BY POLLOCKS

AREA EXCAVATED BY U.C.A.S.

B



C

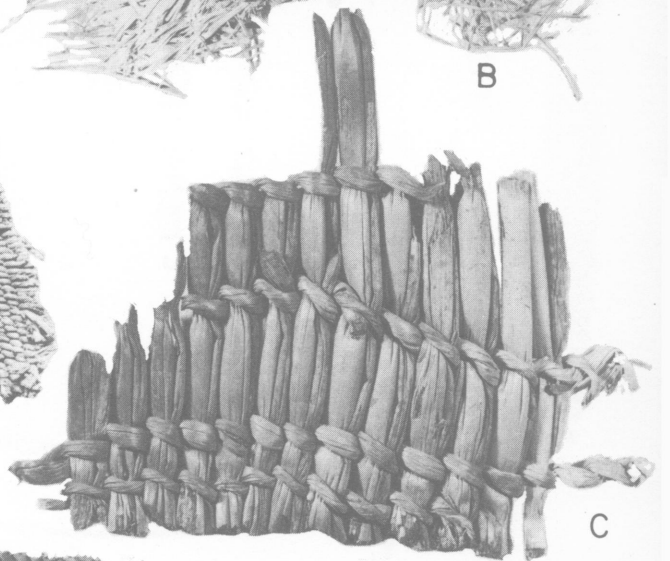




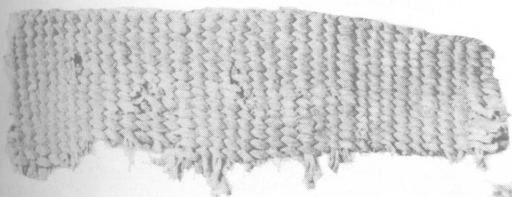
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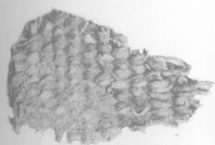
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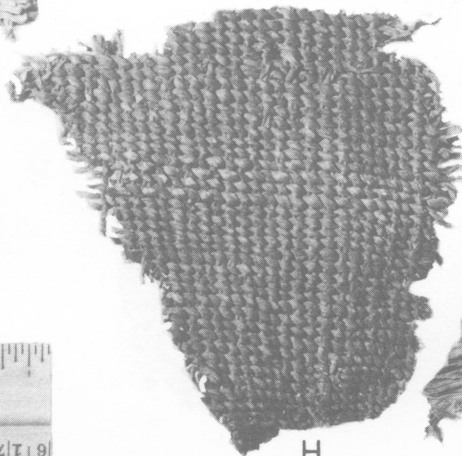
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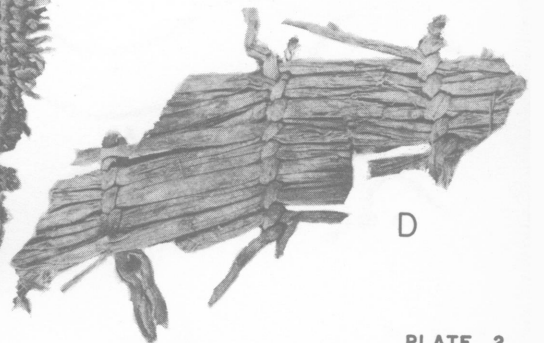
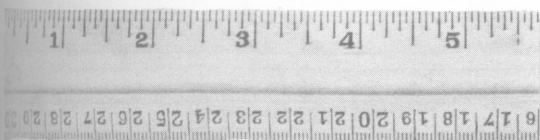
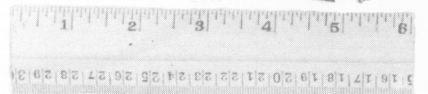
F



G



H



D



PLATE 3.

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