



WEST REDDING ARCHAEOLOGY PROJECT:
CHINESE AND NATIVE AMERICAN OCCUPATIONS AT
CA-SHA-1544/H AND CA-SHA-1969/H



Elaine Sundahl
Shasta College Archaeology Lab
and
Eric W. Ritter
Bureau of Land Management

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Report prepared for the Bureau of Land Management,
Redding, California

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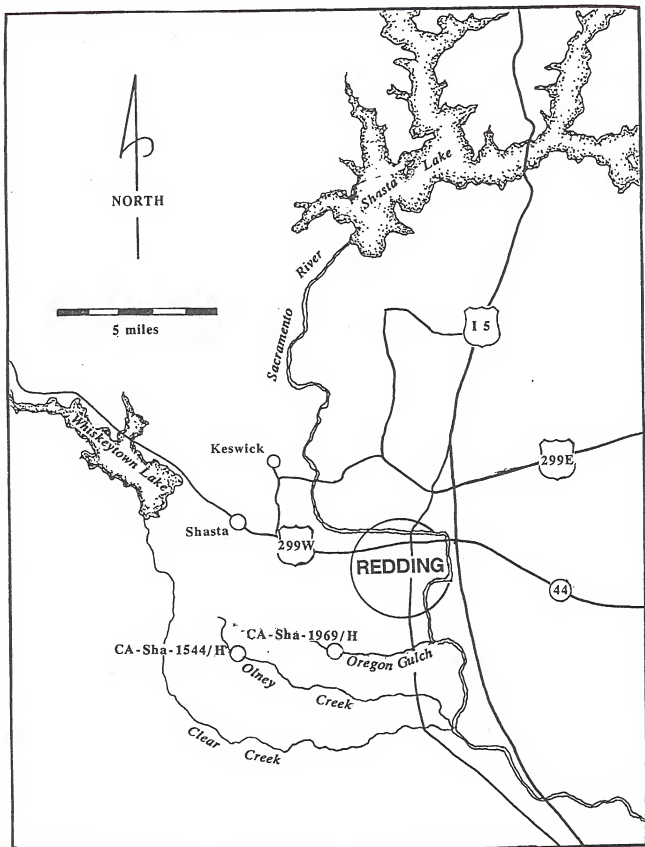


Figure 1. Locations of CA-Sha-1544/H and CA-Sha-1969/H near Redding, California.

INTRODUCTION

The Shasta College Field Archaeology program in partnership with the Bureau of Land Management, Redding Office, participated in a four-year archaeological project on BLM lands west of Redding. The field seasons between 1993 and 1996 were devoted to excavations at three sites. This report describes the investigations of two of these sites, CA-SHA-1544/H, historic locus, and CA-SHA-1969/H. Excavations at the third site, CA-SHA-1991, a large prehistoric midden, are described in a separate volume.

CA-SHA-1969/H and CA-SHA-1544/H are located in the foothills within six miles of central Redding in Shasta County, California (Figure 1). This area straddles the northwestern edge of the Sacramento Valley geological province and the southeastern boundary of the Klamath Mountains province, resulting in a varied geological setting. CA-SHA-1969/H is situated at approximately 600' in elevation in Pliocene alluvial deposits deeply cut by Oregon Gulch. CA-SHA-1544/H is situated at approximately 950' in elevation at the edge of a Mesozoic-aged granitic intrusion. It is located on Olney Creek, which along with Oregon Gulch, is tributary to the Sacramento River.

CA-SHA-1969/H, the Sacramento Pliocene Mine site, was investigated during the 1993 field season and CA-SHA-1544/H, the Middle Mule Pond Cabin site, was mapped and subsurface tested during the 1994 and 1996 field seasons. Both sites contain remnants of habitation which appear to date to the second half of the 19th century, and both may be related to gold mining activities by individuals of Chinese ancestry. Both sites also contain limited prehistoric deposits.

Excavations were conducted under the direction of S. Edward Clewett, Shasta College Archaeology Instructor, and Eric Ritter, Archaeologist for BLM. Students and others participating in the field work at CA-SHA-1969/H include Joyce Abbott, Bruce and Linda Baxter, John Brooks, Ralph Brown, Kjersti Cochran, Jeremy Jones, Jarith Kraft, Frank Malone, Rock Marker, Kristy Meredith, Gloria Montoya, Marit Munson, Lois Robinson, Dee Rowe, San L. Saechao, Elaine Sundahl, and Matt Szychulda. Those working at CA-SHA-1544/H include Joyce Abbott, Yvonne Alward, Lee-Anna Ascherin, James Barnes, Colleen Benson, John Brooks, Julie Burcell, Charles Carpender, Sherrie Gadreault, Polly Hamilton, Russ LeClair, Rock Marker, Carol Marshal, Tricia Moehle, Winfield Mowder, James Nugent, Alice Porembski, Dave Pratt, Elaine Sundahl, and Anna Yoder.

The major objectives of the field work were to assist BLM in evaluating the sites, to mitigate site impacts through data recovery, and to contribute to the general knowledge of areal history and prehistory.

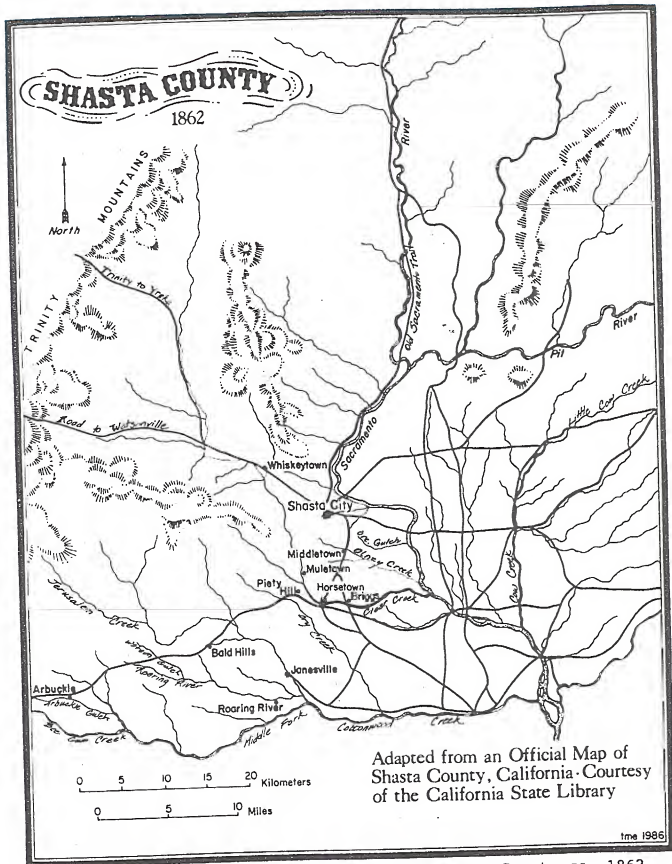


Figure 2. Early settlements in western Shasta County ca. 1862, (map from Tordoff and Seldner 1987).

Cultural Setting

Historic Background

The foothill area west of Redding, stretching from Highway 299W southward to Clear Creek Road, has a documented cultural history of some 6,000 years or more. When Euro-Americans arrived during the Gold Rush, they found the area populated by the Wintu Indians. Archaeological data from numerous sites, however, suggests that the Wintu tenancy of the west Redding area was less than 1000 years duration and that other groups, probably affiliated with the Hokan language family, occupied the area prior to the arrival of the Wintu (e.g. Baker 1984, 1990; Levulett 1987).

Although the earliest Euro-American contact with Shasta County is represented by fur trapping ventures in the 1830's and settlement by Major Pierson B. Reading in the 1840's, Pierson's discovery of gold in Clear Creek on March 18, 1848 prefaced the rapid development of the west Redding foothills. After learning of the gold discoveries on the Sacramento River at Coloma, Reading along with 150 Indian workers prospected for and found gold on Clear Creek about five miles west of its confluence with the Sacramento River in an area which became known as Reading's Diggings and, later, Horsetown. By 1849 numerous "boom towns" had developed in the western foothills (Figure 2). Shasta, Whiskeytown, French Gulch, Muletown, Texas Springs, Horsetown, and Gas Point were among the best known (Petersen 1965:22; Martin 1981). Middletown, lying midway between Shasta and Horsetown, was located on Olney Creek, a rich gold mining area named for miner Nathan Olney. Oregon Gulch was named for the numerous Oregonian miners who located there (Smith 1991:105, 114-115).

The earliest placer miners worked with shovel and gold pan, but soon learned to build rockers, long toms, and sluice boxes. The 41-mile long Clear Creek Canal, constructed between 1853 and 1855, originating near the Towerhouse on Clear Creek and terminating at Olney Creek near Middletown, supplied water for hydraulic mining (Lydon and O'Brien 1974:56; Smith 1991:35). Around 1860 the easily reached placer deposits were exhausted and the mining emphasis shifted to hard-rock or lode mining in the metamorphic deposits of the Klamath Mountains province. Hydraulic mining, outlawed in 1884, and, later, dredging extended the economic viability of mining of the placer deposits in the alluvial strata of the Great Valley province (Petersen 1965:22-25; Vaughan and Ritter 1992:11). Middletown by the end of 1860 had "gone to decay," and gradually evolved into an agricultural area (Peterson 1965:94).

The advent of the historic era had an immense impact on the Wintu as well as other California Indians. In the 1830's a

terraces. No Chinese artifacts were found associated with sites in this class (Bente' and Smith 1984:18, cited in Tordoff and Seldner 1987:49).

Thirteen of the historic sites or site loci were archaeologically tested, including a rammed earth structure with Chinese and subsequent Native American and Euro-American occupations, nine placer mining sites, one Euro-American homestead, and two possible Chinese burial sites. Results identified a number of separate occupations within the 13 sites/loci, many affiliated with the Chinese of the 1870's-1880's. These data were used to address a number of research questions about mining history, the determination of ethnicity in the mining-related sites, and the interaction between Euro-Americans and Chinese during the later 19th century (Tordoff and Seldner 1987:49, 225).

Research Objectives and Methods

Although methods vary somewhat in the investigations of prehistoric and historic resources, the research objectives are the same: what components are present, when was each component occupied, what function or functions did it serve, and what was the ethnic or cultural affiliation of its inhabitants. Or, with "where" as a given, the objective is to learn "when," "what," and "who?" The more encompassing questions of "why" can only follow when large bodies of data are amassed, and are not an objective of this limited study.

Specific objectives of the field work were to determine whether adequate materials are present to address the broader questions, and if so, to collect sufficient samples to begin to find the answers. The ultimate objective was to assess whether each site would be eligible for listing on the National Register of Historic Places based primarily on its research value and to develop a management prescription.

Common methods among both investigated sites were the excavations of one-meter square units in 10cm increments and the screening of soils through 1/4" and 1/8" mesh screens to recover cultural debris. The emphasis in the historic loci was in the exposure of features with minor testing of subsurface strata in the general site. Metal detectors were employed in historic components to determine artifact extent and concentrations and to discover the range of metallic signatures.

All cultural materials were placed in paper bags marked with site, unit, and level, and returned to the Shasta College Archaeology Lab for washing, cataloging, analysis and curation. At the close of each field season all units were lined with black plastic and backfilled, leaving the sites with their original surface contours.

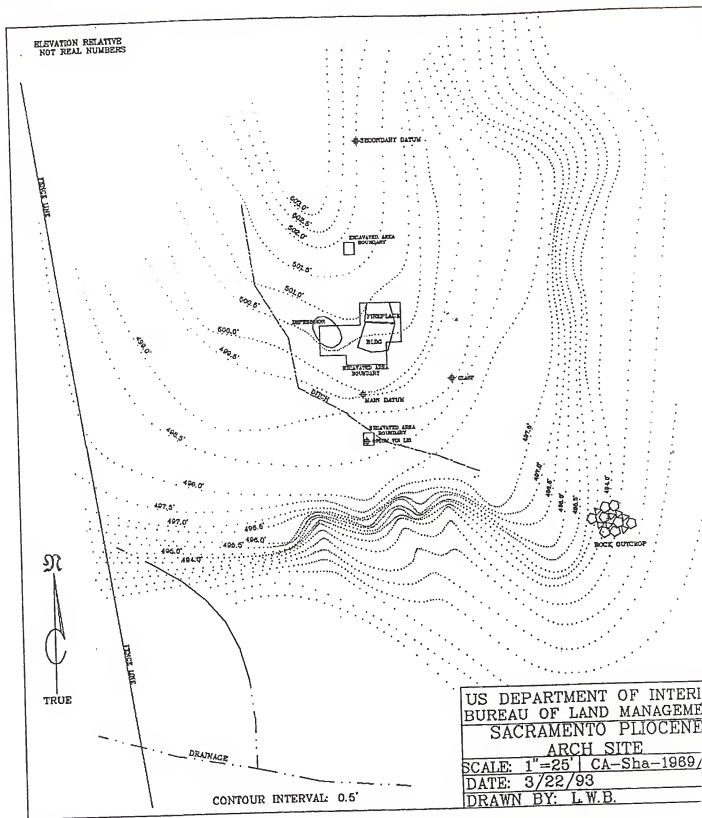


Figure 3. Locus 1 of CA-SHA-1969/H showing surface features and excavation units.

SACRAMENTO PLIOCENE MINE SITE
CA-SHA-1969/H

The Sacramento Pliocene Mine Site lies approximately three miles southwest of Redding on the north side of Oregon Gulch (Figure 3). Geologically, the surrounding landforms consist of Pleistocene-aged terraces which overlie a Cretaceous sandstone which in turn overlies the much older metavolcanic rocks of the Copley formation (Strand 1962; Hollister and Evans 1965; Klaseen and Ellison 1974). The site lies near the contact where the terrace has been heavily eroded, exposing the older formations. This contact area is rich in placer gold and was heavily mined in the mid- to late 19th century. Evidence of the mining and associated habitation is scattered throughout the gullies and knolls.

Current vegetation consists primarily of manzanita with some grey pine present. Blue oak and poison oak are numerous in the general area. Several ephemeral creek channels cut through the area as they generally travel southward to Oregon Gulch, some 300 meters beyond the site, which contains a permanent water supply. The annual precipitation averages between 30 and 40 inches (Klaseen and Ellison 1974).

The site, which includes three probably unrelated loci, was recorded as being 150m east to west and 60m north to south. Locus 1 consists of historic foundation remains and associated debris juxtaposed with a prehistoric lithic scatter. Locus 2, located on a creek bank across a tributary of Oregon Gulch from Locus 1, includes an open adit and tunnel entrance along with associated debris. Historic records indicate this was the Sacramento Pliocene Mine, mined in the 1890's (Lydon and O'Brien 1974:131). Locus 3, which lies on the flat east of Locus 2, consists largely of a more recent habitation area with minor indications of historic Chinese use such as sherds of Four Seasons and Celedon ware (Ritter 1993). This report describes the testing of Locus 1 during the spring and summer of 1993, principally to evaluate its significance prior to a land exchange.

Rock features evident on the surface of the site, interpreted as the structural remains of a cabin, include a presumed collapsed chimney and loose rock foundation footings (Figure 4). A shallow oval depression measuring approximately nine feet north-west to southeast by six feet northeast to southwest lies a few meters west of the rock feature.

A metal detector was used to locate metal artifacts and define trash deposition limits. Selected artifacts were flagged, mapped, and collected along with two metavolcanic cores. Twenty-two 1m square units were laid out with a hand compass oriented to the cardinal directions. Twenty lay in a contiguous

TABLE 1

Distribution of Historic Materials from CA-SHA-1969/H

UNIT	0-10cm	10-20cm	20-30cm	TOTAL
S4-E1	3	1		4
N3-W1	90			90
N3-E1	32			32
N3-E2	45			45
N4-W3	45			45
N4-W2	63			63
N4-W1	53			53
N4-E1	26			26
N4-E2	11			11
N5-W3	16			16
N5-W2	142	8		150
N5-W1	53			53
N5-E1	19			19
N5-E2	27			27
N5-E3	59			59
N6-E1	7			7
N6-E2	5			5
N6-E3	20			20
N7-E1	3			3
N7-E2	2			2
N7-E3	0			0
N12-W1	0	0	0	0
TOTAL	721	9	0	730

block extending across the cabin area as well as a portion of the large oval depression (see Figures 3 and 4). Two additional units were dispersed, one lying 4m north and one 5m south of the cabin area, to test for the presence of both historic and prehistoric cultural materials.

All units were excavated with trowel and hand pick to a depth of 10cm with three units excavated deeper to check the depth of the deposit. Soils from four units (N3-W1, N3-E2, N5-

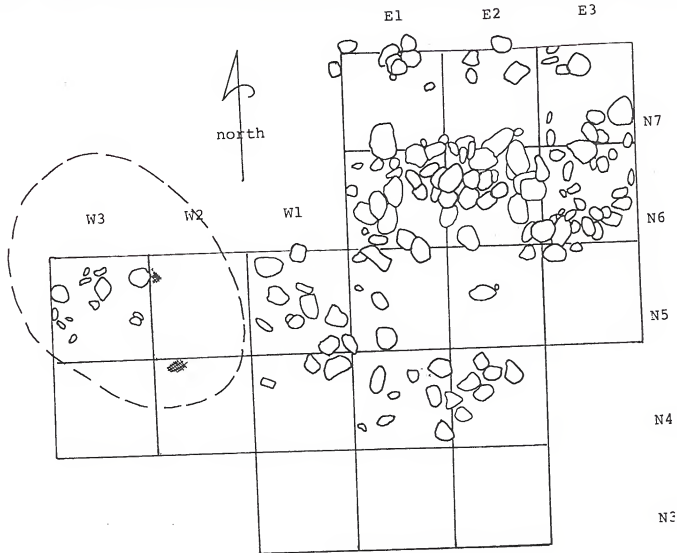
TABLE 2

Distribution of Prehistoric Materials from CA-Sha-1969/H

UNIT	0-10cm	10-20cm	20-30cm	TOTAL
S4-E1	2	0		2
N3-W1	10			10
N3-E1	7			7
N3-E2	10			10
N4-W3	2			2
N4-W2	3			3
N4-W1	5			5
N4-E1	5			5
N4-E2	4			4
N5-W3	0			0
N5-W2	4	2		6
N5-W1	2			2
N5-E1	1			1
N5-E2	2			2
N5-E3	4			4
N6-E1	2			2
N6-E2	1			1
N6-E3	2			2
N7-E1	3			3
N7-E2	3			3
N7-E3	1			1
N12-W1	4	0	0	0
TOTAL	77	2	0	79

E1, and N12-W1) were passed through 1/8-inch mesh screens and the remainder were sifted with 1/4-inch mesh screens. Gross numbers collected by unit and depth are shown in Tables 1 and 3.

Prehistoric artifacts were primarily limited to the top 10cm (Table 2) but were widely spread across the tested portion of the site. Obsidian, consisting of nine flakes and one biface, appear slightly more constricted than the metavolcanic flakes.







-  1m square excavation unit
-  depression
-  rock
-  ash deposit

Figure 4. Excavation units in and adjoining features.

Features

The excavations and mapping of 20 continuous units within the cabin and depression area revealed a rectangular rock feature measuring approximately 14 feet by 10 feet (4.3m by 3.04m) in size from outside to outside edge (Figure 4) and aligned north and south. This feature is interpreted as loose rock foundation footings which supported a frame structure with a mud and rock chimney on the northeast side. The heaviest concentration of glass bottle fragments lies westward from the cabin but not necessarily within the depression.

The depression, measuring approximately 10 feet northwest by six feet northeast-southwest, lies just west of the foundations. It contained an ashy deposit, perhaps a hearth dump or cooking area.

Soils Analyses

A soil sample was collected from the 0-10cm level of unit N4-W2 within the depression. This was submitted to the University of Wisconsin - Milwaukee Soils and Physical Geography Laboratory for routine soil analysis. A control sample, taken offsite to the southeast, was also sent to the soils lab.

Results of these analyses (Table 3) show that there is a major difference in on-site and off-site samples. The total P (phosphorus) and exchangeable Mg (magnesium) contrast sharply, likely relating to human influences on the soil. P readings may reflect the introduction of organic materials including decomposing food refuse, body wastes, fires, and so forth. A lack of major textural difference indicates that there was no importation of sediments during the construction of the structural feature.

TABLE 3

Soil/Sediment Analyses on Samples from CA-Sha-1969

LOCATION	SAND %	SILT %	CLAY %	pH	TOTAL P ppm	EXCH. Mg. ppm
N4-W4, 0-10cm	32	48	20	7.9	974	49
Offsite sample	35	40	25	5.6	221	473

TABLE 4

Summary of Cultural Materials Collected from CA-Sha-1969/H

NUMBER	DESCRIPTION
419	glass bottle fragments including 5 bases
3	fragments of window glass
1	fragment of lamp chimney
51	fragments of brownware including 1 rim fragment
1	ceramic pipe fragment
231	common cut nails
3	wood screws
35	probable can fragments including 1 flattened can
1	brass lid from opium tin
4	fragments of barrel hoop or other strap material
1	suspender clasp
1	"D" ring handle
2	metal plate fragments
1	shell button
39	bone fragments
9	obsidian flakes
1	obsidian biface
67	metavolcanic flakes
4	metavolcanic cores

Cultural Materials

A total of 876 artifacts, fragments, and associated cultural remains were processed at the Shasta College Archaeology Lab and catalogued into Acc. 99. Fragments of glass bottles, common cut nails, and other historic artifacts and fragments constitute the vast majority of the cultural materials (Table 4). Prehistoric lithics number 81 artifacts and debitage, or 9% of the total. The faunal material appears to belong to the historic component of the site.

Bottle Fragments

Five bottle bases and 419 sherds in the collection appear to represent at least 12 bottles of 11 different types or varieties including patent medicine, bitters, and liquor bottles. Although none of the bottles is complete, the following descriptions are inferred from the fragments and from other descriptive sources. "Type" numbers correlate with the distribution chart in Table 5.

(1) Bottle type 1 is made of a very dark olive green glass with an exterior surface that is slightly pitted. The bottle, with wall thicknesses from 4mm to 8mm, was square or rectangular in cross-section. The single small base fragment appears to be recessed, although the degree of indentation cannot be determined. The embossed letter "B" appears on one body fragment. A portion of a flared neck with a laid-on ring finish and flat sealing surface (Figure 5a) probably belongs to this bottle. Although this bottle can't be specifically identified, it probably was used for gin or whiskey. Fragments from several similar bottles found in excavations at Old Sacramento were identified as Holland or American-made gin or whiskey bottles, and all date as early as the late 1850's (Schulz et al. 1980:29-37).

(2) Although 89 fragments of this type were recovered from nine units, all sherds are quite small. This bottle may have been a medicine bottle. Olive green in color with walls 2mm to 3mm in thickness, it appears to have rounded sides with at least one flat face.

(3) Type 3, known from only 13 sherds, also appears to be a medicine bottle. Fragments are a very pale blue-green glass 2mm to 3mm thick. Oval in cross-section, the bottle contained one or more flat panels. It had a narrow neck with an abrupt, nearly perpendicular angle where the neck joined the shoulder. The thin, applied neck finish appears to have a hollow center.

(4) Type 4 consists of 11 small fragments which are clear and only 1mm to 2mm in thickness. The bottle appears to have had convex sides with one or more flat faces and may also have been a medicine bottle.

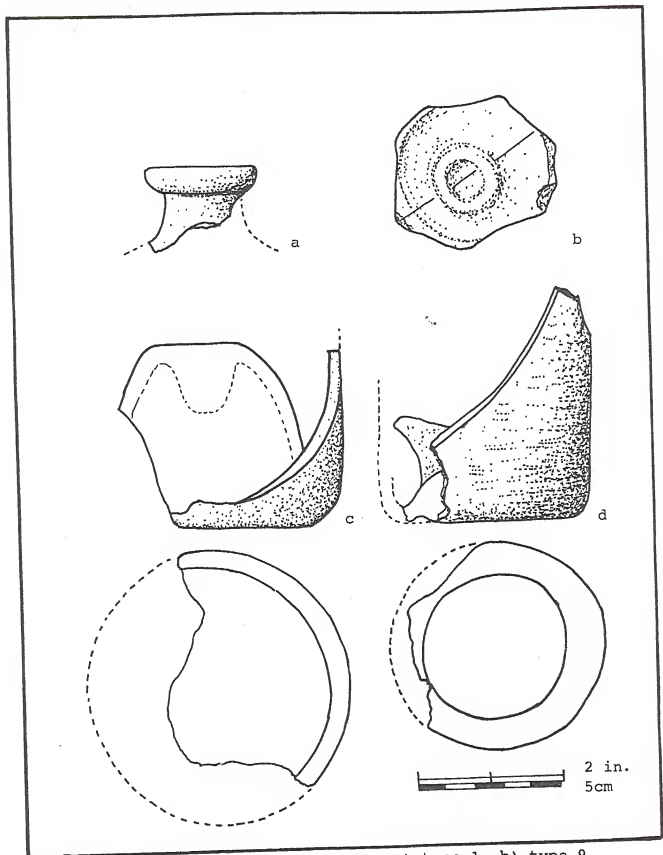


Figure 5. Bottle fragments; a) type 1, b) type 9, c) type 8, d) type 11.

(5) The 39 fragments that make up type 5 contain embossed surfaces which allow it to be identified as a "Dr. Jaynes Alterative" medicine bottle. The sherds are a very pale blue-green in color, approximately 4mm in thickness. Oval in horizontal cross-section, the bottle had one flat face which contains the vertical embossing (Figure 6b). The slightly recessed base bears a pontil mark measuring approximately $1/2$ " in inside diameter. This bottle type, introduced in 1851, is described as aqua in color, 7 " high by $2 \frac{7}{8}$ " by $1 \frac{3}{4}$ " with a ring or oil neck, a plain oval base, and plain panels, the front embossed "DR. D. JAYNE'S/ALTERATIVE/ 84 CHEST ST. PHIL" (Fike 1987:168).

(6) Type 6 consists of 17 fragments of a pale aqua blue, thin (1.5-3mm) glass with multiple flat planes joined at oblique angles. This bottle appears to be identical to the hexagonal spice jars illustrated in a number of archaeological references as usually described as containing pepper (e.g. Brott 1982:65). These bottles are $6 \frac{3}{4}$ " high by $1 \frac{5}{8}$ " by $5/8$ " with sloping shoulders and slightly tapered necks finished with rolled collars. Blown in two-piece molds in transparent pale greenish-aqua colored bubbly glass, they were cork-stoppered (Switzer 1974:60-63). A similar jar was found in the Moon Lee One site in Weaver-ville in a stratum which dates to the 1850's (Brott 1982:65).

(7) Embossed fragments of this type identify it as "Dr. Hostetter's Stomach Bitters" bottle, one of the most common alcoholic products of the later 19th century. Sherds are a very dark olive green which have a yellowish tinge when held to light and are relatively thin, only 3mm to 5mm. Whole bottles were four-sided with a French square profile and base, with the corners beveled rather than meeting at perpendicular angles. They have slanting collar neck finishes and plain panels with vertical embossing (Figure 6a). Bottles measured $9 \frac{1}{2}$ " high by 3" square and were blown in a two-piece mold. This product was introduced in 1853, but the embossing was added in 1858 (Fike 1987:36). One hundred ninety-one cases of Dr. Hostetter's Stomach Bitters bottles were found during an archaeological investigation of the steamship Bertrand which sank in the Missouri River in 1865. Cases each contained 12 bottles packed in sawdust. The bottles had cork stoppers covered with thick foil seals and paper labels on the unembossed side panels (Switzer 1974:4, 30-34).

(8) The 136 fragments including two bases grouped as type 8 are probably remnants of two or more champagne bottles. Glass sherds are olive green 4mm to 8mm in thickness. The bases are round in horizontal cross-section with a diameter of $3 \frac{3}{4}$ " and have very high "kickups" with convex knobs (Figure 5c), recessed 2" in one base and $2 \frac{3}{8}$ " in the other. A number of the fragments are heavily opalized, containing a patina which covers all surfaces including broken edges.

(9) A single base (Figure 5b) is attributed to this type as no other fragments appear to match the color and glossy appear-

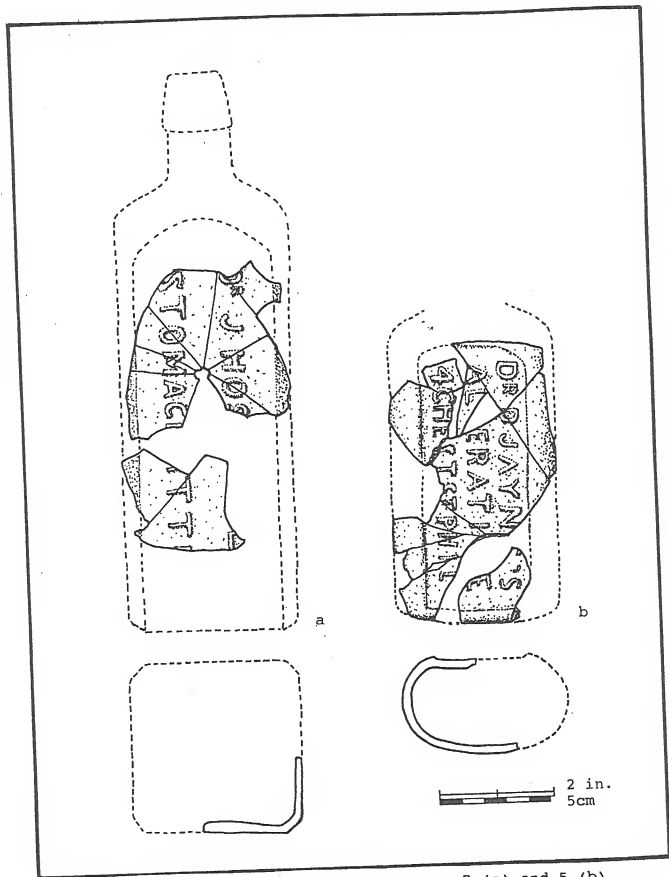


Figure 6. Fragments of bottle types 7 (a) and 5 (b).

ance of this piece. It is transparent, aqua in color, and is pontil-marked. The bottle's diameter is not known as the base is broken on most edges, but is at least 2" by 2 1/2" and featured at least one flat panel. The pontil mark measures 3/4" in inside diameter. Pontils, ring-shaped marks created by the blow pipe or other rod which held the bottle during manufacture, are generally dated prior to 1870 (Rock 1981:6).

(10) The 16 fragments that comprise type 10 are a very pale blue-green in color and 1mm to 2mm in thickness. No other diagnostic features were identified.

(11) This bottle type is known from a single base. Round in horizontal cross-section it is 3" in diameter with thick walls and is more emerald green than olive green. The base is recessed with an indentation 1/4" in depth (Figure 5d). Numerous faint horizontal striations suggest that this bottle may have been made in a turn mold, an invention most popular between the 1870's and 1920's (Toulouse 1969:531). This fragment was probably the base of a wine bottle.

TABLE 5

Distribution of Glass Fragments by Assigned Bottle Type

UNIT	TYPE/1	2	3	4	5	6	7	8	9	10	11
N3-W1	16	42	7	2							
N3-E1		1	1	1	1						
N3-E2		2	3	4							
N4-W3							24	8			
N4-W2						3	29	15			
N4-W1		8		2	1	6	5	3			
N4-E1		1					3			1	
N4-E2		1	2								
N5-W3		1					5	5			
N5-W2		27		2	5	1	8	78	1		
N5-W1	1	6			4		1	27			
N5-E1					2		1				
N5-E2					3	3					
N5-E3					14					15	
N6-E2						2					
N6-E3	1				9	2	1				
N7-E2											1
surface	1										
Totals	19	89	13	11	39	17	77	136	1	16	1

Lamp Chimney

One small fragment of very thin, curved glass recovered from N4-E1 is identified as a piece of lamp chimney. It is 0.04" thick and frosted.

Window Glass

Five small flat fragments are believed to be window glass. Two were found in N4-W1, two in N4-E1, and one in S4-E1. One is a very etched, clear glass fragment of variable thickness averaging 0.045". Three are clear in color and measure 0.060" in thickness. One of these has two straight edges meeting in a corner. And the last, found south of the cabin structure, is a very pale blue-green in color and 0.075" thick.

An analysis of a large sample of window glass from Vancouver, Washington suggests that glass panes became thicker with time in the mid-19th century, at least in the Pacific Northwest. Panes 0.055" thick were the primary mode between 1835 and 1845; a thickness of 0.065" was the mode common between 1840 and 1850; and panes 0.075" thick prevailed from 1850 to 1860 (Chance and Chance 1976:252).

Chinese Utilitarian Brownware

Brownware consists of 51 sherds measuring between 9mm and 42mm in minimum size, all but three less than 20mm. Thicknesses of the sherds vary from 3mm to 8mm, but most fragments are 4mm to 5mm thick. Each piece can vary as much as 2mm in thickness. The clay contains gritty inclusions. Each piece is dark brown on the exterior and a natural light tan clay color on the interior, both with a glossy glaze. The single rim sherd, 8mm in wall thickness, had a flanged lip, although the flange has broken off the recovered fragment. The lip curvature suggests a moderately large opening. This piece also shows that the dark color extends over the lip and 5mm into the interior.

The collected sherds were distributed in nine contiguous units within and adjoining the southern edge of the rock feature units. The largest numbers, however, were found in three contiguous units outside of the structure (Table 6). All 51 fragments recovered from the site are probably from a single vessel which most likely was a food storage jar. Brownware vessels were made in a wide range of sizes to transport such foods as pickled vegetables, preserved ginger, soy bean curds, shrimp and shrimp paste, dry oysters, fish fins, dried duck kidneys, "thousand year old" eggs, dried fruits, dried mushrooms, seaweed, birds' nests, and rice from China. Reuse is also a possibility (Pastron, Gross and Garaventa 1981:366, 410-411; Brott 1987:233).

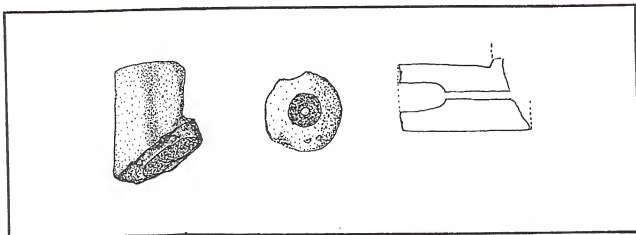


Figure 7. Clay pipe fragment (drawn by Joyce Abbott).

Clay Pipe Fragment

A fragment of a clay artifact (#99-48) recovered from N4-E1 is the short stem attachment from a two-part, reed stemmed variety of clay smoking pipe (Figure 7). The bowl portion is missing. The maximum length of the stem base from the end to the point where it begins to curve toward the bowl is 1 1/4". The exterior diameter is approximately 1/2" (it is not perfectly round) and the bore is 1/4" in diameter. The bore extends 1" in length, where it terminates against an interior wall separating it from the bowl, and which has a central hole 2.5mm in diameter. There appears to be a faint trace of red color on the exterior of the pipe.

Reed stemmed pipes were commonly manufactured in the United States from approximately 1840 to 1900 (Fike and Phillips 1983:40) and are often found in mid-19th century Euro-American mining sites (e.g. Jensen 1980:43).

TABLE 6
Distribution of Chinese Brownware at CA-SHA-1696/H

UNIT	NUMBER	MAX. SIZE RANGE/mm	COMMENTS
N3-E1	11	11-23	
N3-E2	12	9-21	includes rim frag
N4-W1	2	16-18	
N4-E1	13	10-31	
N4-E2	3	14-16	
N5-W1	2	29-42	largest fragments
N5-E1	2	11-29	
N5-E2	1	13	
N5-E3	4	12-34	
surface	1	27	

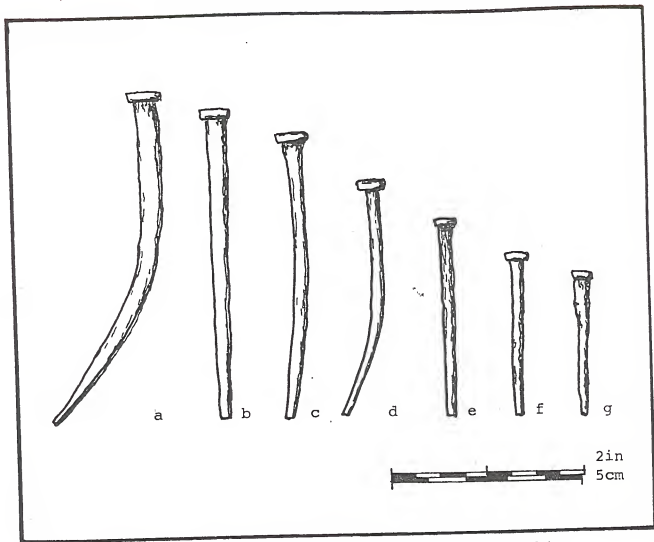


Figure 8. Common cut nails from CA-SHA-1969/H from 20d size (a) to 4d (g).

Common Cut Nails

All 231 nails recovered from the cabin area are common cut (square) nails (Figure 8), and all are very rusty. Roughly one-third are whole, one-third are broken shafts containing heads, and the remaining one-third are broken shafts without heads.

The majority of nails with measurable lengths fall within the smaller size ranges. The largest numbers are in the four penny and seven penny sizes, 1 1/2" and 2 1/4", respectively (Figure 8g, e; Table 7). However, these figures may be misleading as most of the broken nails containing heads appear to be within the larger size range. Fifty-nine percent of the whole nails are straight and 41% are bent, particularly including the small 4d size.

The distribution, shown in Table 7, is widespread but the largest numbers were found in the N3, westernmost N4, and N5 units, many outside of the cabin area.

Wood Screws

Three machine-made wood screws were recovered from N5-W2, two (99-61) from the 0-10cm level and one (99-66) from the 10-20cm level. All are the same size of 1 3/4" in length with a 3/8" diameter head. The screw threads extend 1 3/16" up the shaft from the tip.

TABLE 7
Distribution of Common Cut Nails by Size*

UNIT	SIZE/3d	4d	5d	6d	7d	8d	9d	10d	12d	16d	20d	Hd	Sh
S4-E1												1	
N3-W1		2			1		2		1		1	7	8
N3-E1									1			10	6
N3-E2		1		2					2			7	11
N4-W3	1	3										4	5
N4-W2		5			3							2	3
N4-W1		5			4		1					3	7
N4-E1												3	1
N4-E2				1		1	1					1	
N5-W2		4			7				1			7	10
N5-W1		1			1				2	1		4	3
N5-E1	1	2	1		2							4	3
N5-E2	1				1							9	5
N5-E3		2		3			2					8	8
N6-E1												2	4
N6-E2												1	2
N6-E3					2		1					3	2
N7-E1							1					1	1
Totals	3	25	1	6	21	1	8		7	1	1	77	79
%	4	34	1	8	28	1	11		9	1	1		

Hd = heads with broken shafts

St = broken shafts, no heads

* common cut and cut fencing nails are not distinguished

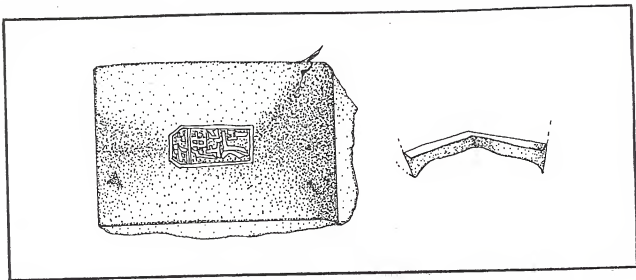


Figure 9. Opium tin lid from CA-SHA-1969/H
(drawn by Joyce Abbott).

Opium Tin Lid

A brass lid (#99-3), found in S4-E1, measures 2 5/8 inches in length by 1 5/8 inches in width with sides 3/8 inches long (Figure 9). The metal is less than 1mm in thickness. Such lids are known to have fit on a 3 1/2" tall rectangular brass box which held opium (Brott 1982:58). The center of the top of the lid contains stamped Chinese characters, translated as "Huan Shang Li Yuan" or, literally, "district up beautiful source (of a river)" from a district in Hong Kong (Information on file at the Asian Comparative Collections, University of Idaho; also see Felton, Lortie and Schulz 1984:68).

Tin Cans

The 35 fragments of flat metal attributed to tin cans includes one nearly complete can and the remainder are non-diagnostic small fragments. The most complete specimen is flattened and is missing the top and bottom as well as the upper and lower rims. It measures 12 inches in circumference, and presumably was 3 7/8 inches in diameter. The probable height is 4 1/2 inches and thickness is 0.03", a fairly heavy gauge. The side seam is lapped, presumably hand-soldered, although no trace of solder now remains. The can may have been deliberately flattened for reuse, perhaps as roofing or siding patches.

Distribution of the can fragments is fairly widespread (Table 8) but nearly all came from outside of the foundation area. Several small fragments appear to be associated with the depression area.

TABLE 8

Distribution of Can Fragments at CA-SHA-1969/H

UNIT	NUMBER OF FRAGMENTS
S4-E1	1
N3-E2	2
N4-E2	18
N5-E2	4
N5-W2	3
N5-W3	5
surface	1

Metal Rod

A metal rod (99-72), found in N5-W1, may have been a ramrod for a pistol. Very rusty, it measures 9 7/8 inches long and 1/4 inch in diameter. One end is bluntly tapered on a diagonal and the other end appears to have screw threads extending 1 1/4 inch along the rod from the end for the attachment of a handle (Figure 10a).

Barrel Hoops

Several metal strap fragments appear to have been portions of barrel hoops or similar straps. The longest fragment (#99-45) is 12 inches in length, 3/4 inch in width, and is less than 1mm thick. It has a hole 3mm in diameter located 1 inch from one end, but slightly off-center. The fragment, found in N4-E1, is flattened into an S-shape (Figure 10b) and probably served some secondary function, perhaps as a hanger for a lantern or other object.

A second fragment (99-37), found in N4-W1, is only 3 inches in length but is doubled with both ends broken, and is 1 inch in width. It contains a centered rivet 6mm in diameter 1" from one broken end and an off-center hole 3/4" from the rivet.

Two rusty fragments, possibly of a barrel hoop or other strap material, were found in N4-W2. Widths are irregular and not measurable. Thicknesses are 1mm and 1.5mm. One has a 4mm-diameter hole near one end.

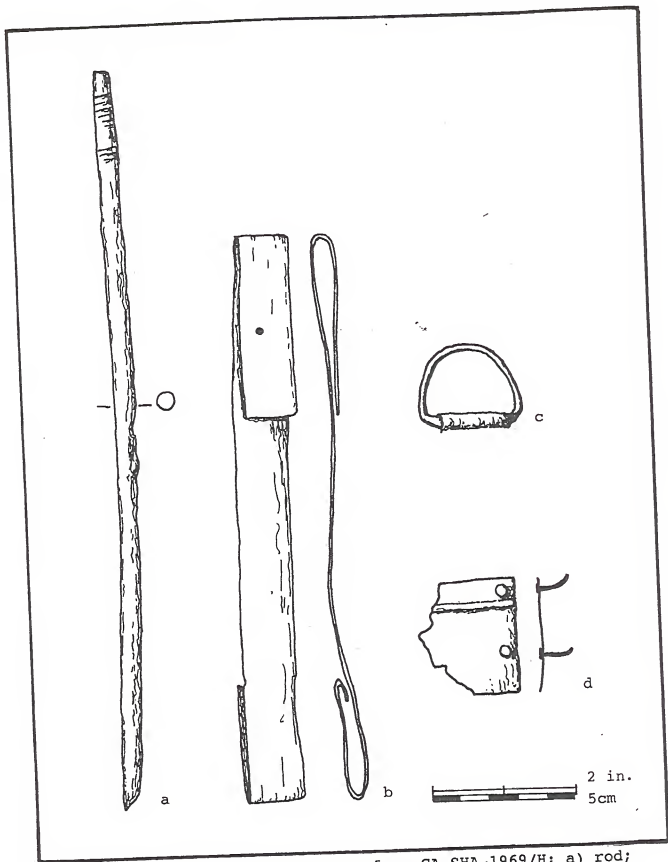


Figure 10. Metal artifacts from CA-SHA-1969/H; a) rod; b) barrel hoop; c) "D" ring; d) metal plate.

Miscellaneous Metal Objects

Three miscellaneous artifacts include a "D" ring and two flat metal plates. The "D" ring (99-87) is 1 3/8" long and 1 1/8" high in exterior measurements with the ring 2mm thick. It still contains a vestige of thin metal across the base (Figure 10c) which attached this handle to something, probably a tin can. These were commonly used on large rectangular canisters that held such things as cooking oil or kerosene (Ritter 1986:49).

A flat metal plate measuring 4 3/4" by 2 1/4" by 3mm thick was found in N5-E3. It does not contain any holes, and there are no clues to its use. It was probably hand-fabricated for some unknown purpose.

A fragment of a smaller, thinner metal plate was recovered from N6-E1. Broken in length, it measures 1 1/2" in width and 1mm in thickness. A raised or embossed line decorates one long edge. Two tacks, which still protrude through the plate near one edge, are 5/16" long and have round heads but square shanks (Figure 10d). This may have been a portion of strapping or reinforcement on a box or suitcase which was pulled off, bending the tacks.

Shell Button

A "mother-of-pearl" shell button (#99-109; Figure 11) was found in N4-W1. It is round in plan view with a flat face recessed in the center. The shell layers are peeling away, and if any design appeared on the button, it is now gone. The central panel features four "sew-through" holes arranged in a square within the 6mm-diameter recessed area. The button measures 7/8" (21mm) in diameter with very eroded edges and is 2.5mm thick, and is larger than most shell buttons reported in the archaeological literature.

Shell buttons were commonly made in the United States and England from 1800 to the present (Furnis 1987:D-6).

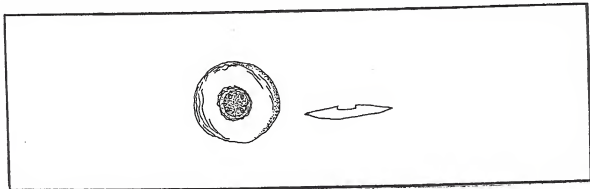
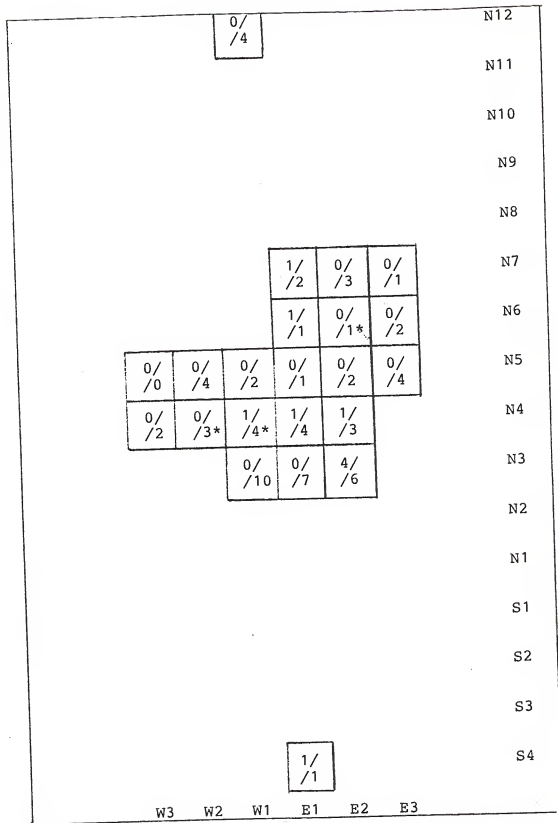


Figure 11. Shell button from CA-SHA-1969/H;
(drawn by Joyce Abbott).



obsidian/
/metavolcanic
* includes 1 core

Figure 12. Distribution of debitage in CA-SHA-1969/H.

Debitage

Thedebitage from CA-SHA-1969/H consists of 67 flakes of locally available metavolcanic material and nine flakes of obsidian. All but two of the flakes were found in the 0-10cm level and the two exceptions were recovered from the 10-20cm level of N5-W2, a level which also contained historic materials. (see Table 3). The horizontal distribution of obsidian and metavolcanicdebitage is graphically shown in Figure 12.

The metavolcanic flakes range in maximum length from 10mm to 106mm. Size sorting by 10mm increments provides the following distribution. Nearly one-third (31%) are in the 20-30mm size range, 19% are between 30-40mm, 15% are 40-50mm, and 8% are 50-60mm. The 10-20mm size and the 60-70mm size each contain 10%, and the 70-80mm size and the greater-than 90mm each contain 3% of the total sample. Weights range from 2.6g to 295.4g. The average for all specimens is 16.9g.

Seventy percent of the flakes are classed as early-to-late core reduction flakes, 19% are primary decortation flakes, and 1% is classed as shatter. Primary decortation flakes have dorsal surfaces completely covered with cortex. Most of the core reduction flakes also have some remnant of cortex.

Although none exhibits retouch, the naturally sharp edges are suitable for cutting, and a few of the larger specimens contain possible use wear in the form of ragged, "nibbled" edges and minute step fractures.

The nine obsidian flakes range in maximum size from 9mm to 24mm. Six are in the 10-20mm size range, two are greater than 20mm, and one smaller than 10mm. Weights range from 0.1g to 1.5g and average 0.49g for the sample.

All but two of the flakes retain some cortical surface. Two are primary cortical flakes and all others are early to late core reduction. All platforms are cortical or single faceted. No biface thinning flakes were found in the sample and, although 1/8-inch mesh screens were used in four of the units, no smaller, pressure flaked-sized flakes were recovered.

All obsidian is assigned to the Tuscan source based on visual characteristics and although quite similar in appearance, may be from at least two cores.

All nine pieces of obsidiandebitage along with the single obsidian artifact were forwarded to Tom Origer at the Sonoma State University Obsidian Hydration Laboratory for analysis. Although the two extreme micron values are 2.9 and no visible band, the other eight ranged from 0.9 to 1.4 microns, generally considered to be within the latest prehistoric period in the Redding area.

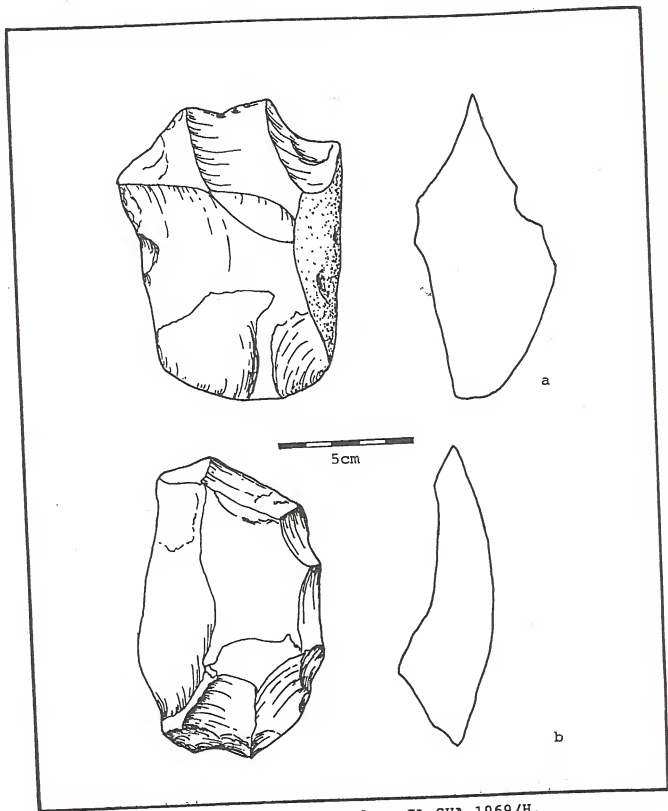


Figure 13. Cores from CA-SHA-1969/H.

Cores/Core Tools

Four cores or core tools of locally available metavolcanic material were recovered from the site. Sizes and proveniences are given in Table 9.

Two of the specimens (#99-1 and -96, Figure 13) have modification which created sharp edges with angles varying from 53 degrees to 68 degrees. The former has bifacial modification on one end while the latter has unifacial retouch on one lateral edge. Both retain much cobble cortex. These are suitable for use in cutting wood and bone and scraping hard materials (Wilmsen 1974:91-92). Edges of this dense stone do not easily show wear. However, a small amount of attrition and step fracturing suggest that they were used for such purposes.

The other two specimens (#99-31 and -40) are amorphous, unpatterned, multiplatform cores which appear to have served no purpose other than source material for flakes. Both are small, expended cores with most or all of the cobble cortex removed.

TABLE 9

Proveniences and Dimensions of Metavolcanic Cores
From CA-SHA-1969/H
dimensions in mm and g

CAT.#	PROVENIENCE	LENGTH	WIDTH	THICKNESS	WEIGHT
99-					
-1	surface	110	82	55	389.2
-31	N4-W2, 0-10cm	64	45	32	75.0
-40	N4-W1, 0-10cm	63	63	27	87.2
-96	N6-E2, 0-10cm	108	73	36	274.5

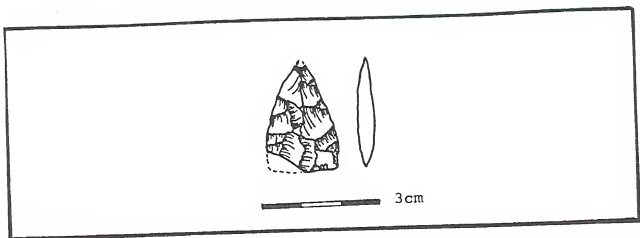


Figure 14. Obsidian biface from CA-SHA-1969/H.

Obsidian Biface

The single obsidian artifact collected from the site is a small, late stage biface (Cat. #99-53), found in the 0-10cm level of N4-E2. Triangular in plan view (Figure 14), it measures 27mm in length, 19mm in width, 5mm in thickness, and weighs 2.1 grams. It was formed by soft hammer percussion with little or no pressure flaking, and a small amount of cortex remains on one basal corner. The other corner is broken, perhaps in an attempt to create a notch. The artifact appears to be a projectile point preform. Visually attributed to the Tuscan obsidian source, this artifact has a hydration value of 1.0 microns.

Faunal Material

The following description of the faunal material is based on the examination of 121 specimens by Nancy Valente. Eighty-five fragments were retrieved from two flint samples taken from units N4-W2 and N5-W2. The remainder were recovered through the excavation of six units, all in the western portion of the excavated area, near but not necessarily within the depression.

Valente found that the bone was so fragmented that none could be identified to species. All was attributed to the mammal class. Fragments assigned to size categories were all placed within the large and med/large size mammal class (Table 10).

Seventy-one percent of the bone was burned and calcined indicating it was discarded in a fire. None showed evidence of butchering.

TABLE 10

Classification of Faunal Fragments*

UNIT LEVEL	N3-W1 0-10	N4-W1 0-10	N4-W2 0-10	N4-W3 0-10	N5-W1 0-10	N5-W2 0-10	N5-W2 10-20	Subtotal	Float Sample	TOTAL
UNIDENTIFIED										
Mammal	2	1	4	1	1	1	4	14	8	22
Med/Lg	1		4					5		5
Large	2	6	2			3	1	14		14
Indeterminate		1					2	3	77	80
TOTAL	5	8	10	1	1	4	7	36	85	121

* table prepared by Nancy Valente

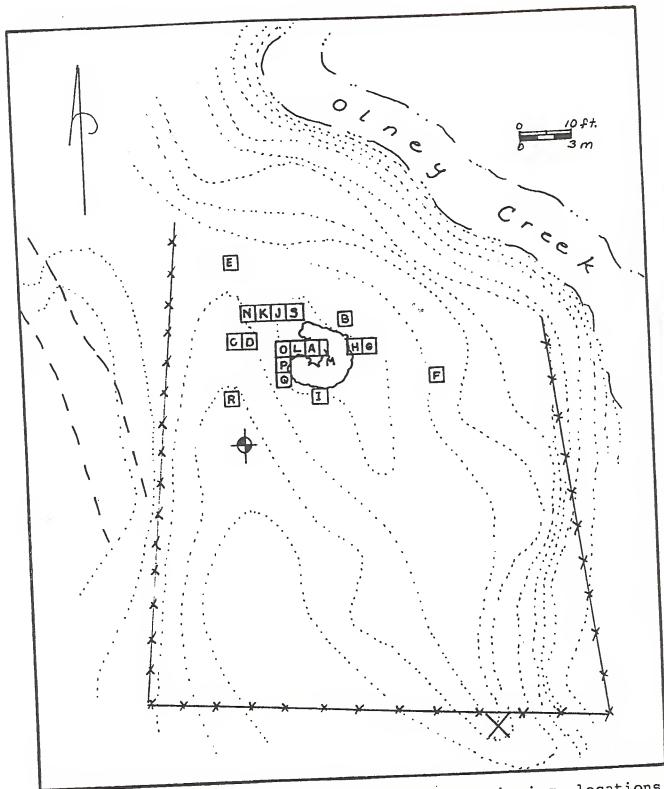


Figure 15. Historic locus of CA-Sha-1544/H showing locations of excavation units and rock feature. Contour intervals (dotted lines) are 0.5 feet. X in bottom right is a section corner.

MIDDLE MULE POND CABIN SITE
CA-SHA-1544/H, Historic Locus

CA-SHA-1544/H, the Middle Mule Pond Site, contains a large historic midden on the north side of Olney Creek as well as a shallow midden overlain by an historic component on the side of the creek, distinguished by a large rock feature. Field class conducted excavations only in the small historic on the south side. This portion of the site measures approximately 30m (100 feet) north to south and 25m (80 feet) west. It is located on a terrace just above creek level elevation of 950 feet above mean sea level. Middle Mule created around 50 years ago by the U.S. Army Corps of Engineers, borders this locus on the east. The vegetation consists predominately of live oak, poison oak, and grasses.

A contour map made by BLM (Figure 15) served as the basis for the field investigation. A metal detector was used to locate artifacts which were marked with pin flags. Locations of artifacts were mapped with a transit and some were collected.

Field investigations began at the site in 1994 and were completed in 1996. During the first season 0.9 cubic meters of midden were excavated from four 1m square units, labeled A through D. In 1996 Unit A was continued and 15 new units established, within the immediate vicinity of the rock feature, providing a total of 3.1 cubic meters of midden tested. All were excavated using 1/4 inch mesh screens. Table 11 provides the maximum depth achieved in each unit.

TABLE 11

Units and Maximum Depth in CA-SHA-1544/H
One meter square units unless otherwise noted

UNIT	MAXIMUM DEPTH/cm	UNIT	MAXIMUM DEPTH/cm
A	50*	K	10
B	30	L	20
C	20	M	20+
D	10	N	10
E	10	O	10
F	70	P	10
G	10	Q	10
H	10	R	10
I	20	S	10
J	20*		

* 50cm square in lowest level

+ unit 1m by 50cm



1.0
=

Feature

The most notable feature on the site, designated Feature 1, is a large circular arrangement of rock open in the center and to the west. At the beginning of the 1994 field season, the feature contained a heavy vegetation cover of grapevines and poison oak. This was cleared, leaving about a 5-cm thick duff layer overlying most of the feature. The outside measurements of the rock configuration are 14.3' by 14.6' in plan view by 3' high. The opening within the feature measures approximately 9' east-to-west by 3' north-to-south.

The feature was completely photographed with a series of 18 shots and the photos, along with unit drawings, served as the basis for the feature drawing shown as Figure 16. Cross-section drawings (Figures 17 and 18) are based on field drawings. Figure 17 shows the north/south cross-section through Unit A, 4.5 meters east of the datum, and Figure 18 provides an east/west cross-section, also through Unit A.

The excavations of three units within the feature and five units around the exterior of the feature have revealed that the large rocks, most 10 inches or more in length, were originally stacked in a squarish or oval configuration with vertical walls, and that the rocks were mortared with a compound of light-colored soil or clay, which now has largely washed away.

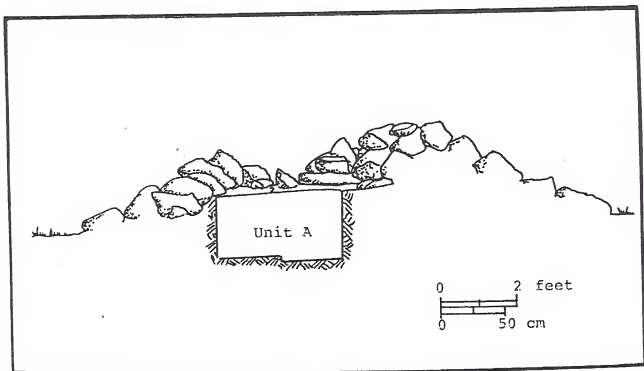


Figure 17. North/south cross-section through Feature 1.

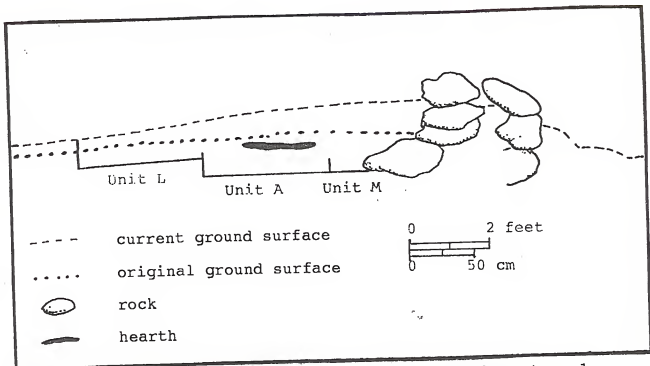


Figure 18. East/west cross-section through Feature 1.

Excavation units within the opening of the feature uncovered charcoal, ash and fire-altered soil at a depth of 25cm to 40cm below the current ground surface (see Figures 18 and 19). Several large rocks had fallen on top of the 25cm level, sealing in the hearth evidence as well as a few historic artifacts. Tin sheeting was found lying horizontally just below some burned areas within the hearth feature. The presence of prehistoric debitage and artifacts in Unit A overlying the historic level indicates that soil from outside of the feature has at sometime been thrown into and on top of the fireplace within the feature.

Soils Description

The site is situated at the edge of a Mesozoic-aged granitic intrusion (Strand 1962). Natural soils surrounding the site are classed as a Kanaka rocky sandy loam underlain by granitic rock (Klaseen and Ellison 1974, Map Sheet 73). Immediately to the south, however, are soils of the Auburn series underlain by meta-volcanic rocks, mainly greenstone.

The following description and side-wall profile (Figure 19) of the north wall of Unit A, which lies within the rock feature, were prepared by Eric Ritter. Stratum I, which includes the upper 30cm in the east part of the unit and 20cm in the western portion, consists of a gravelly-rocky loam, 10YR 5/3 (brown) in color crumb structure, soft in consistency, with abundant fine

roots. This appears to be a secondary deposit from outside sources including soil packed around the stones and boulders of the feature. The boundary between Stratum I and II varies from gradual to sharp, but in all cases is no more than 5cm in thickness.

Stratum II, which contains the hearth evidence, is 10YR 3/3 dark brown in color, a rocky loam, slightly hard, crumb structure, containing common fine to large roots. The patches of oxidized soil were 7.5YR 6/6 (reddish-yellow) in color and contained flecks of charcoal and ash. The numerous rocks in the profile are largely creek-rounded.

Soils from other units outside of the feature generally are a very gravelly, rocky loam with 15% to 50% angular rock and gravel. Structure is granular to crumb with a soft to slightly plastic consistency. Dry Munsell color ranges from 10YR 4/3 to 7.5YR 5/2. In Unit F, which reached a depth of 70cm, the rock content increased to about 75% of the unit volume in the lower levels, and the texture became increasingly sandy. The pH throughout the site was 6.5, or slightly acid.

A soil sample from Unit A was submitted to the University of Wisconsin - Milwaukee Soils and Physical Geography Laboratory for routine soil analysis. Results (Table 12) show a major difference in sediment texture with the on-site sample probably reflecting the introduction of sand for use as fill in constructing the rock feature.

TABLE 12

Soil/Sediment Analysis on Sample from CA-Sha-1544/H

LOCATION	SAND %	SILT %	CLAY %	pH	TOTAL P ppm	Mg ppm
Unit A, 30-40cm	76	20	4	7.4	655	42
Offsite Control	48	36	14	4.5	298	71

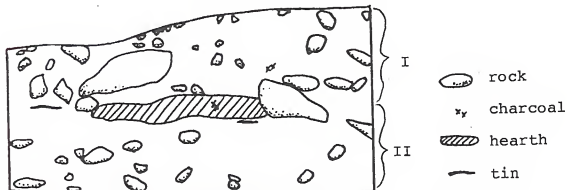


Figure 19. Profile of the north wall of Unit A.

TABLE 13

Summary of Cultural Materials Collected from CA-Sha-1544/H

NUMBER	DESCRIPTION
126	glass bottle fragments
1	ceramic button
1	brass button
54	common cut nails
600	thin fragments of metal, probably from cans
2	thick flat pieces of metal
5	wire fragments
2	fragments of barrel hoop
1	nut and bolt assembly
7	fragments of boot leather
2	fragments of cork
10	obsidian projectile points and fragments
96	obsidian debitage flakes
3	chert flakes
7	modified metavolcanic flakes
67	metavolcanic debitage flakes
2	metavolcanic cores
1	mano fragment
2	hammerstone fragments
16	bone fragments
7	Margaritifera shell fragments
8	fragments of burned pinenut shell

Cultural Materials

Cultural materials from CA-Sha-1544/H are curated at the Shasta College Archaeology Lab under Accession 101 which includes approximately 1020 items in 190 catalogue entries. Table 13 provides a summary of artifacts by number and type.

Approximately 80% of the cultural materials are early historic in age, the vast majority of these small fragments of thin, flat metal which are probably pieces of cans. About 18% is lithic, obsidian and metavolcanic debitage and artifacts which are assigned to the prehistoric component. The remaining 2% includes a few fragments of bone, Margaritifera shell, burned pinenut shell fragments, and charcoal of unknown age assignment, although some of the charcoal and bone may have resulted from the historic occupation. The distribution of the historic items by unit is given in Table 14 and that for the lithic artifacts and debitage is in Table 19.

The very few recent objects found on the site include two fragments of clay pigeon, two bullet slugs, and the base of a shotgun shell with plastic sides. No wire nails and no whole or nearly whole cans were found among the many metal objects.

Bottle Fragments

The 126 glass fragments collected from CA-Sha-1544 represent at least six bottles and at least three different types. The types are given the numbers (1) through (3), but these do not correspond exactly to any of the types described for CA-Sha-1969/H. Table 15 gives the provenience of the fragments by type.

(1) Type 1 is composed of 30 pieces of thick, dark olive green glass, called black glass, which has a yellowish or amber cast when viewed against light. Thickness of most pieces is between 6mm and 11mm, although the neck area thins to 3-4mm. The interior is smooth and the exterior slightly pitted. Air bubbles are visible in the glass. The bottle shape was round with a diameter of about 3 3/4 inches. The slightly tapering neck measures 3 7/10 inch in length to the point where it meets the body of the bottle, and is roughly 1 1/2 inches in diameter near this point. There are possible mold lines where the body of the bottle meets the base of the shoulder, visible both inside and outside. The applied lip is about 1 inch in diameter (Figure 20a). A fragment containing the lip with a portion of the neck was recovered from beneath rocks in the 20-30cm level of Unit A while two other neck fragments, all three making up Figure 20, were found in the 0-10cm level of Unit Q, some 1 1/2 meters distant. No neck seams are evident.

TABLE 14

Distribution of Historic Artifacts from CA-Sha-1544/H by Unit

UNIT	DEPTH/cm	GLASS FRAGMENTS	SQUARE NAILS	FLAT METAL	OTHER
A	0-10	1	1	3	-
	10-20	2	-	18	wire segment, cork
	20-30	7	5	50	wire, charcoal
	30-40	-	1	25	wire
	40-50	-	-	-	-
B	0-10	2	1	200	barrel hoop fragment
	10-20	-	1	35	-
	20-30	-	-	-	barrel hoop fragment
C	0-10	1	2	1	-
	10-20	-	-	-	-
D	0-10	8	-	8	-
E	0-10	-	-	-	-
F	0-10	-	-	-	cork
	10-20	-	-	-	-
	20-30	-	-	-	-
	30-40	-	-	-	-
	40-50	-	-	-	-
	50-60	-	-	-	-
	60-70	-	-	-	-
G	0-10	2	-	-	-

TABLE 14, continued

Distribution of Historic Artifacts from CA-Sha-1544/H by Unit

UNIT	DEPTH/cm	GLASS FRAGMENTS	SQUARE NAILS	FLAT METAL	OTHER
H	0-10	1	-	1	-
I	0-10	8	1	10	nut and bolt
	10-20	7	2	1	-
J	0-10	2	5	5	2 leather fragments
	10-20	-	-	-	-
K	0-10	1	-	10	-
L	0-10	3	3	2	5 leather fragments
	10-20	3	8	6	wire fragment
M	0-10	-	-	8	-
	10-20	1	-	11	-
N	0-10	-	3	-	metal button
O	0-10	18	5	12	-
P	0-10	43	6	150	2 22-shell slugs
Q	0-10	7	1	-	-
R	0-10	-	-	-	-
S	0-10	2	9	50	wire fragment

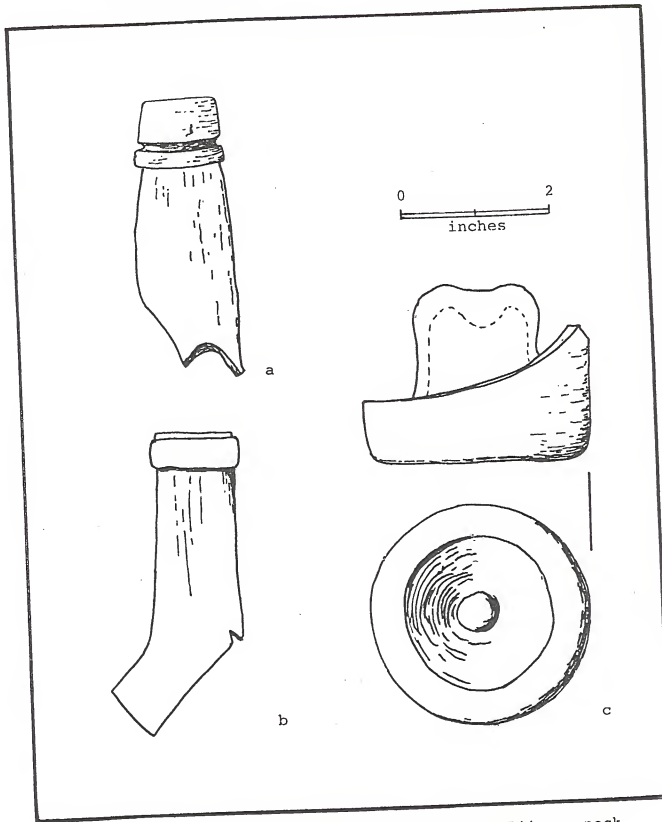


Figure 20. Bottle fragments from CA-Sha-1544; a. neck from Type 1, b. and c. from type 2.

TABLE 15

Distribution of Glass Fragments from CA-Sha-1544/H by Type

PROVENIENCE	NUMBER IN TYPE		
	TYPE 1	TYPE 2	TYPE 3
Surface		6	1
Unit A, 0-10cm		1	
10-20cm		2	
20-30cm	1	6	
Unit B, 0-10cm		1	1
Unit C, 0-10cm	1		
Unit D, 0-10cm	5	3	
Unit G, 0-10cm		2	
Unit H, 0-10cm		1	
Unit I, 0-10cm		8	
Unit I, 10-20cm		6	
Unit J, 0-10cm	1	1	
Unit K, 0-10cm		1	
Unit L, 0-10cm		3	
Unit L, 10-20cm		3	
Unit M, 10-20cm		1	
Unit O, 0-10cm	1	17	
Unit P, 0-10cm	14	29	
Unit Q, 0-10cm	7	1	
Unit S, 0-10cm		2	
TOTAL	30	94	2

(2) Type 2 consists of 94 fragments belonging to at least four bottles. Fragments are olive green in color and include basal fragments with a high kickup (Figure 20c) and a neck with an applied lip (Figure 20b). The diameter of the body is 3 inches and the exterior diameter of the lip is 1 1/4 inches. There is very little taper to the neck. There is a wide range of wall thickness among these basal fragments, ranging from 11mm on one to 4mm in another. Other slight variations include the arc of curvature where the insweep of the bottle meets the base. One base has a slight indentation at the bottom of the side. There are no visible mold lines, although there are "waves" of glass inside the base which run parallel to the base. The glass has a few air bubbles. The straight sides; well-defined shoulders, and hand-applied lip ring identify this type as a "Bordeaux" wine bottle (Rock 1981).

(3) The third type includes only two small, slightly curved fragments of clear glass, 2-3mm in thickness.

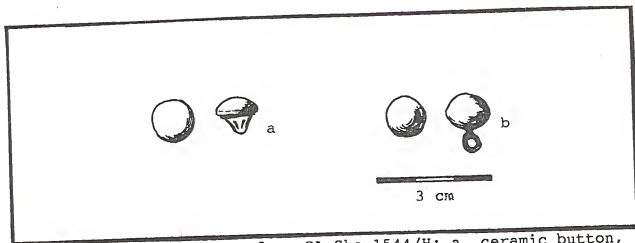


Figure 21. Buttons from CA-Sha-1544/H; a. ceramic button, b. brass button.

Buttons

Two buttons were among the artifacts recovered from CA-Sha-1544/H. Catalogue #101-73 is a ceramic button recovered from the 0-10cm level of Unit D. It is 11mm in diameter and 9mm thick. The front is dome-shaped and the back constricts into a narrow stem with four holes for attaching to clothing (Figure 21a).

Catalogue #101-160, recovered from the 0-10cm level of Unit N, is made of brass. It has a spherical shape, 10mm in diameter, with a small ring for attachment (Figure 21b). This style is commonly associated with Chinese clothing.

Common Cut Nails

All 54 nails collected from CA-Sha-1544/H are common cut, or "square" nails. All are rusty and very few are complete or nearly complete in length. Those that are range from 1 1/2 to 3 3/4 inches. Since head sizes consistently match the length, a number of nails broken in length were placed in size classifications based on head sizes (Table 16). Another 14 specimens were broken in length and lacked heads. Figure 22 graphically shows where the nails were found relative to the rock feature. Most were recovered from the 0-10cm level, but five of seven from Unit A were in the 20-30cm level above the hearth and 8 of 11 from Unit L were in the 10-20cm level.

Vaughan (1986:60) quotes a local building contractor as saying that the smallest size nails (2d-4d) are generally used for shingles, 7d-9d for sheathing, and 12d-16d for framing. Ritter (1986:46) states that the 7d-12d size range is consistent with lumber-frame buildings or other structures. Square nails generally predate 1890.

TABLE 16
Number of Nails from CA-Sha-1544/H by Size

SIZE	LENGTH/inches	HEAD SIZE/mm	NUMBER OF SPECIMENS	
			WHOLE	BROKEN LENGTH
4d	1 1/2	5x5-6x5	2	2
6d	1 7/8	6 1/2x6	-	5
7d	2	7 1/2x6 1/2-7 1/2	5	8
8d	2 1/2	7x6	1	-
?	?	8x7	-	1
16d	3 1/2	9x8-9x7	7	9

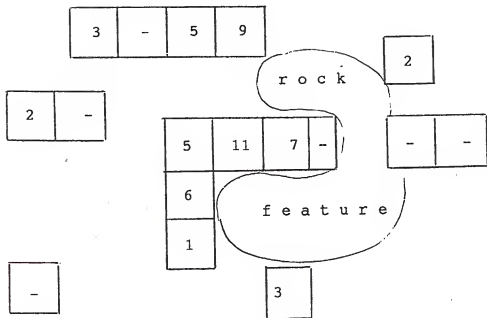


Figure 22. Distribution of common cut nails relative to feature by number of nails per unit.

Cans/Thin Flat Metal Fragments

Virtually all thin metal recovered from the site is flat or nearly flat. No whole cans were found. However, it is believed that some 600 or more fragments, between 1 and 2mm in thickness, are fragments of cans, although some larger pieces appear to have been reused for other purposes. The vast majority are less than 1 inch in maximum length or width. The few exceptions appear very fragile, very cracked, and could easily break into dozens of small pieces. Several pieces appear to contain remnants of folded seams with the folded portions measuring 1/4 to 1/2 inch in width. Proveniences are listed in Table 17.

TABLE 17
Proveniences of Thin, Flat Metal Fragments

PROVENIENCE	NUMBER	COMMENTS
Unit A, 0-10cm	2	
10-20cm	18	
20-30cm	15	
30-40cm	25	all tiny fragments less than 1 1/2" includes folded piece, 5 2/3" long long with broken end
Unit B, 0-10cm	200	includes several folded fragments; largest piece about 7"
10-20cm	35	
Unit C, 0-10cm	1	
Unit H, 0-10cm	1	1/4" hole punched in
Unit I, 0-10cm	9	1 large piece with flat edge, 5" by 3 1/2" no rim; 2 folded fragments
10-20cm	1	
Unit J, 0-10cm	5	
Unit K, 0-10cm	10	1 piece 4" square has two flat edges at perpendicular angles and two protuberances possibly welded on both folded fragments
Unit L, 0-10cm	2	
Unit L, 10-20cm	6	
Unit M, 0-10cm	8	
10-20cm	11	
Unit O, 0-10cm	12	2 folded fragments
Unit P, 0-10cm	150	all less than 2 1/2" long
Unit S, 0-10cm	50	includes large piece, 8 1/4" by 8", with flat edge and tiny nail holes along the edge
Clean up from Fea.	8	1 has little tack near edge, tack less than 1/2" long; other holes near edge

Thick, Flat Metal Pieces

Two pieces of heavy metal were located just below the ground surface with a metal detector at the beginning of the field work at the site. Both are very rusty. Cat. #101-3 is oval in shape, 13 1/2" long by 6" wide and 2-3mm in thickness. It is flat with a series of four small holes, roughly 2mm in diameter, along one lateral edge at 1 1/4" intervals, excepting two places where holes appear to have been punched but didn't go through the metal. In addition, there is one larger hole, 6mm in diameter. This piece was collected 5 degrees, 4.26m from the site datum, or near Unit Q.

Cat. #101-7 is a heavy, flat bar of iron, 9" in length, 2 1/2" wide and 1/4" thick. It is rectangular, except that one edge has a slight diagonal slant. However, both longitudinal edges may be broken. Provenience for this artifact is 35 degrees, 12m from the datum, or about 2m north of Unit B.

Wire Fragments

Five pieces of wire, all very rusty but of a similar diameter, appear to be of a type similar to bailing wire. All are bent, but shapes may be fortuitous rather than deliberate. Specific sizes and proveniences appear as Table 18.

TABLE 18

Proveniences and Dimensions of Wire Fragments from CA-Sha-1544/H

CAT.#	PROVENIENCE	LENGTH	DIAMETER	SHAPE
101-				
-17	A/10-20cm	10"	4mm	bent double, and curved into a U-shape
-25	A/20-30cm	3 1/2"	3mm	slightly curved
-67	A/30-40cm	4 1/4"	3mm	very slight curve
-148	L/10-20cm	8"	3mm	very tangled
-187	S/0-10cm	5"	3mm	doubled and slightly curved

Barrel Hoop

A rusty piece of barrel hoop (Cat. #101-41) measures 24" long by 7/8" wide and 2-3mm in thickness. There is a slight bias to the shape. A hole about 2mm in diameter has been punched near one end while a slight protuberance is located near the other end. Although the latter would fit within the former, they are not perfectly lined up, the hole being less than 1/2" from the upper (concave-shaped edge) while the protuberance is closer to the lower edge. This artifact was collected from the 20-30cm level of Unit B.

A second very short (1 1/2") piece of flat metal (Cat. 101-32) from the 0-10cm level of Unit B also appears to be a piece of barrel hoop. It is 7/8" wide and 2mm thick. It may be a fragment of artifact 101-41.

Bolt and Washer Assembly

A bolt with threads at one end still retains remnants of two or three washers and possibly a nut. Its length is 1 1/4", of which 1/2" is threaded. Nuts or washers are located at either end of the unthreaded portion plus a third mid-way on the threaded part. It is very rusty. Catalogued as 101-117, this artifact was found in the 0-10cm level of Unit I.

Leather Fragments

Seven pieces of leather were found in separate locations, two fragments in the 0-10cm level of Unit J and five fragments in the 0-10cm level of Unit L. The first two are each about 1 1/4" in maximum size while the latter five are all less than 3/4" in length. All range from 2mm to 4mm in thickness. Two of the smaller pieces each have a hole about 2mm in diameter. These are probably fragments from a boot and, even though they were found as much as two meters apart, all may be from a single boot or pair of boots.

Cork

Two tiny fragments appear to be pieces of cork. One, found in the 10-20cm level of Unit A, is 5/8" in diameter at the unbroken end but with a slightly larger flair toward the broken end. Only 3/8" of length is extant. The other piece, recovered from the 0-10cm level of Unit F, is a smaller fragment, lacking the full diameter. However, the curvature of the extant piece suggests that originally it was the same diameter as the other fragment.

Debitage

Ninety-six flakes of obsidian, three of chert, and 67 of metavolcanic material are classed asdebitage. Distribution within the site of thedebitage as well as other lithics is shown in Table 19. The metavolcanicdebitage probably results from the reduction of abundant local stream cobbles. The obsidian was imported and appears visually to be predominantly from the Tuscan source with a small percent of Grasshopper Flat/Lost Iron Wells obsidian. The origin of the chert is unknown, but it is available in the Coast Range a short distance to the west.

The obsidian flakes average 0.45 grams in weight, the chert averages 0.93 grams, and the metavolcanicdebitage averages just under 5 grams per flake. All obsidian in the collection is less than 30mm in maximum diameter. Because 1/4-inch mesh screens were used throughout, most of the flaked material less than 10mm in size was excluded from the sample. Eighty percent of the catalogued obsidiandebitage is between 10 and 20mm in maximum size and 6% is between 20 and 30mm. Most of the flakes are broken, but all were classed according to the amount of cortical surface and flaking features. Eight percent are primary cortical flakes, those with 90% or more of their dorsal surface retaining cortex, and 15% are secondary cortical flakes with less than 90% cortex. Only 5% showed biface thinning characteristics, and no pressure flakes were identified as expected with 1/4" screens. The remaining 72%, including broken flakes and those lacking other diagnostic features, are classed as simple interior flakes. The relatively high percentage with cortical surfaces reflect the predominant use of Tuscan obsidian which has a high proportion of cortex relative to usable toolstone.

Seven pieces ofdebitage from Unit A, four from the 0-10cm level and three from the 10-20cm level, were submitted to the Obsidian Hydration Laboratory at Sonoma State University where they were analyzed by Thomas Origer. All appear to be comprised of Tuscan obsidian. Hydration values range from 1.2 to 6.7 microns, averaging 3.93 microns with both levels exhibiting an equally wide variance.

The three chert flakes are each different in coloration, ranging from grey to tannish-brown and red-and-brown mottled. Two are between 10 and 20cm in size and the third is between 20 and 30mm in length. All three are simple interior flakes. No cores or other artifacts of chert were recovered from the site.

Sizes of the metavolcanic flakes range from 10mm to 56mm. Twenty percent of the sample are between 10 and 20mm in maximum size, 40% between 20 and 30mm, 24% between 30 and 40mm, and 8% each are 40 to 50mm and 50-60mm. Four percent are classed as primarily cortical, 23% as secondary cortical, and 73% are simple interior flakes.

TABLE 19

Distribution of Lithic Materials by Unit and Depth

UNIT	DEPTH/cm	- - - DEBITAGE - - - -		OTHER
		OBSIDIAN	METAVOLCANIC	
A	0-10	6	2	2 projectile points
	10-20	3	1	-
	20-30	4	5	-
	30-40	2	1	1 mv. core
	40-50	-	-	-
B	0-10	1	2	-
	10-20	3	1	1 projectile point
	20-30	4	3	1 chert flake
C	0-10	2	3	1 point tip
	10-20	-	5	-
D	0-10	2	3	1 mod. flake, 1 hammer
E	0-10	2	-	-
F	0-10	7	1	1 pro. point, 1 chert fl
	10-20	1	2	-
	20-30	12	2	2 mod. flakes
				1 mano fr., 1 hammer
	30-40	3	4	2 mod. flakes
	40-50	5	5	-
	50-60	6	6	-
60-70	3	3	1 point, 1 core	
G	0-10	-	1	-

TABLE 19 , continued

Distribution of Lithic Materials by Unit and Depth

UNIT	DEPTH/cm	- - - DEBITAGE - - - -		OTHER
		OBSIDIAN	METAVOLCANIC	
H	0-10	2	-	-
I	0-10	2	-	-
	10-20	3	2	1 projectile point
J	0-10	4	1	-
	10-20	2	1	-
K	0-10	-	-	-
L	0-10	2	2	-
	10-20	2	-	-
M	0-10	1	2	1 point tip
	10-20	-	1	-
N	0-10	-	-	-
O	0-10	1	1	-
P	0-10	3	4	1 projectile point
Q	0-10	3	1	1 mv. core
R	0-10	2	1	1 point tip, 1 mod. mv.fl
S	0-10	3	1	-

Gunther
series

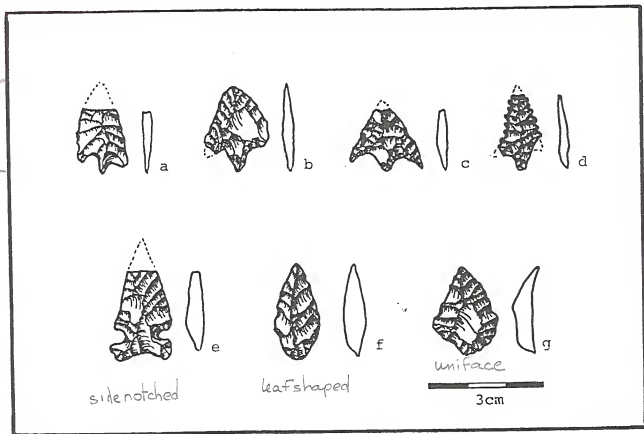


Figure 23. Projectile Points from CA-Sha-1544/H.

TABLE 20

Proveniences and Dimensions of Projectile Points
From CA-Sha-1544/H
(dimensions in mm and g)

CAT.#	PROVENIENCE	LENGTH	WIDTH	THICKNESS	HAFT.WIDTH	WEIGHT
101-						
-11	Unit A/0-10	(30)	16	5	9	(1.9)
-12	"	(25)	12	3	2	(0.8)
-38	Unit B/10-20	24	12	6	7	1.4
-49	Unit C/0-10	-	-	2	-	-
-77	Unit F/0-10	(21)	12	3	4	(0.6)
-103	Unit F/60-70	(18)	19	3	4	0.9
-126	Unit I/10-20	22	16	3	5	0.9
-154	Unit M/0-10	-	-	6	-	-
-171	Unit P/0-10	22	17	6	?	1.8
-180	Unit R/0-10	-	-	4	-	-

() estimated value

Projectile Points

The ten artifacts and fragments classed as projectile points include four Gunther Series points, one side-notched point, one small bifacially-flaked leaf-shaped point, one unifacially-flaked leaf-shaped point, and three bifacially-flaked tips. All are obsidian. Table 20 provides proveniences and dimensions and Table 17 shows the distribution of the points as well as other lithics throughout the excavated units. Three points were among the hydration sample submitted to the Sonoma State University Obsidian Hydration Laboratory, and results are given below.

Point tips include Cat. 101-49, -154, and -180. Two of these are small and could fit within the Gunther Series size range. One (101-154) is larger and thicker and probably was not a Gunther point.

Gunther Series Points. The four Gunther Series points include Cat. 101-12, -77, -103 and -126. All are small, weighing less than one gram, but there is no consistency in shape. Two are narrow relative to length, one is very wide, and the last is intermediate in shape (Figure 23a-d). Blade edges are straight on two, convex/straight on one, and concave on one, with one specimen showing serrations. Barbs are relatively long but shorter than stem length on two and are broken in the others. Cat. 101-12 (Figure 23a), visually attributed to the Tuscan obsidian source, produced a hydration value of 2.4 microns.

Side-Notched Point. The single side-notched point in the collection (Cat. 101-11) has straight edges, wide, rounded notches, and a concave base (Figure 23e). This artifact, believed to be made of Tuscan obsidian, has a hydration band width of 3.0 microns.

Leaf-Shaped Point. One small bifacially-flaked point (Cat. 101-38) with a fat, lenticular cross-section has convex blade edges with a hint of shouldering on one side, narrowing at the base to a blunt end (Figure 23f). The point looks much reworked. This artifact, which appears to be made of obsidian from the Grasshopper Flat/Lost Iron Wells obsidian source, has a hydration value of 4.3 microns.

Small Uniface Point. One small diamond-shaped point (Cat. 101-171) is completely unifacial except for an apparent impact fracture on the ventral surface. Blade and basal edges are straight or slightly convex, meeting at pronounced shoulders. The dorsal ridge located near the tip is truncated in the basal portion by two flake removals. All margins feature a steeply flaked edge (Figure 23g).

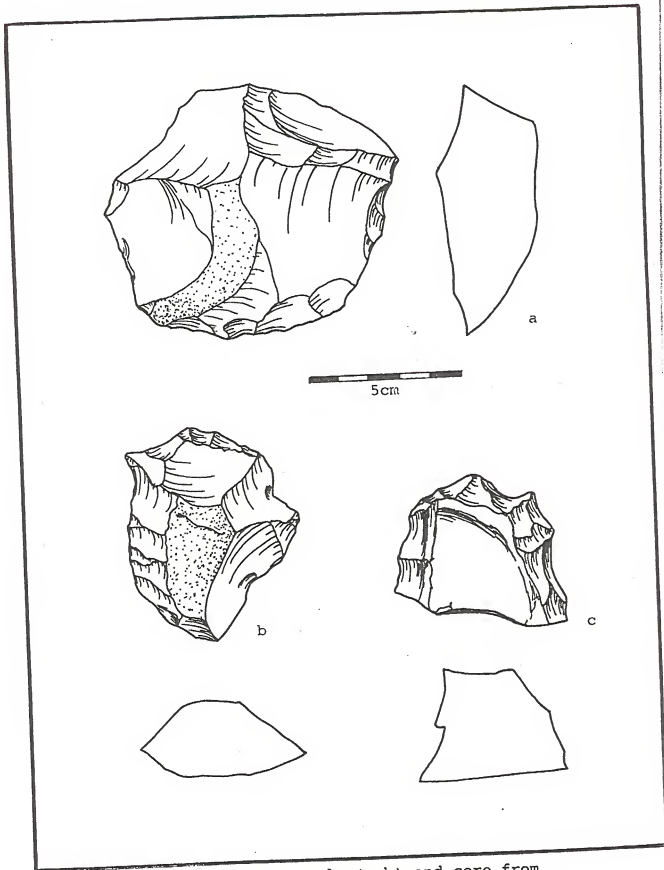


Figure 24. Flake tools (a-b) and core from CA-SHA-1544/H.

SUMMARY AND INTERPRETATIONS

CA-SHA-1969/H and the historic locus of CA-SHA-1544/H both have prehistoric deposits overlain by historic components. Both also exhibit prominent historic rock features. The excavation of 22 1m square units in CA-SHA-1969/H resulted in the screening of 2.6 cubic meters of midden and the recovery of 876 artifacts and other cultural debris, more than 90% of which is historic. At CA-SHA-1544/H, 19 1m square units were tested with 3.1 cubic meters of midden screened and 1020 cultural materials cataloged, 81% of which is historic in age. Although there are differences between the sites, certainly in the prehistoric remains but also to some extent in the historic remnants, there are also many similarities.

Discussion of Historic Components

Historic Locus at CA-SHA-1969/H

The major feature, consisting of a rock alignment measuring approximately 14 feet northeast to southwest and 10 feet northwest to southeast, along with associated artifacts leads to the following interpretations. The rectangular cobble alignment is the foundation footings for a small cabin. The foundation supported a frame structure, probably salvaged, put together with common cut nails. A dense concentration of cobbles in the northeastern edge is believed to be the remains of a collapsed chimney, made with mud mortar. Five tiny fragments of flat glass are believed to be from three different window panes, either the same of separate windows.

The second feature, a large oval depression measuring approximately 10' northwest by southeast and 6' northeast by southwest, lies within one meter westward of the southwest corner of the structural feature. In addition to ashy soil deposits, a large number of can fragments were associated with the depression. Glass sherds and other artifact fragments, however, appear to be more randomly distributed and not associated with the depression.

Historic artifacts consist of bottle fragments, ceramic sherds--probably from a single storage jar of Chinese utilitarian brownware, common cut nails, can fragments, the brass lid from an opium tin, and a few other artifacts. Nearly all temporally diagnostic artifacts are consistent with a date between 1858 and 1870 and, because of the bottle base believed to have been made in a turn mold, a date closer to 1865-1870 is more likely (see Switzer 1974:23-25). The use of the site was probably of short duration, perhaps a year or less.

The function of the site at Locus 1 seems to be that of habitation. Cultural remains suggest an occupation by a single person who drank gin, wine, bitters and medicine, the last two often consumed for their alcoholic content, a man who smoked a tobacco pipe and used opium. Although there are no work-related artifacts among the inventory, this person most likely made a living through mining, probably an isolated, single-person activity such as working a placer claim. The Sacramento Pliocene Mine for which the site is named was not established at this location until after 1890.

It is a more difficult task to assign an ethnic label to the occupant of CA-Sha-1969/H. Small isolated historic structural remnants in foothill regions of northern California are sometimes problematic as to ethnic affiliation, especially if within the gold mining districts. The main stone feature at the Sacramento Pliocene Mine is no exception. Initial observation prior to excavation suggested this was the remains of a cabin. This inference was derived principally due to the apparent rectilinear arrangement of rocks and the concentration of rocks along one perimeter, reminiscent of a collapsed chimney similar to previously excavated features in the region (e.g. Vaughan 1986). The presence on or near the surface of an opium tin lid and brownware ceramic sherds suggested this was of Chinese derivation. Further excavations were subsequently conducted to test this proposition.

The archaeological excavations certainly provided a better set of data from which to judge the ethnic affiliation of this structure, although there is not 100% certainty in such a judgment. Sisson (1993:58), for one, has indicated that the Chinese in the mining districts of Idaho lived in structures they did not build, as in those within purchased mining claims. There are apparently no archival records regarding early mining claims in Oregon Gulch. Thus, we must rely solely on the archaeological signatures. It must be further remembered that Euro-Americans on occasion used Chinese artifacts and that it is possible Euro-American miners occupied a Chinese structure, although it is considered unlikely in this case.

Ritchie (1993:346), in a study of historic Chinese structures in the mining areas of New Zealand, notes that "The average one- to three-man, one-room Chinese hut in Central Otago varies from 2.5m to 4.5m in length and 2m to 3m in width (internal dimensions), but from a study of contemporary photographs it appears that in some areas the huts were considerably bigger." Coincidentally, the Sacramento Pliocene structure is approximately 4.4m by 3m (12.9 square meters) in internal dimensions. Sisson (1993:53) found all of the Lower Salmon River, Idaho Chinese structures to average 9.52 square meters in size but with a range from 4.2 to 20.72 square meters and all rectangular, as here. Ritchie (1993:366) notes the rectangular nature of New Zealand Chinese structures, a shape reputed to have good feng

shui, related to geomancy and demon spirituality. Such size and configuration, of course, does not preclude Euro-American construction. Other features and traits, however, add clarity to the interpretive picture.

Sisson (1993:53, 57) found no evidence of window construction, but notes there were outside features that were used for cooking. Ritchie (1993:359) found confirmation in the historic and archaeological records that there was a juxtaposition of a chimney and end wall, with the chimney or fireplace often to the right of the door. Mud mortared chimneys are mentioned. Ritchie (1993:360) notes that "The study of contemporary photographs and the absence of window glass fragments in archaeological contexts indicate that many rural Chinese huts did not have windows, or had very small ones."

While window glass is present at CA-SHA-1969/H, it is infrequent, suggesting a small window, perhaps divided into individual panes or having a pane with varying thickness. The probable chimney remains could well have been on the outside of the structure and could have been on the eastern side, to the right of a doorway. It is also possible that the chimney was on the north side. What is interesting is the apparent spread of rocks to the east, as if a chimney feature collapsed that direction from the northeast end of the structure. The east side of the foundation generally lacks rocks, suggesting a doorway would have been on that side. Ritchie (1993:365), regarding the Central Otago houses in the southern hemisphere notes that "The easterly orientation of most of the Chinatown huts may have been partly influenced by a desire to maximize the morning sun . . ." One last point is worthy of mention. Euro-American cabins in the region invariably have cast iron stove parts or Dutch oven pieces present (see Vaughan 1986; James 1995:35). Chinese sites in western mining camps invariably lack such artifacts (cf. Tordoff and Seldner 1987; Tordoff and Maniery 1989; Striker and Sprague 1993).

The presence of a Euro-American pipe at a cabin that might have been occupied by a Chinese male is not unexpected. LaLande (1981:26) notes that tobacco smoking was commonplace in China even before the Gold Rush. At the Chinese Jacksonville privy in the Siskiyou Mountains a fragment of a clay pipestem, probably American-made, was found. Records of a herbal store indicate considerable tobacco purchase by Chinese clients. "The large portion of Chinese preferred their tobacco in loose or plug forms, for smoking in pipes . . ." (LaLande 1981:262). Wylie and Fike (1993:298) note "The early practice of smoking opium and tobacco together never died out entirely. Some dry and wet 'tobacco' pipes were also used for opium." Lister and Lister (1989:77), citing Culin (1890:198), note that Chinese men were known as inveterate pipe smokers. They discuss several homemade and Euro-American white clay pipes recovered in Tucson's Chinatown.

Considering the above information and further weighing the historic artifact assemblage, it would seem likely this feature represents a living structure built by the Chinese for one, perhaps even several men. The doorway could have been on the east side along with a chimney or fireplace which may have been detached. A small window was probably present within the frame structure, a trait not usual for Chinese cabins, but found in some sites (see Tordoff and Maniery 1986:1-51). If the door was to the east, then it is possible the depression at the rear of the structure served as an ash pit, perhaps a dump area or animal pen (see Tordoff and Seldner 1987:186; Ritchie 1993:339). This feature may also have been a borrow pit for mud used in the chimney construction, and perhaps foundation leveling, which was subsequently used for ash dumping and other trash deposition. The artifact count does not indicate any long-term residency, although the degree of clean-up and scavenging or artifacts is not known. However, longer residency should have resulted in more fragments of ceramics and bottles, for instance. The bent nails suggest this structure was dismantled. Ritchie (1993:347), based on an historic account, notes that in the New Zealand mining camps "A busy gully one year could be deserted the next. Houses were often pulled down and the materials stockpiled for relocation elsewhere."

Chinese artifacts and a possible second stone foundation at another loci within the site may indicate dispersed Chinese abodes in this section of Oregon Gulch, apparently placer miners following on the heels of the high-grading Americans. Their presence here was no doubt short-lived and locations of commerce and pleasure were probably elsewhere, as in Texas Springs, Shasta or Piety Hill, four or more miles distant. These miners were probably not new arrivals due to their incorporation of Euro-American goods--clay tobacco pipes, non-Chinese liquors and medicines, and clothing devices--into their lifestyles. The absence of eating utensils (although wooden chop sticks would deteriorate), ceramics, Chinese opium pipe fragments, shoe parts, more buttons, etc., is somewhat puzzling. Overall, the indicators point toward Chinese habitation of a relatively short term nature consistent with the nature of the rapidly changing gold fields.

Historic Component at CA-SHA-1544/H

Although the inventory of historic artifacts at CA-SHA-1544/H is somewhat limited, all post-contact artifacts suggest a date for this component in the second half of the 19th century. Most of the glass fragments are assigned to two bottle types. The first type is made of a heavy dark olive green glass called "black glass," which is most common in sites dating between 1840 and 1880 (Rock 1981:17). Smooth-lipped bottles of this type, made with a lipping tool, usually date between 1870 and 1920 (Rock 1981:9). The second bottle type, an olive green "Bordeaux" wine bottle, was common between 1850 and 1890 (Rock 1981:14).

Other clues to the age of occupation include the single ceramic button. Although not precisely dated, ceramic buttons were abundantly manufactured in the United States between 1850 and 1890 (Vaughan 1986:59). Common cut nails, of which 54 were recovered, generally predate 1890 in this area.

Together these artifacts indicate a date between 1870 and 1880. The discrepancy in dating may be in the tin fragments. All seams are folded with no sign of solder. The "sanitary can" in which the seams were overlapped dates after 1905 (Rock 1981:18). It is possible, however, that the numerous fragments found at CA-SHA-1544/H are not remnants of sanitary cans, but were used or reused in the construction of the fireplace and/or structure, and that the folded seams are homemade. The few remaining large pieces are greater than eight inches in extant size with most edges missing. These are much larger than would result from household cans, but they could originally have been larger oil or kerosene cans, perhaps from China.

The function of the historic occupation appears to have been residential, although possibly of limited or brief use. No crockery, no flat ware, and no cast-iron stove parts were found. The wine bottles, corks and boot fragments suggest a male occupant with no hint of an accompanying female or children. The occupation seems most likely to have been related to the extensive gold mining activities that took place within the area in the 1850s to 1870s, perhaps placer mining along Olney Creek, although there is no clear evidence to support this other than nearby piles of tailings.

When the stone feature at the Middle Mule Pond site was first encountered it was presumed to be a typical chimney remnant of a miner's cabin usual for the west Redding region (see Vaughan 1986). Upon cleaning off the vegetation it was observed to be atypically large for the "standard" or common rock and mud chimney type observed in dozens of local sites. This was an incentive for further clearing and excavation. What was the real function, and who built it and when? The interpretations were hampered to some extent by a relatively low artifact yield, but a return nevertheless that provides a reasonable basis for interpretation.

In a partial study of the literature related to Chinese miner's sites in the West, similar architectural examples can be found. Tordoff and Maniery (1986, 1989) illustrate two similar features at CA-BUT-882, a site occupied in the 1870's or earlier. Sisson (1993, Figure 9) depicts a feature somewhat similar that was locally called a shrine but was possibly a hearth with Chinese and Euro-American artifacts in association. Russell (1993:3) has presented a brief note and photograph of a similar feature at CA-CAL-1564/H near Angels Camp in the Sierra Nevada foothills. This cooking hearth is 2 1/2 feet tall, 5 1/2 feet

wide, and 6 1/2 feet long, somewhat smaller than the Middle Mule Pond example. Numerous Chinese ceramics were found in association.

Nail distribution (Figure 22) suggests a relatively small wooden feature in association with the stone feature on the immediate front and sides, assuming these nails were from dismantling and discard very close to the place of construction. The size and number of nails suggests small boards and beams, few in number, perhaps a wooden platform for a tent (see also Tordoff and Maniery 1986:1-62). There are no footing stones as at the Sacramento Pliocene site where a presumed wooden structure was present. It is puzzling, though, that a hearth feature of this large size would be built in direct association with a cloth tent or even a small wooden cabin easily subject to a destructive fire. However, historic data from other Shasta County sites indicates that the purpose of this close proximity was to reflect heat toward the residential area (S. Edward Clewett, personal communication 1997). Another possibility is that this was a detached outdoor feature and that the nails may have been derived from wood secured elsewhere and later burned in the fire hearth. This would explain the higher number of nails inside the hearth feature. However, a standard hearth feature associated with a dwelling cannot be totally ruled out.

The exact function of the stone feature is somewhat unclear, although use as a hearth seems most likely. It was definitely used to burn materials, but no food refuse was visible pending flotation studies. Furthermore, few domestic items such as food-related ceramics are present. Rather, one gets the impression this was related to heating or light cooking within a metal receptacle. Its use as a forge or in construction is not borne out by the artifacts. In the latter case, more pieces of cut metal, other metal equipment pieces, and cinders and heavy burning would be expected. These were not present. There is also no evidence, such as parts of mirrors, talismans, tea cups, and so forth, to suggest this was a shrine.

The most likely scenario, then, is that this rock feature was an oven or hearth related to Chinese mining activities on Olney Creek, a feature that served very itinerant miners who may have had a small cabin or tents nearby. It may have been a singular feature serving a number of men, and it is possible it served cooking and other functions related to camp and mining life of a short duration here during the post-Gold Rush mining period, perhaps the late 1850's to 1870's or so. These miners were apparently orderly and frequently cleaned out their hearth and probably their work/camp area. This would account for little trash and accumulation of materials in the hearth. Judging from the worked ground it probably did not take long to more or less exhaust the placer gold in the small creek and adjoining terraces, perhaps a season or two.

In summary, although we do not view these site loci as particularly revealing regarding the behavior of Chinese miners in the latter half of the 19th century in California or the west, both the Sacramento Pliocene and Middle Mule Pond historic complexes appear to be part of a mobile, dispersed pattern of placer mining on secondary streams in the foothills of western Shasta County, possibly Chinese miners cleaning up the auriferous remains from high-grading Euro-American miners who were also in these drainages (see Hamusek et al. 1990; Ritter 1993).

Discussion of Prehistoric Components

Prehistoric Component at CA-SHA-1969/H

The prehistoric assemblage collected from CA-SHA-1969/H is composed of four cores and 67 flakes of metavolcanic material, one obsidian biface, and nine obsidian flakes. The metavolcanic materials are fairly widely distributed across the tested portion of the site with frequencies increasing toward the south (see Figure 12). The obsidian debitage is too few in numbers to detect a pattern. Subsurface excavations demonstrate that lithic materials are limited to the near surface.

Nearly all debitage is classed as either primary reduction or core reduction flakes. Two of the four metavolcanic cores appear to have been used to create flakes and then discarded while the other two were made to use as tools. This suggests a lithic industry which created expedient flakes and core tools from local materials to use at the site, butchering, collecting of wood or other plant materials for instance. The obsidian industry is difficult to characterize from the limited evidence. Tuscan nodules are present as "float" material in stream channels and alluvial deposits of Pliocene and Pleistocene age, but probably are very rare or non-existent in the Oregon Gulch area. It is more likely that the obsidian source material was transported to the site from a location well to the east. This source material, originally in cobble or pebble form, may have been reduced elsewhere to flake-blanks, or may have been in the form of one or more small pebbles reduced at the site. The intended end product may have been projectile points as the biface appears to have been broken in such an attempt.

These lithic remains suggest a special use site rather than habitation, perhaps used for different purposes at different times, producing the observed variety. For instance, a group of deer hunters may have knapped some obsidian while waiting for their prey or while resting. A downed animal may have been butchered at the site then or at another time. And still others came at other times to collect plant materials. Habitation sites were probably located within one or two kilometers along a major drainage. Based on regional surveys (Johnson and Theodoratus 1984; Hamusek et al. 1990; Ritter 1993), such special use sites

TABLE 23

Obsidian Hydration Values from CA-SHA-1969/H
all sources are visually assigned

CAT.#	PROVENIENCE	DESCRIPTION	HYDRATION VALUE	SOURCE
99-				
-6	S4-E1/0-10	debitage	1.2	T
-22a	N3-E2/0-10	debitage	1.0	T
-22b	"	debitage	1.0	T
-22c	"	debitage	0.9	T
-22d	"	debitage	NVB	T
-38	N4-W1/0-10	debitage	1.4	T
-46	N4-E1/0-10	debitage	1.4	T
-53	N4-E2/0-10	triangular preform	1.0	T
-92	N6-E1/0-10	debitage	1.0	T
-101	N7-E1/0-10	debitage	2.9	T

TABLE 24

Obsidian Hydration Values from CA-SHA-1544/H
all sources are visually assigned

CAT.#	PROVENIENCE	DESCRIPTION	HYDRATION VALUE	SOURCE
101-				
-11	Unit A/0-10	side-notched point	3.0	T
-12	"	Gunther point	2.4	T
-13a	"	debitage	1.2	T
-13b	"	debitage	3.2	T
-13c	"	debitage	6.7	T
-13d	"	debitage	2.2	T
-20a	Unit A/10-20	debitage	6.5	T
-20b	"	debitage	2.0	GF/LIW
-20c	"	debitage	5.7	GF/LIW
-38	Unit B/0-10	leaf-shaped point	4.3	GF/LIW

T Tuscan source
GF/LIW Grasshopper Flat/Lost Iron Wells

as this seem to be widespread on the northwestern Sacramento Valley fringe.

The use of the site appears limited to the "late" prehistoric period, dating to the past 1000 years or so. Obsidian hydration values on ten specimens, all visually attributed to the Tuscan obsidian source, produce a mean hydration value of 1.23 microns. Except for the extremes, a no visible band-reading on one specimen and a 2.9-micron value on another, these have a tight range of 0.9 to 1.4 microns (Table 23). The single obsidian artifact, a triangular-shaped biface believed to be a projectile point preform, which has a hydration value of 1.0, is consistent with a late prehistoric date.

Prehistoric Component at CA-SHA-1544/H

The prehistoric assemblage collected from the historic locus at CA-SHA-1544/H contains 10 projectile points and point fragments and 96 flakes of obsidian, seven edge-modified flakes, two cores, and 67 flakes of metavolcanic material, one mano and two hammerstones. The points include Gunther Series, a side-notched specimen, a leaf-shaped point, and a unifacial point.

The range of diagnostic point types and obsidian hydration readings (Table 24) both indicate a use of the site over a several thousand year period. The unifacial artifact and leaf-shaped point coupled with obsidian hydration values of over 3.5 microns suggest occupations dating in excess of 3000 years. The side-notched point and hydration values of 2.5 to 3.5 microns are typical of the time period dating roughly from 3000 B.P. to 1200

TABLE 25

Comparisons of Artifact Density Between
The Northern and Southern Loci at CA-SHA-1544/H
expressed as numbers of artifacts per cubic meter

DESCRIPTION	HISTORIC LOCUS UNIT F	NORTHERN LOCUS ALL UNITS*
total lithic materials	100	675
debitage	87	632
flaked stone artifacts	10	41
ground/battered stone	2.9	2.6

* data from Tyree 1990, various tables

B.P. The Gunther Series points along with hydration values of less than 2.5 microns probably date within the past 1200 years. These artifacts, hydration values, and proposed dating are consistent with the data found in the larger prehistoric locus at CA-Sha-1544/H on the north side of Olney Creek (Tyree 1990).

In sampling the density of prehistoric cultural materials in the historic locus as compared to that in the much larger prehistoric locus north of Olney Creek, it is found that the overall frequency in the former is only 15% of the latter (Table 25). This is based on a comparison of Unit F at the historic locus and all units, totaling 12.7 cubic meters of excavated midden, in the northern locus.

Thus, the small prehistoric deposit on the south side of the creek may have served only as an auxiliary location for the larger site. The relatively small size of the metavolcanic debitage and lack of cortical flakes suggest that most of the early cobble reduction took place elsewhere with only late core reduction and/or retouch being performed at this locus. Although a variety of artifacts were found here, a far greater variety was found at the larger, northern locus. Subsistence at that locus is interpreted as being "focused on the procurement of large game, various species of bird and salmon, freshwater mussel, and seed resources" with a year-round or near year-round sedentary occupation (Tyree 1990:122-123). The prehistoric use of the southern or historic locus appears to have been as a casual or occasional adjunct to the major occupation on the north side of Olney Creek.

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