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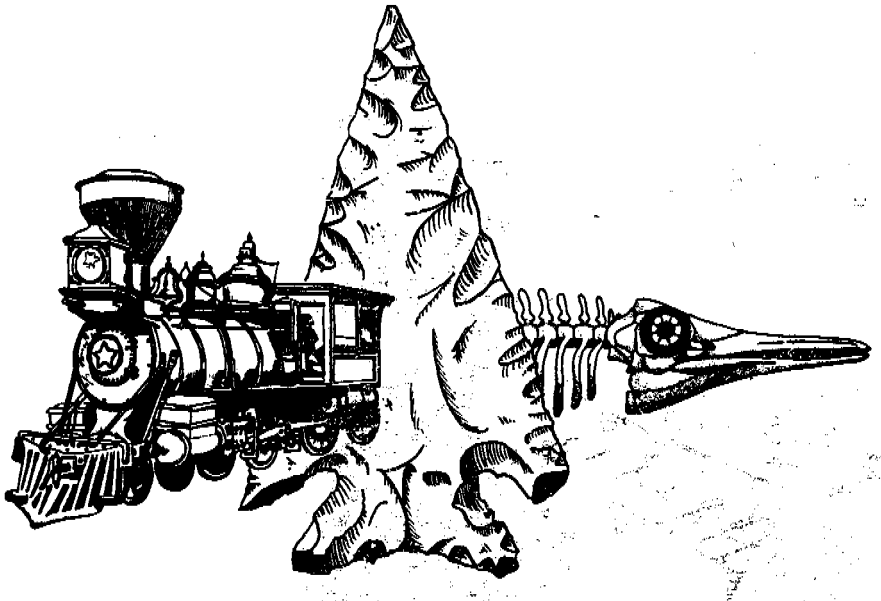

Archaeological Data Recovery Associated with the Mt. Hope Project, Eureka County, Nevada

Charles D. Zeier

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ARCHAEOLOGICAL DATA RECOVERY ASSOCIATED WITH THE MT. HOPE PROJECT EUREKA COUNTY, NEVADA

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September 1985

T/D

ABSTRACT

From 1983 through 1985, Intermountain Research conducted archaeological investigations on behalf of the Exxon Minerals Company Mt. Hope Project, Eureka County, Nevada. The present report documents surface collection and excavation conducted at two prehistoric sites, five historic sites, one site with both periods represented, and one of uncertain assignment. The work was undertaken in fulfillment of the Mt. Hope Project cultural resources data recovery plan.

The prehistoric sites were diverse in character and geographic location. Site 26Eu790 was a Middle Archaic period, early stage biface reduction site in Garden Pass Valley. Located in a sand drift deposit, the site has undergone pronounced post-occupational transformation. Much smaller in size, site 26Eu983 appears to have been a location at which resources were extracted. Both a pre-Archaic and a Middle Archaic component were present, allowing limited comparisons. Site 26Eu1011 was an intercept type hunting camp located in a high saddle. Bighorn sheep was the most likely target animal. Middle stage biface reduction was also in evidence at the site which dates from Middle Archaic through Numic times.

Site 26Eu982 was a pinyon roasting feature which, unfortunately, was not associated with either prehistoric or historic artifacts. Radiocarbon dating indicates the feature is probably historic in age.

Four of the studied historic sites were at one time associated with the production of charcoal, an industry that flourished in the Eureka area between the early 1870s and the late 1880s. Site 26Eu988 was a remote structure inhabited by Italian Carbonari around 1880. Sites 26Eu923 and 26Eu994 were isolated charcoal lenses where charcoal was produced. Present at site 26Eu787-B was a structure apparently inhabited by a group of teamsters involved in the transport of charcoal to Eureka. With the decline of the charcoal industry in the late 1880s, occupants of 26Eu787-B appear to have shifted to ranching.

Two historic period sites were associated with the Eureka and Palisade Railroad which passed through the project area. Site 26Eu790 was occupied for a brief time by Chinese work crews involved in the 1875 construction of the railroad. Site 26Eu787-II is the location of the Mt. Hope station, operative between 1890 and the 1930s. Archaeological evidence suggests that a box car body was present at the site, probably during the 1910s and 1920s, and that it was used to house maintenance crews temporarily.

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Report author Zeier was assisted in report preparation by Lynn Furnis, Dave Schmitt, and Donald Zerga. Furnis assisted in development of analytic methods, performed historic artifact analyses, and wrote historic artifact descriptions. Schmitt prepared the zooarchaeological report included as Appendix B. Zerga performed prehistoric tool and debitage analyses and wrote prehistoric artifact descriptions.

Artifact cataloging was performed by Lynn Furnis with the assistance of Malala Elston, Peggy Waski, and Susan Stornetta. Shelley Moore prepared the prehistoric artifact illustrations, Thad Van Bueren the historic artifact illustrations, and Robert Clerico and Ken Juell, the maps. Eleanor Curtis provided secretarial services. Editing tasks were shared by Callaway, Elston, and Nancy Sharp. Laura Tennant served as copy reader. Dr. Donald Hardesty, University of Nevada-Reno, Dr. Richard Hanes, Nevada State Office, Bureau of Land Management, Dr. Roberta McGonagle, Bureau of Land Management, Battle Mountain District Office, and Mr. Ken Barrett, Exxon Minerals Company, reviewed the draft report.

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FOREWARD

The Mt. Hope archaeological project was funded by the Exxon Minerals Company, Houston, Texas, as part of the Bureau of Land Management's compliance with cultural resource protection mandates. The importance of this volume lies in the diversity of types of archaeological resources which were intensively investigated.

Past activities studied include: Middle Archaic lithic reduction; Pre-Archaic occupation; prehistoric hunting strategies; recent pinyon nut roasting; transportation in the early American frontier, including Chinese work camp habitation; and, an Italian charcoal production industry of the late 1800s. Also addressed are methodological issues such as effects of post-depositional processes on archaeological remains and the interplay of archaeological and archival research, as well as other topics.

Though these sites did not, in conclusion, individually contribute a great wealth of information, the investigation yields substantial information useful in developing data recovery plans for similar sites in the future.

Richard C. Hanes
Nevada State Office
Bureau of Land Management
Reno

January, 1986

Chapter 1. INTRODUCTION

Exxon Minerals Company (EMC) proposes to acquire public lands in the Mt. Hope vicinity for potential molybdenum mining and milling. The project site, located 32 km northwest of Eureka, Nevada, centers around Mt. Hope and extends eastward to include a small portion of the Sulphur Spring Range (Figure 1). Lands considered herein are administered by the U. S. Department of the Interior, Bureau of Land Management (BLM), Battle Mountain District.

A matter requiring attention during BLM review of the proposed undertaking was its effect on properties listed on, or eligible to, the National Register of Historic Places. Authority for this consideration is contained in the Historic Preservation Act of 1966, as amended (P.L. 89-665); the National Environmental Policy act of 1969 (P.L. 91-190); and 36 CFR Part 800, President's Advisory Council on Historic Preservation regulations (ACHP 1979).

PROJECT HISTORY

Class II Archaeological Survey

In the fall of 1982, EMC contracted with Intermountain Research (IMR) to conduct a sample survey of the project area as it was then defined (see James and Elston 1983:Figure 2). The survey was designed to provide systematic information on site occurrence (BLM 1982:12). Field work was conducted in the spring of 1983 and a report was submitted to EMC in June 1983 (James and Elston 1983).

Analysis of the Class II site data revealed that the 48 recorded sites (27 prehistoric, 18 historic, and 3 sites with evidence of both periods) exhibited a high degree of locational patterning. It was concluded that intensive survey of specific geographic and historic features (drainage bottoms, ridge tops, historic roadways, and the Eureka and Palisade Railroad route) would result in the identification of all major sites in the project area (James and Elston 1983:100-102).

Class III Archaeological Survey

At the request of EMC, IMR prepared a technical work plan for recommended intensive survey activities. A survey of selected portions of the Mine Area and Alternate Tailings Pond Site J was conducted in the fall of 1983. Alternate Tailings Pond Sites B and I had been removed from consideration subsequent to the Class II survey. The design and execution of the survey strategy are described in Zeier and Stornetta (1984). An additional 183 sites (94 prehistoric, 79 historic, and 9 with both periods represented) were recorded.

Following completion of fieldwork and submittal of a draft final report, IMR was informed that Alternate Site J had been removed from the proposed action and the boundaries of the Project Area were revised accordingly. The revised final report was submitted to EMC in January 1984 (Zeier and Stornetta 1984).

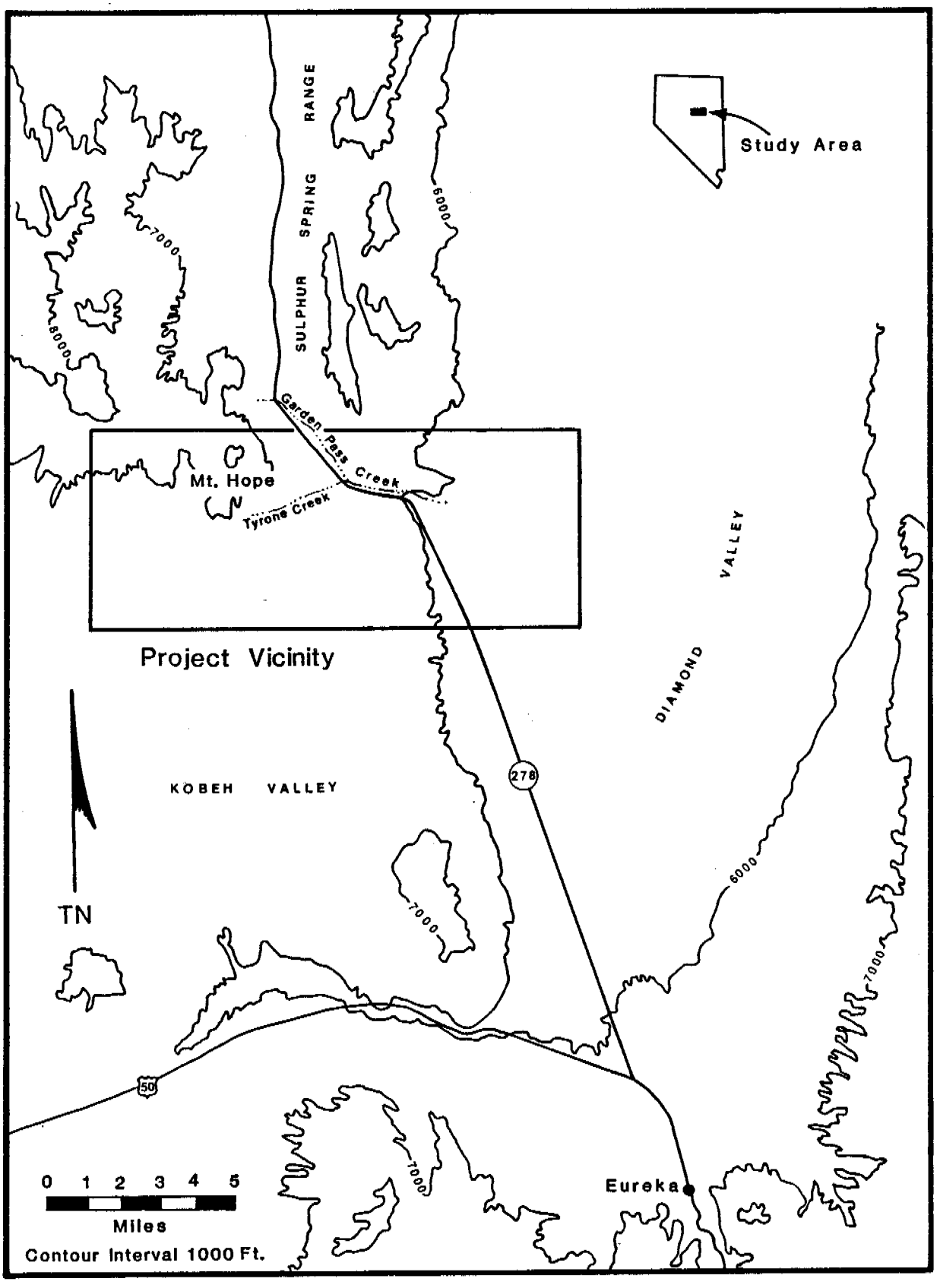


Figure 1. Project vicinity map.

National Register Considerations

The National Register of Historic Places was developed by the Department of the Interior to serve as a means of identifying properties worthy of management consideration. For a property to be eligible to the Register, it must possess a minimum degree of integrity and satisfy at least one of four standards of significance (36 CFR Part 60.6; NPS 1982).

Recommendations regarding the National Register eligibility of cultural resources within the amended project boundary are provided by Zeier and Stornetta (1984: 119-122) and Intermountain Research (1984). After reviewing these recommendations, the BLM and the Nevada State Historic Preservation Officer (NSHPO) agreed that existing documentation was sufficient to determine fifteen sites eligible to the National Register, due to their data potential (Table 1; Figure 2).

Table 1. Sites Eligible to the National Register

Site Number	General Description
PREHISTORIC SITES	
26Eu788	Basalt Site
26Eu982	Pinyon Cache-Roasting Pit
26Eu983	Basalt Site
26Eu1011	Middle Archaic Field Camp
HISTORIC SITES	
26Eu787, Fea. II	Mt. Hope Railroad Station
26Eu787, Fea. B	Residential
26Eu923	Charcoal Pit
26Eu924	Charcoal Pit
26Eu931	Charcoal Pit
26Eu987	Charcoal Pit
26Eu988	Charcoal Ranch
26Eu991	Charcoal Pit
26Eu993	Charcoal Pit
26Eu994	Charcoal Pit
MULTI-COMPONENT SITE	
26Eu790	Chinese Workcamp Site Middle Archaic Lithic Site

The charcoal ranch and seven charcoal production sites are considered eligible to the National Register as a group; the sites are representative of those associated with the charcoal production theme. All are located in a small canyon to the south of Mt. Hope. Their collective eligibility can be supported on a thematic basis or on a district basis.

Data Recovery

At the request of EMC, IMR prepared a data recovery plan for the 15 eligible sites (Intermountain Research 1984), based on standards set forth in 36 CFR Part 66 (NPS 1977) and Advisory Council guidelines for the treatment of

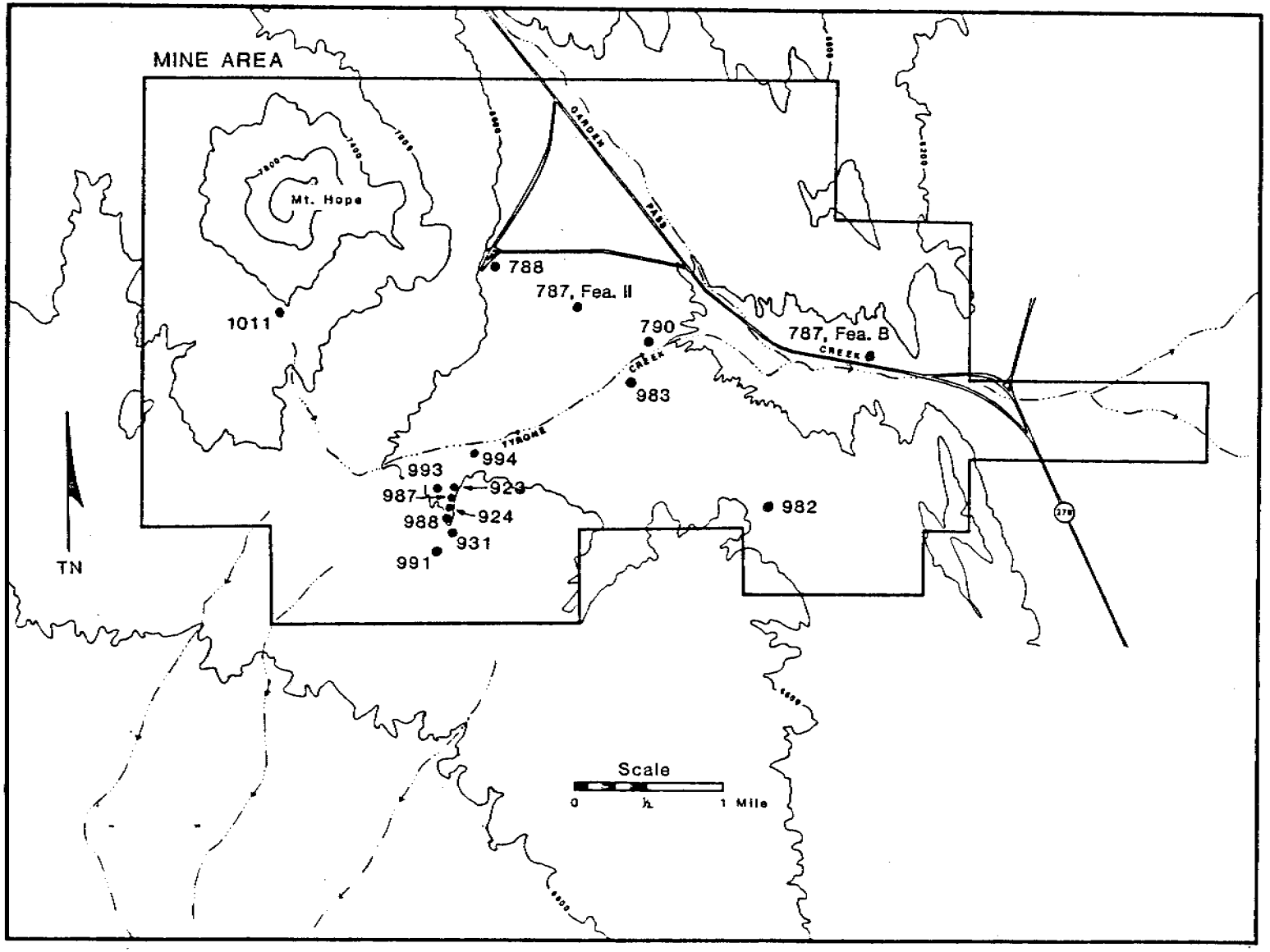


Figure 2. Site location map (the site number prefix, 26Eu, has been deleted for the graphic clarity).

archaeological sites (ACHP 1980). This plan was submitted to EMC in March 1984, and subsequently reviewed and approved by the BLM, NSHPO, and the Advisory Council for Historic Preservation. Site 26Eu788, located on private land involved in litigation, was withdrawn from the program.

Data recovery field work was carried out in four ten-day sessions between August 13 and October 7, 1984. A five person crew was employed during the first three sessions, while eight people were present for the final session.

REPORT STRUCTURE

This report documents the recovery and analysis of archaeological data from the Mt. Hope project area during 1984. It is divided into 13 chapters. The first includes this introduction and a review of cultural resource management activities conducted to date. Chapter 2 presents a description of the physical environment of the project area; Chapter 3, a description of its cultural setting. Research goals are presented in Chapter 4, research methods in Chapter 5. Chapters 6 through 12 present site specific discussions of site setting, collection and excavation results, artifact descriptions, and site interpretations. Concluding observations are presented in Chapter 13.

Chapter 2. PROJECT AREA DESCRIPTION

The Mt. Hope project area is in the Basin and Range physiographic province (Fenneman 1931), characterized by north-south trending mountain ranges and bolsons (Peterson 1981). Diamond Valley borders the project area on the east, while the Roberts Mountains are to the west. Garden Pass, at the extreme southern end of Garden Valley, forms the northern limit, while Kobeh Valley lies to the south. The Sulphur Spring Range partially separates Mt. Hope and Diamond Valley. Elevations range from 1780 m (5840 ft) in Diamond Valley to 2564 m (8411 ft) on Mt. Hope.

GEOMORPHOLOGY

The project area can be divided into three geomorphic zones. One includes Mt. Hope and its steep side slopes, a second is dominated by a series of low relief (100 to 200 m) hills to the south and southeast of Mt. Hope, and the third comprises the flatter, inset alluvial fans and related fan remnants in Tyrone Creek and Garden Pass Creek Valleys.

The availability of permanent water in and near the project area had a pronounced effect on prehistoric and historic settlement patterns. The only permanent water, as indicated on USGS topographic sheets, is found north of Mt. Hope at Garden, McBrides, and Mt. Hope Springs. Smaller springs were observed during field activities. More springs occur beyond the project area boundaries, particularly in the Roberts Creek Mountains and along the base of the Sulphur Spring Range in Diamond Valley.

Several ephemeral streams, flowing only briefly in response to local precipitation, drain the project area. Garden Pass and Tyrone Creeks drain the eastern slopes of Mt. Hope, flowing into Diamond Valley through Tyrone Gap at the southern end of Sulphur Spring Range. These streams are presently deeply entrenched in arroyos which have lowered the water table. Surface flow may have been greater and of longer duration in prehistoric times. On the west side of Mt. Hope, unnamed washes drain southward from Henderson Summit into Kobeh Valley. North of Henderson Summit and Garden Pass, Henderson Creek flows northward through Garden Valley.

GEOLOGY

The geology of Eureka County has been described and mapped by Roberts et al. (1967). The project area is composed of Ordovician chert and shale of the Vinini Formation, Lone Mountain dolomite of Silurian age, Devonian limestone of the Nevada Formation, and Permian conglomerate and limestone of the Garden Valley Formation. These formations are known to contain a moderate abundance of fossils, although none was observed during archaeological field activities. Also present are Cretaceous or Tertiary intrusive rhyolite, and Quaternary alluvium.

Each geomorphic zone described above is geologically distinct. Mt. Hope is an intrusive plug of rhyolitic porphyry (Roberts et al. 1967:48). The razor-back ridge of the Sulphur Spring Range is primarily of the Garden Valley Formation, a reddish-brown siliceous conglomerate consisting of cemented quartzite and chert cobbles (Roberts et al. 1967:39-40). The low relief hills

south of Mt. Hope are mostly of the Vinini Formation which is divided into two components. The lower component consists of bedded quartzites, limestones, sandstones and siltstones. The upper component is interlayered chert and shale, both of which weather brown, cream white and grayish white (Roberts et al. 1967:31).

A large pluvial lake filled Diamond Valley during the last Wisconsinan stage of the late Pleistocene (Hubbs and Miller 1948; Hubbs et al. 1974; Mifflin and Wheat 1979; Snyder et al. 1964). Lake Diamond attained a maximum surface elevation of 1829 m (6000 ft) and covered 1015 km^2 (392 mi^2) (Mifflin and Wheat 1979:54). At its fullest, Lake Diamond overflowed at Railroad Pass into the Humboldt River drainage and the Lake Lahontan System. The maximum late Pleistocene high stand of Lake Lahontan is dated about 13,000 B.P. (Davis 1982), and Lake Diamond is of an equivalent age.

Aerial photos reveal shore features of ancient Lake Diamond below 6000 ft. A prominent wave-cut terrace is cut into the rocky promontory just north of Tyrone Gap, and Highway 278 crosses a large gravel spit just to the south. Smaller gravel bars occur at lower elevations. Major terraces above Garden Pass and Tyrone Creeks appear to be graded to the high stand of Lake Diamond. Thus, alluvium in the flood plains and inset fans along those streams is probably Holocene in age.

PALEOENVIRONMENT

Environmental changes of varying magnitude have occurred in the Great Basin during the late Pleistocene and Holocene (Currey and James 1982; Davis 1982). Davis's (1982) summary is most relevant to the project area.

During the late Pleistocene, between 22,000 to 12,500 B.P., the climate was colder and moister than at present, with winter dominant precipitation. In much of the Great Basin, Bristlecone pine forest occupied mountain slopes now dominated by pinyon-juniper. Sagebrush steppe occupied the valley floors between the margins of the forest and lakesides. At about 13,000 B.P., Lake Lahontan reached its maximum extent at 1335 m elevation and began falling rapidly by 12,500 B.P.. During the Twocreekan interval (12,500 to 11,000 B.P.), Lake Lahontan continued to dwindle as the climate became ever warmer and drier. The Bristlecone pine forests were entirely replaced by sagebrush steppe except on the highest mountain peaks. The rise and fall of Pleistocene Lake Diamond would have been synchronous with Lake Lahontan.

In the early Holocene (11,000-6900 B.P.), pluvial lakes in the region continued their drying trend and formed vast marshes on the valley floors. Except for subalpine forests on higher mountain peaks, the landscape was essentially treeless and covered with a sagebrush steppe. The climate was cooler and moister than at present, but became considerably drier by the end of the period when dominant precipitation changed from winter to summer. The end of this period is marked by the presence of Mazama ash. The middle Holocene (6900-3200 B.P.) is characterized by moderate to low summer dominant precipitation and warmer temperatures which reached a maximum between 5100 and 4250 B.P. Pinyon-juniper forest, migrating from the south, reached central Nevada by 6000 B.P. In the late Holocene (3200 to 2000 B.P.), a winter-wet climate prevailed with considerable local periglacial activity. Between 2000 to 600 B.P., the climate was drier with a slight moist interval around 1600 to

1200 B.P. From 600 to about 50 B.P., a moist, wet climate dominated the region. Since the end of the nineteenth century, the climate has been considerably drier than the preceding interval.

FLORA

The region is classified as the central Great Basin section of the Great Basin Floristic Province (Cronquist et al. 1972:77-79). Given the topographic relief present in the Great Basin, distinct vegetation zones can be found within short horizontal distances. Billings (1951) and Cronquist et al. (1972) have described these vegetation zones, two of which occur within the project area.

The sagebrush-grass zone covers the alluvial fans and fan remnants in Tyrone Creek and Garden Pass Creek valleys. As the name implies, sagebrush (*Artemisia tridentata*) and various grasses are the dominant vegetation. Other shrubs characteristic of this zone are rabbitbrush (*Chrysothamnus nauseous*, *C. viscidiflorus*), Mormon tea (*Ephedra viridis*), horsebrush (*Tetradymia glabrata*), and spiny-hopsage (*Grayia spinosa*). Important bunch grasses include *Agropyron spicatum*, *Poa sandbergii*, *Aristida longiseta*, *Elymus cinereus*, *Oryzopsis hymenoides*, *Sitanion hystrix*, and *Stipa comata*. Common perennial forbs are balsam root (*Balsamorhiza sagittata*), vetches (*Astragalus* spp.), phlox (*Phlox* spp.), buckwheat (*Eriogonum* spp.), Indian paintbrush (*Castilleja* spp.), and lupine (*Lupinus* spp.).

The pinyon-juniper zone occupies the slopes of the low relief hills and portions of Mt. Hope where annual precipitation is greater than 30 cm (12 in.) (Cronquist et al. 1972:127). The dominant cover, typical of central Great Basin mountainous settings, consists of single-needle pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*). Many taxa occurring in the sagebrush-grass zone extend into the pinyon-juniper zone.

Both zones have undergone considerable change over the last century. Sage covered areas have been overgrazed while pinyon and juniper were harvested for charcoal production (Young and Budy 1979). Introduced plants have invaded and spread throughout the region, particularly in sagebrush communities (Currey and James 1982:45; Yensen 1981; Young et al. 1972). Alien species include cheatgrass (*Bromus tectorum*), Russian thistle (*Salsola kali*), halogeton (*Halogeton glomeratus*), tansy mustard (*Descurainia sophia*), and tumble mustard (*Sisymbrium altissimum*).

FAUNA

Mammalian fauna of Nevada are thoroughly described by Hall (1946). Avifauna of the region are listed in Linsdale (1936); LaRivers (1962) describes the fishes. Data on reptiles and amphibians are contained in several sources (Linsdale 1940; Stebbins 1966).

During the historic period, several mammalian taxa in the region disappeared (Currey and James 1982:43; Grayson 1982). Elk and bighorn sheep have been reintroduced in some areas of eastern and central Nevada. Mule deer have increased considerably since the early historic period.

Chapter 3. CULTURAL SETTING

PREHISTORY

Archaeological investigations in central Nevada have been summarized elsewhere (Hanes and Ball 1982; James 1981; James and Zeier 1982; Thomas 1982a; Zeier 1981). Only a brief synthesis is presented here.

The archaeological potential of the region was largely ignored until the mid-1960s. Subsequent research has allowed definition of a cultural chronology divided into three broad time periods, each characterized by a particular adaptive strategy: pre-Archaic, Archaic, and Numic (Table 2). This chronology is based largely on diagnostic projectile point types recovered from dated stratigraphic levels in excavated sites (see Heizer and Hester 1978; Thomas 1970, 1981b).

Pre-Archaic (9000 B.C.-6000 B.C.)

The pre-Archaic period represents the earliest well documented evidence of man's presence in North America. Most Great Basin pre-Archaic sites are surface lithic scatters located along valley margins. Diagnostic artifacts include fluted projectile points, edge-ground stemmed points, and enigmatic crescents. Other tools include "beaked gravers or spurs, punches, scraper planes, steep-edge side and end scrapers, spokeshaves, choppers, and small flake tools" (Elston 1982:192). Artifacts are typically worn and resharpened, suggesting a high degree of curation.

Thomas (1982a) has questioned whether there was any significant pre-Archaic population in the central Great Basin. Most pre-Archaic sites are associated with late Pleistocene and early Holocene pluvial lakes. Thomas based his speculation on work done in Reese River and Monitor Valleys, where pluvial lakes did not exist. Valleys that did contain pluvial lakes or large rivers do contain pre-Archaic sites; e.g., Grass and Railroad Valleys and the Humboldt River Valley (Elston, personal communication 1983; Elston, Davis and Clerico n.d.; Elston et al. 1981). Numerous pre-Archaic sites have also been reported from Long Valley (Tadlock 1966; York 1974, 1978) and Jakes Valley (James and Zeier 1981).

Several alternative pre-Archaic subsistence patterns have been proposed: large game hunting (Tuohy 1968, 1974), use of lacustrine resources (Bedwell 1973; Heizer and Baumhoff 1970), and a mixed upland and lacustrine resource exploitation. Sites in Long Valley cluster where streams flowed into the pluvial lake (York 1974:13). Few sites have been recorded outside such contexts, suggesting only a limited use of upland areas during pre-Archaic times. Pre-Archaic people were probably organized as foragers; that is, people moved to places where resources were located. Once resources were depleted, people moved to another locality. Food was not stored, camps were short term, and moves were frequent. Therefore, if the project area was used during this time, it was probably exploited from temporary camps adjacent to the lacustrine system in Diamond Valley.

One small pre-Archaic site (26Eu1015) with a stemmed projectile point fragment was recorded in the project area. Evidence of a later cultural period

Table 2. Cultural Chronology for Central Nevada (Modified from Thomas 1983a:Table 7; Davis 1982:Table 2).

Adaptive Strategy	Chronological Period	Age	Diagnostics	Climate
Historic		A.D. 1850-1930	Various historic debris--e.g., hole-in-top cans, 3 piece mold bottles, Chinese ceramics	
Numic	Yankee Blade	A.D. 1300-1850	Desert Side-notched and Cottonwood series points, Shoshonean ceramics	Late Holocene; moderate winter precipitation
	Underdown	A.D. 500-1300	Rosegate series points	Late Holocene; low effective precipitation
Archaic	Reveille	1000 B.C.-A.D. 500	Elko series points	Late Holocene; moderate winter (and summer?) precipitation
	Devils Gate	3000 B.C.-1000 B.C.	Gatecliff series and Humboldt Concave Base A points	Middle Holocene; very low winter (?) precipitation, followed by moderate summer and winter precipitation
	-----	6000 B.C.-3000 B.C.	Northern Side-notched points stemmed and concave base points	Middle Holocene; moderate summer precipitation
Pre-Archaic	-----	9000 B.C.-6000 B.C.	Great Basin Stemmed series and Paleoindian points; crescents	Early Holocene; high effective winter precipitation but decreasing

(Gatecliff series point) was also present. In addition, a pre-Archaic component was identified at 26Eu983.

Archaic (6000 B.C.-A.D. 1300)

About 8000 years B.P., a different lifeway appeared in the Great Basin. The transition is marked by a climatic, as well as cultural, change. The Archaic has been divided into three chronological periods on the basis of projectile point styles. The climate during the Early Archaic was cool and moist, but warming, and vegetation was entirely dominated by sagebrush steppe. The later, warmer part of the period was marked by increased desiccation of valley bottom lakes and marshes and by a shift in vegetation zones. During this time, greater subsistence effort was directed to upland areas in some parts of the Great Basin (Simms 1977). Climatic conditions improved during the Middle Archaic, fostering the introduction of new plant communities. One was the pinyon woodland first exploited about 6000 years ago (Madsen and Berry 1975).

Technologically, the Archaic was more complex than the preceding period as specialized equipment for the processing and storage of plant foods was added to hunting gear, and a collecting strategy was adopted. Diagnostic projectile points include the Humboldt, Pinto, and Elko series, all used on atlatl darts. Toward the end of the period, about A.D. 500, smaller Rosegate series points appear, indicating the replacement of the atlatl with the bow and arrow.

In contrast to the earlier pre-Archaic, Archaic period sites are well represented in the region. The most complete Archaic sequence is provided by Gatecliff Shelter in the Toquima Range, and other research in the Reese River and Monitor Valleys (Thomas 1971, 1979, 1981a, 1982a; Thomas and Bettinger 1976). A less detailed sequence is available from Grass Valley (Clewlow and Pastron 1972; Elston 1980).

Archaic subsistence is characterized by the concurrent or, more often, serial exploitation of seasonally available resources in different environmental zones through a strategy known as collecting. In the collecting strategy, resources are collected and moved to people, which involves storage and the construction of more or less permanent facilities and shelter. This resulted in a far wider range of archaeological site types used in a variety of locations: small, task specific sites where resources were obtained; short term residential field camps; and base camps occupied for longer periods of time, particularly during winter months (Binford 1980).

Sites located during project related surveys (James and Elston 1983; Zeier and Stornetta 1984:42) reveal that during the Archaic period, task sites far outnumber field camps and base camps. Up to and including the Early Archaic, this upland area appears to have been exploited through foraging on an infrequent basis. Far greater and more organized use was made of the area during the Middle Archaic, most often from base camps located some distance away. Late Archaic adaptation appears similar to the Middle Archaic except that field camps and task sites are equally abundant and base camps are absent.

Numic (A.D. 1300-1850)

Occupations dating to the Numic period represent the prehistoric forebearers of the modern Shoshoni. The period begins around A.D. 1000 to A.D. 1300, when Numic-speaking Shoshoni, Southern Paiute, and Northern Paiute migrated into the Great Basin from an area near Death Valley. Evidence for this migration is based on linguistic models (Lamb 1958) and archaeological information (Bettinger and Baumhoff 1982; Madsen 1975, 1982:219-221).

The Numic period is marked by several diagnostic artifacts, including Shoshonean brownware pottery and Desert Side-notched and Cottonwood Triangular projectile points. Archaeological sites containing such artifacts are reported for the region, including prehistoric sites in Grass Valley (Beck 1981), Shoshonean sites of the historic period in Grass Valley (Clewlow and Rusco 1972; Clewlow et al. 1978), several in Monitor and Reese River Valleys and Alta Toquima Village on Mt. Jefferson (Thomas 1981b, 1982a, 1982b; Thomas and Bettinger 1976), Newark Cave (Fowler 1968), and Bronco Charlie Cave (Casjens 1974).

Based on projectile point data, use of the project area diminished during Numic times. Ceramics typical of the Numic period were found at six locations where collecting activities probably took place. During Numic times, task sites and field camps are equally abundant, suggesting that field camps may have been occupied for shorter periods of time, resulting in the use of fewer task sites.

ETHNOGRAPHY

At the time of White contact, the central Great Basin was inhabited by the Western Shoshoni, a Numic-speaking people of the Uto-Aztecan linguistic family (Fowler and Fowler 1971:5-6; Steward 1938). Steward (1938:141-143) provides limited information on aboriginal lifeways in the area.

The Western Shoshoni followed a yearly cycle in which people moved from place to place within their territory as food resources became available (Steward 1938:142). There was no band, village, or family ownership of pinenut lands. When local crops failed, Diamond Valley and Pine Creek people went as far southwest as Austin to gather pinenuts and to participate in festivals. Harvested pinenuts were transported back to winter base camps. When the first spring plants began to ripen, groups of two to four families left the winter camp and foraged together, gathering roots and seeds, and taking woodchucks, chipmunks, and other small mammals. Information on festivals, chiefs, and marriages is provided by Steward (1938:143) and Janetski (1981). Additional notes on the Diamond Valley Shoshoni are contained in Steward (1941). Historic literature also contains useful information (see Beckwith 1855; Burton 1963; and Simpson 1876). Other sources of ethnohistorical data on the Shoshoni are contained in Harris (1940) and Wells (1978).

For the Mt. Hope area, the ethnographic picture is sketchy. This is probably the result of depopulation early in the historic period due to the the destruction of pinyon-juniper woodlands. Steward (1941:333) reports the Diamond Valley Shoshoni practiced several activities to increase wild plant growth: brush burning in the fall followed by spring planting of lambsquarter, tansymustard, Indian ricegrass, or sand grass, and limited irrigation. Early

evidence of deer hunting was recorded in Garden Creek Pass valley by Simpson (1876:70), who described brush fences located at the mouth of Tyrone Creek Canyon.

HISTORY

The following discussion of the historic period is thematic, dealing with major events affecting development in the project area.

Exploration

The historic period in the central Great Basin began with fur trapping expeditions crossing the region during the 1820s and 1830s (Cline 1963). An American party of trappers led by Jedediah Smith in 1827 is credited with being the first Euro-Americans to cross Nevada. Their route was considerably south of the study area (Brooks 1977:182-184; Cline 1963:158). Later trapping parties under Peter Ogden, John Works, and Walker-Leonard passed north of the study area along the Humboldt River.

During the 1840s and 1850s, emigrants bound for California followed the northern Humboldt River Route or Hasting's Cutoff. At the same time, several military expeditions journeyed through the Great Basin reconnoitering the far West. Possibly the first to have entered the study area was Captain John C. Fremont's third expedition in 1845. Fremont and his party traveled southwest across Diamond Valley, through the Mt. Hope area, and into Kobeh Valley (Thomas 1982c:9, 1983:124; Welch 1981:Figure 2), although Simpson (1876:65) indicates that Fremont's route passed further to the southwest. In 1854, Lieutenant E. G. Beckwith led a Pacific Railroad survey through the region north of the study area (Beckwith 1855).

In May 1859, a military expedition under Captain James H. Simpson (1876:66-70) sought a feasible road route between Salt Lake City, Utah, and Genoa, Nevada. The route selected passed directly through the study area. Simpson crossed the Diamond Range into Diamond Valley by way of the steep Overland Pass. He then proceeded southwest through Diamond Valley and over the Sulphur Spring Range near Garden Pass at the base of Mt. Hope, which Simpson named Cooper's Peak. From Simpson's description of Mt. Hope and distances between known points (Simpson 1876:71), the party appears to have passed through the project area along Tyrone Creek.

After the Civil War, several other military surveys explored the region, including geological surveys led by Clarence King and George M. Wheeler (Bartlett 1962). King's work was north of the project area, but a Wheeler party passed through the area in 1871, collecting information on the Mineral Hill, Diamond, and Eureka mining districts (Wheeler 1872:15, 35-37).

Transportation and Communication

The first mail service through Nevada was Woodward and Chorpenning's "Jackass Mail" which began operating in 1851 (Angel 1881; Welch 1981:6-7). In 1858, Chorpenning used a new route which ran through the northern end of Diamond Valley and into Pine Valley before rejoining the Humboldt route near

Beowawe (Welch 1981:7). Later, Chorpenning moved his line, following Simpson's 1859 route which passed through the project area (Welch 1981:7). This change required the construction of stage stations, at approximately 13 mile intervals, along the route west of Jacob's Well in White Pine County (BLM 1975:II-147). He was able to complete only some of the stations before the mail contract was taken over by the Pony Express, which used not only the central route but also Chorpenning's stations (Goodwin 1969:135).

Russell, Majors, and Waddell's Pony Express trail passed from northeast to southwest along the base of Mt. Hope, connecting the Robert's Creek and Diamond Springs Stations (Mason 1976:34-40). The short-lived service was discontinued in October 1861, but several months earlier, the Butterfield Overland Mail and Stage Company transferred to the Central Route and used it until completion of the transcontinental railroad (Conkling and Conkling 1947). Survey activities along the assumed Pony Express and Overland Stage route failed to identify artifacts or sites associated with the period between 1859 and 1869.

Following completion of the Central Pacific Railroad along the Humboldt River in 1869, freight and stage lines were established, connecting mining districts to the railroad. Several lines ran between the Carlin/Palisade area and the Eureka mining district; most passed through the project area. Among these were the Palmer, Palmer, and Russell stage line which began operation in 1869 (Patterson et al. 1969:159); the White Pine Stage Line operated by Woodruff and Ennor beginning in 1870 (Angel 1881:439; Goodwin 1966:7-11); the Palisade Fast Freight Line opened in 1871 by W. Pritchard (Angel 1881; Bancroft 1890); and the Nevada Transportation Company (Goodwin 1966:7-11). Stations were established at 5 to 10 mile intervals along these lines to provide changes of horses and overnight lodging (Goodwin 1969: 157).

With increased output by Eureka smelters in the early 1870s, a more efficient means of transportation was needed. A railroad route was first surveyed in November of 1871 (Eureka Sentinal 1871), but construction did not begin until 1873 when local businessmen formally organized the Eureka and Palisade Railroad Company. The narrow gauge railroad was to run from Palisade, a station on the Central Pacific Railroad, south to Eureka, a distance of 83 miles. In 1874, financial interests representing the Bank of California, the V and T Railroad, and the Comstock took over the project, and completed construction of the line in October 1875 (Bancroft 1890). A telegraph line between Palisade and Eureka, constructed along the western margin of the railroad corridor, was completed in the summer of 1875 (Goodwin 1966:13).

Stations established along the railroad included three within, or adjacent to, the project area: Summit, Mt. Hope, and Garden Pass. The Summit and Garden Pass stations appear on time tables and in correspondence dating to the beginning of railroad operation (EPRR 1878). Reference to the Mt. Hope station first appears in railroad correspondence in 1890 (EPRR 1890:276). The name Tyrone is encountered frequently in early 1900s railroad literature (e.g., EPRR 1923; EPRR 1938), and may be synonymous with the Mt. Hope Station.

Output from the Eureka mines declined during the 1880s and 1890s. As a result, the Eureka and Palisade Railroad was forced into receivership in 1900 and was ultimately reorganized under new ownership as the Eureka and Palisade Railway. Eureka experienced a brief mining revival between 1902 and 1910, as did the railroad. However, in 1910 disastrous floods washed out miles of the grade, stranded equipment, and shut down operations. Without a means of ore

transport, the Eureka mines once again ceased operation. In 1911, George Whittell purchased the railroad and reconstructed the grade. The refurbished line began operation in 1912 as the Nevada Transportation Company.

The line remained in limited operation until 1938 (Myrick 1962). The rail and much of the rolling stock was removed during the winter of 1938-1939 by the Hymen-Michels Co. Ties, buildings, and property were sold to local ranchers and townspeople (EPRR 1938).

Mining

Mining was the major impetus for settlement in the region, beginning with Austin in 1862 and Hamilton in 1868. In 1864, silver was found at Eureka, but it was not until 1869 that the town was established and mining flourished. Details of its history can be found in Angel (1881), Bancroft (1890), Curtis (1884), Hague (1892), Lincoln (1923), Paher (1970), and Reichman (1967).

Several smaller mining districts existed near Mt. Hope, including Alpha, Diamond, and Diamond Marsh. The Alpha District was located north of Mt. Hope on the slopes of the Sulphur Spring Range (Emmons 1910:99). The district apparently did not exist before 1880, as Angel (1881) makes no mention of it. The Diamond District was established in 1864 after silver-bearing ore was discovered north of the Diamond Springs Pony Express-Overland Stage Station, but it yielded little (Angel 1881; Lincoln 1923; Paher 1970; Wheeler 1872; Whitehill 1873). Another, apparently more recent, Diamond District was reported further south, closer to Eureka. The Diamond Marsh District, or William's Salt Marsh, was located at the north end of Diamond Valley (Angel 1881; Lincoln 1923; Reichman 1967; Whitehill 1873). The salt was used to process silver ores in Eureka, Mineral Hill, and Hamilton during the 1860s and 1870s.

Mineral exploration in the project area began in 1871 after lead-zinc ore was discovered by charcoal producers (Matson 1946; Roberts et al. 1967:103). A mining district was established in December of that year and named after its discoverer, J. McGarry (frequently spelled McGeary) (Eureka Sentinal Dec. 6, 1871). Prospects from the the Rambling Boy and Fair View mines were promising, and plans were made for laying out the townsite of Morlath. A wagon route was proposed from the old Overland route, through Morlath, and north to the Palisade stage route (Eureka Sentinal 1872). The Garden Pass stage station constituted the southeast corner of the district, with the boundary then running northerly to Sulphur station, west to Robert's Creek, south to the Overland route, and east back to the station. This district, which neatly encompasses the project area, is clearly the predecessor of the Mt. Hope mining district.

The McGarry District is not mentioned in major published mining reports (e.g., Angel 1881; Bancroft 1890; Emmons 1910; Lincoln 1923; Raymond 1870; Wheeler 1872), nor are production figures listed for the period 1865-1940 (Couch and Carpenter 1943). By the mid-1870s, references to the McGarry District in the Eureka Sentinal are derogatory in tone, indicating that the district had failed to pan out. When and why the McGarry district became the Mt. Hope district is unclear. However, by the mid 1880s it was referred to as Mt. Hope and limited development was underway. Workings in the Lorraine area were opened in 1886 and Thomas Wren, a noted local lawyer and politician, sank

the Mt. Hope #2 adit and whim shaft in the early 1890s. Early historical data on the Mt. Hope District are provided by Vanderburg (1938), Roberts et al. (1967), and Matson (1946).

The main period of district development occurred between 1936 and 1938 and again between 1946 and 1949 (Roberts et al. 1967:Table 12). During that time, limited company housing was provided at the mine site. These are depicted on the 1949 USGS Garden Valley topographic map as a row of structures northeast of the mine. With the decline in mining in 1949, the houses were removed.

Archaeological inspection of the Mt. Hope Mine has not yet been undertaken, as this area is currently involved in litigation. Therefore, it is difficult to make archaeological statements regarding mining or mining technology there. Surveys have revealed that very little mineral exploration has taken place outside the immediate Mt. Hope Mine vicinity. The little evidence discovered argues against any mining activity during the 1870s or 1880s, leading to the possibility that the McGarry district and the townsite of Morlath are within the currently uninvestigated Mt. Hope Mine area. It is also possible that they were located 3 km northeast of the Mt. Hope Mine on a hill at the southern end of the Sulpher Springs Range (the 6791 hill depicted on the Garden Valley USGS map), an area not included in the Class III survey strategy (Zeier and Stornetta 1984).

Charcoal Production

Pinyon-juniper cordwood was used to fuel the Eureka and Palisade Railroad until 1890 when a change to coal was made. Cordwood (in 4 ft lengths) was delivered by contractors to stations along the line (EPRR 1882). The most pervasive historic activity affecting the project area, however, was pinyon-juniper harvesting for charcoal production during the 1870s and 1880s. Charcoal fueled the smelters in Eureka and adjacent mining districts. In 1880 alone, it is estimated that 1.25 million bushels of charcoal were consumed in the Eureka smelters:

> The demand for charcoal was so great that deforestation became a severe problem. From our estimates of wood yield, 4,000 to 5,000 acres of woodland had to be cut annually to supply the Eureka mills. By 1874 the mountain slopes around Eureka were denuded of pinyon and juniper for a radius of twenty miles. By 1878 the average hauling distance from [charcoal] pit to smelter was thirty-five miles. (Young and Budy 1979:117)

Charcoal production sites consisted of oval-to-circular, temporary surface ovens containing pinyon stacked 12 to 25 m in diameter and some 5 m high. Juniper and mountain mahogany require higher burn temperatures than pinyon, and where these fuels were prevalent, beehive-shaped kilns were constructed. Beehive ovens are still to be seen in the Diamond Range, the Fish Creek area south of Eureka, and at Ward and Bristol in eastern Nevada. None, however, were observed in the project area. Charcoal was produced in many valleys along the Eureka and Palisade Railroad route and shipped to Eureka via rail (Rodman 1984:31). Charcoal production was halted in 1887 when the clear cutting of the pinyon-juniper woodlands was stopped by the U. S. Department of the Interior (Goodwin 1966:14; Rodman 1984:31).

The IMR survey revealed 50 charcoal production sites. Undoubtedly, Carbonari ranches (major residential sites for charcoal producers) were established where pinyon was abundant. As surrounding trees were exploited, however, the Carbonari had to travel greater distances to obtain wood for their ovens. Given the archaeological distribution of the ovens, it appears they preferred to relocate ranches rather than construct ovens in remote areas some distance from the ranch.

Ethnic Populations

Two ethnic populations have played prominent roles in the project area's history, the Chinese and the Italians. Chinese involvement in the area appears to have been temporary, related to Eureka and Palisade Railroad construction and maintenance. Two sites contained numerous Chinese artifacts. Site 26Eu790, situated near the Eureka and Palisade Railroad, probably served as a temporary work camp in the fall of 1875 when the railroad was built through Garden Pass Creek Valley (James and Elston 1983:65). Site 26Eu787-B is also located near the railroad, but its association with that facility is uncertain. Structures are present, as are a limited number of Chinese artifacts. However, a majority of the artifact assemblage is not of Chinese origin. Chinese artifacts present at 26Eu787-B appear to represent an incidental use, or veneer, atop an otherwise non-Chinese occupation.

Charcoal production in the Eureka area was an occupation identified with Italians, frequently referred to as Carbonari, from northern Italy and the southern provinces of Switzerland (Reichman 1967:46). Shepperson (1970:121) states that by the end of the 1870s, charcoal production had become "almost exclusively an Italian function." The 1880 census of Eureka County indicates that most Italians present listed their occupation as charcoal burners (National Archives 1880). Italian charcoal producers were looked upon as the dregs of the local labor market (Murbarger 1965:26). The nature of the work forced them to be away from settled communities, camping at or near production sites in temporary huts, in dugouts (Murbarger 1965:26), or tents (Grazeola 1969:30). Reichman (1967:83) states that "Italians lived in wickiups throughout the hills around Eureka." Thus, many Carbonari were physically and economically isolated at remote charcoal production sites where ethnic composition must have been almost entirely homogeneous. A fair degree of cultural reinforcement likely occurred.

Chapter 4. RESEARCH DIRECTIONS

Although prior investigations at Mt. Hope shed light on its prehistory and history, pressing research problems remained. Prehistoric subsistence and settlement patterns were defined, but questions relating to site patterning, to the nature of Middle Archaic lithic reduction and basalt use, and to the uniqueness of pinyon features needed attention. The role of historic mining and transportation was defined, but the function of the Mt. Hope railroad station remained unclear. The relationship of one major site to local events was not resolved, the archaeological identification of ethnic populations was not accomplished, and our understanding of charcoal production was incomplete.

PREHISTORY-RELATED RESEARCH PROBLEMS

Site 26Eu790 - Prehistoric Component

Problems

The prehistoric component at 26Eu790, first recorded as a light scatter of gray cherty-siltstone debitage and biface fragments in sand drift deposits, was interpreted as a secondary lithic reduction workshop (James and Elston 1983:63). An Elko projectile point suggested that the site dates to Middle Archaic times. These site specific research problems were identified:

- Is the site a single component, Middle Archaic site, or are other time periods represented?

- Are the lithic reduction technologies at Mt. Hope similar to those attributed to the Middle Archaic or do they differ because of the nature of the raw material?

- Is the site truly a secondary workshop where transported bifaces are reduced or is it, perhaps, a field camp at which biface reduction was incidental to other tasks?

The site setting is dominated by a sand drift (Reineck and Singh 1980:221) that formed to the lee of the ridgecrest on which the site is situated. A surface artifact concentration occurring along the windward edge of the drift suggested the possibility that deflation exposed subsurface materials. Of immediate interest was whether artifacts were present in definable subsurface strata. If so, their significance regarding site chronology and function required resolution.

Discussion

The reduction of quarry stone for artifact manufacture proceeds through a series of regular stages (Elston, Hardesty and Clerico 1981; Elston et al. 1977; Muto 1971), often with an emphasis on the production of transportable, standardized pieces (Ericson 1982:130). Initial reduction takes place at the quarry location, while secondary reduction (core refinement, flake blank production, and biface reduction) can take place at the quarry or elsewhere.

If lithic procurement was an activity embedded in subsistence patterns (Binford 1980), then subsistence-related, logistical considerations most likely determined the location of secondary reduction.

Middle Archaic assemblages reflect an adaptive strategy oriented toward exploitation of a diverse resource base: big game hunting was the principal subsistence activity, supplemented by plant and seed procurement. One aspect of this strategy is the production of large bifaces (Elston nd.:16-17; Thomas 1983a:217-218, 487-491), a technology that creates large quantities of waste flakes and biface fragments. Other artifacts characteristic of the period are certain projectile point styles, scrapers, and seed processing tools.

Methods of Investigation

Surface collection and excavation were conducted in order to determine if 26Eu790 was occupied during periods other than the Middle Archaic. Primary data classes included temporally sensitive artifact types, their vertical and horizontal distributions, and samples suitable for radiocarbon dating.

Definition of the lithic reduction strategies applied to chert-siltstone focused on target forms (bifaces). Because these are seldom found at workshops, analysis of debitage, or waste flakes (waste products of the production system), can provide information missing in an incomplete series of production forms (Elston and Zeier 1984:39). Identification of debitage by production stage helps in determining the relative importance of reduction activities that took place at a site. If the site served as a field camp for purposes other than lithic reduction (ie., subsistence resource procurement), this should be evident in an assessment of the overall tool assemblage and relative abundance of debitage assigned to various production stages.

A number of site formation processes affect artifacts in sandy deposits. Items can move vertically (Stockton 1973) and horizontally (Beckett 1980; Simms 1984). These processes were taken into account during the assessment of artifact distribution patterns at 26Eu790 where it was hoped that the relative abundance of materials at various depths and the identification of subsurface features would aid the resolution of questions regarding site formation and chronology.

Site 26Eu982

Problems

Site 26Eu982 was recorded as a prehistoric pinyon cache, even though no prehistoric artifacts were observed (Zeier and Stornetta 1984). Ethnographic data suggest that rock rings of the size recorded were associated with both pinyon caches and pinyon roasting pits. Therefore, field identification of the site as a cache was ambiguous. Research problems include:

- Is the site a prehistoric phenomenon, or does it represent historic activities in the area?

- Did the site serve as a pinyon cache or a pinyon roasting pit?

- If the site is prehistoric in age, what are its implications with regard to subsistence and settlement patterns in the area?

Discussion

Pinyon caches and roasting pits are roughly the size and shape of the 26Eu982 rock ring. Roasting pits should contain charcoal, burned pinyon cones and hulls, or other evidence of roasting. Caches should contain abundant pinyon cones and hull fragments, but no indication of roasting should be present.

The precise placement of the feature in prehistoric time is important: pinyon caches and roasting pits are an excellent indicator of subsistence strategy. Roasting pits are a technological expedient, employed when the product was to be transported some distance. Their use probably reflects a forager type use of areas some distance from established basecamps. Caches, on the other hand, occur within the foraging radius of a logistically organized group.

Assessments of prehistoric subsistence and settlement patterns for the Mt. Hope area suggest that Middle Archaic groups were logistically organized, but their base camps were located some distance away. Late Archaic and Numic groups may have employed more of a forager strategy, emphasizing group mobility (Zeier and Stornetta 1984), a view supported by Steward's (1938:142-143) statements that during ethnographic times, pinyon harvested near Mt. Hope was carried out of the area; little emphasis was placed on resource caching. Thus, if 26Eu982 is a cache, it should date to the Middle Archaic period; if a roasting pit, then it should date to the Late Archaic or Numic period.

Methods of Investigation

An age assessment for the feature at 26Eu982 was performed through radiocarbon dating. Determination of function depends on the presence of abundant pinyon macrofossils (possibly charred). Excavation was conducted both inside and outside the feature to secure information on the background level of macrofossils and to look for the presence of charcoal in the sediments, charred remains on the inside of the rock enclosure, and evidence of any excavation or pit within the rock ring.

Site 26Eu983

Problems

Preliminary investigations at 26Eu983 revealed a variety of lithic material types, including basalt, and the presence of an Elko Series projectile point indicative of a Middle Archaic occupancy. Basalt as a tool production material seems to have been most popular during pre-Archaic times in the central Great Basin (Elston 1982; Elston, Davis, and Clerico in press; Elston et al. 1981). Toolstone quality basalt is not known to be available in the project area. The nearest recorded basalt quarry (BLM Site CR6-401) is located

approximately 20 miles north-northeast (Stornetta 1982). These observations led to a series of research problems:

- Is 26Eu983 a single component, Middle Archaic site, or is a previously unidentified pre-Archaic component present?

- If two components are present, can they be differentiated spatially or technologically? With which component is the basalt associated?

- What does the debitage suggest regarding the local availability of basalt?

Discussion

Several Mt. Hope sites contained a surprising number of basalt tools and debitage. Most were assigned to the Middle Archaic period based on the presence of typable projectile points. However, the absence of pre-Archaic point types does not mean that the sites were not occupied during the pre-Archaic. Close examination of the artifacts may reveal production technologies typical of the pre-Archaic, thereby verifying the presence of an early component.

Aside from a possible pre-Archaic occupation, the presence of basalt may be due to several factors. Basalt may have been a primary material acquired regionally or through trade. Elston (1982) lists increased trade as characteristic of the Middle Archaic in the western Great Basin, and Thomas (1983a) notes a peak in the trade of obsidian and other exotics between 1,500 B.C. and A.D. 500. Alternatively, the basalt might relate to specific subsistence activities: most of the basalt tools observed were large chopping and scraping implements. A correlation between the tools and target resource distribution may be evident.

Methods of Investigation

In order to determine if any artifacts recovered from 26Eu983 can be attributed to the pre-Archaic period, both typological and technological analyses were performed. Spatial distributions of artifacts were reviewed to ascertain the degree of overlap between components.

The lithic assemblage was also analyzed to assess the relationship between material type and site function. Elston (1979), Thomas (1983a:77-78, 80), and others have proposed that lithic tool manufacturing stage is related to site function and distance to the source of raw material. Where the source is within the normal subsistence range of logistically organized groups, partially reduced pieces are brought to the field camp and reduced prior to being transported to the residential base camp; lithic assemblages at field camps are dominated by middle stage lithic reduction debris.

Debitage analysis was employed to distinguish between traded and local material types. Sites at which local lithic resources are used are likely to reflect a diversity of lithic reduction activities typical of a field camp pattern. Traded lithics will be represented only by final stage(s) debitage. Shatter and debitage with cortex should be rare. Basalt pieces were analyzed

to determine if they suggest a difference in applied technologies (pre-Archaic versus Archaic) when compared with other material types, or a different lithic procurement strategy.

Site 26Eu1011

Problems

Evidence recorded at 26Eu1011 (Zeier and Stornetta 1984) suggests the site had been utilized intermittently over the last 3000 years. The nature of that use focused consistently on the ambushing of game. Spatially distinct artifact clusters are present. Long term, single function sites offer an excellent arena for the investigation of technological and behavioral evolution. Site 26Eu1011 provides the opportunity to study these questions:

- Clearly the site is a palimpsest (an artifact distribution representing successive, overlapping occupations), but can occupation areas be horizontally differentiated?

- Several chronologically sensitive projectile point types were recorded at the site (Elko, Rosegate, Cottonwood). Can isolated components be identified that date to particular time periods?

- If so, do they allow for an assessment of change in hunting technology or tool kit composition through time?

- Lithic reduction is a common activity at ambush sites. It is usually directed toward tool production and tool maintenance. Does lithic reduction evidence at 26Eu1011 suggest any changes in the nature or intensity of biface reduction trajectories or maintenance activities?

Discussion

Resolution of these questions required a careful consideration of horizontal stratigraphic patterns at both the component identification and intra-component patterning levels. Binford (1983) presents these ideas regarding intra-site patterning:

> ...what seems most appropriate is a descriptive and analytical procedure which attempts to define the site framework in terms of features and which is followed by a study of the relationships between this skeletal framework and the dispersion of items (Binford 1983:147).

Site facilities are the focal points around which site activities took place. Their distribution and interrelationship divide a site into distinct "use-areas and circulation pathways" (Binford 1983:145). Cultural features expected at 26Eu1011 might include temporary shelters, hearths, hunting blinds, and drive fences. However, none was noted during survey. Natural geographic features such as saddles, steep canyon walls, stream cuts, and rock outcroppings probably sufficed as facilities that structured activities.

Debris patterning involves two processes. First, items of refuse (Schiffer 1972) can be discarded at the time and place of their use or modification (a pile of waste flakes or the carcass of a butchered animal). Second, site maintenance, the intentional removal of items from their primary depositional context, creates secondary refuse. The level of attention paid to keeping an area free of debris is proportional to its length of occupancy. Maintenance is more important at residential sites than at temporary field camps; more important inside a structure than outside. At residential bases, waste probably was not allowed to accumulate around shelters and hearths. At field camps, less differentiation in debris distribution is expected due to the short duration of the stay.

Methods of Investigation

Where palimpsests are concerned, there can be total, partial, or no overlap of components. Clearly, the chance of identifying separate occupational events is highest where partial or no overlap occurs. Component identification required definition of temporally distinct areas and the location of concentrations of artifact and material types.

Archaeologically, inter-component patterns are reflected in fine-grained differences in debris types and densities, the arrangement of facilities, and the association of tool types with facilities. Thus, definition of patterning required the examination of large areas through the use of small collection units.

Excavation focused on verification that cultural materials are confined to the present ground surface or the uppermost layer of loose deposit (upper 10 cm).

HISTORY-RELATED RESEARCH PROBLEMS

A prime objective at the historic sites was their description. Collection and excavation were designed to assess the condition of the archaeological remains, discover their physical extent, establish beginning and termination dates of occupancy, determine the occupants' ethnic affiliation, and discover the nature of intra-site variability. In addition, previous research suggested each site held potential to address specific research questions.

Site 26Eu787-B

Problems

Site 26Eu787-B is located adjacent to the Eureka and Palisade Railroad grade. A wide variety of artifacts and features, including rock walls, excavated terraces, and Chinese ceramics was observed at this, the most complex historic site investigated. Remains suggested a permanent residential site, but uncertainty as to site function was disconcerting. When recorded, it was thought to represent a railroad maintenance camp occupied by Chinese (Zeier and Stornetta 1984). A majority of the observed artifacts, however, were not of

Chinese origin and the association, if any, between the site and the railroad was unclear. These research problems were raised:

- Aside from ceramics, is there other evidence to support the notion of Chinese occupancy? If the contention of Chinese occupancy is not supported, then who lived there?

- Do the artifacts suggest an association with the railroad, or with the stage lines between Eureka and Palisade?

- Was the site associated with non-transportation related functions; ie. ranching or farming?

- When was the site occupied?

Discussion

Historic documents demonstrate that Chinese laborers were involved not only in the 1875 construction of the Eureka and Palisade Railroad, but also in its continued maintenance into the 1890s (EPRR 1891:402). Angel (1881:437) indicates that on December 15, 1876, an anti-Chinese demonstration in Eureka occurred and "a number of Chinese were driven from their work on the railroad." Bowers and Muessig (1982:64) report that groups of Chinese laborers lived at many stations located along the railroad through the 1870s and 1880s, but where these maintenance crews were housed is unclear.

Stage lines operating between Eureka and Palisade from 1869 to 1875 used a route which passes by the site. Since traveling the route usually required more than 24 hours, especially by freight wagons, numerous way-stations were established to facilitate changing teams and to provide rest stops, meal stops, and overnight quarters. If the site functioned as a way-station, then railroad and Chinese artifacts could represent a post-1875 use of the structures by railroad construction or maintenance crews.

Methods of Investigation

Clearly, archival research directed at determining an association between 26Eu787-B and local historic operations such as railroad, stage lines, and ranching operations was needed. Surface collection focused on determining what artifact classes were present on the excavated terraces and on defining activity areas associated with the terraces. Excavation was directed at determining if structural remains were present, and their nature and content.

26Eu787-II: Mt. Hope Station

Problems

Site 26Eu787-II, first recorded as the Mt. Hope station by James and Elston (1983), later was identified, inaccurately, as the Summit station (Zeier and Stornetta 1984). The historical record indicates that the Mt. Hope station was active from 1889 to 1938, but the majority of artifacts observed during

site recordation were representative of the period after 1910. Also present at the site are three features: a railroad siding, an earthen mound covered with debris, and a depression partly covered by a wooden platform. Research problems included:

- The temporal affiliation of the Mt. Hope station. What periods of use are represented and at what level of occupancy?

- What function did the Mt. Hope station serve within the railroad system?

- What were the functions of the features observed at the Mt. Hope station?

Discussion

The Mt. Hope station may have functioned as a section station or as a freight siding. Section stations were established at regular intervals, typically every 10 to 12 miles, along a line. Each station housed a work crew and equipment sufficient to perform regular maintenance along that section. Features which may be anticipated include a section house, dining/sleeping accommodations, water tank, freight platform, light duty turntable or wye, and a siding or spur. Evidence of regular, if not permanent, habitation should be present.

Freight sidings, on the other hand, were established according to customer demand for access to the railroad. Increased cattle ranching, agriculture, or mining along a line might prompt siding construction. Features typically found at a freight siding include the siding, loading platform, some type of structure (frequently a railroad car body converted for temporary living quarters and storage), and, perhaps, a water tank (Raymond and Fike 1981:22, 27).

The issue of functional assignment is not an either-or argument. The station may have served in each capacity at different times. The issue of chronology raised is whether the siding was employed throughout the life of the railroad line, or whether site occupation occurred only during the 1900s.

Methods of Investigation

Controlled, systematic artifact collection at the Mt. Hope station was conducted with two emphases. First, a representative artifact sample was obtained to refine periods of use. A second emphasis focused on structures, features, and artifact concentrations present at the site and the definition of their function relative to the railroad. Analysis focused on the identification of artifacts associated with railroad technology and with artifacts that document site occupation or its use as a siding.

Site 26Eu790 - Historic Component

Problems

Site 26Eu790, situated near the Eureka and Palisade Railroad, appears to have served as a temporary work camp occupied in the autumn of 1875 when the railroad was built through Garden Pass Creek Valley (James and Elston 1983:65). The site consists of a light scatter of predominantly Chinese ceramics along a small terrace overlooking the railroad grade. Research problems include:

- Aside from Chinese ceramics, is other evidence present to support the notion of Chinese occupancy?
- Does the site represent a Chinese presence only during railroad construction, or over a longer time span?
- Are non-Chinese represented at the site?
- If not, is it possible to define an artifact assemblage specific to Chinese railroad work crews?
- Does the site actually date to the 1875 construction of the railroad, or does it reflect a later period of line maintenance?

Discussion

Chinese laborers assisted railroad construction (Angel 1881:437; Reichman 1967:45; Shepperson 1970:122) and maintenance into the 1890s (Bowers and Muessig 1982:64; EPRR 1891). Definition of a specifically Chinese artifact assemblage must await verification that the site is associated with Chinese work gangs. If so, an assemblage definition will be based on classes of artifacts present, their relative abundance, their human behavioral implications, and their spatial arrangement.

Methods of Investigation

Satisfactory resolution of questions regarding ethnicity and its archaeological definition requires the recovery of ethnic group specific artifacts and/or the documentation of distinct distributional patterns. Such patterns and artifacts should be most abundant in residential sites. Surface collection focused on structural remains, features, or artifact concentrations suggestive of habitation and refuse disposal. Excavation was directed toward the location of major concentrations of subsurface artifacts in order to determine the presence of structures or debris piles.

Resolution of questions of chronology depended on the presence of temporally sensitive artifacts.

Site 26Eu988

Problems

Site 26Eu988 is thought to be a charcoal ranch, a residential base serving as the hub of a charcoal production locale worked by Italian colliers or Carbonari. Surface artifacts recorded at the site suggest a structure was once present. A number of charcoal production ovens are present as well. These research concerns dominate:

- Earl (1969:52) reports that, by the end of 1873, all the pinyon within a 20 mile radius of Eureka had been harvested, and that by 1878 the radius had expanded to 50 miles. Do artifacts recovered from the site reflect the 1873-1878 period?

- Does the site contain evidence of occupancy by ethnic Italians? Is a distinctive artifact assemblage present that reflects an Italian presence, and if so, what form does it take?

- What were the living conditions of the Carbonari? Was their length of residence in an area so short that they lived in tents rather than structures?

- Did circumstances force them to 'live off the land', eating deer, rabbit, an occasional mule?

Discussion

During survey, numerous charcoal production sites assumed to have been occupied by ethnic Italians were inspected, but direct evidence documenting an Italian presence was not observed. Unlike the Chinese sojourner, immigrant Italians apparently came to the New Country to stay. They readily adapted to local technological and commercial situations, retaining little material culture that would allow their ethnicity to be identified archaeologically.

Structures thought to have been occupied by ethnic Italians have been studied at Shoshone Wells in Grass Valley, Nevada (Hardesty and Hattori 1983). The only artifacts peculiar to those structures were an occasional imported Italian wine bottle and possible earthen bread ovens. Otherwise, the artifact assemblage resembled those found in structures occupied by other Euro-American ethnic groups.

Historical references to Italian charcoal burners indicate they occupied a lowly social status, lived in isolated shacks, were paid barely enough to cover the cost of charcoal production, were exploited by local merchants, and were among the first to feel the economic effects of diminished mining yields (Zeier and Stornetta 1984). All this suggests that the Carbonari may have lived at, or near, a subsistence level. Italian charcoal production sites may contain evidence of local foraging and hunting with faunal remains including deer and rabbit. Also, the low economic status of the Carbonari would be reflected by an impoverished artifact assemblage containing little variety, few personal or indulgence items, and little evidence of costly imported goods.

Methods of Investigation

As with site 26Eu790, the satisfactory resolution of questions regarding the archaeological definition of ethnicity requires the recovery of group specific artifacts and/or distinct distributional patterns. Site 26Eu988 was a likely place to attempt the definition of such patterns. Surface collection focused on evidence of structural remains, features, or artifact concentrations suggestive of habitation and refuse disposal. Excavation was directed toward the location of major concentrations of subsurface artifacts, whether in structures or debris piles.

Charcoal Production Sites

Problems

Charcoal production was accomplished by carbonizing wood through controlled combustion. Pinyon yield per acre varied from 1 to 12 cords, with an average of from 8 to 10 cords (Earl 1969:52; Young and Budy 1979:117). By extrapolation, one square mile of woodland could yield from 5120 to 7680 cords. Historical evidence suggests 100 cords were reduced in one charcoal oven during one burn (Murbarger 1965:26). Therefore, some 51 to 77 ovens would be required to reduce the pinyon contained in one square mile of woodland, if each oven was used only once. Pinyon-juniper woodlands cover approximately eight square miles in the Mt. Hope project area, suggesting that 408 to 512 pits should be present. Fifty were found during survey. Given the patterned distribution of charcoal ovens, it is likely that most, if not all, pits in the project area were located, leading to the likelihood that ovens were reused. Thus, these questions are relevant:

- Is evidence of reuse present at charcoal oven sites?
- Is evidence present that suggests the method of oven construction?
- How do the archaeological and historical oven volume estimates vary?

Discussion

Historically, oven locations were leveled to produce a flat area prior to stacking the wood inside. The oven sites observed in the project area are consistently larger than the historic data suggest. Three explanations are possible: historical estimates are inaccurate; the present size of oven remains may not truly indicate the size of the original charcoal oven since sacking the charcoal after it cooled may have enlarged the overall size of the charcoal pile; or, oven reuse may have enlarged the charcoal pile. Clarification of the issue was a prime research concern for sites 26Eu988, 26Eu923, 26Eu924, and 26Eu994.

Methods of Investigation

Excavation at the charcoal production sites focused on evidence of reuse. Ovens at sites 26Eu988, 26Eu924, and 26Eu987 were trenched with a backhoe.

Evidence of reuse may occur in the form of stratigraphically distinct, compacted oven floors, separated by lenses composed of the earthen cover placed over the wood stack before onset of the burn. Since the pits likely contain redundant data, only two of the seven satellite charcoal production sites were investigated. The pits closest to and most distant from the Carbonari ranch would best test the assumption of redundancy.

Chapter 5. RESEARCH METHODS

SITE MAPPING

A topographic map of each site and its immediate vicinity was prepared using a transit and metric stadia rod. A wooden stake was set as a datum and, where necessary, secondary datum stakes were set and related to the primary datum. Elevation and distance readings were converted from metric to English units for historic sites. Mapped contour intervals were sufficient to show topographic features.

SURFACE COLLECTION TECHNIQUES

A majority of the sites investigated were subjected to some level of surface collection. Exceptions were the isolated charcoal oven sites (26Eu923, 924, and 987) and 26Eu982, the prehistoric rock ring site, where no surface artifacts were observed.

At each surface collected site, a grid system was established in association with the primary site datum. At prehistoric sites, the grid was divided into metric units; English units were used at historic sites. Grid systems were oriented along cardinal axes except at 26Eu1011, which has a pronounced southwest to northeast orientation. Pin flags were used to mark grid corners. Surface artifact density at site 26Eu983 was so light that, rather than establish a collection grid, individual artifacts were shot in using the transit and then collected.

Collection units were assigned unique numbers identifying their locations within grid systems. Each unit was examined by one or two crew members who collected all cultural materials therein. The only exception to this "collect it all" strategy was at historic sites where highly redundant, high volume artifact types (ie., tin cans) were categorized, described, and left in the field. The provenience of diagnostic artifacts within each unit was marked on a Collection Unit Record form, along with the classes of data present and their relative abundance.

EXCAVATION TECHNIQUES

Excavation was conducted at seven sites (26Eu787-B, 26Eu787-II, 26Eu790, 26Eu982, 26Eu983, 26Eu988, and 26Eu1011). In most cases, excavation proceeded through two stages. The first, exploratory stage was designed to determine the nature of site deposits and further excavation needs. Units measuring 0.5 by 1 m at prehistoric sites, and 2.5 x 5 ft at historic sites, were placed to define cultural and natural layers within the deposit. Excavation proceeded through the removal of 10 cm arbitrary levels (4 in. levels at historic sites). When datable material was found, samples were collected for possible radiocarbon dating.

The southwest corner of each unit was established as the unit datum for vertical measurements: artifacts or features requiring special provenience were located horizontally and vertically using the unit datum as a referent. Excavation was accomplished with trowels and square-nosed shovels. Fill was

screened through 1/8 in. mesh and placed on large sheets of plastic. When excavation was complete, units were lined with plastic, then backfilled using the previously removed fill. All pin flags and flagging were then removed.

Additional exploratory excavation was also conducted at 26Eu982 and in the prehistoric component of 26Eu790. The second stage of excavation, using the methods just described, was restricted to sites that revealed significant subsurface deposits (26Eu787-B, 26Eu787-II, and 26Eu988). A backhoe was employed to dig stratigraphic trenches across four charcoal pits (26Eu923, 26Eu924, 26Eu994, and oven 1 at 26Eu988).

FIELD DOCUMENTATION

Collection unit records, unit/level records, archaeological feature records, and provenience labels were completed as necessary. Daily field notes were maintained by supervisory personnel. Stratigraphic profiles were drawn of selected walls. Strata and soil horizon descriptions followed conventions set forth in the Soil Survey Manual (Dept. of Agriculture 1951) and Supplement (Dept. of Agriculture 1962). Photographs were taken with 35 mm cameras and photo record logs were maintained.

A reference number system was employed to retain control over the recording forms. Each surface collection unit, level within an excavation unit, and feature was assigned a unique reference number by the Field Supervisor who maintained the reference number log. The log shows the unit to which each number was assigned and other pertinent data. Reference numbers were included on all field records and artifact bags. Collected and excavated materials were placed in bags marked with the site number, collection or excavation unit and level, date, collection personnel, and reference and bag numbers.

LABORATORY ACTIVITIES

Artifact cataloging was accomplished after field work was completed. After examination for possible residues, artifacts were cleaned by wet or dry brushing, as appropriate. Special care was taken with faunal specimens, perishable materials, and fragile artifacts. Once cleaned, items were returned to their unit or level bags. Organic material (charcoal, wood, plant fiber, etc.) was manually cleaned of soil and allowed to air dry. Radiocarbon samples were weighed, placed in clean aluminum foil and then in plastic bags. Leather artifacts were treated with Renaissance Leather Reviver, a lanolin-based, non-wax formulation supplied by Conservation Materials, Ltd., Sparks, Nevada. Selected wood artifacts were soaked in a solution of Elmer's glue and water.

Distinctive artifacts were assigned unique specimen numbers, applied directly to the artifact using indelible white or black ink. Debitage, bone fragments, nails, and other highly redundant items were cataloged in lots. Artifact lots, as well as unique items, were placed in plastic bags with a provenience tag indicating the project number, site number, reference number, specimen number, excavation (and level) unit number, date of recovery, and the initials of the collector and cataloger.

All catalog data were entered into a computer file using a master catalog format. Developed before cataloging began, this format was applied

consistently to all materials recovered. Each master catalog entry has a unique specimen number, provenience information, general artifact category, material type, and number of items (relevant to items cataloged by lot). Other variables of general applicability were added as needed.

Artifact analysis often required that detailed data files be developed by the specialist undertaking the analysis. Each file has its own format, variables, and attribute lists. Master catalog reference numbers were preserved from file to file, insuring adequate cross referencing. Permanent copies of all data files created during the project are stored on 5-1/4 in. diskettes maintained by IMR; printed catalogs and other project documentation have accompanied the collection to the Museum of Anthropology, University of Nevada Reno.

Lithics

Projectile points were typed using the Great Basin projectile key developed by Thomas (1981b). Bifaces were examined utilizing the stage form analysis originally presented by Muto (1971:3, 48) and refined by Elston et al. (1977) and Elston, Hardesty, and Clerico (1981). Other classes of specialized bifacial tools were analyzed individually. Lithic materials were classified according to major, established mineral types. Color was described according to Munsell soil color charts and the presence of thermal alteration was identified based on criteria specified by Crabtree and Butler (1964) and Purdy (1971, 1974).

The analysis of lithic debitage focused on the identification of major steps in the lithic reduction process represented at the site. Debitage was divided into five classes: shatter, primary, secondary, tertiary, and biface thinning. Cumulative percentage graphs yield production curves reflecting the relative significance of each reduction stage. Other attributes recorded during debitage analysis included the presence or absence of thermal alteration and cortex, material type, size grade (Miller, Green, and Hattori 1984) and completeness. Similar applications of debitage analysis have been undertaken by Elston et al. (1977), Elston (1979), Elston, Hardesty, and Clerico (1981), Elston, Hardesty, and Zeier (1982), and Elston and Zeier (1984).

Historic Artifacts

Historic artifact analysis was approached in two related ways. First, individual items (glass sherds, nails, metal fragments, etc.) were assigned to specific functional categories. This allows comparison of the Mt. Hope data to previously investigated sites in the region. Second, an attempt was made to determine the number of artifacts represented by the fragments. This allows analysis of the historic sites on the basis of artifacts once operative in the systemic context rather than the number of fragments in the present archaeological assemblage (South 1977:86). A comparison of the two approaches should shed light on the magnitude of archaeological transformation processes operative at the sites and their effect on pattern definition and interpretation.

Historic period artifacts were assigned to classes following a system proposed by Sprague (1980:92) which draws together related artifact types into

functional classes. Our implementation of the system includes the use of three interrelated levels of observation. The first is descriptive, indicating the type of item and identifying specific characteristics. Various flatware patterns, for example, would be assigned unique descriptor codes. Obviously modified items were assigned to a type on the basis of their most recent use. The second level groups related artifact types into functional units: shoe soles, leather uppers, and button hooks would fall within a footwear category. This level of abstraction greatly facilitates description by focusing attention on related items. The third level combines related functional groups into general categories that are of greatest use in inter-site comparisons and definition of regional patterns.

Relevant secondary and functional categories are listed in Table 3. Other categories are possible, but were not necessary at the sites investigated.

Table 3. Secondary Functional Categories

Personal Items				
	Clothing		Medical and Health	
	Headgear		Indulgences	
	Footwear		Pastimes/Recreation	
	Adornment		Pocket Tools/Accessories	
	Body Ritual/Grooming		Luggage	
Domestic Items				
	Furnishings		Food	
	Food Storage		Food Preparation	
	Food Consumption		Portable illumination	
	Sewing Items		Yard Maintenance	
	Portable waste disposal and sanitation			
	Portable heating, cooling			
	Home Education, Business, Information			
Architecture				
	Structural Materials		Structural Hardware	
	Fixed Illumination			
Transportation				
	Draft Animal Equipment		Draft Animal Maintenance	
	Vehicles			
Commerce				
	Hunting/Fishing		Mining	
	Railroad Maintenance/Operation		Charcoal Manufacturing	
	Medium of Exchange		Woodcutting	
	Handicrafts			
Group Service				
	Communication Systems		Water Supply	
Other/Unknown				
	Glass	Rubber	Metal	Fabric	Leather
	Ceramic	Plastic	Wood	Bone	Stone

Minimum artifact counts (MAC) relied on close examination of each artifact class. For instance, all the bottle glass from a site was laid out and whole bottles were tallied. Fragments were then grouped according to glass color and, within each color, clustered by bottle shape and method of manufacture. Cross-mending was attempted among items within each cluster. Confirmed fits were counted as a single artifact, along with the other pieces in the cluster (ie., of identical color, shape, and method of manufacture) despite lack of exact match. Where fragments appeared distinct from all others, they were counted as single artifacts, even if neck and base were not present. This technique was employed with all artifact categories, but was most relevant to glass and ceramics.

A third, and somewhat independent, analytic task was the placement of historic artifacts in a temporal frame. Markings and motifs, construction techniques, maker's marks, composition, and the like, were used to identify dates of manufacture for specific artifacts, thus providing a time frame in which occupation may have taken place. Artifact classes vary considerably in their temporal specificity. Some were manufactured over several decades, others over only a few years. For purposes of analysis, we focused attention on classes with manufacturing periods of fewer than 50 years, recognizing this method does not yield a date of deposition as differentiated from overlapping dates of manufacture (Dollar 1978:219).

ARCHIVAL RESEARCH METHODS

A limited historic records review was conducted. Emphasis was placed on the inspection of county assessor's records, census data, county recorder's documents, the Eureka Sentinal newspaper from selected time periods, regional historical syntheses, and whatever maps came to light. Objectives of the archival research were to determine associations between the archaeological sites and historic events or personages, to establish firm beginning and end dates of site occupancy, and to determine physical elements once present at the sites.

Repositories queried were the Eureka County courthouse (assessor's and recorder's offices), the Nevada State Office of the Bureau of Land Management, the Nevada Department of Transportation, Nevada State Historical Society, the Nevada State Archives, and the Nevada State Library.

Chapter 6. HISTORIC SITE 26EU787, FEATURE B

The 36 features and 21 artifacts found in the project area and thought to be associated with the Eureka and Palisade Railroad were assigned a single site number, 26Eu787. Letter and number designations were used to identify specific features and isolated artifacts (Zeier and Stornetta 1984:82-95). The subject of this chapter is the structures once present at 26Eu787, Feature B.

SITE DESCRIPTION

Site 26Eu787-B is situated along the line of juncture between the Garden Pass Creek inset fan and the steep side slope of the adjacent fan remnant at an elevation of 6076 ft (1852 m) (Figure 3). The site is located 900 m up Garden Pass Creek from where the creekbed extends through Tyrone Gap into Diamond Valley. Garden Pass Creek is 90 m south of and 7 m lower than the site; the Eureka and Palisade Railroad grade is 80 m (262 ft) to the south.

The site sits in a small erosional cut that extends north into the side of the fan remnant (Figure 4). Construction of State Highway 278 steepened the slope of the fan remnant along both sides of this cut (NDOT 1945). Thus, during the 1800s, the fan remnant would have extended south beyond the site, in the direction of the Eureka and Palisade Railroad grade and Garden Pass Creek. The steep slopes of the fan remnant serve to define the western, northern, and eastern limits of the site. Historic debris was not found south of the present roadway. Located near the site are 26Eu787-A (a box culvert built to channel runoff flowing from an erosional cut) and isolate 26Eu787-14 (fragments of a cast iron heating stove). The stove parts may have been used in the structure at 26Eu787-B.

Two leveled terraces were apparent in the south facing fan remnant side slope (see Figure 4). The terraces were created by making somewhat triangular cuts into the flank of the rill cut. The excavated material was deposited downhill to the south and east, thereby partially filling the rill. The larger eastern terrace is referred to as Terrace A, the smaller one to the west as Terrace B. Both had relatively flat floors, and the back of Terrace A had a wall of loose-lain rockwork which included a right angle corner. A substantial amount of infilling was evident so that estimating terrace size was difficult. Construction of Highway 278 in 1947, and related slope contouring, destroyed a part of Terrace B. Historic debris was scattered around and downslope from the terraces, covering a roughly triangular area 115 ft at the base (along the highway) by 75 ft.

Surface collection initially focused on the two terraces, but few artifacts are present. Parallel transects across the site revealed that most artifacts were downslope in areas steepened during 1947 highway construction. A total of ninety-six 5 by 5 ft units was collected; 20 were devoid of cultural material. An estimated additional 100 units, also devoid of cultural material, were inspected during site examination.

Excavation began with five test units; one along the back wall of each terrace and a series of three units in a north-south line across Terrace A. The back wall units, located in areas of the greatest colluvial infilling, were expected to provide information regarding site stratigraphy and verification

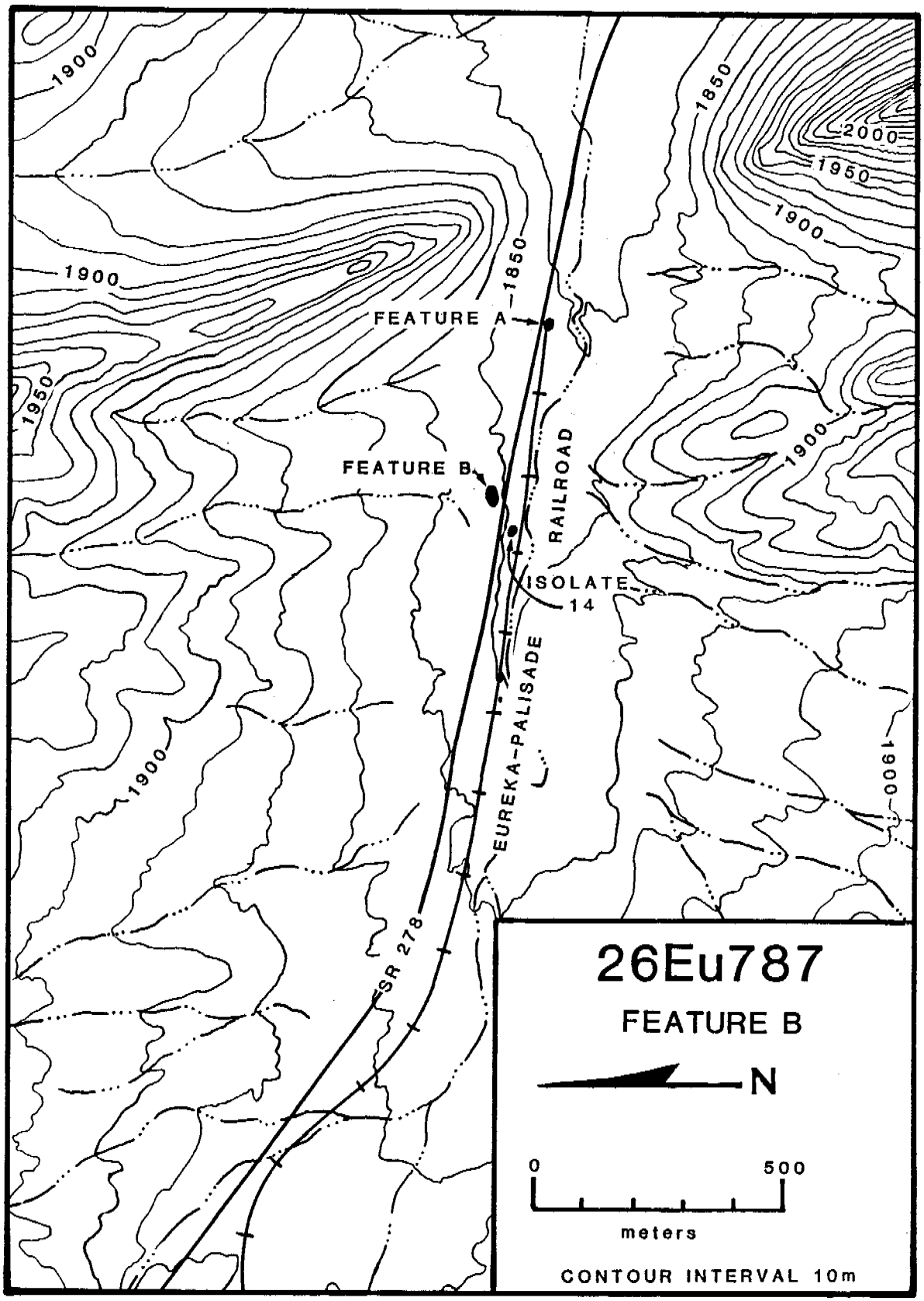


Figure 3. Location map, 26Eu787-B.

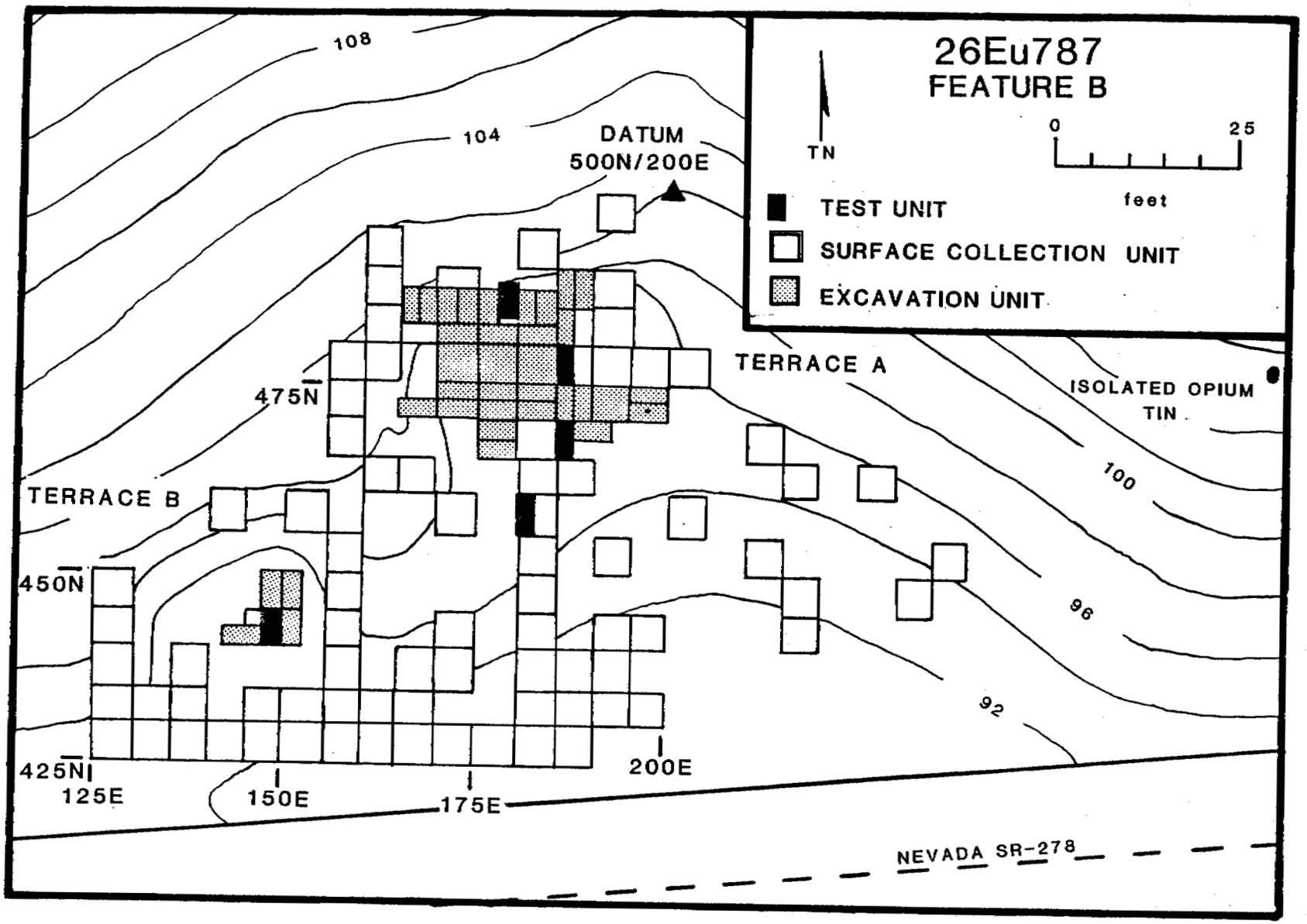


Figure 4. Site map, 26Eu787-B.

that structural remains were present. Units extending from the back wall at Terrace A were intended to define the outer limit of the structure.

The builders of site 26Eu787-B dug the terraces into parent material consisting of compact sandy loam with a high proportion of pebbles, gravels, and some cobbles; clasts were weathered and rotten. This deposit was more yellow in color than the culturally-modified strata. Slump deposits covering the northern portion of both terraces consisted of a very loose colluvial material with numerous gravel- and pebble-sized clasts representative of the upslope deposits. Rootlets were common in this loose sediment.

Conclusions reached during testing were that Terrace A provided the greatest artifact yield; that structural remains were more prevalent on Terrace A (including the well-defined rock wall); that part of the rock wall at Terrace A had collapsed, casting a layer of rock (wall fall) into the fill covering the northern half of the terrace; and that a compacted earthen floor was present at each terrace, but that the Terrace A floor was better defined.

Based on these conclusions, nine north-south oriented 2.5 by 5 ft units were excavated along the rock wall at Terrace A. Colluvial fill was removed as a single layer, followed by removal of the remaining 2 to 4 in. of fill sitting atop the structure's floor. Contact between the two layers was evidenced by a decrease in the amount of wall fall and an increase in the abundance of ash/charcoal stained soils. In addition, a series of eighteen 2.5 by 5 ft and four 5 by 5 ft units were excavated in the central and southern portions of Terrace A. These areas contained less fill and the structure floor consistently appeared 4 in. below the surface. The fill was removed as a single layer. Four 2.5 by 5 ft units were excavated at Terrace B.

ARCHIVAL INFORMATION

Archival research produced an early Eureka and Palisade Railroad map (EPRR 1876) depicting an unidentified structure at the location of 26Eu787-B (Figure 5). Assuming that 26Eu787-B represents the archaeological remains of the structure, the map verifies the site's existence as of 1876.

The site first was thought to have been associated with the Eureka and Palisade Railroad, based on its proximity to the railroad grade, on the presence of Chinese artifacts, and on a small number of railroad related items observed at the site (Zeier and Stornetta 1984). Review of the Eureka Sentinal for the summer of 1875 reveals that the railroad contemplated developing a temporary station at Garden Pass from which passenger and freight operations could be conducted. Later editions, however, said line work was progressing so well that no such stations would be created and that Garden Pass Summit would be used only as a temporary freight drop. This suggests that no major use was made of the existing structures at 26Eu787-B by the Eureka and Palisade Railroad during line construction. Review of other railroad documents failed to provide a link between the site and later operation of the railroad.

As a result, archival research shifted, trying to relate 26Eu787-B to other historic events that effected the project area. Research revealed two likely associations; the Woodruff and Ennor Stage Route or a 'wood ranch'.

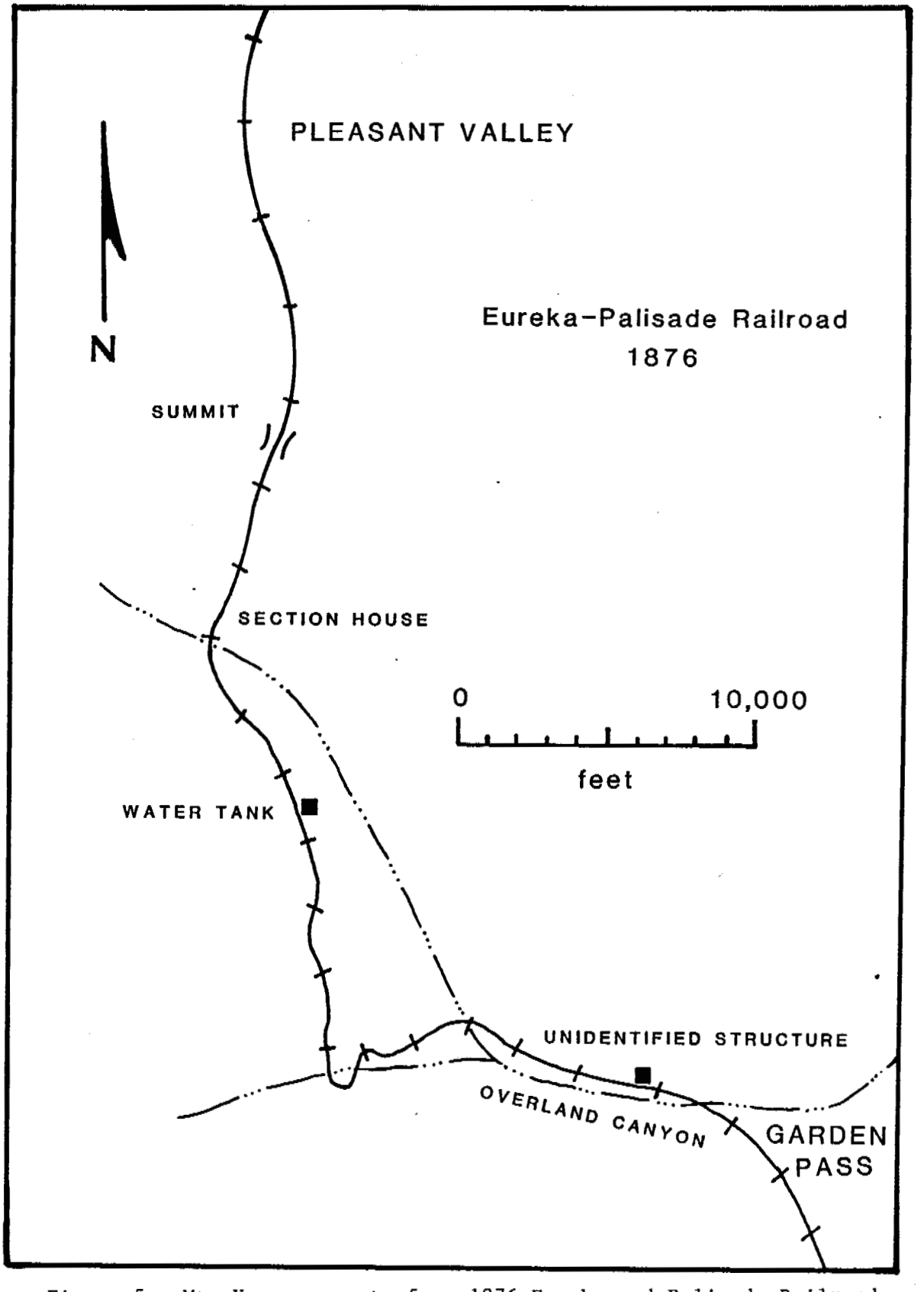


Figure 5. Mt. Hope segment of an 1876 Eureka and Palisade Railroad map (after EPRR 1876).

Prior to construction of the Eureka and Palisade Railroad, Eureka was connected to the outside world by stage routes. During its early years, lines connected to Austin and Hamilton. With the rapid development of the Eureka mining district in 1869 and 1870, and completion of the transcontinental railroad in 1869, emphasis shifted to north-south lines. These stage lines passed through the project area.

Portions of the stage route were discovered just south of Garden Pass summit; the roadway was located some 50 ft west of Garden Pass Creek, but east of Highway 278 (Zeier and stornetta 1984:78-81). The roadway crosses Garden Pass Creek about one mile north of its confluence with Tyrone Creek. From there, it followed the north bank of Garden Pass Creek east into Diamond Valley. From the mouth of Tyrone Creek east into Diamond Valley, the roadway was obscured by construction of Highway 278. The location of the roadway and its close association with 26Eu787-B are shown in Figure 6.

Four stage lines made use of this route: the Palmer, Palmer, and Russell line; the White Pine stage line operated by Woodruff and Ennor; the Palisade Fast Freight line operated by W. Pritchard; and the Nevada Transportation Company. Pritchard bought out the Woodruff and Ennor line in April 1874 (Eureka County 1874:118; Goodwin 1969:147) then sold it to the Eureka and Palisade Railroad in June, 1875 (Goodwin 1966:172). Assessor's records indicate that in 1873, Woodruff and Ennor paid taxes on improvements to the "Garden Pass toll road" and stations along the way, including improvements to the "Garden Pass Station" (Eureka County 1873:157). The station is listed as having had a frame house, a stockade, and a stable (Eureka County 1874:118 1875:54).

The Garden Pass station is frequently referenced in early Eureka County records, suggesting that it was a local landmark. An early railroad map (EPRR 1876, see Figure 5) shows very few structures along its line, even in areas where established ranches are known to have existed. The fact that 26Eu787-B is depicted suggests the site was of some significance, possibly the remains of the Garden Pass toll station. The railroad map also reveals that in 1876, Tyrone Gap was referred to as Garden Pass. What better location for the Garden Pass station? If 26Eu787-B is the archaeological reflection of this station, artifacts from the period 1870 to 1875 should predominate. Whether or not the building remained in use after the 1875 demise of the stage lines is unknown. However, no reference was found in the Eureka County Assessor's records which indicated reuse of the station.

The other possible association presented by the historic record involves a 'wood ranch', owned by Michael Dargan and William Fagan, where there was a cabin, stable, and stockade (Eureka County 1892:38). The ranch location is vague at best. Most references locate it in the McGarry mining district, presumably the forerunner of the Mt. Hope mining district. The 1875 Assessor's record description places it three miles northwest of the 'old' Garden Pass station (Eureka County 1875:Book 4, page 371). Presumably this is the stage station rather than the railroad station which would have been constructed only recently. The implication of this reference is that the 'old' Garden Pass station and the Dargan and Fagan wood ranch are distinct entities. Other references locate the ranch in the Horseshoe bend area along the Eureka and Palisade Railroad, or west of the bend (Eureka County 1876:56; 1891:45). None of the locations correspond with one another, but all are within the general

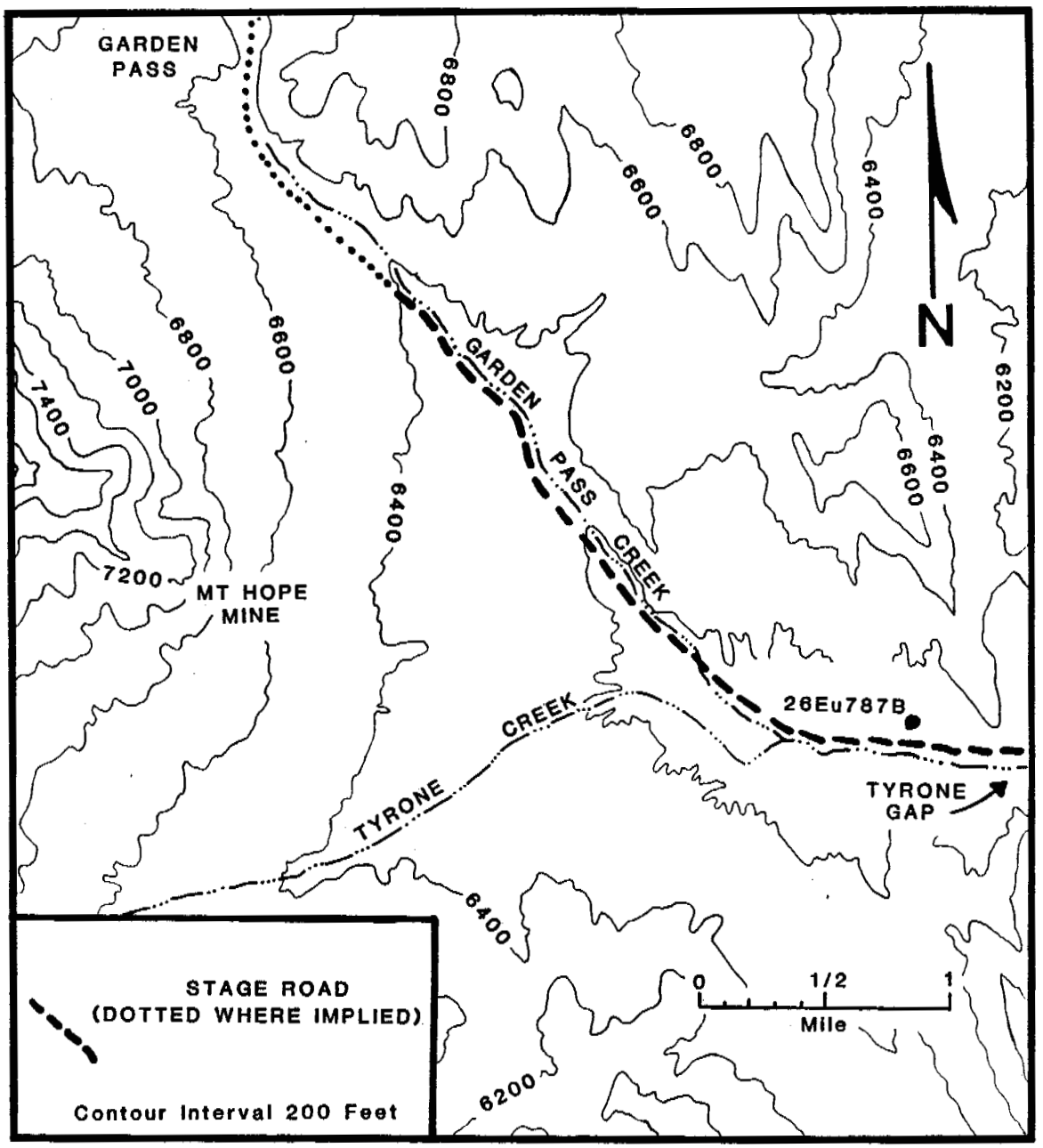


Figure 6. Eureka to Palisade stage and freight road.

Garden Pass creek area. Therefore, we must consider it possible that 26Eu787-B represents the archaeological remains of the Dargan and Fagan wood ranch.

Dargan and Fagan bought the ranch in July 1875, from the Coady brothers who owned it since at least 1873 (Eureka County 1875:Book 4, page 371). Fagan ceases to be listed in the assessor's records in the late 1890s, Dargan in 1910. Death notices were not on record at the Eureka County Courthouse, but it is assumed their disappearance from the records indicates either death or departure from the area. Therefore, if 26Eu787-B is the ranch, artifacts should represent the period from the early 1870s up to 1910.

ARTIFACT DESCRIPTIONS

The collection from 26Eu787-B consists of 720 artifacts (MAC), represented by 2533 fragments. The fragment count includes food waste (described in Appendix B), whereas the minimum artifact count does not.

Clothing

Fifteen inexpensive porcelain "shirt" buttons (0.44 in. to 0.65 in. diameter) were recovered. Such fasteners were used on men's shirts and suits of underwear. One is a metal shanked, domed fastener; three are two-hole sew-through buttons; and the remainder are four-hole sew-through buttons. Five simple sew-through styles were noted, consisting of convex, concave, and flat facial shapes, with plain, ringed, or radiating-line facial designs. Three buttons are coated with an iridescent finish commonly produced in France from the 1850s to ca. 1910, but also for a limited time in the United States and England (Albert and Adams 1970:12, 13, 20).

Seven ocean shell buttons are two-hole and four hole sew-through types (0.5 in. to 0.65 in. diameter). All are flat-faced with either raised or depressed hole panels. Incised rings or grooves decorate the two-hole buttons. Ocean shell buttons, popular in the 1800s, were more expensive than porcelains. Most were imported from England, though the United States and some European countries entered the market about 1860 (Jones 1946:38).

One black plastic button is a two-hole type (0.69 in. diameter). It could have been either a shirt or trousers fastener. The button may be bakelite and most likely dates to the turn-of-the-century, at the earliest. Of simple style, the button is decorated by five concentric grooves on its flat face, with a domed, plain back.

Men's work pants or jackets are represented by 33 metal buttons, rivet-buttons, and copper seam rivets. The metal buttons (n=6) are fly and suspender fasteners. Their mode of construction ("Sander's type") dates to the late 1820s and is still in use today (Jones 1946:24, 26). Faces are flat, with depressed central hole panels, stamped with a crosshatch design on flat areas. Two examples measure 0.56 in. in diameter; the rest, 0.69 in. across.

Rivet buttons, similar to those found today on denim pants and jackets, are the most numerous clothing item (n = 22). Between 0.56 in. and 0.69 in. in diameter, the fasteners are round with flat, iron faces and small brass rivets at the back. One face is embellished with "LEVI STRAUSS & CO *;" the rest are

decorated with inner and outer raised rings. Some may have a crosshatch pattern between the rings, although most are too corroded to determine. Cloth remnants are attached to the backs of several specimens. Five copper seam rivets, used for reinforcing denims, were found. Four are impressed "LS & CO/PAT MAY 1873" on front and back (Figure 7c); the fifth is corroded. The rivets are 0.25 in. across, with knobs on their faces. One metal snap and part of a large iron eyelet (0.5 in. diameter) may also be clothing fasteners.

Other clothing accessories include an incomplete length of leather strap (8.75 in. long by 1.13 in. wide), possibly a belt remnant, and five iron horseshoe-shaped studs (0.81 in., 0.75 in., and 0.63 in. long) that may have adorned a leather belt or some other clothing item. Each stud is flat metal with three triangular prongs at back (see Figure 7a). Three suspender buckles were also recovered: two of iron and one of brass or a white metal. They are two-part gadgets, 2.13 to 2.25 in. wide by 1.0 in. long. Cloth remnants are visible on two specimens.

Footwear

At least three shoes are represented in the collection. Several upper parts account for one shoe which may have been under construction. The shaped leather pieces exhibit no stitching holes, as if they had been cut but not assembled. Leather outsole fragments, replete with hobnails, one machine-cut iron shoe nail, two brass cable screw lengths (see Figure 7b), and a solid rubber shoe heel suggest at least two shoes of sturdy construction. The cable screw lengths post-date 1862. No measurements or styles can be ascertained, but both were definitely heavy work boots.

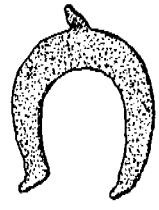
Adornment

A single glass bead, possibly an artifact from a nearby Indian site, was discovered during excavation. Oblate in shape, the bead is a white opaque glass sphere, wire wound, measuring 0.25 in. long by 0.32 in. in diameter. It is a Type W162 bead according to Kidd and Kidd (1970:62).

Medical and Health Items

Five bottles and a rubber stopper represent medicine containers. One is the upper portion of a seamless Chinese medicine vial. Similar items, some containing small pills, were found at Fort Bowie and at Tucson, Arizona; at Sacramento and San Buena Ventura, California; and at Lovelock, Nevada (Armstrong 1979:236; Bente 1976:482; Furnis n.d.; Herskovitz 1978:17, 18). The vial is pale green/aqua glass, transparent, but with numerous bubbles. The vial has a cylindrical sheared neck and is thick-walled (0.13 in.). A second medicinal vial, not considered a Chinese container, is made of pale blue glass. The vial is at least 1.0 in. tall (incomplete) and 0.93 in. across at the base.

Three other medicine bottles are represented, none of which are complete enough to allow measurement. One deep green glass framed panel is embossed "...NG 01.../PORT.N..." A second remnant is from a mineral water bottle made of grey, unglazed stoneware. Its interior and exterior cortices are golden-orange in color. The final artifact is a sunlight-affected amethyst bottle



a

b

c

Figure 7. Historic artifact illustrations, 26Eu787-B. a. iron horseshoe stud (26Eu787-B-284-2, scale 1:1); b. brass cable screw for boot (26Eu787-B-291-15, scale 2:1); c. Levi-Strauss rivet (26Eu787-B-282-7, scale 1:2).

with a round neck and prescription finish. The bottle style, is known variously as a "druggists' packing", "tincture", "acid", "fluid extract", or "peroxide" bottle (Putnam 1965:105-108). As with the other glass bottles from 26Eu787-B (see below), these medicine bottles pre-date the era of fully-automated bottle machines, about 1914 (Schulz et al. 1980:6, 7).

One small, hard white rubber bottle stopper (0.38 in. long by 0.5 in. wide at the top and 0.44 in. at the base) may have accompanied one of the vessels described above.

Indulgences

Five artifacts are related to tobacco and opium smoking, and alcoholic beverage consumption. The brass lid from an opium tin was recovered from the hilltop overlooking the site (Figure 8b). A stamped emblem consisting of Chinese characters, present in the center of the lid, translated as "beautiful origin". Recent research shows that these markings indicate a costly, yet common grade of opium (Sando and Felton 1984:16, 17).

Tobacco use paraphernalia consists of two tobacco cans, one seal, and two clay pipes. The complete, rectangular Prince Albert can, first marketed in 1913 (Rock 1980:9), retains part of the painted label on one side. A much larger tobacco tin (4.0 in. deep, by 7.75 in. long, by 5.0 in. wide) has a lid hinged at one end, latched at the other. The bale handle attached to the top of the can is missing, but a slot marks its location. Vestiges of yellow paint are present on the tin. This can type was common between about 1900 and 1930 (Callaway 1979:310). Capacity is 86 ounces, by volume.

The embossed tobacco seal consists of a thin metal disc (1.0 in. diameter). Embossed "DANA.../ALLON/TOBACCO/TOBACCO CO", the disc has triangular tabs at the top and bottom. The tabs suggest that the seal was originally stuck into wood, leather, or cloth (Figure 8a).

Two white clay pipes are present (Figure 8c and 8d). The first is represented by a modified stem fragment. The original stem end is visible beneath a mouthpiece which has been added. The stem end consists of a blunt, cut end, with a slight ridge around the bore, a stem finish typical of inexpensive, imported British pipes (Walker 1973:891). The added, white clay collar appears crudely made. While somewhat unusual, the possibility that the collar was applied by the pipe manufacturer cannot be ruled out. The second pipe is represented by a bowl and stem fragment which includes a bowl design model number and maker's mark. "TW" appears on the bowl back, "71 McDOUG...//...LASGOW" is impressed on the incomplete stem. McDougall, one of the largest pipe exporters, operated in Glasgow, Scotland from 1846 to 1976 (Humphrey 1969:17-18). A thick mat of charred tobacco lines the bowl's interior.

Components of at least 22 liquor bottles (679 fragments) were recovered from the site (Table 4). The majority are too fragmentary to determine volume and none retain labels; only a few are embossed. Vessel content (surmised from bottle form, color, and size) included beer, ale, wine, champagne, bitters, Tiger Whiskey, and other liquors. Based on manufacturing techniques, all the alcoholic beverage bottles were produced between the 1840s and about 1914; none is machine-made. Embossings limited the time range of a few.

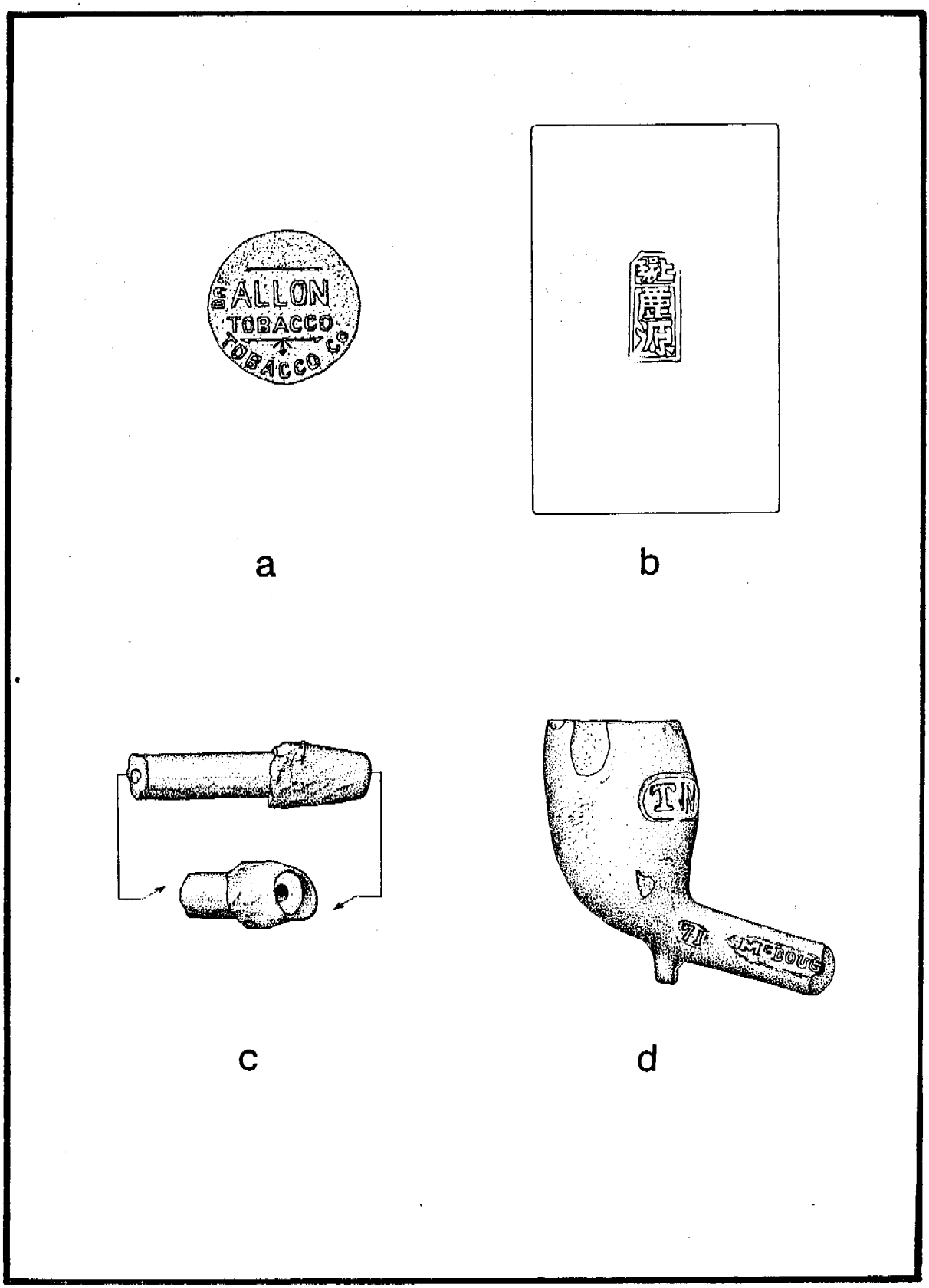


Figure 8. Historic artifact illustrations, 26Eu787-B.
a. tobacco seal (26Eu787-B-247-2); b. brass opium tin lid (26Eu787-B-98-10; c. pipe stem with modified mouthpiece (26Eu787-B-293-5); d. clay pipe bowl and stem (26Eu787-B-276-2 and 26Eu787-B-280-12). Scale 1:1.

Table 4. Glass and Ceramic Alcoholic Beverage Containers, 26Eu878-B

Contents	Shape	Volume	Color	Finish	MAC
Champagne	Champagne	13 oz	Olive green	Champagne	3
Champagne	Champagne		Olive green		1
Wine	Bordeaux		Olive green		1
Wine or Champagne			Olive green		2
Beer	Export		Black		1
Beer	Export	20 oz	Amber	Blob Top	1
Beer	Export	20 oz	Amber	Sloping Collar	3
Beer	Export	20 oz	Amber		1
Ale/porter (ceramic)			Cream		1
Wine/ Liquor			Pale green		1
Wine/ Liquor			Dark olive		1
Liquor	Union oval		Gold-green		1
Tiger Whiskey (Ceramic)	Spherical		Brown-glazed	Flaring	1
Liquor			Black	Brandy	1
Liquor			Black		1
Liquor	Flat-sided flask		Red-brown		1
Bitters	Bordeaux	32 oz	Aqua	Laid-on-ring	1

A complete aqua bottle, Bordeaux wine shape, is embossed "Dr HENLEY'S/WILD GRAPE ROOT/IXL/BITTERS" (Figure 9a). Schulz et al. (1980:56-58) indicate this brand dates from approximately 1866 to at least 1912.

Four beer bottles carry embossed bases, yielding chronological and trade network data. All are the shape of "export" style beer bottles, which gained popularity after pasteurized lager beer became available (Wilson 1981:8). All, therefore, date to after 1873. The one black glass specimen is embossed around its conical push-up "CW & Co." According to Toulouse (1972:152), an identical mark has been recorded on a Guiness beer bottle, though a specific bottle maker has not yet been identified. Another beer bottle, embossed "...B & G.../C", can be traced to the Streator Bottle and Glass Co. of Streator, Illinois, which operated from 1881 to 1905 (Herskovitz 1978:9; Toulouse 1972:461). A third beer container, embossed "C.V.G [or C] N-2/2/...W", is probably from the Chase Valley Glass Co., of Milwaukee. Based on the mark, the bottle was manufactured in 1880 or 1881 (Toulouse 1972:111). The final amber beer bottle is embossed with "B."

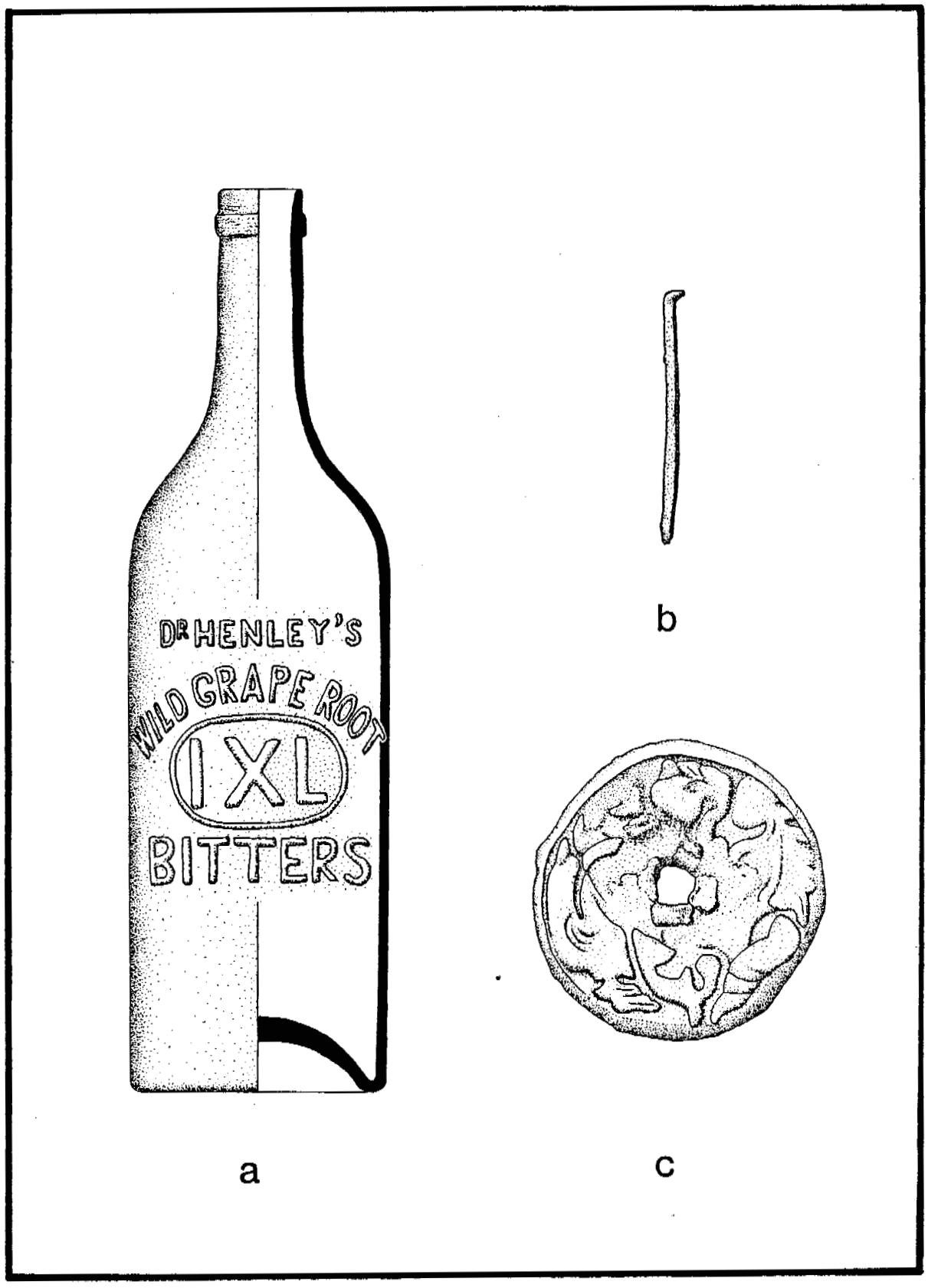


Figure 9. Historic artifact illustrations, 26Eu787-B. a. bitters bottle (26Eu787-B-221-5, scale 1:2); b. L-headed nail (26Eu787-B-216-5, scale 1:1); c. spindle base (26Eu787-B-254-3, scale 1:1).

Non-glass or ceramic bottle components include a cork stopper (0.81 in. across at top, 0.5 in. across at base, and at least 1.13 in. long) and a possible champagne seal. Lead foil and one white metal disc, 1.25 in. diameter, may well constitute the top wrappings of a champagne bottle.

Pastimes

Only one object falls into the class, an incomplete, iron jew's harp. The fragment is small and measures 1.25 in. wide.

Furnishings

Six items are attributable to furniture: an iron, cut carpet tack; three small, flat-head, slotted gimlet screws; and a porcelain drawer knob. The round, mushroom-shaped knob is 0.63 in. tall and 1.0 in. wide, with a central hole for a fastener.

Food Storage

Stored foods (canned ready-to-eat food, spices, lard, and dry ingredients) are well-represented at 26Eu787-B. A minimum of 35 containers, represented by 189 fragments, is present: 28 cans, 6 glass bottles, and 1 ceramic jar.

Several containers held dry ingredients. One bottle, rectangular with concave panels and chamfered corners, probably held spice or powdered yeast (Hales 1978). One shaker can lid (2.38 in. in diameter) is pierced by five lines of holes radiating from the center. An attached movable disc, with similar holes, controlled the flow from this apparent spice container. Eight canister-type cans with machine-soldered seams (post-dating 1883), held baking powder, coffee, tea, cocoa, or other dry goods (Rock 1984:104). Each is cylindrical, with a re-usable, snugly fitting lid. Two are 1 ounce capacity cans, three are 10 ounce sizes, and one is a 24 ounce container. One canister lid, 2.25 in. wide, is embossed "FU[LL]/WEIGHT/ROYAL BAKING POWDER/ABSOLUTELY PURE." This product is advertised in the 1897 Sears Roebuck Catalogue (Israel 1968:10). Two semi-conical tin pails held lard. The smaller (6.13 in. tall with a 9.25 in. mouth diameter) is embossed "ARMOUR & CO/PURE REFINED FAMILY LARD/CHICAGO". The larger tin measures 9.63 in. tall by 8.25 in. diameter at base. At one time, both had wire bales, attached by opposing metal ears.

Condiments and pickled foods are represented by a barrel mustard bottle, three "Gothic/Cathedral" pickle/preserve bottles, a wide-mouthed bottle of unknown shape and one Chinese stoneware jar. The mustard bottle is made of sun-tinted amethyst glass, while the square and rectangular shaped pickle bottles are of aqua glass. A bright green packer lip (1.5 in. diameter) represents one large food bottle. All were formed in two-part leaf molds, and have applied finishes. The Chinese storage vessel is too incomplete to determine its form or size; however, at least one soy jug or preserved food pot is represented. It is made of the characteristic gritty, grey-buff stoneware fabric with a shiny, chocolate brown glaze on the exterior and on part of the interior surface.

Seventeen food cans likely held fruits, vegetables, and perhaps soups, seafood, and fish. Four sizes of hole-in-cap, cylindrical containers reveal volumes of 21 ounces (2 cans), 22 ounces (1 can), and 32 ounces (13 cans). One can was too fragmentary to determine volume. Three stages of technology are represented: hand-soldered with machine-stamped ends (post-1847 to the 1880s); machine-soldered, lapped seams (ca. 1883 to ca. 1905); and double seamed (post-1888) (Rock 1984:102, 104, 105). The cans have been opened in various ways. A few are quartered, presumably by knife cuts, and several others are smoothly opened as if by a can opener.

Food Preparation and Consumption

Six ceramic vessels represent tableware. Three simple, white , improved earthenware vessels were found, including one straight (vertical) walled tea or coffee cup, a saucer, and one possible plate with molded ring design on the rim. Yellow earthenware rim fragments are part of a glazed mixing or serving bowl. Two Chinese (porcelaneous) stoneware vessels account for the last two items: a Three-Circles and Dragonfly rice bowl and a Celadon vessel of unknown form and size.

Portable Heating

Numerous cast iron stove parts account for at least one wood or coal burning stove. Decoration, in the form of angular and curvilinear shapes and holes, is evident on several pieces.

Sewing Items

A single brass straight pin was recovered, measuring 1.13 in. long, with a head 0.063 in. across.

Structural Material

A total of 83 fragments comprises this group. Very little lumber was observed on the site and only two pieces were collected. Both are small, possibly box slats or clapboard segments. The thicker piece has been thinned at one end, via whittling, so that the piece forms a wedge. Seventy-eight window glass fragments fall into three thickness clusters: 0.065 in., 0.085 in., and 0.094 in. in thickness. Based on the weight of the fragments in each group, surface areas represented are 6.00 square in., 10.32 square in., and 9.24 square in., respectively. Three small lumps of plaster or mortar were also found and are attributed to architectural functions.

Structural Hardware

Consisting of 379 (558 fragments) individual tacks, nails, spikes, and two butt hinges, the hardware collection provides a variety of fasteners. Nail sizes and types indicate numerous functions and several patterns. Data for machine-cut and wire nails are presented in Tables 5 and 6, respectively. Cut nails comprise the majority of nails from the site. Those at the large end of

the size scale (20d to 60d and larger) predominate, suggesting that a substantial wood structure was present. Other specialized and unique fasteners are discussed individually.

Table 5. Cut Nails, 26Eu787-B

Size	Total N (MAC)	Number Bent/Broken	Uses
5.0 in.	2	--	Heavy framing, rafters, studs
4.5 in.	2	--	"
4.0 in.	1	1	"
60d	8	6	"
50d	22	14	"
40d	17	8	"
30d	16	11	"
20d	20	17	"
12d	38	26	Light framing, flooring
10d	14	11	Clapboards, finishing
8d	16	11	Light framing, boxes
7d	10	7	Crates, flooring, boarding
6d	3	2	"
2d	1	--	"
Unsized	193	193	
	363	307	

Table 6. Common Wire Nails, 26Eu787-B

Size	Quantity	Uses
7d	3	Finishing work, boxes,
6d	5	crates, clapboarding,
5d	7	sheathing, shingles,
4d	7	etc.
3d	2	
Unsized	2	
	26	

Other machine-cut fasteners include one flat-headed tack (3/4 in. long), two 5.5 in. spikes, one cut nail with a domed head and beveled point (1.88 in. long), and two "L-head" nails, each 1.75 in. long (see Figure 9b). According to Fontana et al. (1962:46), L-headed nails (headless cut nails bent at the shank's upper end) were used for floors and clapboards until the 1850s. A boat spike, 7.0 in. long with beveled head and tapered end, was likely employed as a structural fastener. Definite wear on the head is seen in the five irregular facets there. Though machine-made, one square-shanked nail appears to be a specialized specimen. It measures 3.25 in. long (incomplete) 0.15 in. wide with a flat, round head 0.25 in. in diameter. Unlike other machine-cut nails, sides of the shank do not taper. One very crudely-formed, hand-wrought nail is also present. Its large (0.69 in. diameter) head is flat-topped with six facets around the rim. The four-sided shank tapers from head to center, at

which point the shank is flattened and two-sided only. The incomplete nail is 1.88 in. long.

Common wire nails replaced cut nails, for the most part, during the 1890s (Fontana et al. 1962:55). Therefore, the 26 wire nails found at 26Eu787-B reflect a later period of use or maintenance at the site. All of the wire nails are small and may have come to the site as box fasteners or other transportable wares. A single, unusual wire nail was found which has a thick round shank (0.25 in. in diameter), with a domed, round head (0.32 in. diameter) and pointed beveled end.

Two fragments of a rectangular butt hinge were found. At least 0.75 in. long by 1.25 in. wide, the piece retains one slotted-head wood screw through its plate. Also, a triangular strap hinge was surface-collected some distance from the site. The hinge pin remains in place on the 7 in. long by 2.75 in. wide strap, pierced by four beveled screw holes. The hinges may have come from a door, cabinet, or gate.

Hunting

Fourteen brass shotgun shell and cartridge casings were recovered. These artifacts are assigned to the hunting category even though a majority may not have been used in such a capacity. Discussed in the literature as being only marginally effective for hunting, some types probably served a dual purpose: self-defense and sport-shooting.

Two shotgun shells are present. One, a 12 gauge shell, is impressed "WINCHESTER/No 12/LEADER/WRA CO/NE..." on the base and post-dates 1894 (Herskovitz 1978:51). The second shell carries no headstamp. One inch long, the cylinder measures 0.63 in. in diameter at the base and has a constricted neck, 0.25 in. in length. The base is extremely battered, suggesting some use after firing.

Four rifle casings were found. One is a .38-caliber "short" rimfire casing with a "US" headstamp, the mark of the United States Cartridge Co. (Bearse 1966:153). Manufactured between ca. 1865 and ca. 1940, it was used primarily in sporting rifles (Barnes 1980:294). Two .44 caliber rimfire casings are of particular interest. One, a ".44 Henry Flat" is headstamped "H" within a circle (Figure 10a), the other is unmarked. Both are impressed with the double-line rimfire mark, distinctive of use in Henry repeating rifles (Herskovitz 1978:49). While this ammunition was popular for many years (1860 to 1934), Henry repeating rifles were manufactured only between 1860 and 1866 (Barnes 1980:296; Smith and Smith 1963:50-51). The final rifle casing, headstamped "W.R.A. Co./45-75 W.C.F." is a product of the Winchester Repeating Arms Co. manufactured from 1876 to ca. 1935 (Barnes 1980:123).

Handgun ammunition is represented by five .38 caliber (1868 to present) and three .38 Special casings (1902 to present) (Barnes 1980:176, 177). The former are unmarked other than a central ring on their bases. The specials are stamped "W.R.A. Co/.38 S & W. SP'L".

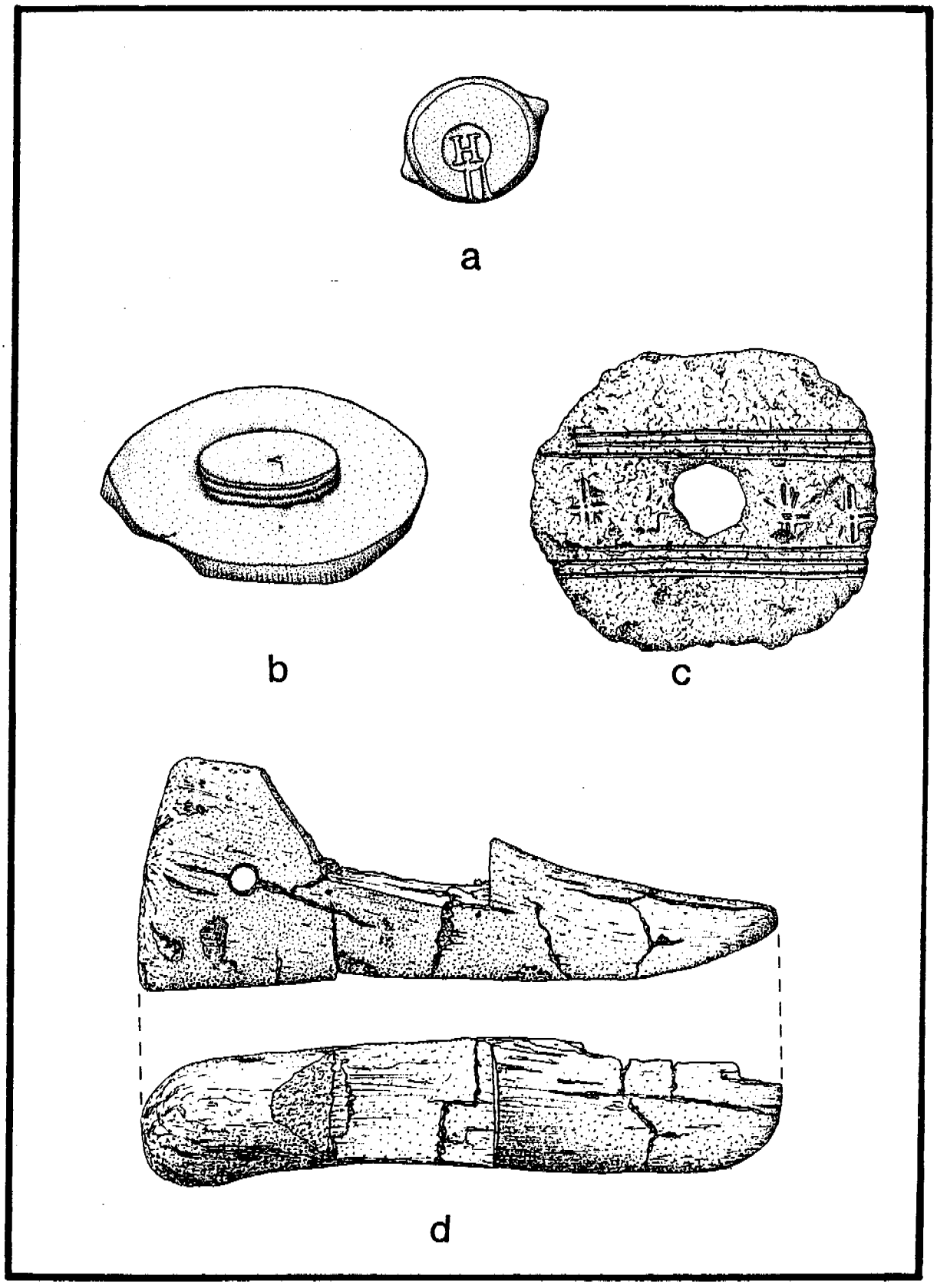


Figure 10. Historic artifact illustrations, 26Eu787-B. a. brass cartridge case (26Eu787-B-289-4, scale 2:1); b. carbide can lid (26Eu787-B-4-1, scale 1:2); c. leather rosette or washer (26Eu787-B-254-20, scale 1:1); d. wooden "straight" shoe last (26Eu787-B-254-13, scale 1:2).

Railroad Construction/Maintenance

Of nine recovered railroad spikes, six are concentrated in the main structure along the northern rock wall. All are complete and measure 4.63 inches long.

Media of Exchange

An 1873 American dime, a brass or white metal Chinese coin, and a possible receipt spindle represent monetary exchange. No mint mark is apparent on the dime which depicts a seated Liberty on one side and a wreath of leaves and stalks on the reverse. The Chinese coin is corroded and measures 0.94 in. in diameter. One or two characters are visible, but not identifiable.

An ornate, lead disc (2 in. in diameter) is thought to be the base of a receipt spindle (see Figure 9c). The convex upper face of the cast disc is decorated with a curvilinear design. The piece is pierced by a "D" shaped central hole. At back, two depressions flank the hole. The disc is bent, attesting to its softness. The central spindle is missing.

Wood Cutting

Wood cutting activities are represented by two artifacts: an iron wedge and an iron axe. The wedge is a complete, grooved piece, 5.5 in. long by 1.75 in. wide by 1.5 in. thick at the head. Battering is evident on the head, and the cutting edge is worn. The axe head is a "Western" pattern head; the top edge of the head is flush with the handle top, and the bottom edge flares downward. The piece measures 6.5 in. long, by 4.0 in. wide at blade by 3.25 in. at back. The butt is battered, and its blade is extremely chewed up.

Handicrafts

Evidence of the cobbler's trade was present at 26Eu787-B. Most interesting is a wooden last which measures 9.0 in. long, a mere 2.0 in. wide at the ball of foot, and 1.5 in. wide at the heel (see Figure 10d). Known as a "straight" last, the narrow, symmetrical last is not specific to left or right foot. Until approximately 1860, most American shoes were "straights," of either "slim" or "wide" girth. "Crooked" type shoes gained wide acceptance during the Civil War (Anderson 1968:59; Wilcox 1948:139). The straight last from 26Eu787-B is noteworthy in that it represents an outdated, yet still usable, piece of equipment. And, apparently, it was in use; cut leather scraps and two large, shaped leather pieces suggest cobbling. The latter resemble shoe uppers: one vamp and one counter. Though shaped, neither exhibits stitching holes, indicating the parts had never been sewn together. These items were clustered at the west end of the structure.

Mining

A carbide can lid was recovered (see Figure 10b). The large, round lid (4.38 in. in diameter) has a central, smaller cap (1.88 in. in diameter). This cap is threaded, while the outer edge of the large lid is vertically

corrugated. The can has a very specific functional association. Carbide crystals used to fuel miner's lamps are stored in them. It would appear some mining was engaged in by occupants of 26Eu787-B, or that the can was reused for some other purpose.

Miscellaneous Tools

Two items are included in this category. The first is a nail punch (2.0 in. long, blunt end measuring 0.32 in. on a side). An unidentified tool or machine part consists of a hand-wrought iron bar; one end is spatulate, the other rounded. The cylindrical bar is 3.5 in. long and 0.44 in. thick.

Vehicles

Twenty-seven iron hardware items, probably associated with wagons, are described in Table 7.

Table 7. Horse Drawn Vehicle Equipment, 26Eu787-B

Item	Length (in.)	Diam/Width (in.)
Carriage bolt	12.00	0.63
Carriage bolt	11.50	0.63
Carriage bolt	[3.75]	0.63
Carriage bolt	4.88	0.50
Carriage bolt	3.25	0.38
Hand-wrought carriage bolt	4.75	0.25
Bolt (dome head)	[1.75]	0.38
Bolt (bevel head)	—	0.25
Bolt (double head)	1.50	0.32
Square nut (n=2)	--	0.63
Square nut (n=2)	--	0.95
Washer	--	0.88
Washer	--	1.00
Washer (n=3)	--	1.25
Swivel hook	2.19	1.32
Swivel hook	2.57	1.32
Ring (wrought)	--	3.00
Ring	--	2.00
Ring	--	4.13
Chain link	[1.25]	1.13
Chain link	2.00	0.75
Bracket (wrought)	4.75	1.00
Bracket	3.25	0.63

Fragmentary measurements are in brackets.

Three carriage bolts are quite large, in the 12 in. length range. A fourth is hand-wrought; all are square-headed. The two swivel hooks appear irregular enough to be hand-wrought. Of the same general form, each has a conical head, cylindrical (bar iron) body with pointed, hook end. Similar

specimens were advertised as part of "swivel hook" clevises in the 1897 Sears Roebuck catalogue (Israel 1968:62). The recovered iron rings and chains were common elements of wagon and yoking equipment.

Draft Animal Equipment/Maintenance

A minimum count of 43 artifacts (63 fragments) are assigned to this category. Two rear foot horseshoes and one front foot shoe were found. All are winter shoes, calked at ends and/or toe. The right rear specimen is 5.25 in. long by 4.5 in. wide, fullered, with toe clip and extreme wear (most extreme at the toe). The left rear shoe measures 5.5 in. long by 4.25 in. wide. It is also fullered and quite worn on the inner edge. A clip at the toe and two nails remain intact. The one front shoe, 5.0 in. long by 4.63 in. wide, retains a clip and calk at the toe. It, too, has been fullered. Both ends have been cut or broken off. It seems plausible that the three shoes were deposited during the re-shoeing of a single horse. There is no duplication of feet represented and all are of similar size.

What appears to be an end of a horseshoe was also found. The cut end appears cold-chiseled while the uncut end was hammered and has a protrusion to one side. This piece may represent re-use of an old horse-shoe or the shortening of a shoe for better fit.

Nineteen horseshoe nails were recovered, excluding the ten specimens still embedded in horseshoes. Countersunk head nails account for 13, while 6 are rose-headed types. Only three are complete. According to Berge (1980:244), rose-headed nails are used with ungrooved, hard-iron shoes, while countersunk heads require fullered, soft-iron shoes.

Harness or tack is represented by leather straps (0.75 in. wide) complete with looped and copper-riveted ends, iron "D" shaped buckles, and machine-stitched edges. Two buckles, one of which is a "D" shaped roller type, six copper rivets, and nine copper washers were also found. The washers and rivets are identical to those attached to the leather trappings. One leather disc (see Figure 10c) may have functioned as a rosette or large washer on horse-related equipment. It appears to have been salvaged from a larger, ornate object.

One pitch fork tine was found measuring 7.75 in. long and 0.38 in. in diameter at the widest.

Unknown Items

The 46 artifacts (MAC) discussed below can be identified by their generic forms as "bottles", "cans", "wire", etc. They are combined here because functional distinctions cannot be assigned.

A single black, hard rubber piece was found that is cylindrical, with constricted neck and horizontal neck grooves. The incomplete object may be a container stopper, post-dating 1844 (Wilcox 1948:137-138).

Ten fragmented bottles (MAC) were recovered, the first of which is a cylindrical, transparent, cornflower blue vessel with a vertical mold seam.

Two colorless glass bottles have curved fragments, but their true shapes are not known. One is embossed "...& C...". The glass has turned amethyst from sunlight, providing a date range of ca. 1880 to ca. 1914 (Munsey 1970). A pale green, cylindrical bottle is incomplete. Formed in 2-part body mold with cup-molded base, the body is embossed "...SO...", "...S...", and "...FP...". An "N" is embossed on the 3.13 in. wide base. Five pale-to-deep aqua bottles were recovered; all are incomplete cylindrical vessels. A thick-walled, deep aqua bottle is embossed on its body "S." Another, with a slightly dished base, is embossed "WA..". The third bottle is distinguished by molded vertical ribs (each 1.0 in. wide) around its entire circumference. It was formed via 2-part body mold and has a post mold base. A neck and finish represents the fourth aqua vessel. The cylindrical neck carries an applied laid-on-ring, lipping-tooled finish. The ring is set 0.38 in. below the bottle's mouth. The fifth bottle is too incomplete for comment. Five fragments of fused aqua glass may have been part of the described bottles.

A wide variety of miscellaneous metal fragments was recovered. Iron can parts include one circular lid (4.25 in. in diameter) with vertical sides (0.32 in. wide); embossing on the top reads "REMOVE CO.../...". Fragments of a rectangular can have been coated with japanning or black paint on exterior surfaces. The double seams on the can suggest a terminus post quem of 1888. One soldered seam can fragment has been bent in half and pierced by three large (0.5 in. per side) square holes. The rectangular piece is 10.0 in. long by 2.5 in. wide. One complete iron disc may be a lid. Crumpled, the piece measures approximately 17 in. across, with a rolled outer edge, the extreme 0.38 in. of which is flared at a 90° angle to the body. Near the disc center is a brass or copper rivet, one of a probable pair that once was attached. A brass grommet was recovered which has sheet metal sandwiched between the front and back discs.

Twelve lengths of iron wire reflect a variety of uses: a bale handle, two "S" shaped hooks, a "V" shaped piece, and five short lengths cut from longer pieces. A smaller gauge (0.063 in. diameter) wire length is present, as are heavier gauge lengths (0.15 in.) consisting of a "U" shaped piece and a twisted length 37 in. long. Iron strap has been fashioned and riveted into an oval ring. The finished product measures 3.13 in. long by 2.5 in. wide.

Two incomplete, small (1.38 in. long by 0.13 in. in diameter) copper rods are covered with a spiral rib pattern, except at their flat, blunt ends where each is pierced by a hole. When found, the rods were joined by a tiny copper wire, much as the ribs of a lady's fan are connected.

Other pieces recovered include two iron bars and two complete machine-riveted barrel hoops. Three short lengths of the same width bands have been modified for other purposes. One is pierced by one round and two square nail holes, another is pierced by a 10d and a 30d cut nail, and the third piece has a center hole. Seventeen small fragments of corroded sheet metal and four unidentifiable iron fragments complete the list of unidentified metal objects.

Fourteen fragments of brown felt were retrieved. The largest measures 1.75 in. long by 1.5 in. wide by 0.19 in. thick.

DISCUSSION

Terrace A

Excavations on the terrace revealed a rectangular structure (Figure 11), the north and west walls of which were constructed of stone probably quarried from outcrops in the Sulphur Springs Range, just east of the site. The east and south walls presumably were wood. Prior to construction of the rock walls, a small ditch was dug, into which the first course of rock was laid. The wall was made up of large- to medium-sized cobbles with flat surfaces; none appeared to have been dressed. The stones were dry-laid (not chinked) in a coursed rubble pattern.

A fireplace was inset into the north wall, with the chimney rising outside the back line of the wall. The abundance of rock fall was not notably greater in the hearth area, suggesting that the chimney may not have been of stone. Alternative treatments might have been planking, thatch and mud, or cribbed wood (Doble 1962:120; Greenwood and Shoup 1983:207).

The rock wall in the northwest corner of the structure was relatively intact, rising approximately 5.5 ft above the floor. In the area of the fireplace, the wall was 4.5 ft in height. Based on the corner height, the rock wall easily could have been 6 ft tall, serving as both retaining wall and roof support, with rafters resting directly on top of the wall.

The wall fall, for the most part, does not rest directly on the floor of Terrace A. Rather, the majority floats within a colluvial layer roughly parallel with the sloped ground surface. Only toward the middle of the terrace does this colluvial cone pinch out, and the abundance of wall fall with it. This pattern suggests that fill was deposited along the inside face of the rock wall before it collapsed, possibly by a combination of eolian and colluvial processes. Later, the upper portion of the wall collapsed, coming to rest on the fill previously deposited. Collapse of the wall then allowed pronounced colluvial infilling to take place.

The floors in both terraces were distinct, each consisting of a compact layer embedded with numerous gravel and pebble-sized clasts. In Terrace A, the floor's color, dark brown to gray, was due to charcoal and ash impressed into the floor surface. In places, the floor had been burned a reddish brown. The floor in Terrace B was not charcoal stained.

Outside the structure, the uppermost soil stratum was a sandy loam similar to the floor material, but not compacted or stained.

Construction details for the missing east and south walls are sketchy. Sill plates define the south wall, a series of vertical posts the east wall. Why different construction methods were employed is unknown. The row of posts marking the east wall actually may have been interior supports, with the exterior wall further east. Sill plates do not extend beyond the limit defined by the row of posts, nor does the back rock wall; the end of the rock wall and the line of posts is coincident.

No evidence of a roof or rafters was found at 26Eu787-B. A tent or canvas cover may have served as an alternative to a thatch roof (Greenwood and Shoup

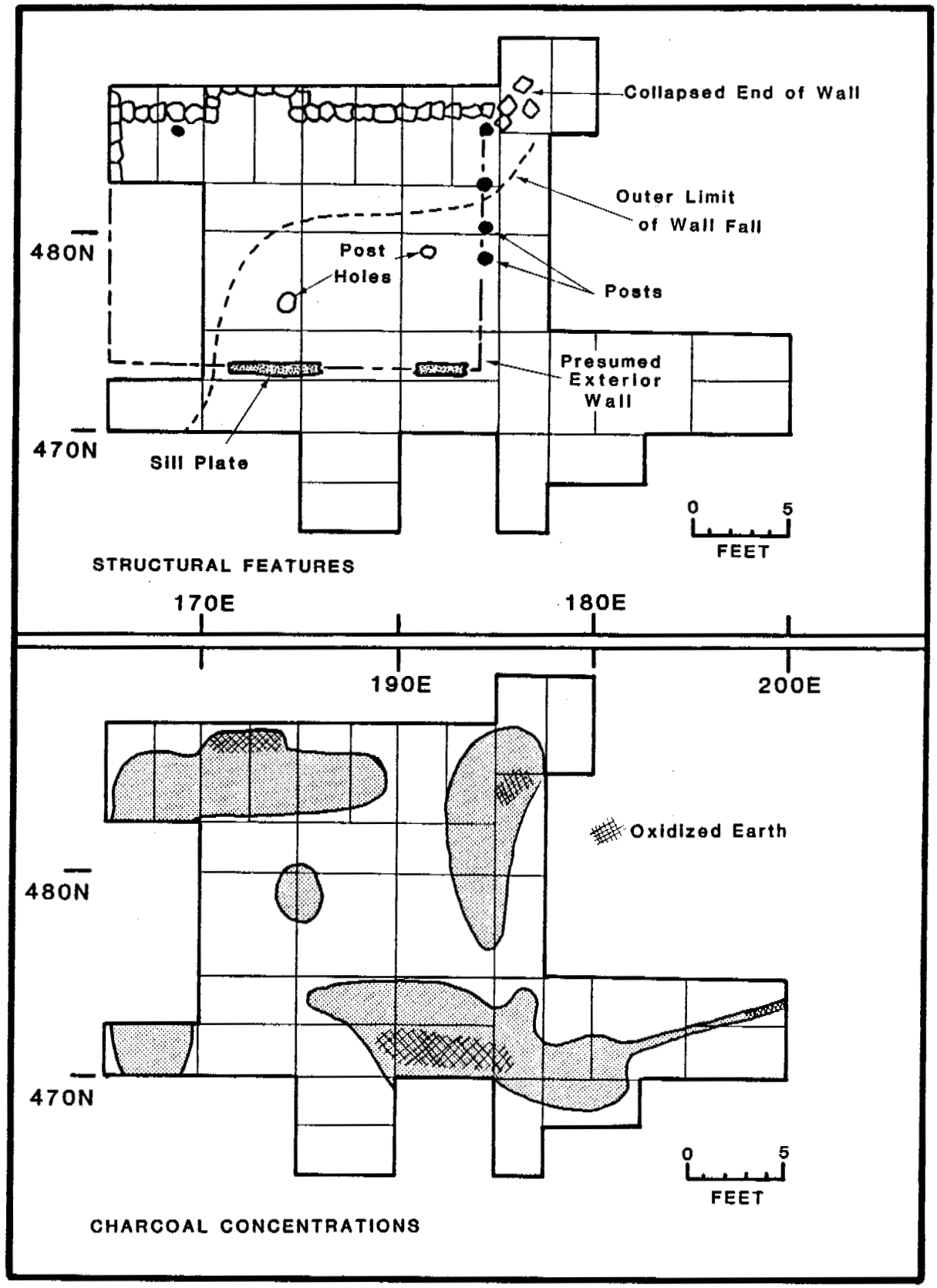


Figure 11. Structural features and charcoal concentrations, 26Eu787-B, Terrace A.

1983:204, 206-207). The material between the wall fall and the floor at Terrace A was relatively charcoal and ash rich, but did not contain the thatch, branches, or daub common to roof construction of the period and region. Pieces of a heavy canvas or felt were found on the floor in the northeast corner of the structure. The material may have been wall covering, carpet or carpet pad, or some form of roofing material.

The structure at Terrace A burned down prior to wall collapse. Charcoal and charred timbers were found on the structure floor beneath the collapsed rock wall. Excavation behind the rock wall revealed traces of charcoal in the upper excavation levels which may represent burned roof fragments that fell behind the wall rather than inside the structure. Timbers in the rock rubble at the east end of the rock wall and others that formed the east wall of the structure appear to have fallen outward. Charcoal and burned earth outside the south wall suggest that it too fell outward. Posts still entrenched in their postholes were charred.

Terrace B

Terrace B is 26 ft east-northeast by west-southwest, and 18 ft north-northwest by south-southeast. Soils are the same as at Terrace A. Terrace B had a less well developed floor than at Terrace A, but was marked by compacted soil with a superior layer of ash- and charcoal-rich fill. Fill above the floor was colluvium and slope wash similar to, but looser than, the parent material.

Test units at Terrace B revealed an excavated trench filled with charcoal, thick layers of ash, nails, and a few other construction related items. Apparently, the trench was dug to allow wall construction along the lateral edges of the depression. A similar trench probably was present along the western edge of the terrace. The back wall of the excavated terrace ended abruptly with no evidence of either rock or wood-framed back wall. The trench, unlike the terrace, is oriented almost due north-south (as was the structure at Terrace A). Apparently the present configuration of Terrace B is an artifact of differential infilling and does not reflect the original orientation (or size?) of the structure once present.

Charcoal and ash were recorded as far south as the excavations, suggesting that the inside of the structure extended an unknown distance further. Highway construction in 1946 removed the outermost portion of Terrace B, perhaps destroying evidence of any southern wall.

Artifact Distributions

Artifact category frequencies for each terrace are presented in Table 8. Figures depicting category densities at Terrace A are presented in Figures 12 through 15.

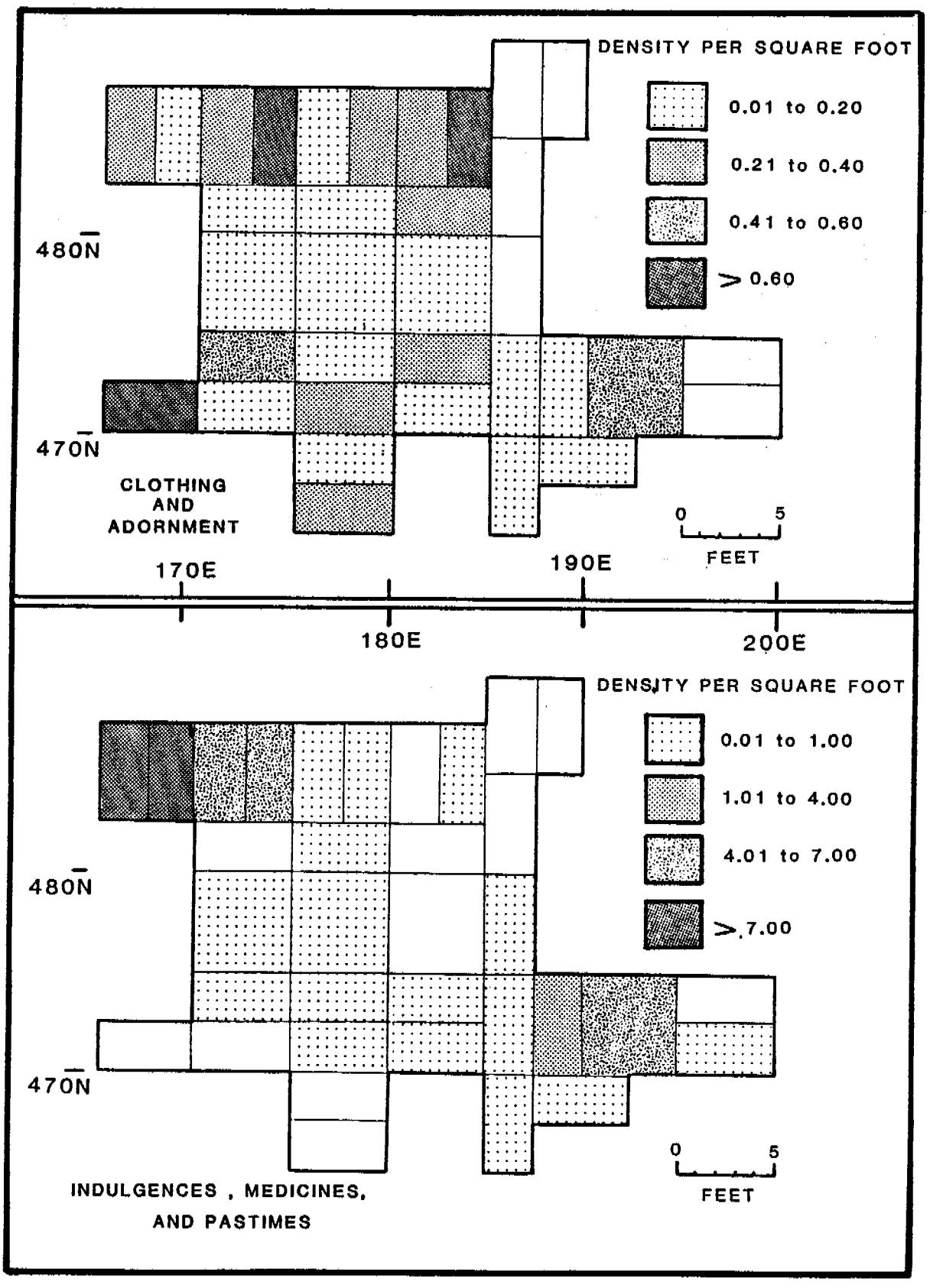


Figure 12. Personal category artifact density, 26Eu787-B, Terrace A.

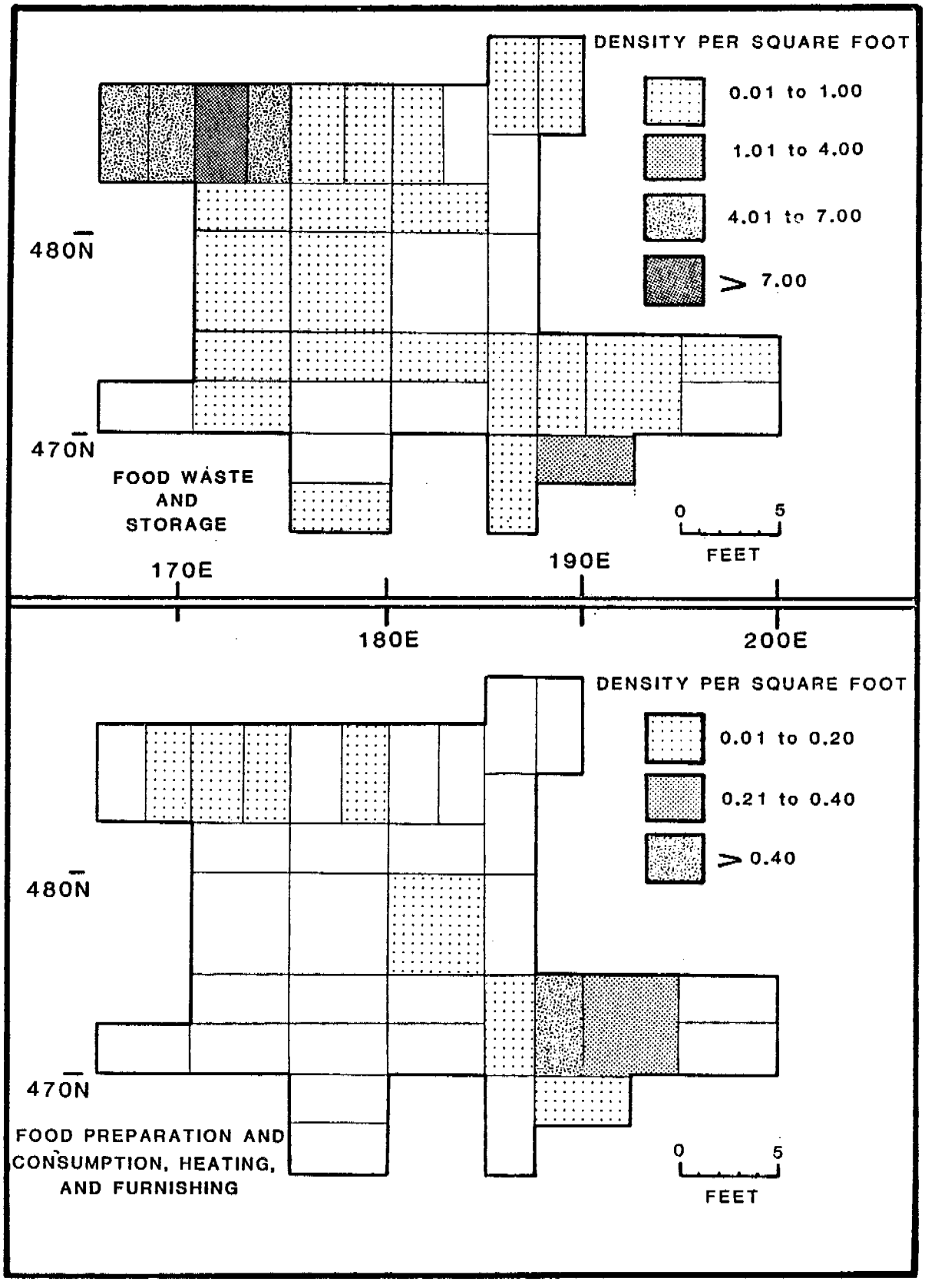


Figure 13. Domestic category artifact density, 26Eu787-B, Terrace A.

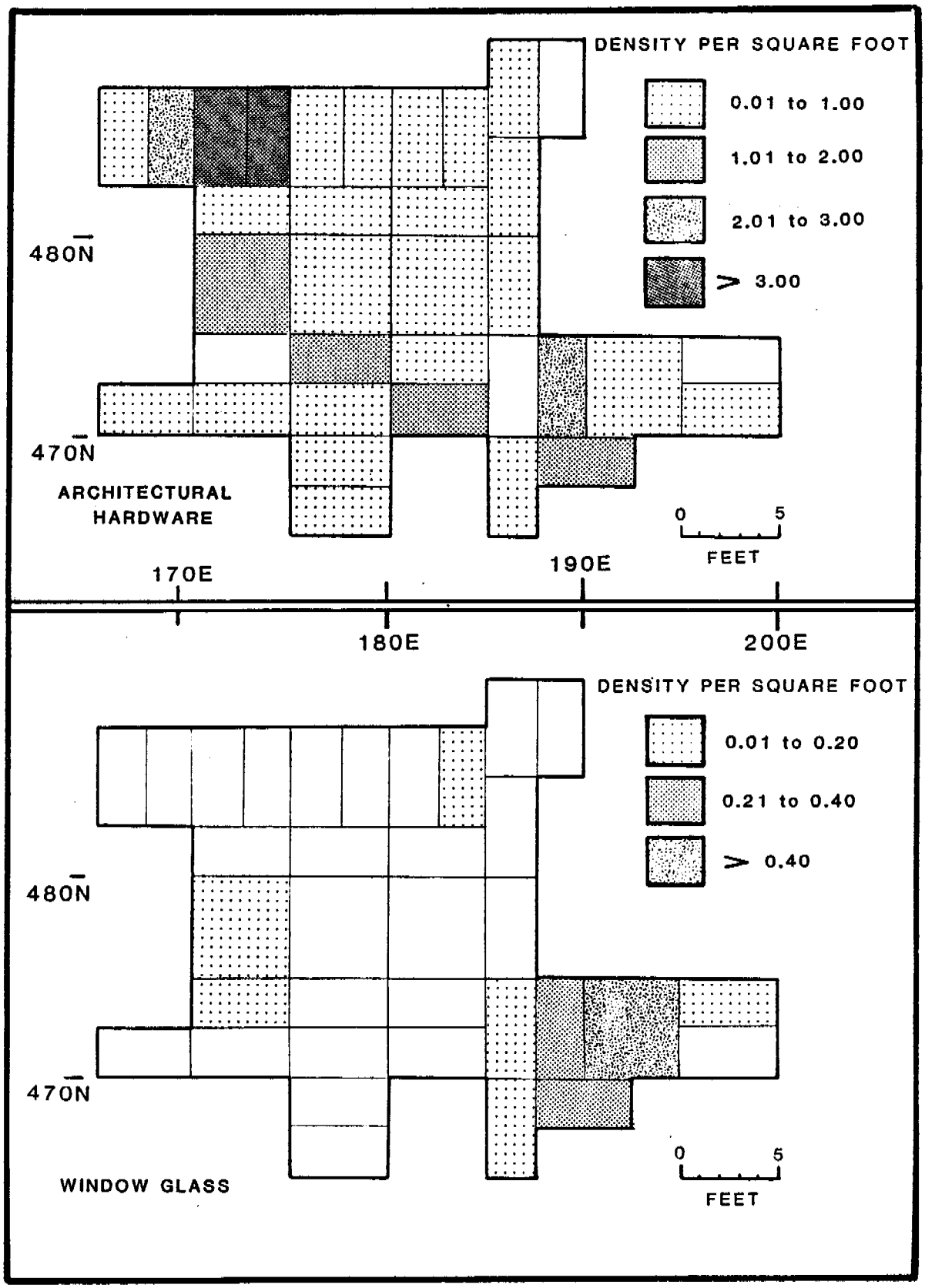


Figure 14. Architectural category artifact density, 26Eu787-B, Terrace A.

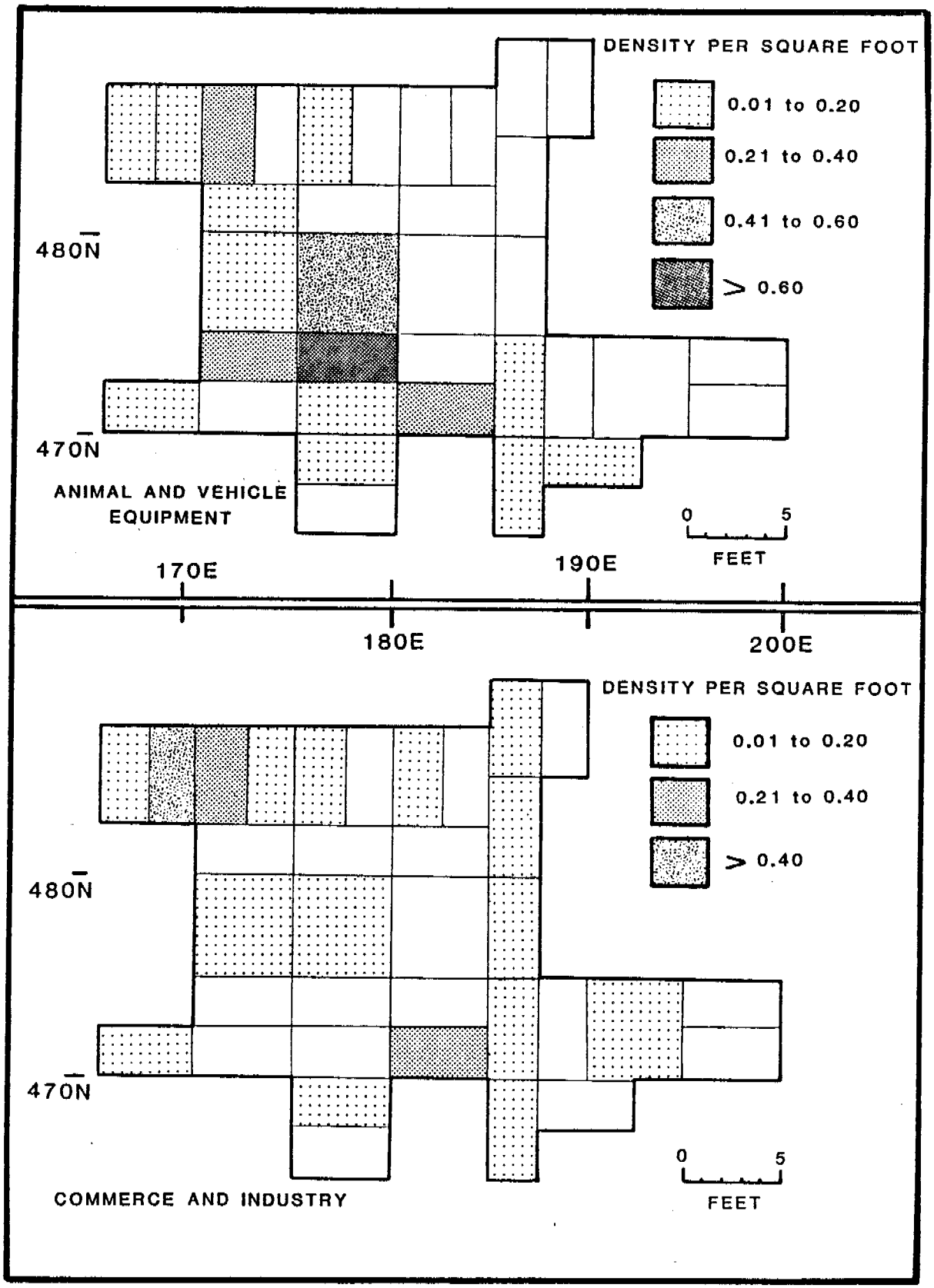


Figure 15. Transportation and commerce category artifact density, 26Eu787-B, Terrace A.

Table 8. Artifact Category Frequencies, 26Eu787-B

Artifact Category	Terrace A #	Terrace A MAC	Terrace B #	Terrace B MAC	Other #	Other MAC	Total #	Total MAC
Personal								
Clothing	67	(63)					67	(63)
Footwear	17	(6)			1	(1)	18	(7)
Adornment	9	(6)					9	(6)
Medicine	41	(5)			2	(1)	43	(6)
Indulgences	530	(11)	51	(9)	106	(10)	687	(30)
Pastimes	1	(1)					1	(1)
Domestic								
Furnishings	5	(5)					5	(5)
Food Waste	409	(--)	39	(--)			448	(--)
Food Storage	98	(14)	29	(7)	50	(14)	177	(35)
Food Preparation					2	(1)	2	(1)
Food Consumption	24	(63)			28	(2)	52	(5)
Heating	16	(1)					16	(1)
Sewing			1	(1)			1	(1)
Architecture								
Materials	70	(3)	7	(3)	7	(0)	84	(6)
Hardware	566	(377)	37	(18)	8	(8)	611	(403)
Transportation								
Vehicles	26	(25)	2	(2)			28	(27)
Animal Equipment	35	(19)			1	(1)	36	(20)
Animal Maintenance	27	(23)	2	(2)	2	(0)	31	(25)
Commerce & Industry								
Hunting	14	(14)					14	(14)
Railroad	9	(9)					9	(9)
Coins	2	(2)					2	(2)
Wood Cutting	2	(2)					2	(2)
Cobbling	19	(6)	1	(1)			20	(7)
Construction	1	(1)					1	(1)
Mining	1	(1)					1	(1)
Unknown	93	(24)	32	(7)	43	(11)	168	(42)
	2082	(681)	201	(50)	250	(49)	2533	(720)

Terrace A

A major concentration of artifacts was found at the southeast corner of the structure, where an abundance of charcoal, ash, and slag-like material, and an ash stain from the collapsed stove pipe were evident (see Figure 11). This feature (units 470N187.5E, 470N190E, and 467.5N187.5E) yielded an amazing variety and quantity of items (Table 9). These units constitute 10.5% of the total surface area excavated, yet contain well over 50% of five artifact categories: medicine, pastime, heating, furnishings, and window glass. Indulgences, food storage and consumption, and hunting related items also show elevated percentages. Underrepresented items relate to architecture, animal husbandry, clothing, and food waste. Perhaps the stove was located in the southeast corner of the structure, but fell outward with the east wall when the structure burned.

Table 9. Contents of Feature Located Southeast of Structure

Artifact Category	Artifact Sub-Category	N	MAC	% Of Terrace A FRAGS	MAC
Personal	Clothing	6	(4)	8.9	6.3
	Footwear	2	(0)	11.8	-
	Indulgences	121	(2)	22.8	18.1
	Medicines	34	(2)	82.9	40.0
	Pastimes	1	(1)	100.0	100.0
Domestic	Food Waste	9	(0)	2.2	-
	Food Storage	16	(1)	16.3	7.1
	Food Consumption	1	(0)	4.1	-
	Heating	16	(1)	100.0	100.0
	Furnishings	2	(2)	40.0	40.0
Architecture	Window Glass	52	(1)	74.2	33.3
	Cut Nails	49	(49)	8.6	12.9
Transportation	Horse Shoe Nails	2	(1)	7.4	26.0
	Vehicle Parts	6	(6)	23.0	24.0
Commerce & Industry	Hunting Related	3	(3)	21.4	21.4

Clothing items tend to cluster along the walls of the structure, especially the north wall (see Figure 12a). Footwear was most prevalent in the hearth area and in unit 472.5N175E. Adornment items were found only inside the structure, mostly in front of the hearth. Medicine items clustered in the southeast corner near the stove (see Figure 12b). The single pastime related artifact, a jew's harp, was also found in this area. Indulgence related artifacts were concentrated around the hearth and the stove.

Furnishings items were concentrated around the stove. Food waste inside the structure was restricted almost totally to the hearth area and the adjacent northwest house corner. The faunal assemblage is both large and diverse: 16 species are represented, 13 mammals (including 7 species of rodent assumed intrusive), 2 birds, and 1 fish (see Appendix B). Food storage artifacts are found in the hearth, along the north wall adjacent to the hearth, and outside the structure (see Figure 13a). Two thirds of the food preparation and consumption artifacts were found in the hearth area. As previously noted, heating related items were found at the southeast corner of the house (Figure 13b).

Construction hardware was abundant at Terrace A, with a concentration in the hearth area, lending support to the contention that the structure had a planked, rather than stone, chimney. High hardware densities also occurred in a series of units running diagonally across the terrace as shown in Figure 14a. This may be the archaeological reflection of a roof beam tied into the western rock wall and the eastern wood frame wall. When the structure burned, the eastern end of the beam fell somewhat downslope while the west end remained more or less in place.

A limited number (n=27) of wire nails was recovered from Terrace A. These nails, indicative of a post-1890s period, represent only 4.3% of the total fastener collection. Most (59.3%) were found along the north rock wall and half of these were in the fireplace fill.

Most of the window glass (n=60, 95.2%) recovered at Terrace A came from the southeast corner of the structure (see Figure 14b); a window may have been present in the eastern or southern wall, or both. If the eastern wall collapsed outward as proposed, then the east wall is the most likely location.

Highest densities of transportation category artifacts are in the hearth area and along the southern wall (Figure 15a). At Cold Springs and Sand Springs Pony Express stations, Hardesty (1979) observed that tack was frequently hung on wall pegs located just inside or outside the structure's main entrance. A similar pattern is present at Terrace A where most (70.6%) animal and vehicle equipment came from along both the inside (472.5N170E) and outside (470N180E) of the south wall, and were particularly numerous in the presumed doorway (472.5N175E) and just inside it (472.5N170E). Inside the structure, tack related artifacts were mostly west of the door. Animal maintenance items found outside are to the east of the door. In addition, units along the inside of the south wall, to either side of the doorway, have higher clothing density values then the doorway itself or adjacent units outside the wall.

Commercial and industrial pursuits were only lightly represented at 26Eu787-B, but most of those present came from Terrace A. Of these, hunting related items were predominant; the majority (71.4%) coming from outside the structure (Figure 15b). Several railroad spikes were also found, mostly (75.0%) from the hearth area. The purpose of the spikes and the reason for their concentration in the hearth area is not clear. Perhaps they were embedded in ties which formed a part of the structure, were used to fasten building members along the north wall or roof, were carried in by railroad workers who occupied the site, or were embedded in wood (cut-up ties) burned in the hearth. The two coins found at Terrace A came from the far northwest corner of the structure.

Terrace B

Artifact densities at Terrace B were lower than recorded at Terrace A (Table 10). The artifacts came from the trench, originally excavated to facilitate wall construction, and from unit 440N142.5E, which appears to have been inside the building. The material from the trench could have been secondary waste from the residence at Terrace A. First piled against the outside of the Terrace B structure, this material fell down into the wall trench when the structure burned.

Terrace B did not exhibit the artifact assemblage one would expect from a residence. Indulgence items were the only personal category artifacts recovered: no clothing, medicine, or adornment items were found. Hardware and building materials are present, but at densities lower than recorded at Terrace A. Very little transportation material was found (a horse shoe nail, a horse shoe, and a carriage bolt), and no commercial or industrial related items were found.

Table 10. Artifact Density Comparison

Artifact Class	Artifact Density * Terrace A	Terrace B
Indulgences	1.11	0.86
Food Waste	0.66	0.62
Food Storage	0.16	0.41
Food Preparation	0.01	0.06
Building Material	0.15	0.11
Building Hardware	1.19	0.38
Animal Maintenance	0.56	0.03
Unknown	0.48	0.64
Terrace Density	4.27	3.16

* Number of artifacts divided by excavated area.

EVALUATION OF RESEARCH GOALS

Archival research provided few clues to the structures at 26Eu787-B. Preliminary interpretations based on surface artifacts suggested an ethnic Chinese affiliation. Assessment of ethnic associations, and the relationship of the site to local historic events became the central research interests.

Dates of Occupancy

Historic records indicate the earliest possible construction period for the 26Eu787-B structures was the mid 1860s, when the Overland stage was routed just north of the site. A more probable initial date is 1870, when north-south stage lines and mining near Mt. Hope (McGarry district) began.

Two artifact types, L-head nails and the straight last, precede these initial dates (Figure 16). L-head nails have been recovered from numerous historical sites in the Great Basin dating to the late 1800s (Hardesty 1978a:47, 1978b:Tables 5 and 6), suggesting the artifact type was used well after its terminal manufacture date. The straight last is a very specialized artifact type and probably represents a highly curated item.

Fourteen artifact types appear to be useful temporal indicators of site occupancy: 50% have initial manufacturing (alpha) dates between 1870 and 1889, and 57.1% have latest manufacturing (omega) dates between 1900 and 1919. Aside from the 1873 coin, the narrowest production span is represented by a beer bottle manufacturer (1880-1882). All bottles are hand-blown, piece-molded types pre-dating about 1914. Fully automatic bottle manufacturing machines were in operation in the U. S. by 1903, but they shared the American market with hand-operated molds until the end of World War I (Schulz et al. 1980:6-7). These data, then, support an occupation spanning the period from the 1870s into the 1910s.

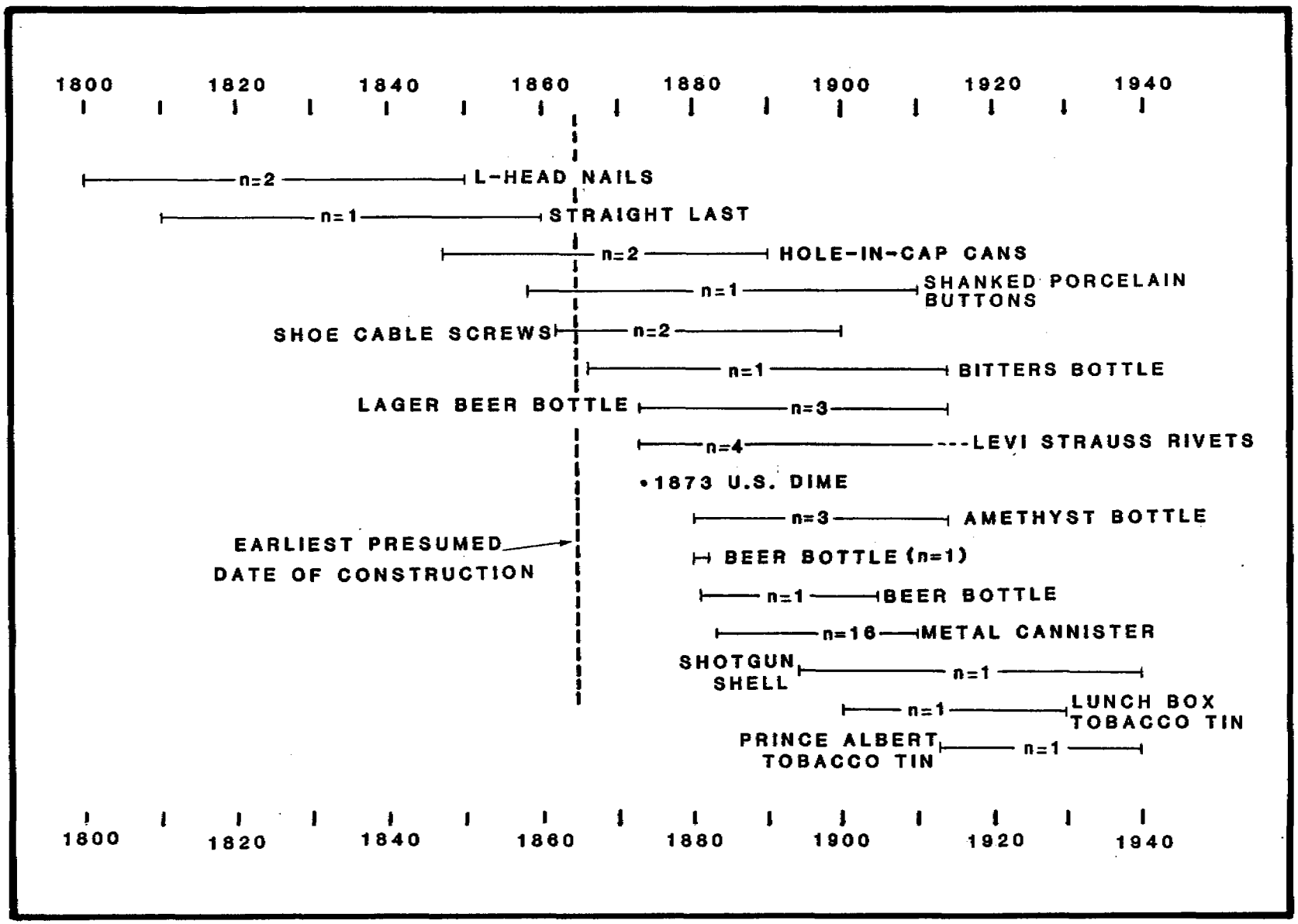


Figure 16. Temporally sensitive artifacts, 26Eu787-B.

The only more recent artifact type is the Prince Albert tobacco tin (1913-1940) which may have been discarded by a later traveler.

Site Associations

Archival research suggested two mutually exclusive associations for site 26Eu787-B; a stage station in operation between 1870 and 1875, and a wood ranch occupied from 1873 into the early 1900s. Based on excavations at the Rock Creek stage station, Hardesty (1978a:55) concludes there are no artifacts singularly diagnostic of stage stations. The range of activities noted were similar to those represented at farmhouses, where residential and animal maintenance artifacts are present. These are the same activities expected of a wood ranch. Therefore, it may not be possible to determine site association on the basis of the artifact assemblage. It should be possible to resolve the question of site association on the basis of when the site was occupied.

The artifact assemblage recovered from the site represents a time span covering both periods (1870s-1910s). The correspondence between Assessor's information regarding the Dargan and Fagan wood ranch (1873-1910) and the artifact collection is convincing, supporting the notion that 26Eu787-B is, in fact, the remains of their wood ranch. As mentioned above, however, the historic record is unclear and often conflicting as to the exact ranch location. Site 26Eu787-B may not be the Dargan and Fagan ranch, but review of Eureka County Assessor's records for the late 1800s failed to provide any other candidates.

In summary, construction dates of the structures at 26Eu787-B are not known precisely, but appear to be from the early 1870s. Michael Dargan and William Fagan bought a "wood ranch" from the Coady brothers in 1875 and lived there presumably until their death (early 1900s). The cabin and outbuildings probably burned shortly thereafter, as there is no accumulation of more recent (post 1910s) debris inside the structure. Thus, the structure was used only by primary inhabitants and never saw incidental or transient use.

Chinese Occupancy

While numerically limited, the Chinese artifacts at 26Eu787-B represent a wide array of functional classes (Table 11). Collectively, the Chinese assemblage represents only 1.3% of the overall site assemblage, suggesting few individuals, or a short residency. The recovery of ethnic Chinese indulgence and medicine items strongly indicates the artifacts were brought to the site by Chinese, rather than by non-Chinese occupants.

Most Tiger whiskey bottle fragments (n=16, 72.7%) were recovered outside the structure, along its south wall. The rice bowl fragments were found at the southeast corner. All the Chinese artifacts found inside the structure were in or adjacent to the fire hearth. These include the coin, medicine vial fragments, Celadon fragment, and four Tiger whiskey bottle fragments. A rice bowl fragment, two Tiger whiskey bottle fragments, and the four storage jar fragments were found downslope of Terrace A. The opium tin was found atop the hill immediately east, and overlooking, the site. Given the lack of separable stratigraphic units in the fireplace, or elsewhere at the site, it is unclear

if a strictly Chinese occupational event occurred or whether the non-Chinese occupation was a continuous event while the Chinese residency was temporary.

Table 11. Chinese Artifacts, 26Eu787-B

Artifact Category	Artifact Descriptor	Number of Fragments	(MAC)
Food Consumption	Circle and Dragon bowl	3	1
	Celadon Vessel	1	1
Food Storage	Soy storage vessel	4	1
Indulgences	Opium tin	1	1
	Tiger Whiskey bottle	22	1
Medicine	Medicine vial	2	1
Medium of Exchange	Coin	1	1
		34	7

How many Chinese were present and for how long? Two possibilities are likely: temporary employment of Chinese as hired help or Chinese encampment during construction or maintenance of the Eureka and Palisade Railroad. The first explanation is most likely. The variety, number, and character of artifacts suggest the presence of perhaps only one Chinese person at 26Eu787-B for a brief period. If a number of Chinese had been present, the assemblage should be larger, and domestic items should be predominant.

Lifeways

The County Assessor's record names only Michael Dargan and William Fagan as living at the "wood ranch". The 1875 Nevada census (State of Nevada 1875) reveals that Fagan and Dargan were living in the same structure and list them as ranchers. The 1880 federal census (National Archives 1880), however, lists Fagan as a wood and coal dealer and Dargan as an employee. Four additional employees are also listed (John Martin, Charles McFarlan, Dave Pervores, and Thomas Blathere). All six are listed as living in the same residence, presumably 26Eu787-B. Census data from 1890 are, unfortunately, unavailable. By the time of the 1900 census (National Archives 1900), Fagan had passed away and there was no longer any reference to the McGarry district. Rather, Dargan and two laborers (Sullivan Case and Frank Rosachi) are listed in the Whites ranch precinct. Dargan is listed as a farmer. None of the census data suggest the presence of a Chinese hired hand. The presence of wives or children is not supported archaeologically or by census records.

This documents that the number of occupants varied over the effective life of the buildings at 26Eu787-B; ranging from two in 1875, to six in 1880, and down to three in 1900. Fluctuations most likely occurred during intervening periods as well. Results of investigations at mining camps in central California provide estimates of square footage per cabin occupant at 50 to 75 ft^2 (Greenwood and Shoup 1983:210). Based on these estimates the structure at 26Eu787-B (19 by 13 ft in size, or 247 ft^2) could have housed 3 to 5 occupants.

Behavioral patterns are reflected by the artifact distributions within the Terrace A structure. The hearth area was used for cooking as reflected by the

abundance of food waste, food preparation, and food storage items. The stove area, on the other hand, contained indulgence and pastime items, furnishings, and window glass fragments. These may represent a living area. The abundance of clothing remains along the north wall indicates this may have been where clothing was stored. The area underneath beds was commonly used for storage (Burton 1862:469; Hardesty 1979:123), and the north wall may have been where beds were placed.

Initially, it appeared the length of site occupancy was reflected by personal items, which are more abundant at this site than at any other (32.6% as compared to 10.8% at 26Eu787-II and 21.5% at 26Eu988). However, indulgences make up 83.3% of the personal items from the site. Removing indulgences from the comparison changes site standings noticeably, with 26Eu787-B containing the fewest non-indulgence, personal items (5.4% at 26Eu787-B, 7.1% at 26Eu787-II, and 11.2% at 26Eu988).

Domestic class items are also infrequent at 26Eu787-B (27.7% compared to 68.6% at 26Eu787-II, and 44.8% at 26Eu988). Lower frequencies of clothing, medicines, food preparation, and food consumption items suggest that the house was regularly cleaned out. The principal trash dump, presumably destroyed by highway construction, would have been the repository for these kinds of items.

Faunal remains recovered from the site were more numerous and diverse than those found at the other sites (Appendix B). Thirteen mammal species (including seven species of rodents), two species of bird, and one of fish were identified. The major meat sources were cow, sheep, and pig. Due to the small sample size, analysis could not resolve whether animals were raised and butchered at the site. Evidence of secondary butchering is present, suggesting that selected larger cuts (see Appendix B; Table 2) were processed at the site. Rabbits, especially Lepus sp., were numerous; many of the bone fragments are burned and there is an abundance of small unidentifiable mammal fragments (rodent to rabbit sizes). These data suggest that rabbits were hunted and used as a food source. The presence of bird elements suggests chickens may have been kept for consumption. The fish, represented by a single salmon vertebrae, was probably brought to the site canned. Coyote are plentiful in the project area; hunting them is a continuing contemporary activity. Numerous carcasses were observed during field work. The Canis sp. foot bones recovered from the site may be a result of hunting rather than the presence of dogs during site occupation.

Dry goods (baking powder) and solid foods (fruit, vegetables, meat) constitute the largest percentage of food storage vessels recovered at the site. Bottled condiments were present, but in low numbers. Spices were surprisingly infrequent for a structure occupied for nearly 40 years. Again, these categories would have been better represented had the main dump survived.

Assessor's records (Eureka County 1891:45, 1900) for 1891 and 1900 indicate that, beginning in the 1890s, Dargan and Fagan shifted from wood cutting to raising stock horses. This period witnessed increased agricultural and ranching activity throughout Nevada (Creel 1964; Sawyer 1971). Earlier devastating winters prompted ranchers and farmers to cultivate large acreages of hay and pasture land to provide forage, endeavors requiring large horse teams. Quite likely, Dargan and Fagan's teams were hired out to work the farms in Diamond Valley during the 1890s and 1900s. This activity is only lightly reflected in the archaeological record, although transportation materials are

more abundant at 26Eu787-B then at any other site (3.8% as compared to 0.6% at both 26Eu787-II and 26Eu988).

Chapter 7. HISTORIC SITE 26EU787, FEATURE II

Site 26Eu787-II represents the remains of the Eureka and Palisade Railroad Mt. Hope Station. Five other recorded observations are located in the immediate vicinity of 26Eu787-II. Three are isolated artifacts (26Eu787-7, 26Eu787-8, and 26Eu787-20). The other two are features: 26Eu787-Q is the remains of a wooden bridge across the drainage channel just north of the Mt. Hope Station; 26Eu787-R the remains of a water tower (Zeier and Stornetta 1984:88, 94). Kneiss (1963) provides a photograph of a Nevada Railway Co. locomotive taking on water at a tower in terrain so similar to that of Mt. Hope that the picture is probably of the tower once present at Feature R. A cylindrical tank situated atop a timber framework is depicted.

SITE DESCRIPTION

Site 26Eu787-II is located 1250 m due east of the present Mt. Hope Mine complex at an elevation of 6305 ft (1922 m) (Figure 17). Geomorphic features along the eastern flank of Mt. Hope represent a fan piedmont, a laterally expansive series of sheet-like alluvial mantles that forms a fairly continuous and gentle slope (Peterson 1981:22). This surface extends from the base of Mt. Hope to Garden Pass Creek. Limited dissection is present, reflecting the primarily depositional character of the fan piedmont. Thin alluvial mantles are constantly being emplaced within broad, relatively young, poorly entrenched drainages. Site 26Eu787-II sits on one such relic fan surface while a more recent ephemeral drainage channel is located immediately to the north.

Two dirt roads intrude on the site area (Figure 18). One, still in use, roughly parallels the Eureka and Palisade Railroad grade. The other runs east to west between the Mt. Hope Mine and Highway 278, parallel to a pipeline depicted on the 1949 U. S. Geological Survey, Garden Pass quadrangle map. This currently unused road has been heavily eroded.

The main railroad line and a siding traverse 26Eu787-II from southeast to northwest. The siding is west of and parallel to the main line. The location of the rail lines is marked by a prepared bed and railroad ties; rails have long since been removed. Separation between the beds is about 10 ft from centerline to centerline. Construction of the rail line in the site area required excavation of a shallow swath to maintain a consistent grade. The cut was 20 ft wide by 1 to 2 ft deep; the soil was piled to either side forming slight berms. The main line and the siding were then constructed within the excavated area. The southern switch location is evident; the northern switch was not observed and, if ever present, may have been destroyed during subsequent road construction.

Initial investigation of 26Eu787-II revealed a relatively dense scatter of historic artifacts covering an area some 200 by 200 ft. Surface collection began with the examination of a 3% random sample in 5 by 5 ft units (41 units). All cultural material found within sample units was collected. The random sample revealed that the outermost site area consists of a very light artifact scatter. Observation revealed that a majority of the material is confined to a smaller core area located on the west side of the railroad bed (see Figure 18).

Three features were recorded on the site (Figure 19). Feature A was a depression overlain by a wooden platform and surrounded by an earthen berm.

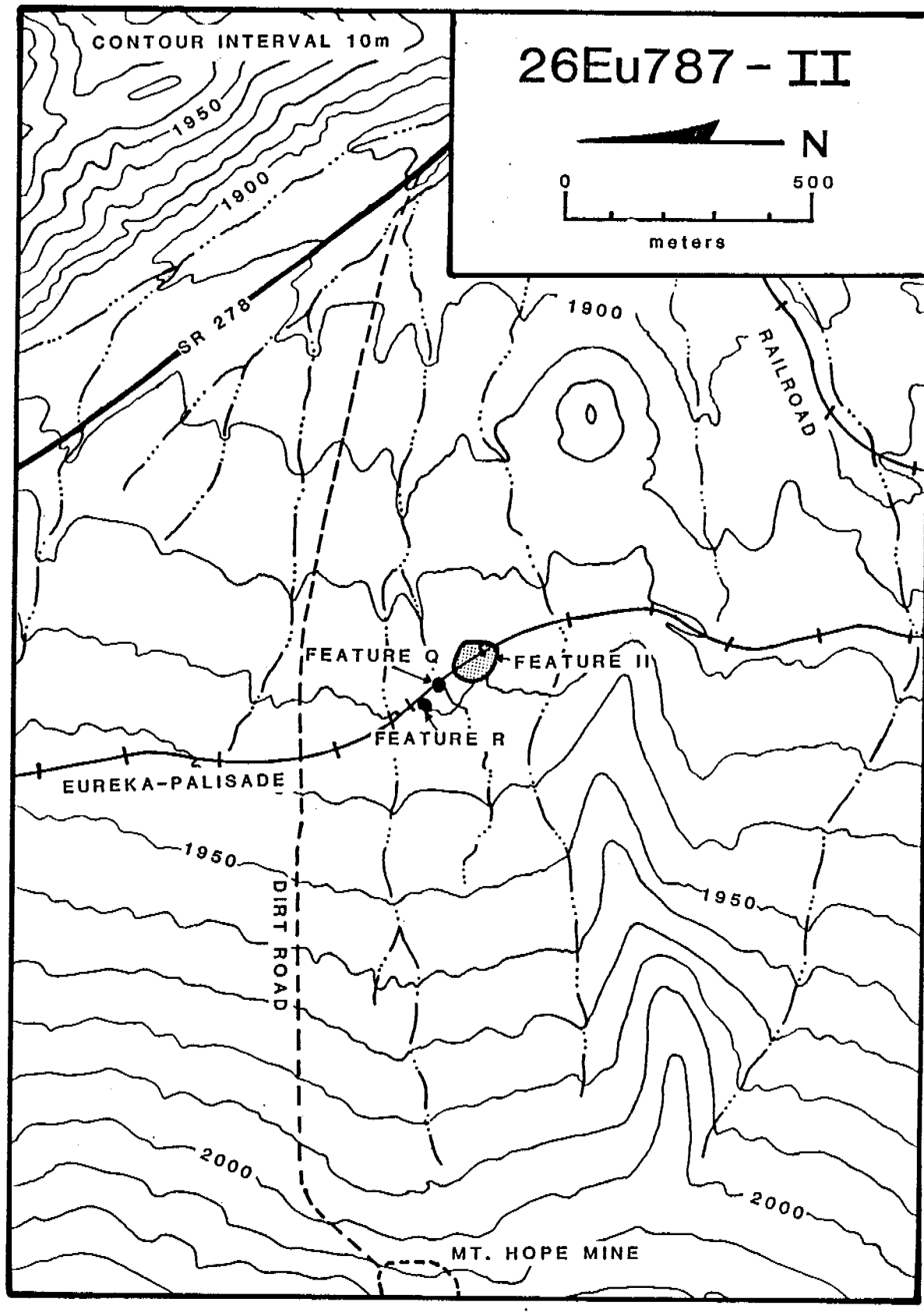


Figure 17. Location map, 26Eu787-II.

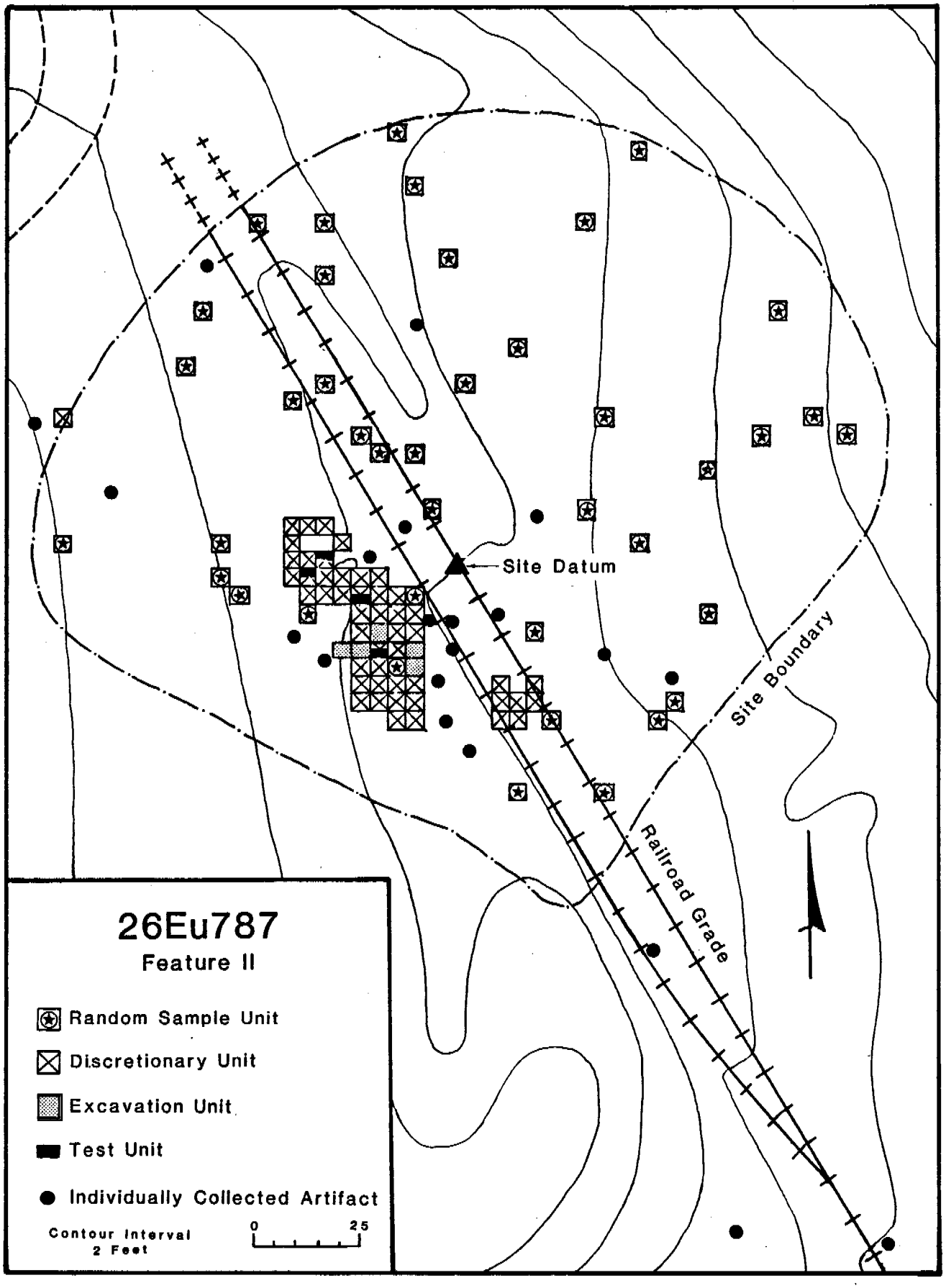


Figure 18. Site map, 26Eu787-II.

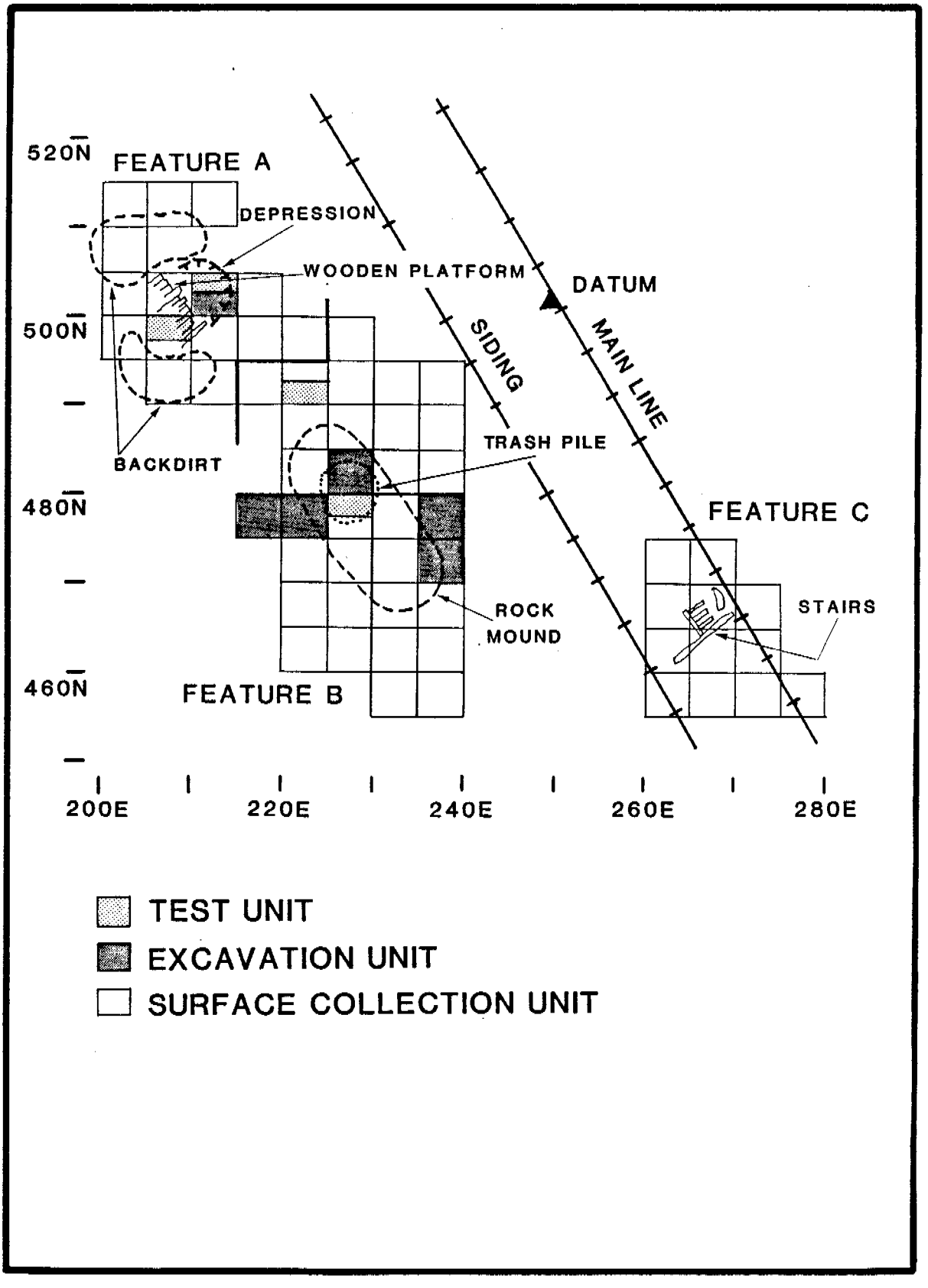


Figure 19. Feature location map, 26Eu787-II.

Feature B was a low, linear mound of earth and rock that runs parallel to, and some 17 ft west of, the railroad grade. This mounded area was covered by cans and other debris, earning it the field name "can dump". Feature C contained the remains of a set of stairs.

Additional surface collection was restricted to concentrations associated with these features. The collection strategy was changed to collect only selected temporally diagnostic pieces rather than collecting everything. Representative items (such as tin cans) were documented and representative samples were collected. Fifty-three units were so collected. Finally, 61 isolated artifacts considered significant and occurring outside the collection units were pin flagged, assigned reference numbers, located with respect to the site grid system, and collected.

The exploratory excavation strategy placed test units in Features A and B. The two Feature A units were designed to determine if the depression represented a pit, and if so, its size, content, and function. The Feature B unit was located to determine the composition of the mound. Conclusions drawn from the Feature A test were that a 44 in. deep pit was present at Feature A, that it extended under the wooden platform, and that it was artifact rich. Artifacts at Feature B were restricted to a sand layer covering a mound of large fieldstones. Based on these conclusions, an additional unit at Feature A was excavated to determine overall pit size. Five additional 5 by 5 ft units were excavated around Feature B.

ARCHIVAL INFORMATION

Objectives of the archival research were to discover when the siding at 26Eu787-II was constructed, what features or structures were present, and when the siding fell into disuse, if that occurred before the 1938 demise of the railroad.

An untitled map (Figure 20) provides information on the location and lengths of sidings present along the Eureka Palisade Railroad in 1881 (EPRR 1881). Those in the project vicinity were Garden Pass (230 ft), Horseshoe Bend (460 ft), and Summit (two sidings: "north" siding 455 ft, "south" siding 475 ft). It is interesting that the map shows only one end of each siding connected to the main line. No reference to Mt. Hope Station (22.8 miles from Eureka) is present, nor does time table 24, dated 1889, refer to a Mt. Hope Station (EPRR 1889). However, a reference to the station is found in an 1890 letter to Conductors setting the price of deliverables (EPRR 1890:276). The station may have been constructed in conjunction with renewed mining activity at Mt. Hope which began in 1886 and declined in the mid-1890s. Mining at Mt. Hope did not revive again until the mid-1930s (Goodwin 1966:26).

It is assumed that the siding served the same general function during both the 1890 and 1930 periods of use: ie., where ore from the Mt. Hope Mine was loaded onto railroad cars for shipment to a smelter. In the 1890s, loading would have been a manual operation; bags of ore loaded onto flatcars, or loose ore transferred from wagons to gondolas. During the 1930s, power equipment would have been used to perform these operations.

Archival information provided few facts regarding features once present at the site; only a water tower is specifically referred to (EPRR 1938).

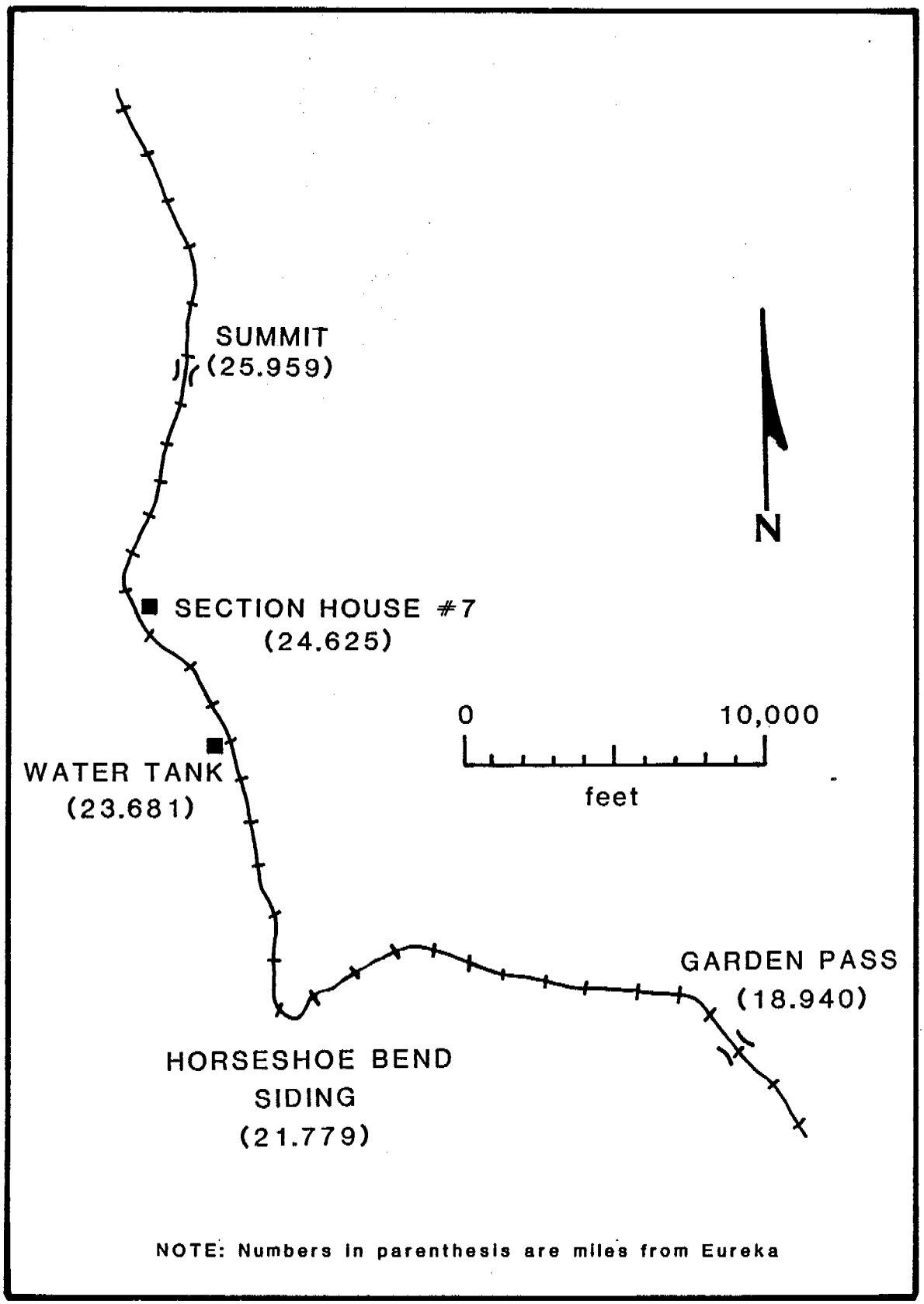


Figure 20. Eureka and Palisade Railroad, 1881 (after NDOT 1881).

Archaeological evidence, however, suggests that much more was present. Research revealed another name which relates to the project area: Tyrone. A map of "Tyrone Spring" shows a siding and a 3000 gallon redwood water tank on the west side of the track. The source of water was a "tunnel" some 3500 ft to the southwest. Also present was a siding and a section house. All were located northwest of a "culvert" across a stream channel. Tyrone Spring was located at mile post 63, the location of the Summit Station on time tables (EPRR 1923). However, the geography of Summit Station does not correspond with the map.

The Tyrone Spring locational description does correspond with a water tower location indicated on early maps of the Eureka and Palisade Railroad (1876, 1881) between the Mt. Hope and Summit Stations (see Figure 20). This tower is situated just north of a bridge recorded as 26Eu787-DD (Zeier and Stornetta 1984), possibly the culvert listed on the Tyrone Spring map. The tower's proximity to Summit Station may also explain their similar mile post designation.

Cornelius Hauck (personal communication), a historian who has conducted research on the Eureka and Palisade Railroad, referred to the station as "Mt. Hope or Tyrone", implying that the two names are synonymous. There are limited similarities between the Tyrone Spring map and the Mt. Hope Station. Both have a water tower and a bridge. At Mt. Hope Station, however, both Feature 26Eu787-R, a water tower, and 26Eu787-Q, a bridge, are north of the siding. The 1923 map depicts the bridge and culvert as south of the siding and section house.

In summary, two locations are feasible for Tyrone. Are Tyrone and Mt. Hope different names for the same physical location? If so, then there should be a water tower, a siding, and a section house present. If not, then only a water tower and siding should be evident.

ARTIFACT DESCRIPTIONS

The artifact assemblage from 26Eu787-II (563 artifacts represented by 2458 fragments) is dominated by personal and domestic items. As anticipated, some artifacts are directly related to railroad operation and maintenance.

Personal Items

Ninety-one artifacts (MAC), 267 whole and partial pieces, are considered personal items.

One clip for an overalls strap and one suspender clip are representative of men's clothing articles. They are wide (2.13 in. and 2.06 in.; respectively), but lack decoration. Each is made of iron wire with the suspender clip wire being square in cross-section.

Six mother-of-pearl shirt and underwear buttons are present (0.44 in. and 0.56 in. in diameter); five are 2-hole sew-throughs, one is 4-holed. Three freshwater shell buttons indicate a post-1891 date for the site (Jones 1946:103-104). These are a style frequently encountered in catalogues and button boxes of the early 1900s (Mirken 1970:249; Schroeder, Jr. 1971:1004). Most have two holes connected by a "fish eye" groove on a slightly convex face.

Similar buttons are shown in the 1927 Sears & Roebuck catalog (Mirken 1970:249). The remaining three shell buttons are plain types with concave and flat faces.

Four metal buttons which probably served on men's work clothes were recovered. The first is an aluminum, 2-hole disc, 0.57 in. in diameter. Machine-stamped, the one-piece button sports a domed face with a large, depressed hole panel (0.25 in. diameter). The back side is the negative of the front. The second piece is an iron, 3-part pants button, of Sanders construction. Popular for well over one hundred years, this style has four sew-through holes, and a concave iron face crimped over a fiber filler and back metal disc (0.69 in. in diameter). The remaining two specimens are "button rivets" (0.75 in. in size) commonly found on denim jackets, trousers, and overalls.

Nine individual shoes were recovered; two are leather shoes or boots, four are rubber and cloth galoshes, two are cloth and rubber shoes of unknown type, and one is a rubber-soled (probably with leather upper) boot. All are large sizes.

The lace-up leather boot, with at least eight brass eyelets on a side, was originally Goodyear welted, and thereby post-dates 1875 (Anderson 1968:61). Repair work is indicated by small, round headed, square shanked, brass nails in the outsole where stitching would normally fasten the outsole to the welt. An iron, "D"-shaped lift (3 in. long by 2.88 in. wide, forming a rim 0.5 in. wide) was recovered which apparently nested between the outsole and heel of a large boot. This piece, plus 15 brass eyelets (0.28 in. diameter) may well be the remnants of a second lace-up boot. The leather outsole of another shoe or boot is characterized by clenched, iron nails with small, flat, round heads, driven from the bottom upward.

Winter occupation is suggested by the presence of four galoshes and related metal fasteners. Black cloth tops, black rubber sides and soles comprise the outer shoes. The inner surfaces have a brown wool layer, while the inner soles consist of alternating layers of rubber and fine cotton cloth (three of each). Several buckles were recovered. Each is a 2-part affair: a small rectangular metal plate with four or five parallel slots, and a metal hook which engages the plate thereby fastening the two sides of the shoe together. The overshoes resemble the "snow-excluders" adopted by the U.S. Army in 1876 (Brinckerhoff 1976:10), as well as the "Lumberman's Two Buckle Captain", advertized by Sears and Roebuck in 1897 (Israel 1968:206).

A complete rubber outsole, half-sole, and heel (10.5 in. long by 3.25 in. wide at the ball of the foot, and 2.75 in. wide at the heel) was probably attached to a leather upper. Machine-stitching, as well as small-headed iron shoe nails, are evident around the sole's circumference. The heel and half-sole are both nailed to the outsole, the nails in the heel are driven through round, iron discs. Now embedded in the rubber, the discs may at one time have had the effect of cleats or hobnails. Solid rubber heels were first produced in 1895 (Wilcox 1948:138).

The final two shoes are a matching pair. All that remains of each is the front half of a very large rubber sole, topped by five layers of thick, white woven cloth. Large flat-headed wire nails (1.25 in. long), driven from the cloth down through the rubber, attach all the pieces. Other, small-head shoe

nails (0.88 in. long) were driven up from the outsole bottom. The shoes do not appear to be galoshes. One rectangular, iron buckle was found, which may belong to these or any one of the shoes previously discussed.

Medical and Health

The site yielded four bottles, six jars, three metal lids, one bottle cap, and one aspirin tin, which are thought to have contained medicines and drugs. Three of the four bottles are machine-made, post-dating about 1905; the fourth vessel is undetermined. The neck and finish from a red-brown bottle are cylindrical, with bead lip, and intact cork stopper. A pale green glass panel bottle has a double bead finish and also retains its cork stopper. "ACEITE MEXICAN..." is embossed on the vessel's base, translating to "Mexican Oil." A second panel bottle, with double bead finish is pale aqua glass. It is a sarsparilla-style bottle (Putnam 1965:56) of uncertain capacity. Panels are flat, with raised "frames". Panels vary from 1.75 in. wide to 0.88 in. wide; all are at least 2.25 in. in height. The most complete vessel is a sun-colored amethyst cylindrical bottle, of 12-oz capacity. A "5" is embossed on the base, and the mouth is finished with an extract lip. Method of manufacture is uncertain, but based on the sun-tinted color of the glass, the piece must pre-date 1914 (Munsey 1970:82). It is a bottle type which commonly held bulk medicines and/or household chemicals (Putnam 1965:105-108).

Six ointment jars and three associated metal lids were recovered. The jars are uniform, machine-made cylinders of white, opaque (milk) glass, with threaded mouths and rimmed bases. The jars are of two sizes: two of 3.5 oz and four of 4.25 oz capacity. "MENTHOLATUM/REG/TRADE/MARK" is embossed on two vessels of each size; the remaining two are unembossed but otherwise identical. Two lids, also embossed "MENTHOLATUM", fit on the jars, as does one blank, threaded lid.

One threaded iron bottle cap (0.82 in. across and 0.32 in. tall) may have topped a medicine-type bottle. A complete pill/aspirin tin (1.82 in. long, by 1.38 in. wide, by 0.25 in. thick) was also found, but none of the painted label remains to indicate brand or exact contents. The tin is 2-part, with the metal box sliding out from its metal cover.

Indulgences

Fifteen tobacco cans and 23 glass bottles represent tobacco, hard liquor, beer, wine, and soda pop consumption.

Fourteen oblong "Prince Albert-type" tobacco cans, of post-1913 vintage (Rock 1980:9), were recovered. All are nearly identical in size (4.38 to 4.25 in. long, by 3.0 to 3.13 in. wide, by 0.88 in. thick) and form, with hinged metal lids. Six retain the characteristic red, orange, yellow, and black Prince Albert labels. Seven other cans retain no labels. An eighth retains paint, of a different, but unidentified brand. One cannister-type can may also have held tobacco. Squat and cylindrical (0.95 in. tall by 2.75 in. wide), the tin once had a re-usable lid which is missing. Letters embossed on the can base are "..ORTE../..NTAE 12."

Most of the recovered bottles are embossed with glass maker's marks, factory codes, etc. (Table 12). In a few cases, embossed maker's marks help determine contents. One soda/beer bottle has a product brand name, "MUEHLEBACH", embossed in script on the bottle's shoulder. This brand has not been traced further. All except one are machine-made (post-dating about 1905). A single olive green neck and finish constitutes the only hand-made bottle, with an applied, heavy laid-on-ring which has been fire-polished. This specimen represents the only olive green bottle fragment, as well as the only probable wine container recovered from 26Eu787-II. It was located north of the site, somewhat removed from the main site area.

Table 12. Liquor, Beer, and Soda Bottles from 26Eu787-II

Contents*	Shape	Volume (oz)	Color	Marks	Dates
Soda pop	Champagne beer	12	Bright green	21//25N	
Soda pop	Cylindrical		Bright green	93	
Soda/beer			Pale aqua	3//13 FLUID OUNCE./.OS	
Soda/beer	Export beer	20	Pale aqua	Muehlebach	
Soda/beer	Export beer	20	Pale aqua	11//1260/ ROOT	1901-1932#
Beer	Export beer	20	Brown	WF..S	1900-1929#
Beer	Cylindrical	12	Brown	17 S 23	
Beer (5)	Export beer	12	Brown	W.F.&S.2	1900-1929#
Beer	Export beer	22	Pale aqua	AB/CO	1904-1907#
Beer/liquor	Cylindrical		Pale aqua	R8	
Beer/liquor	Brandy finish		Brown		
Liquor (2)	Philadelphia Screw top flask	16	Colorless	R181/90/ ⊕ 4	1929-1954#
Liquor	Rectangular flask, one side concave	16	Pale yellow	84 Ⓛ 5	1957 to ?
Liquor	Cylindrical		Pale yellow	4/1/3907	
Liquor	Panel/square		Colorless		
Liquor	Brandy finish		Sun-colored amethyst		ca. 1880-1914
Liquor	Square/panel		Colorless	O...	

* Numbers in parentheses represent number of items, otherwise each entry represents one bottle.
\# Toulouse 1972:26-27, 316, 403, 445, 536-537

One screw-on bottle cap (1.0 in. long by 1.0 in. in diameter) does not fit any of the indulgence bottles, but probably capped a fairly modern liquor bottle.

Pocket Tools and Accessories

A brass, cylindrical, matchsafe was recovered which has two horizontal bands of repeat leaf design around its circumference. The lid is missing, but

articulated with two horizontal tabs on the cylinder's top edge (Figure 21b). Fragments of a small paper matchbox were recovered during excavation. A red dot stipple background is present on the printed label, and the letters "..ES.." are discernible. The box was pocket-sized, as opposed to the larger, household variety.

Furnishings

Seven artifacts represent furnishings. Forty-two heavy iron wire fragments formed the central network for a metal cot or roll-away bed. The wire is bent to form "U" shaped rectangles (4 in. long and 2 in. wide) with loops at the corners of the closed ends and hooks at the open ends. These pieces interconnect, the hook end fitting into the loop ends. Small connector staples hold the larger pieces in place where loops and hooks do not articulate. A mirror fragment and part of a Chinese porcelain box lid provide ornamental household items. The white box lid is square or rectangular with cobalt blue geometric and curvilinear designs on top and sides (see Figure 21c). An identical piece, presumably a knick-knack box, was found at Lovelock, Nevada (Praetzellis and Praetzellis 1979:187, Figure 3). Two thumb tacks and two cut tacks could have served a variety of purposes.

Food Storage

One hundred forty-nine metal and glass food containers were recovered at 26Eu787-II. They are grouped and discussed below on the basis of their assumed contents. Summary data are provided in Table 13.

Evaporated milk cans account for 45 cylindrical containers. They are of three sizes; 6 of 6.8-oz capacity, 2 of 14.6-oz size, 36 of 17-oz size, and one of unknown volume. Aside from their distinctive constructions (soldered and lapped seams and match-stick filler holes), all have been opened by either opposing nail holes or small knife slits on one end of each can.

Eleven sanitary-type cylindrical cans apparently held fruit juice or some other liquid. For convenience, they are referred to as juice cans. The six 7.5-oz and five 8-oz cans have been opened by two small opposing knife slits or holes. Most of the cans are stamped with various symbols including "SANITARY" (one can), "-FC.../CX B..." (one can), "FC T/O...B" (one can), and "ESTAB. 656" on all five 8-oz cans.

Numerous cylindrical, sanitary-type cans are thought to have held fruits, vegetables, soups, and the like. The cans have been opened with a small-biting opener, cutting consistently three-fourths of the way around each can's circumference (Figure 22a). The cut lids are either flapped up or are missing. Forty-two cans exhibit this pattern. Six can sizes are present which range in volumes from 6.8 to 26.8 fluid ounces. Of the remaining seven "solid food" cans, two large cans (one 19.4-oz and one 26.75-oz) were opened by quartering the lid with a knife, and then lifting the wedged flaps up. Opening methods were not discernible on the five remaining cans. Most of these cans have letters and numbers stamped into their lids and/or bottoms. Those decipherable include; C &/N6, C &/IU P3, C /06, C &/4U P3, ESTAB. 793, K &/4D M6, K &/4U P2, K &/4B 05, K &/4B P2, K & I/F P2, SANITARY, Z/58 J1, 6Z/58 J1, 58, and "..S

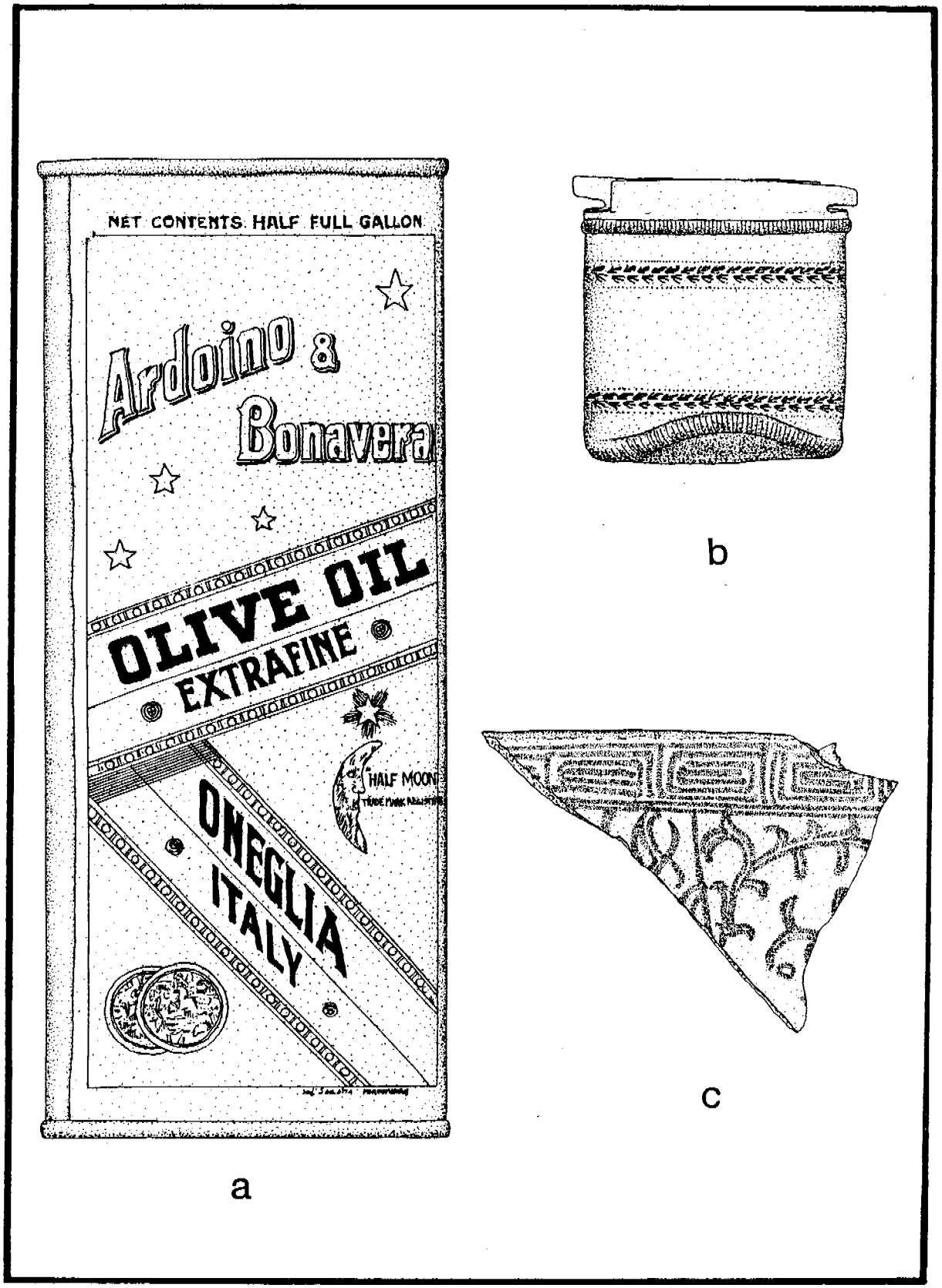


Figure 21. Historic artifact illustrations, 26Eu787-II. a. olive oil can (26Eu787-II-736-1, scale 2:3); b. brass matchsafe (26Eu787-II-54, scale 1:1); c. porcelain box lid of Chinese origin (26Eu787-II-538-1, scale 1:1).

Table 13. Food Cans from 26Eu787-II

Contents	Size Height (in.)	Size Diam. (in.)	Volume (oz.)	Quantity	Construction	Dates of Manufacture
Evaporated milk	2.50	2.50	6.80	1	Small hole-in-cap with match stick filler hole	1885 to ca. 1905
Evaporated milk	2.50	2.50	6.80	5	Match stick filler hole	1900 to 1932
Evaporated milk	3.75	3.00	14.60	2	Match stick filler hole	1931 to present
Evaporated milk	4.38	3.00	17.00	36	Match stick filler hole	1900 to present
Evaporated milk	?		?	1	Match stick filler hole	1900 to present
Juice	3.00	2.63	7.50	3	Sanitary-type	1904 to present
Juice	3.19	2.69	7.50	1	Sanitary-type	1904 to present
Juice	3.00	2.69	7.50	2	Sanitary-type	1904 to present
Juice	3.25	2.19	8.00	5	Sanitary-type	1904 to present
Solid food	2.25	2.69	6.80	2	Sanitary-type	1904 to present
Solid food	2.88	2.63	7.50	1	Sanitary-type	1904 to present
Solid food	3.00	2.69	7.50	13	Sanitary-type	1904 to present
Solid food	4.38	2.88	12.30	1	Sanitary-type	1904 to present
Solid food	4.63	3.00	15.60	8	Sanitary-type	1904 to present
Solid food	4.50	3.38	19.40	12	Sanitary-type	1904 to present
Solid food	4.63	4.00	26.75	6	Sanitary-type	1904 to present
Solid food	6.25	4.00	43.50	1	Hole-in-cap, soldered seams, machine-stamped ends	1847 to ca. 1885
Solid food	?		?	5	Sanitary-type	1904 to present
Tuna	1.75	3.38	6.90	1	Sanitary-type	1907 to present
Fish/seafood	4.25	2.50	4.40	1	Key-opened, crimped seam	1897 to ?
Meat	1.57	2.50	2.75	1	Strip opening	1904 to ?
Meat	?	3.19	?	1	Strip opening	1904 to ?
Coffee	?	5.00	?	2	Key-strip opening	1930s to present
Coffee	?	6.75	?	1	Key-strip opening	1930s to present
Chocolate/cocoa	?	3.06	?	2	Machine-stamped lids	1847 to present
Olive Oil	9.88	4.38	56.00	2	Crimped and double seams	1904 to present
Olive Oil	9.75	4.25	56.00	1	Crimped and double seams	1904 to present
Olive Oil	10.50	5.75	128.00	1	Crimped and double seams	1904 to present
Olive Oil	5.25	4.38	35.00	1	Crimped and double seams	1904 to present
Spice/baking powder?	?	4.25	?	1	Machine-stamped	1847 to ?
Spice/baking powder?	?	2.25	?	1	Machine-stamped	1847 to ?
Baking powder	?	2.38	?	1	Machine-stamped	1847 to ?
Baking powder	7.38	5.19	79.00	1	Machine-stamped	1847 to ?
Canister	?	5.88	?	1	Machine-stamped	1847 to ?

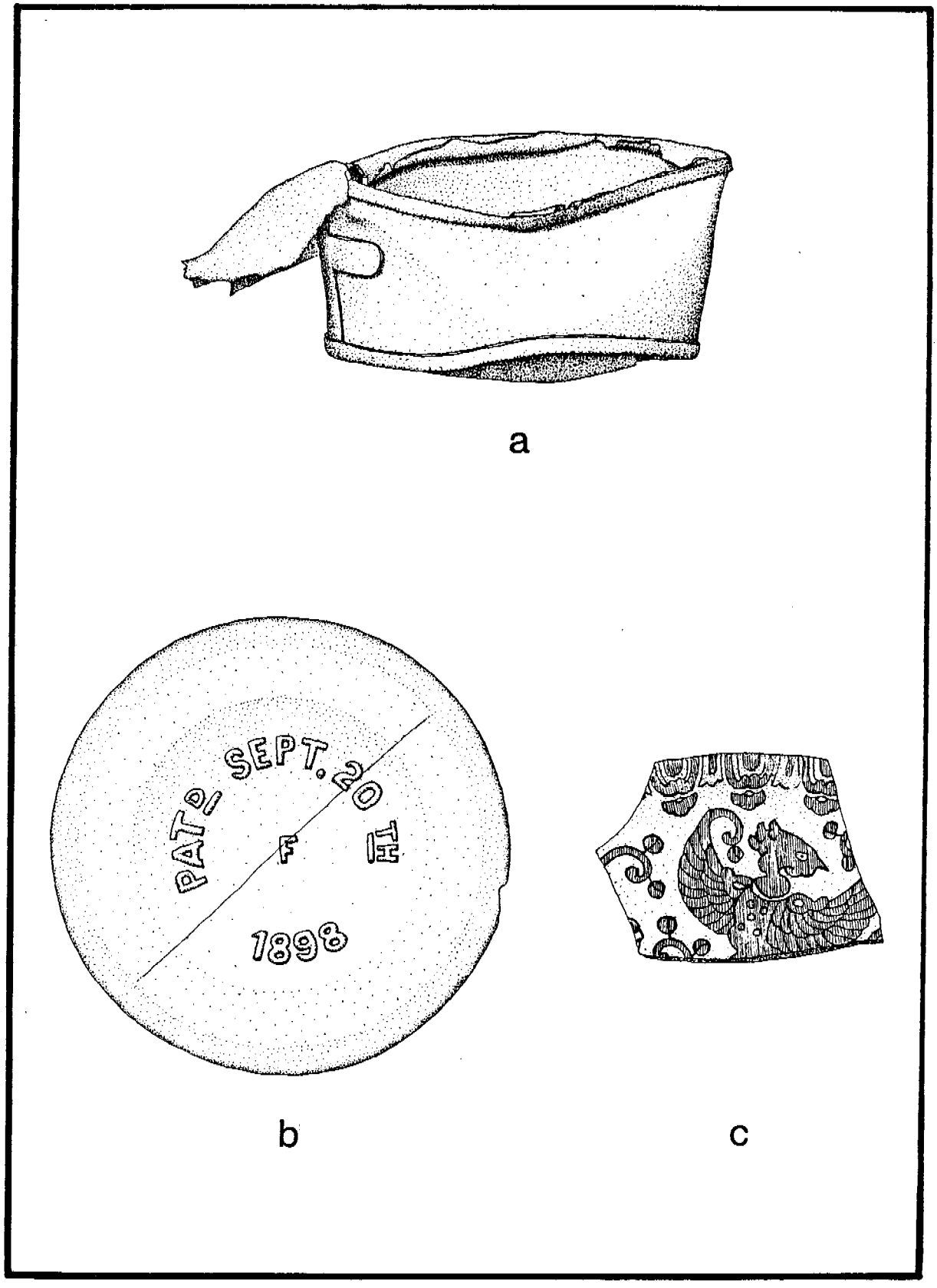


Figure 22. Historic artifact illustrations, 26Eu787-II. a. food can (26Eu787-II-438-3); b. glass canning jar lid (26Eu787-II-530-1); c. porcelain saucer fragment (26Eu787-II-524-2). Scale 1:1.

0/X8..". Only one can is of the hole-in-cap variety with soldered seams. This can predates the more predominant post-1904 sanitary cans.

Four meat cans were recovered, distinguished on the basis of shape. The first is a squat, cylindrical sanitary can, 6.9-oz in volume. It probably held tuna. "PN/464" is stamped on its base. One rectangular can (4.4-oz in volume) is also considered a fish or seafood container. It is an odd can, with crimped base seam, soldered side and top seams, and key opening across the top. According to Fontana et al. (1962:72), American and northern European sardine canners adopted double seam cans by 1918, whereas Mediterranean packers continue to use soldered tins. Two cylindrical meat cans are sanitary types, but have side seam tabs and strips which, when rolled back, bisect the can allowing the contents to be removed.

Eight wide-mouth, machine-made, glass canning or fruit jars, and five lids and lid liners were recovered, representing the presence of home-processed foods. These containers held solid foods; probably pickles, sauces, fruits and vegetables, or other foods (Creswick 1978). Three jars, two of which are sun-colored amethyst glass, are finished with packer lips. Two are cylindrical, the third is rectangular in vertical cross-section and oblong in horizontal cross-section. It is formed of transparent glass with a slight pink (versus amethyst) tint. Molded repeat diamonds decorate two sides of the bottle. The Hazel-Atlas base mark " ⊟ " (1920 to 1964) was noted (Toulouse 1972:239). Three of the canning jars are mason-type wide-mouth vessels with threaded necks and mouths. None is complete, but one exhibits a maker's marks (⊿P⊾) associated with the Illinois Pacific Glass Corp., in business between 1902 and 1930 (Toulouse 1972:268).

Additional marks are found on the accompanying iron jar lids, dating from about 1900 to present. Three lids are flat, and one has a threaded rim. One lid is stamped "Kerr/SELF-SEALING/WIDE MOUTH/MASON/PAT/8 31 15" and post-dates 1915. Two aluminum or zinc, threaded lids were recovered. Jars of a type suitable for such lids, which date from 1858 to approximately 1940 (Spillman 1983:128 to 134), were not found. Finally, a sun-tinted amethyst, machine-made glass canning jar lid is embossed "PAT D SEPT. 20TH/F/1898" (see Figure 22b). It fits one of two wide-mouthed (2.88 in. diameter) cylinders, also thought to be "fruit jars." All canning jars mentioned here are machine-made.

One mason-type, rectangular, threaded-mouth jar held a quart of honey. The machine-made vessel retains part of a painted side label, of which "..OU.. reti../..FOOD PRODUCT/PURE HONEY/..OOHA../OG" has been deciphered. Additionally, an embossed base mark "B. ⊟ .1/5662" indicates the bottle was a Hazel Atlas Glass Co. product, dating between 1920 and 1964 (Toulouse 1971:239).

Mustard or relish was probably packaged in one pint sized jar. The vessel is round, its maximum diameter being at its rounded, short, abrupt shoulder. The glass is a transparent, selenium (yellow-tinted) material, embossed on the body base ("ONE PINT//1-2009") and on the base itself ("21 ⊕ 4"). This Owens-Illinois product was manufactured between 1929 and 1954 (Toulouse 1972:403).

Two fragments of sun-colored amethyst glass (1880 to ca. 1914) suggest the presence of a "cathedral" or "gothic" style pickle-condiment bottle. Such bottles were most popular from the 1850s through the turn-of-the century.

stand 2.0 in. tall. The walls are decorated on their interior surface with an overglaze coating of iridescent orange paint. The exterior is likewise coated; though the bottom portion is orange, the top half is slate blue (also iridescent), divided by a painted black line. This pearly paint rubs off easily. On one side of the vessel, a hand-painted cherry blossom and branch motif is applied.

One Chinese-made "Three Circles and Dragonfly" rice bowl was recovered some distance down the railroad bed from the main site area. This porcellaneous-stoneware vessel is like those recovered from 26Eu790 (see Chapter 8). It presumably dates to the early years of the Eureka and Palisade line.

Portable Illumination

Eleven energy-related artifacts are specifically associated with portable light sources. Three are rectangular kerosene cans. One complete lid (8.9 in. by 9.0 in.) is embossed "STANDARD OIL COMPANY/PEARL OIL." The lid has a central iron handle and, to one side, a complex spout and valve composed of at least five parts. It resembles a domed doorbell except for the tapering spout.

Fragments of two kerosene lamp chimneys are sun-tinted amethyst glass. Sizes and shapes cannot be determined, though one does have a vertical base mouth 0.25 in. tall, the bulbous body then flaring out to an estimated full diameter of 5.0 in.

Five black, cylindrical battery cores (2.75 in. long by 0.32 in. in diameter) were recovered, along with a small glass light bulb (0.88 in. long by 0.44 in. in diameter), with a brass stem and threaded black tip and "Z DA" impressed on the stem. All could have been used with flashlights.

Portable Waste Disposal and Sanitation

A complete, white enameled, metal chamber pot was recovered. The pot is round, 9.25 in. wide at the mouth, with rounded walls constricted slightly just beneath the rim. It stands 5.25 in. tall. The 1.0 in. wide, flaring rim is decorated with a cobalt blue line. The bottom has become rounded out, by means of hammering or beating. A black enamelled metal handle is soldered onto one side.

Portable Heating

A floral medallion appears to be an ornate fragment from a cast iron stove. The piece probably formed part of the side or top overhang of a wood stove or heater.

Yard Maintenance

The metal neck for a shovel, rake, or pitchfork was recovered from 26Eu787-II. The upper end of the neck is pointed, with a rivet still in place. The lower end is broken, but a hole for a second rivet was noted. Patches of

red paint are present and lettering is stamped into the neck. Partially decipherable, it reads "IXL CHSHRER...STEEL".

Structural Materials

Five small lumps of plaster or mortar were found during excavation. Most likely they were employed as building material at the site, although in what capacity is uncertain. Twenty-three window glass fragments cluster into two groups based on thickness. The thinner pane, of an average 5/64 in. thickness, represents 6.0 square in. of surface. The thicker glass, 7/64 in. thick, equates to 3.0 square in. of window pane (Horn 1982:2).

Structural Hardware

A total of 211 hardware fasteners is assigned to this category. The majority (n=171) are wire nails (see Table 14). Relative abundance by size category indicates an emphasis on light framing and finishing. Most had been used, thus being remnants of a structure rather than a cache of unused hardware. Four wire finishing nails (two 5d, two 10d) and four broad, flat-headed roofing nails are also present. One complete iron nail is of an unknown type. It appears machine-made, with flat, rectangular head and square shank 2.0 in. in length. In contrast to machine-cut and wrought nails, the shank is not tapered from one end to the other. It does, however, have a pointed, beveled tip. Its specific function is not known.

Table 14. Common Wire Nails from 26Eu787-II

Size	Quantity	# Bent Broken	Uses (Per Fontana et al 1962)
60d	1	1	Heavy framing, planking on wood bridges
40d	1	1	Heavy framing, studs, rafters
30d	2	1	" " " "
20d	8	3	" " " "
16d	5	5	" " " "
10d	24	13	Light framing, boarding, flooring, finishing
8d	18	18	" " "
7d	1	0	Light framing, finishing, boxes
6d	20	16	Clapboards, sheathing, boxes, crates, finishing
5d	35	35	Clapboards
4d	6	6	Shingling
3d	6	3	??
2d	13	8	??
Unsized	31	31	---
Total	171	141	

A limited number of common cut nails (n=28) was found at 26Eu787-B. Most (n=23) cannot be sized due to their deteriorated condition. Complete nails include two 40d specimens, two 30d cut nails, and one 8d nail; of these, four are bent from use. One cut spike was also collected (5.88 in. long).

A large slotted-head gimlet screw (2.0 in. long) was found which could have served in a number of capacities. Also recovered was a cast iron hinge pin, decorated with an "acorn" shaped head/finial. It measures 3.0 in. long by 0.5 in. diameter at finial, and 0.19 in. shaft diameter. Two small iron staples (1.0 in. long by 0.32 in. wide) of a type often used to hold barbed wire onto posts and to anchor electrical wiring complete the category.

Fixed Illumination

A black bakelite electrical socket was recovered. It is cylindrical, constricting at the base where the electrical cord protrudes. The cord consists of numerous copper wires, coated with rubber. "G.E. CO. U.S.A./660 W. 600 V" is embossed on the side of the electrical socket. This item suggests that an electrical system served the site at some time.

Vehicles

Possible wagon parts include two carriage bolts and one square nut. The only complete bolt measures 5.75 in. long with a 0.32-in. wide shank and bevelled head 0.69 in. in diameter. The second is a domed-head bolt, head 1.0 in. across, and shank 0.5 in. in diameter. The nut measures 0.88 in. on a side, with 0.44 in. diameter hole. The other vehicle part is a section of automobile tailpipe.

Draft Animal Equipment

Two items are included in this category. The first is a winter-type mule shoe. A toe clip and two calks characterize this complete shoe (5.25 in. long and 3.88 in. wide). Six of eight original nails remain in place. A large, rectangular piece of leather constitutes horse or mule trappings, possibly a belly strap. The strap measures ca. 27 in. long and 4.75 in. wide. Two smaller, rectangular pieces are machine-stitched and riveted in place; the larger piece covers nearly one-half of the strap. The smaller rectangle, attached to the opposite portion of the strap, is approximately 7 in. long by 3 in. wide.

Hunting

A hand-wrought knife, a shotgun shell, one bullet, and four cartridge casings comprise the hunting equipment assemblage. The knife is fashioned from a heavy rectangular iron bar which, based on the hilt, was originally 1.25 in. wide and 0.19 in. thick. The bar has been cold chiseled at the handle end. A Bowie-type blade, wide with upturned point, has been formed. A 12-gauge shotgun shell, headstamped "REM-UMC/NO 12/ARROW", post-dates 1888 (Herskovitz 1978:49). Produced by the merged Remington/Union Metallic Cartridge Co., such ammunition was, and still is, popular for hunting game birds (Barnes 1980:300).

The ".22 Short" rimfire casing with a "U" headstamp and a 0.22 caliber bullet were also recovered. Two other casings are .38 Specials, headstamped "WRA CO/38 S&W SP'L", dating them to after 1902. One brass cartridge casing, headstamped "U.M.C./.45 COLT" was produced by the Union Metallic Cartridge Company. This .45 caliber casing (1.25 in. long) ammunition was loaded in revolvers and was seldom used in hunting (Barnes 1980:187). The UMC .45 Colt revolver cartridges were produced from 1873 to 1888.

Railroad Operations

Thirty-four artifacts relate directly to railroad operations, equipment, and maintenance. Of these, railroad spikes (4.5 in. long, with flat heads 1.0 in. long) account for 25 items, the majority of which have obviously been used. Seven are incomplete and were recovered from excavation units rather than from surface collections.

Several parts of railroad cars were found. The first is the bottom guide for a freight car door (Figure 23b). The exterior surface of the solid iron piece consists of a rectangular plate (3.88 in. by 3.75 in. by 0.25 in. thick) pierced by four countersunk holes. A grooved base and smaller opposing plate are additional features. The second piece, which could have functioned in many places on a train car, is a solid iron clevis (2.38 in. long by 2.25 in. wide by 2.25 in. thick). Two railroad car door seals were also found. The first seal is embossed "E & P PALISADE 1735" (see Figure 23a), indicating the rail line (the Eureka and Palisade), the point of origin of the carload (Palisade), and a discrete log or load number (Datin 1985, personal communication). The second door seal is embossed "S.P. CO", probably referring to the Southern Pacific Railroad. A small lead rivet, which originally held the ends of the strip together (thereby forming a loop sealing the car door closed), is embossed "45" on one face and "P" on the other. A nearly complete railroad lantern was also recovered. It consists of a round, bell-shaped base (6.75 in. broad and 3.5 in. tall) the body of which is embossed "Ray/No 92/COLD BLAST/MADE IN U.S.A.". The platform for the wick mechanism is embossed "PATENTED JUNE 12 05 JAN. 9.06/APR.10.08 MAY.4.09/JAN.12.12." The lantern, then, post-dates 1912. Two opposing, hollow arms form the upper structure. Two wire rectangles held the glass chimney in place.

Four large chunks of coal are thought to be residual fuel for the engines of the Eureka and Palisade line. A lump of slag may relate to the same source.

Media of Exchange

A most interesting artifact (see Figure 23c) was recovered from the bottom level of the deepest excavation unit at the site. Possibly a token or souvenir meant to imitate early gold coinage, this very thin brass disc (0.5 in. in diameter and 0.5 mm thick) is decorated on one face with "1/2" at center, the words "CALIFORNIA GOLD" across the top, and a bear and poppy wreaths at base. The reverse face is quite corroded. Discernible are the bust of a person at center, "1856" at base, and five 5-pointed stars around the edge. Glenn Farris, California Department of Parks and Recreation, suggests the disc is most likely an imitation of an 1856 half-dollar gold piece. A true 1856 "Liberty Head, Twelve Star" half dollar carries twelve stars around a Liberty

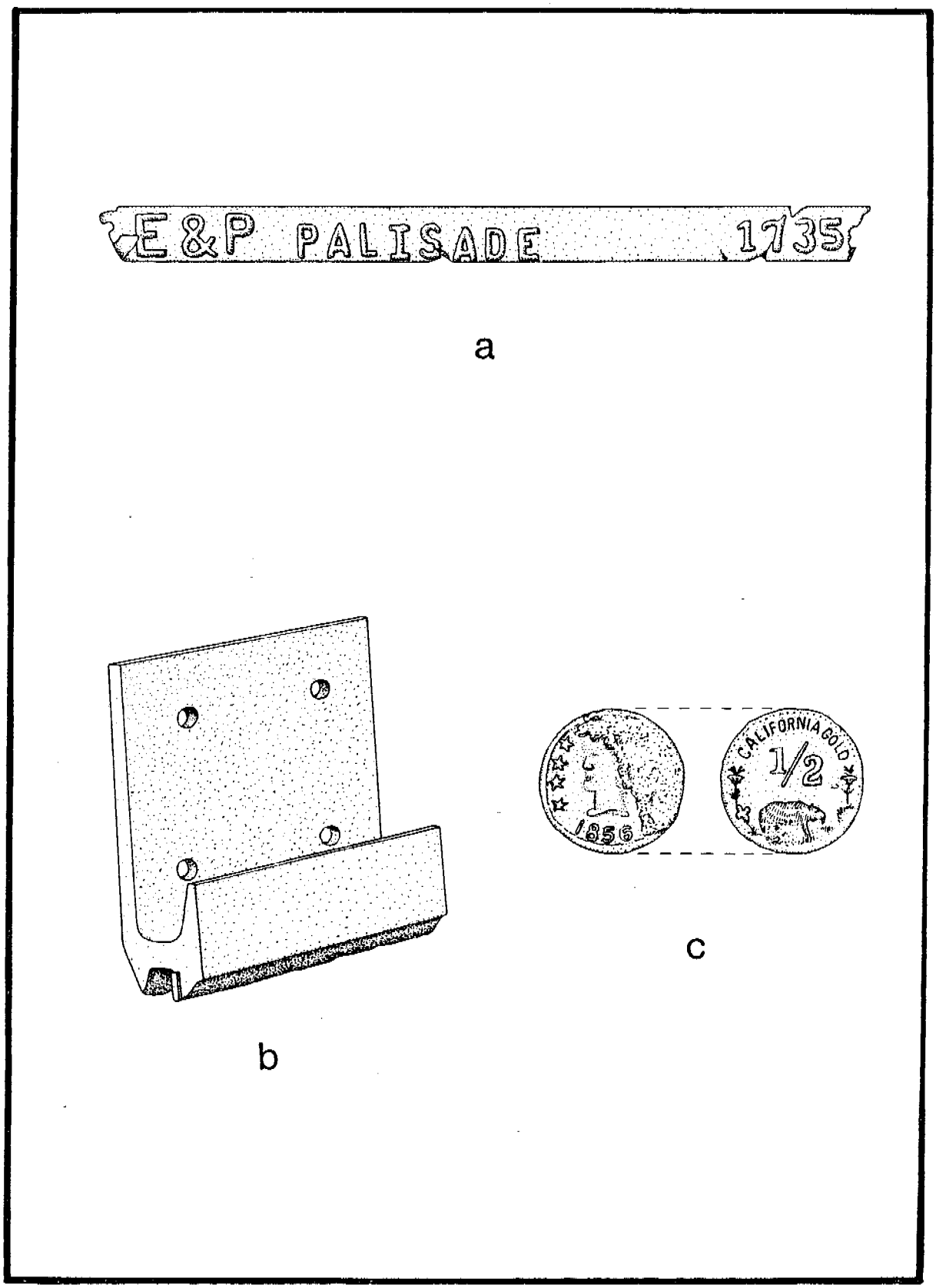


Figure 23. Historic artifact illustrations, 26Eu787-II. a. railroad car door seal (26Eu787-II-444-5, scale 1:1); b. railroad car door bottom guide (26Eu787-II-720-1, scale 1:2); c. brass token (26Eu787-II-549-1, scale 2:1).

Head, while the words "Half Dol California Gold N" outside an open wreath plus "1856" inside the wreath appear on the reverse side (Lee 1970:90-91).

After 1882, only gold coins issued by the United States government could carry the word "Dollar" or "Dol." All others were considered counterfeit and illegal (Lee 1970:x, xi). The piece from 26Eu787-II is not gold and does not carry the word "DOLLAR" or "HALF DOLLAR". Perhaps, then, it is a post-1882 creation, avoiding legal problems by substituting numbers for words of denomination.

Communications Systems

Four incomplete glass insulators were collected which functioned in a telegraph or telephone system along the railroad line. All are made of thick, aqua glass; two are cylindrical in shape (2 in. to 2.75 in. wide) and two are bell-shaped with scalloped basal edges. The latter are embossed "HEMINGRA.../NO 40" and "HE...," products of the Hemingray Glass Co. of Covington, Kentucky, in business from approximately 1900 to 1920 (Spillman 1983:225).

Unknowns

The remaining 27 artifacts (167 fragments) of unknown function are discussed on the basis of material type.

At least one pale yellow glass bottle base (30 fragments) embossed "3," two bottle bases (15 fragments) of sun-tinted amethyst embossed "7" and "2," one pale aqua bottle (51 fragments), and one pale green bottle fragment account for five cylindrical glass vessels. The amethyst fragments represent an 1880 to ca. 1914 time range, while the yellowish glass post-dates the amethyst material. What appears to be part of a machine-made, colorless glass bottle is square or rectangular in shape (1.63 in. wide, at least 3 in. long).

Two small ceramic sherds were found. One is a bright orange, very porous, rim fragment. Minute parallel lines are impressed on both sides. The other is a very dense, brown fabric, with irregular ridges and lines impressed on one side.

One metal piece which deserves comment is a truncated cone-shaped can with a spout. It is complete but very crumpled, hindering measurement. It is approximately 4.0 in. tall, 4.75 in broad at the "top" end, and only 3.75 in. across at the other. A spout and small opening near one edge of the top end is embossed "TURN/AT/BACK." The entire can body is stamped with a series of vertical ribs and two horizontal rings; it resembles a miniature barrel. Its former contents are unknown.

Twenty-five fragments of a coarse, woven jute-like fabric were recovered during excavation. The weave, a simple over/under pattern of single strands, does not resemble current-day gunny sack/burlap material. Yet, such an item cannot be ruled out.

Other artifacts recovered include a bright orange rubber disc (possibly a shoe fragment), a small fragment of dark-colored plastic or rubber covered on

both sides with concentric curved lines, suggestive of a phonograph record, and three fragments of paper, black on one side. Miscellaneous metal items include 5 iron staples; 1 cylindrical can, 10.5 oz volume; 4 fragments of thin iron with rim; 1 bucket or pail rim; 2 iron discs; 1 wire length, cap attachment?; 1 length of twisted iron wire; 1 iron hoop (re-used bucket?); 1 iron strip with holes; 1 iron wire loop; and 1 solid iron wedge-shaped fragment, embossed "..AO..".

DISCUSSION

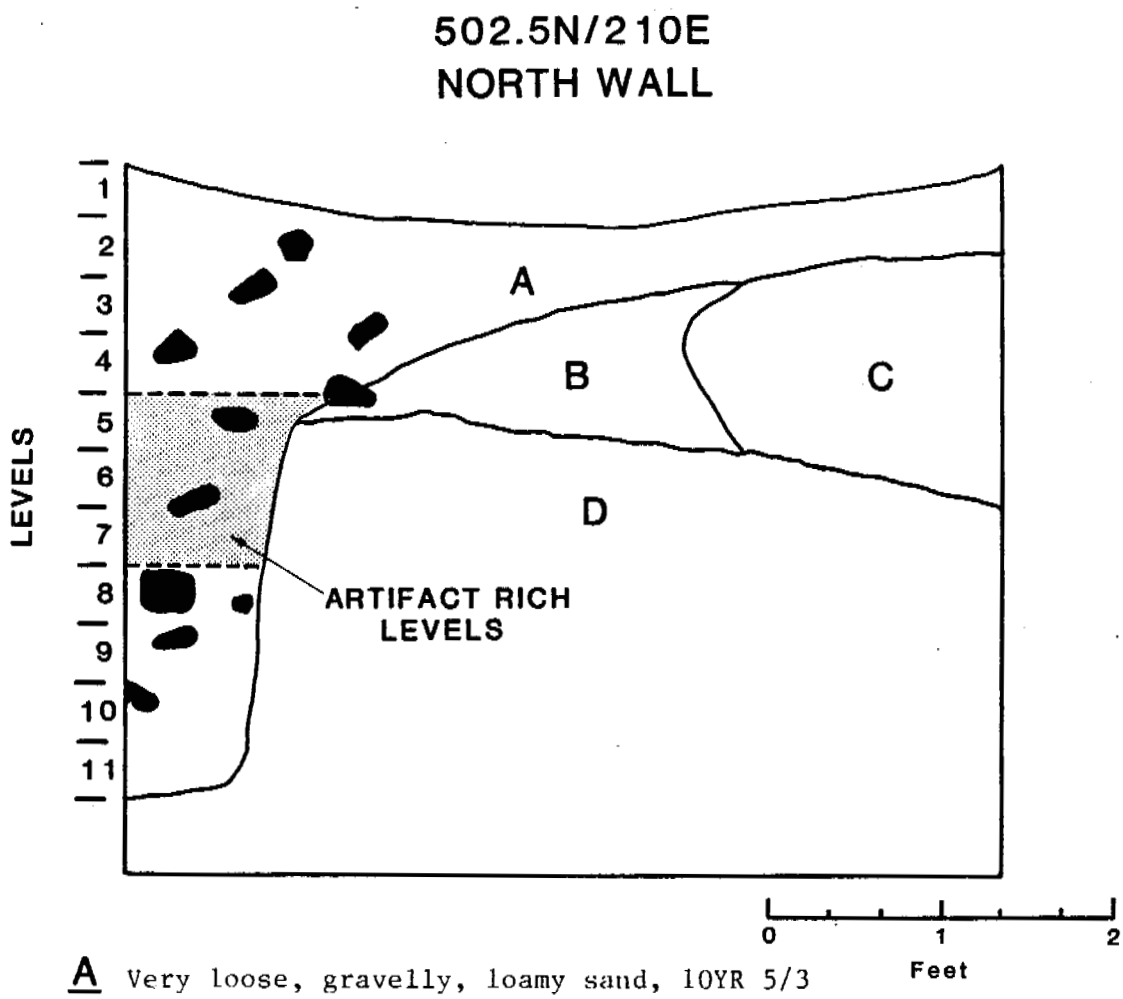
Feature A

Feature A consisted of three elements: a circular depression, back dirt piles which resulted from excavation of the depression, and a wooden platform that overlapped the southwestern half of the depression. The platform, constructed of railroad ties and tie fragments laid adjacent to one another (7.5 ft wide by a maximum of 6 ft long), was tilted slightly; the lower southwestern end was buried in colluvial fill washed off the adjacent back dirt piles. The ends of the ties overhanging the depression were supported by a heavy timber that appears to have spanned the depression. The beam is notched on the underside at both ends, as if supported by upright posts, of which we found no evidence. The ties are not nailed or otherwise attached to the underlying timber or one another. The southwest end of the platform had no supporting beam or posts. Fragments of woven fabric were found atop the railroad tie platform and numerous board fragments were present on the surface of the depression.

Feature A excavations revealed that a subsurface pit is present. Margins of the pit became obvious only at about 13 in. below surface. The uppermost portion of the pit is oval, with its primary axis oriented perpendicular to the railroad grade (southwest to northeast), and measures 10 ft long by 6.5 ft wide. Below a depth of 18 in., the pit becomes circular in plan view, measuring about 6 ft in diameter. The lower pit extends to a depth of 44 in. below surface and has steep side walls. The lower pit is not centered beneath the oval portion, rather it is located under the southwestern end.

The overlap between the two pit elements is apparent in the stratigraphic profile of Test Unit 502.5N210E (Figure 24). Layers D and C are natural strata. The upper oval pit was excavated through Layer C, but stopped at the contact with Layer D. The lower circular portion of the pit was excavated well into Layer D. Layer B is a charcoal rich material that filled the shallow bench created by the overlapping pit elements. Artifacts, while not abundant in the fill, are present and suggest a cultural origin. A majority of the artifacts recovered came from Layer A. This material appears to be a natural fill derived from the backdirt piles located adjacent to the pit and the shallow sandy surface stratum common to the site at large. Many of the larger clasts in this fill appear to be lying at an angle on former fill surfaces.

The vertical distribution of materials recovered from Test Unit 502.5N210E (Table 15) reveals that the pit experienced three culturally, if not temporally, distinct fill events. Once excavated, it became partially filled with culturally sterile sediments (levels 9 through 10). The only artifact associated with this event was the brass token, found on the floor of the pit.



A Very loose, gravelly, loamy sand, 10YR 5/3

B Very loose, sandy loam, 10YR 3/3, stained grey by charcoal and wood fragments

C Hard, gravelly clay - loam, 10YR 6/4

D Very hard, gravelly, sandy loam, 10YR 7/4, culturally sterile

Figure 24. North wall profile, unit 502.5N210E, 26Eu787-II.

As such, it probably reflects initial pit excavation and not infilling. The second event introduced most of the cultural material (levels 5 through 7), which is predominantly of a domestic nature. Only a few artifacts are present in the uppermost sediments which completed the filling of the pit.

Table 15. Artifact Frequency by Level, Excavation Unit 502.5N210E, 26Eu787-II

Level	Depth (in)	Artifact Category: Personal	Domestic	Architectural	Other	Total
1	0-4	1	5	2	1	9
2	4-8	4	6	2		12
3	8-12	2	10	1	1	14
4	12-16	1	6	10	3	20
5	16-20	1	378	20	2	401
6	20-24		476	25	2	503
7	24-28	2	116	3	1	122
8	28-32		5		1	6
9	32-36					-
10	36-40					-
11	40-44				1	1
		11	1002	63	12	1088

Feature B

Feature B consists of an oval mound (23 ft long, 9 ft wide, and 1 ft high) covered by an artifact scatter of varying density. The long dimension of the feature runs approximately parallel to, and some 17 ft from, the railroad grade. Surface collection revealed a wide variety of items present on the mound and in adjacent units. A majority of the material was found atop, to the north, or to the west of the mound. One major, dense concentration of cans was recorded toward the northwest end of the mound. A number of complete, neatly arranged bottles was found together along the western edge of the mound which presumably reflects bottle hunting activities rather than trash disposal.

Excavation unit 475N225E, located atop the mound in the can concentration, revealed that the mound is constructed of a shallow layer of small to large fieldstone placed on the ground surface; evidence of site preparation was not observed. Artifacts were restricted to sediments atop and within the rock feature; none were found in sediments beneath the rock pile. Over time, the rock feature has been infilled and covered by eolian sand.

Charcoal was observed between and under many of the rocks in this test unit. Some rocks appeared fire cracked and spalled. Glass fragments from the unit appear to have been melted, as if in a very hot fire. Fieldstone of the size observed in the rock pile is infrequent in the site area, suggesting it was transported to the site, possibly as waste rock from the Mt. Hope mines. If so, some of the surface discoloration may reflect oxidation rather than burning. If this is the case, then the observed charcoal and ash may represent

secondary rather than primary refuse disposal. Other Feature B excavation units failed to reveal clusters of melted glass or ash/charcoal concentrations. Perhaps trash fires or ash/charcoal disposal were restricted to the area occupied by the can concentration.

Units to the east of the rock pile revealed that artifacts were restricted to the surface layer which rested atop a thin (1 in.), highly compacted, artifact-poor layer. Units to the west of the rock pile did not contain evidence of this compacted layer. The eastern area, located between the rock pile and the rail line, may have been compacted by human trampling and vehicle traffic.

Feature C

Twelve 5 by 5 ft units were collected around Feature C, located some 35 ft east-southeast of Feature B. Present at Feature C is a set of wooden steps. The set consists of three steps, the two stringers, and a header. The steps are still attached to a stringer, which in turn is attached to the header. Given the dimensions of the stringer and the location of the tread support blocks, the stairs had a total rise of 3.3 ft over a run of only 2.6 ft; steps were 10.8 in. apart. This is far steeper than most stairways (56 deg. as compared to a standard of from 30 to 35 deg.), suggesting infrequent use. The header, which would have been attached to the structure accessed by the stairs, is nearly seven ft long and broken on both ends. The stringers, stair treads, and header were 2 by 12 in. milled lumber, the tread supports short blocks of 2 by 4 in. lumber.

Artifact Distributions

Artifacts derived from surface collection and excavation units were grouped on the basis of feature assignment (Table 16). The artifact assemblage recovered from Feature A contained most of the domestic and commerce artifacts. Feature B, on the other hand, contained a majority of the personal and architectural pieces. Very few artifacts were found associated with Feature C, and half of those present were nails, probably from the step structure. Personal and unknown category artifacts are, on a percentage basis, abundant in areas outside the designated features.

A majority of the domestic items recovered from Feature A was food waste and food storage containers (n=1093, 92.9%). Egg shell fragments, ash, and charcoal were also abundant in the artifact rich layers within the pit. In addition, Feature A exhibited the highest fragmentation ratio (number of fragments/minimum number of artifacts [MAC]) of the site areas (9.09, as compared to 2.86 for Feature B and 2.70 for the "Other" area). All this suggests that Feature A was used, at least for awhile, as a trash dump.

The abundance of domestic and architectural artifacts around Feature B indicates that a structure was once present and that the site served in a residential capacity. Architecturally related hardware, stovepipe, a stovepipe roof flange, and an ornate wood stove fragment all support the contention. The variety of recovered condiment, spice, and food storage containers suggests a residential versus transitory occupation. Additional indications of occupation include the abundance of food waste (bones and egg shells), items required for

food preparation (baking powder, olive oil, etc.), and an electrical light socket. Winter occupation of the site is suggested by galoshes and mentholatum jars.

Table 16. Artifact Category Frequencies, 26Eu787-II

Artifact Category	Feature A #	Feature A MAC	Feature B #	Feature B MAC	Feature C #	Feature C MAC	Other #	Other MAC	Total #	Total MAC
Personal										
Clothing	3	(3)	9	(8)	1	(1)			13	(12)
Footwear	3	(1)	75	(19)			11	(4)	89	(24)
Medicine	4	(1)	56	(6)			8	(7)	68	(14)
Indulgences	6	(5)	41	(15)	1	(1)	44	(17)	92	(38)
Pocket Tools	4	(1)					1	(1)	5	(2)
Domestic										
Furnishings	41	(2)	4	(4)			4	(1)	49	(7)
Food	223		28						251	
Food Storage	834	(48)	285	(54)			91	(47)	1210	(149)
Food Prep.			3	(3)			1	(1)	4	(4)
Food Consump.			15	(1)			21	(4)	36	(5)
Illumination	41	(4)	74	(2)			8	(5)	123	(11)
Waste Disposal							1	(1)	1	(1)
Yard Maint.	2	(1)							2	(1)
Architecture										
Materials	12	(1)	13	(1)			7	(1)	32	(3)
Hardware	71	(56)	161	(151)	3	(3)	1	(1)	236	(211)
Illumination							1	(1)	1	(1)
Transportation										
Vehicles	1	(1)	3	(3)					4	(4)
Animal Equip.							11	(2)	11	(2)
Commerce & Industry										
Hunting	2	(2)	3	(3)			2	(2)	7	(7)
Railroad	32	(22)	8	(8)			9	(5)	49	(35)
Coins	1	(1)							1	(1)
Group Service										
Communication			2	(2)			5	(2)	7	(4)
Unknowns	24	(4)	76	(16)	1	(1)	66	(6)	167	(27)
	1304	(153)	856	(296)	6	(6)	292	(108)	2458	(563)

Evidence of a structure at Feature B was elusive. The rock pile did not resemble a typical foundation (a rectangular arrangement of stones on which sill plates and a frame structure were set), or a collapsed fireplace. Rather, it was a continuous layer of rock which, at best, served as a platform or pad on which something was constructed or set. The abundance of artifacts across the rock pile seemed to conflict with its possible structural association. Any structure present would, by necessity, have had a floor. This floor, however, would have hindered artifact accumulation from above, or within the structure. The only way to have both a structure and the accumulation of debris would be to elevate the structure, thereby allowing room underneath where debris could

be secondarily deposited. Alternately, there once was a structure, the structure was razed, and the area reused for a garbage dump.

Of the personal category artifacts, footwear and medicine were the most abundant in Feature B, while clothing and pocket tools were more prevalent in Feature A. Indulgence class items were found in association with both features, but were most abundant in the outer margins of the site (n=44, 47.8%). While other personal classes of artifacts were either dropped or dumped, indulgence items were tossed.

Three categories of domestic class artifacts exhibit distributional patterns of note. First, most fragments of furnishing related items were found in the pit at Feature A, including the remains of a wire mesh bed spring typical of those found on bunk beds. When viewed in terms of minimum artifact counts, however, more furnishings were found at Feature B. Second, almost all the food waste (n=259, 91.8%) was from Feature A. Represented are eight species of mammal (including two rodent species thought to be intrusive), and one species of bird (see Appendix B). Third, artifacts relating to food preparation and consumption were absent from Feature A, but were found in Feature B. Food consumption items are most plentiful, however, away from the features in the site margins. In this respect, food consumption and indulgence items reflect a similar disposal pattern.

Recovered architectural materials were evenly distributed between Features A and B. Review of collection record forms reveals, however, that milled lumber fragments (not collected) were most plentiful near Feature B, particularly along its eastern margin. Feature B clearly yielded most of the architectural hardware (n=157, 67.7%). While some window glass was in the pit at Feature A, most was found along the eastern margin of the rock pile at Feature B.

Of the 211 fasteners recovered, 28 (13.2%) were cut nails. A majority were found associated with the can concentration at Feature B (n=23, 82.1%). Collection unit records indicate that the steps at Feature C were constructed using both cut and wire nails. Therefore, it is presumed that the three cut nails recovered from Feature C are from the steps. One cut nail was found in Feature A; the last example was collected from outside the feature areas.

Most (n=16, 64.0%) of the railroad spikes were recovered from the upper excavation levels of Feature A, and appear to have been associated with the wooden platform. As noted previously, the platform timbers were not secured to one another in any way. Only one spike was observed in a tie. Interestingly, the head of the spike was resting on the underlying support beam, suggesting that the tie had been set into the platform after the spike had been driven. Spike holes are present in several of the ties, from which the spikes found during excavation may have fallen.

The remains of four insulators were recovered, two from Feature B and two from outside the feature areas. These may relate either to an electrical system which once served the site (evidenced by the electrical socket), or the telegraph line which ran along the Eureka and Palisade Railroad line. During the winter months, the telegraph system was used to relay weather and track conditions to railroad offices in Palisade and Eureka.

EVALUATION OF RESEARCH GOALS

The historical record provides chronological information regarding 26Eu787-II, but fails to give a clear picture as to the facilities present there. The function of the features recorded at the site, and their association with railroad operations, became central research issues.

Periods of Use

The earliest possible occupation of 26Eu787-II was during the early 1870s when mineral exploration was ongoing in the Mt. Hope area. The most likely first use, however, was in 1875 when the Eureka and Palisade Railroad was constructed. As previously discussed, the Chinese bowl fragment found south of the site probably dates to this era. Archival research revealed that the Mt. Hope siding was constructed during the early 1890s, a period marked by resumption of mining at Mt. Hope. Use of the site was discontinued after 1938, when the railroad was abandoned and dismantled. If the siding served only Mt. Hope mining interests, peak use periods should be during the early 1890s and mid 1930s.

Recovered artifact types with temporal spans of less than 50 years are presented in Figure 25. Artifacts with date ranges prior to 1890 are few (a limited number of hand soldered cans and a shell casing) and they may represent items discarded from a passing train. Two artifact types initially manufactured during the 1880s may date to construction of the railroad siding in the 1890s. Amethyst colored glass artifacts include a medicine bottle, a liquor bottle, two canning jars, one "cathedral" style condiment bottle, and numerous unidentified fragments. The other artifact type was a single Meyenberger evaporated milk can. These food or indulgence related items could have been carried to the site by railroad employees or discarded from a passing train.

A majority of the datable artifact types (n=13, 72.2%) have initial manufacture dates of 1900 or later. Eleven (61.1%) types have end-dates ranging between 1900 and 1932. Four types have end-dates of 1950 or later, and three have initial manufacture dates in the 1920s or 1930s. The latter may represent use of the site in conjunction with mining at Mt. Hope during the 1930s. Represented are a canning jar, a liquor bottle, and a coffee tin. One artifact is a recent (1950s to present) liquor bottle.

The subsurface debris concentration in Feature A contains only two artifact types with temporal ranges of less then 50 years: amethyst glass (1880-1914 lamp chimney fragments), and a canning jar (1902-1930). Five additional types have date ranges in excess of 50 years, all from either 1900 or 1904 to the present. These data suggest the debris concentration dates to 1900 or later, meaning the pit already would have been excavated and partly filled.

In summary, a majority of the artifacts suggest a post 1900 occupation with a possible peak between 1900 and the mid-1920s. The exclusive association of the station with mining during the early 1890s and late 1930s is not supported by these data.

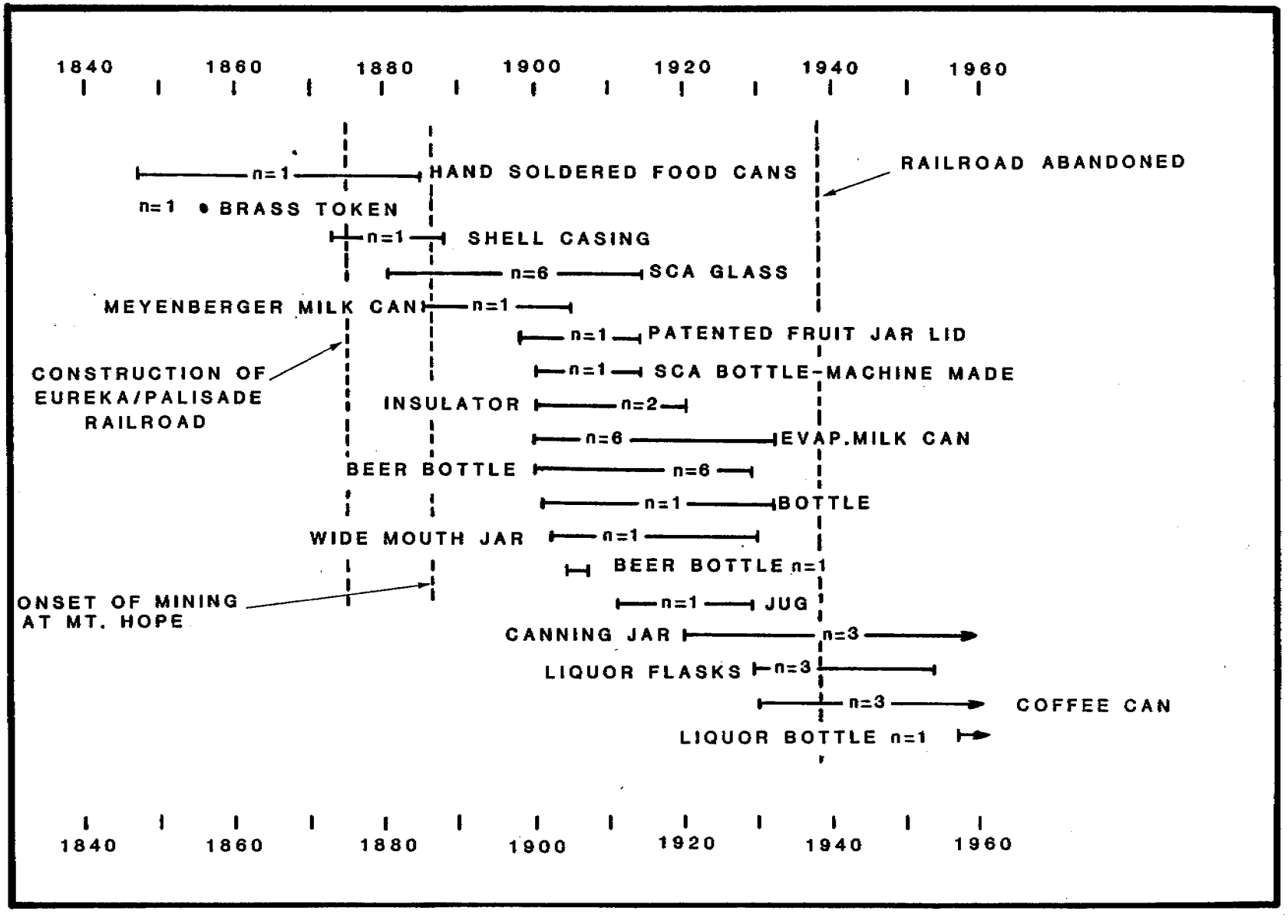


Figure 25. Temporally sensitive artifacts, 26Eu787-II.

Functional Assessment

The distribution of architectural, domestic, and personal class artifacts indicates that a residential structure of some sort was once present at Feature B. The rock mound, however, is inconsistent with foundations typical of historic period sites in central Nevada. It is not unlikely that a box car body was brought in. Typically, the box car was pulled to a site, detached from its trucks, and lifted onto a prepared foundation (Myrick 1962:206, 371). The undercarriage was left intact, requiring that the car be slightly elevated, possibly resting on railroad tie supports (see Dangberg 1972:115). Car bodies were modified to facilitate their use as living quarters, storage area, and freight office. A series of bunks was installed in one end of the car, a cast iron stove in the other (Conley 1976:264; Raymond and Fike 1981:49).

Box car bodies were used at stations along the Eureka and Palisade Railroad, especially during the 1900s (Hauck, personal communication). The most indicative railroad car item found at 26Eu787-II was a box car door guide, a piece specific to box cars with external doors (most prevalent on rolling stock dating to the late 1800s). Review of the 1880 rolling stock inventory shows that the Eureka and Palisade Railroad owned 21 box cars (Angel 1881:285), pictures of which reveal external side doors (Myrick 1962:109-110).

Narrow gauge box cars were 28 to 30 ft long, 8 ft wide (Feature B measured 23 by 9 ft), and stood just under 3 ft off the ground (if still attached to the trucks), leaving a cleared area some 12 ft long beneath the car and between the trucks. This was an ideal place to store equipment or to dump trash. Evidence at 26Eu787-II suggests the latter; the most concentrated trash deposits are in an area that would have been under the north end of the box car. The steps recorded as Feature C would have allowed access to the box car doorway which faced the railroad track. The relatively poor showing of architecture class artifacts at 26Eu787-II (10.6%), in comparison to other excavated sites with structures (27.4% at 26Eu787-B, 23.8% at 26Eu988), is probably due to removal of the box car during the 1938 dismantling of the railroad grade and associated facilities.

Feature A was first recorded as a possible outhouse (James and Elston 1983), but outhouses observed elsewhere do not exhibit the structural massiveness indicated by the wooden platform. Furthermore, a cutout was not present in the platform. Typically at railroad sites, four tie segments were placed around the privy pit and the outhouse was then built on this foundation (Raymond and Fike 1981:38). Such foundations are seldom larger than about three feet on a side.

A more likely explanation would relate the feature to the presumed site function - a section house or a siding for loading ore onto railroad cars. During the 1890s, bagged or bulk ore would have been brought to the siding in wagons. A conveyor belt system, loading ramp, or derrick crane would have been required to facilitate loading the ore onto railroad cars. All three were commonly employed at railroad sidings. Only the derrick crane would have required excavation of a pit. If a derrick crane was present, the pit at Feature A represented the hole which the crane shaft was set into; the wooden platform a loose laid decking on which men could work and where ore bags could be stacked. The artifact free, lower levels of the pit could represent fill around the base of the crane. Most artifacts in the upper levels date to after 1900. This suggests that if a crane was once present, it had been removed by

this date and the excavated hole subsequently used as a garbage pit. Conclusive evidence of a crane was not recovered, but this seems a likely alternative.

Nature of Site Occupancy

An identified research goal for 26Eu787-II was to determine whether the Mt. Hope station served as a temporary siding or a section house facility. Actual occupation should have occurred only if it was used as a section house.

The number of architectural and domestic class artifacts attests to occupation. Domestic related items represent the largest number of artifacts at the site, and the variety of such items is greater than at the other historic sites. The food storage category is especially weighty. Present, in order of frequency, are evaporated milk cans, solid food tins, spice or baking powder containers, canning jars, meat tins, large cider type jugs, and condiment bottles.

Site 26Eu787-II yielded a small faunal collection when compared with the other excavated historic sites. It is the only site where sheep remains were identified. Based on the number of identified elements, cow and sheep are equally prevalent. Medium and medium/large bone fragment categories are also equally abundant, accounting for 75.3% of the bone fragment collection. Rabbits account for 13.8% of the total sample and 54.0% of the identifiable elements. This abundance may be due, in part, to natural processes. Some fragments, however, were burned and appear to have been used for food. It is interesting to note that most of the recovered ammunition is commonly used against small game. The low percentage of food waste as compared to food storage artifacts (including meat tins), suggests a primary dependence on canned foods rather than on retail meat cuts.

Two possibilities exist regarding the number of occupants at 26Eu787-II. If the site served as a section station, it would have been occupied periodically by a group of railroad workmen. Alternately, Kneiss (1963) states that some stations were occupied during the winter months for the sole purpose of telegraphing weather and track conditions to Eureka and Palisade. Perhaps Mt. Hope station served in this capacity and was occupied for several months at a time by a single individual. Clearly, these explanations are not mutually exclusive; both may have occurred over the history of the station.

Site 26Eu787-II yielded relatively few personal class artifacts. The numerous canning jars suggest that preserved food was brought to the site. Taken together, these data suggest that people came to the site in anticipation of a short stay. They carried few personal possessions to the site and took them away when they left.

The presence of numerous overshoe buckles and medicine containers, especially mentholatum jars, may reflect winter occupation. Perhaps overshoes were supplied by the railroad and were not taken home as personal gear, but stored in the section house as company gear. Also, the number of overshoes and medicines seems too great to have been used and left by a single individual. The presence of large size evaporated milk cans, solid food tins, and large cider jugs also suggest occupation by more than one individual. While these data do not exclude winter occupation by a single individual, they suggest

periodic occupation by a group of workmen. Overall, the variety and amount of material represented seems to indicate multiple occupants.

In conclusion, it appears that the Mt. Hope siding underwent functional change over time. First established as a siding for onloading ore, site function appears to have changed in the early 1900s to that of a section station. This use was, at some time, discontinued, possibly during the late 1920s as evidenced by a diminished number of temporally sensitive artifacts.

What circumstance would have led to the construction of the new section station facility at Mt. Hope? Most likely it was the rebuilding of the railroad grade following the devastating floods of 1910. Reconstruction was undertaken by new owners who may have reorganized operation of the line to increase productivity. Reducing the number of stations was a likely element of reorganization. While some stations were probably abandoned, others may have been redesignated, such as the Mt. Hope siding being upgraded to a section station.

Discontinued use of Mt. Hope as a section station, probably in the late 1920s, means that maintenance had to be conducted from some other section station. The late 1920s was a period of marked decline in railroad operations; only essential maintenance was undertaken. Perhaps intermediate section stations were abandoned after this time, with maintenance crews working out of Palisade and Eureka or a central point like Mineral Hill.

Chapter 8. HISTORIC/PREHISTORIC SITE 26EU790

SITE DESCRIPTION

Site 26Eu790 is located east-southeast of Mt. Hope. Two horizontally differentiated components are present, a historic Chinese occupation and a prehistoric occupation. Relatively large (150 m east/west by 65 m north/south), 26Eu790 is 6220 ft (1895 m) above mean sea level. The site is 260 ft (80 m) north of the Tyrone Creek channel, 2650 ft (800 m) upstream from its confluence with Garden Pass Creek, and 33 ft (10 m) higher than the Tyrone Creek floodplain.

The site sits atop a relic fan-remnant (Peterson 1981:20) (Figure 26). Small rills are gradually invading the remnant interior, forming the eastern and northern site boundaries. The southern site margin is defined by the edge of the fan-remnant; the western boundary is not defined by topographic features. The Eureka and Palisade Railroad grade crossed the southern base of the fan-remnant; grade construction steepened the slope angle but did not cut into the remnant summit.

Flat upper fan-remnant surfaces are generally protected from alluvial deposition, but develop accumulations of eolian sand behind the slope and crest (Reinech and Singh 1980:221).

Vegetation observed on the site (in order of relative abundance) included big sage, rabbitbrush, wild rye, cheat grass and foxtail chess, lupine, juniper, Indian rice grass, and beavertail cacti. Indian paint brush was observed on the steeper side slopes of the fan-remnant.

PREHISTORIC COMPONENT

The prehistoric component of site 26Eu790 covers an area some 60 m east to west by 50 m north to south (Figure 27). Initial investigation revealed only a light scatter of lithic material on the surface. Restricted to the sand drift area, the heaviest concentration of material was along the southwestern deflated edge, suggesting the sand drift contained buried cultural material, perhaps in stratified layers.

Surface collection proceeded through three phases. First, a 4% simple random sample (20, 2 x 2 meter units) was collected. The sandy site surface is actively shifting and is ephemeral. Therefore, shovel skimming was employed as a "surface" collection technique. Sample units were marked with pin flags and then skimmed to a depth of 2 cm. Two areas of concentration were revealed in the southern and eastern portions of the site. The second phase of surface collection involved shovel skimming 24 arbitrarily selected units in the two concentrations. The third and final phase involved the collection of 28 isolated, temporally or technologically diagnostic artifacts. Most were from the southwest and southern corner of the sand drift.

Information from the 42, 2x2 units permitted an assessment of the shovel skimming method. Artifacts visible on the surface and those found during skimming were tabulated separately. Artifacts were present only in the subsurface portion of eleven units. A majority of units (27) had a few artifacts on the surface with far more (85%) just below surface. The remaining

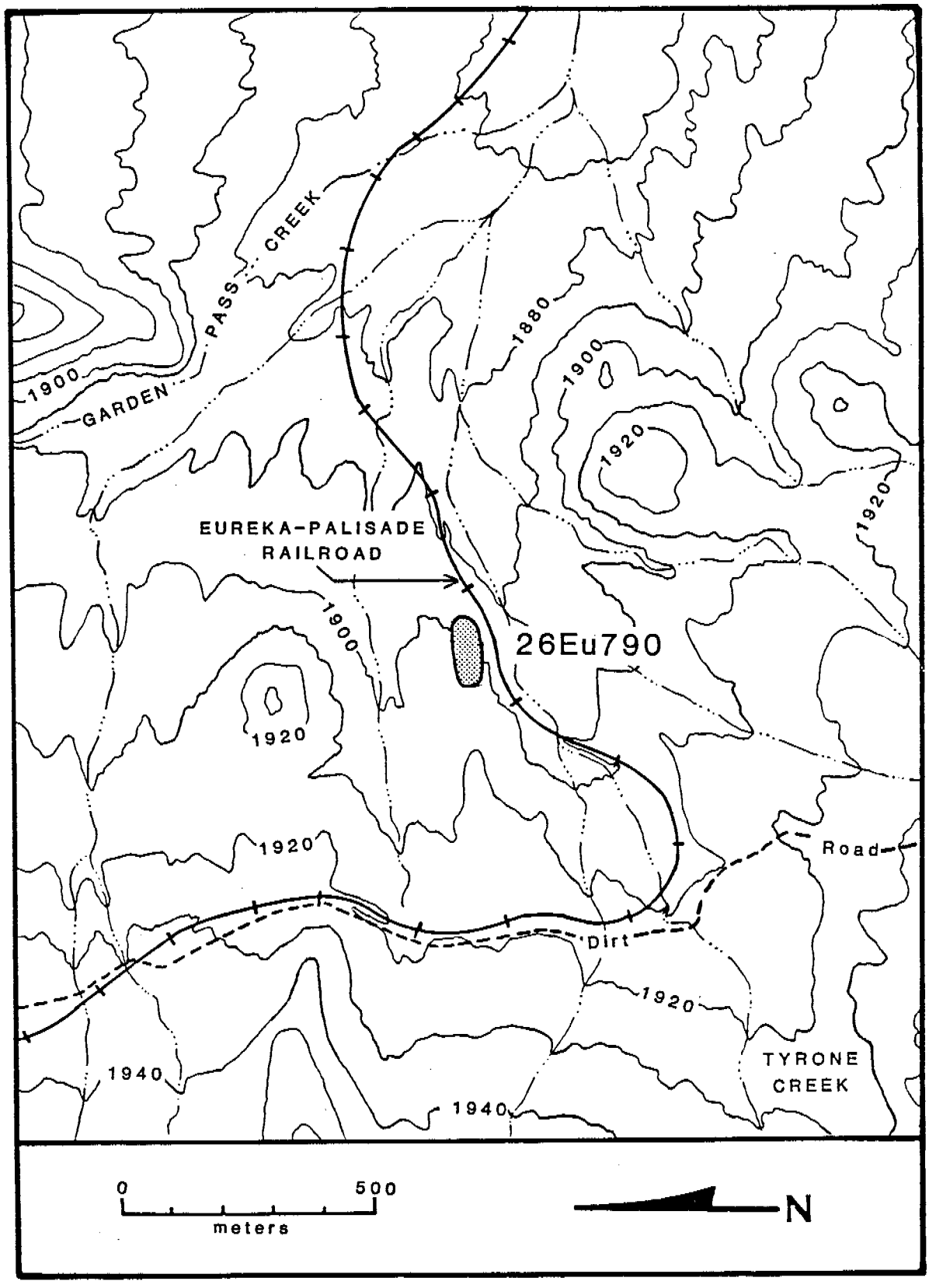


Figure 26. Location map, 26Eu790.

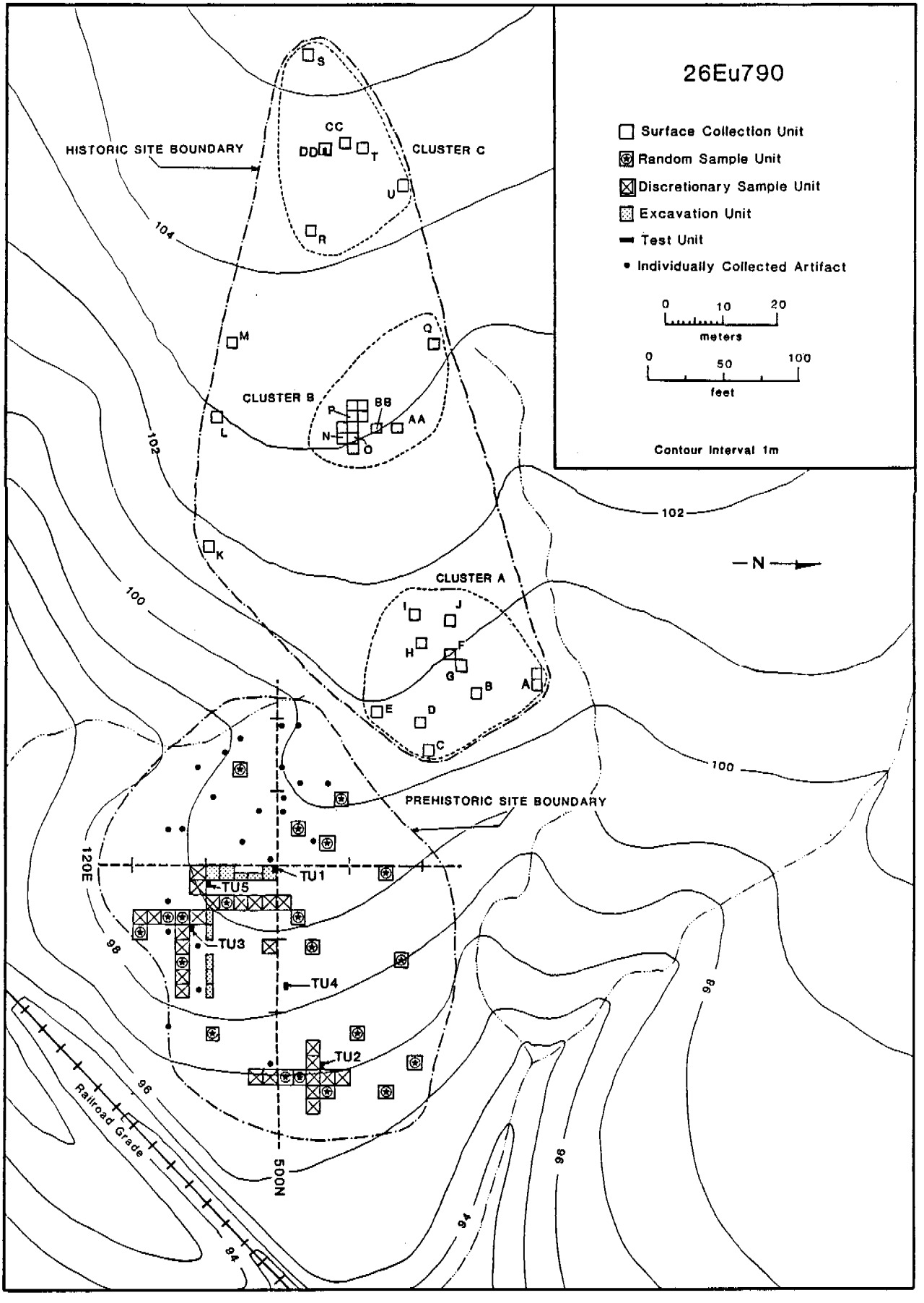


Figure 27. Site map, 26Eu790.

units contained only surface artifacts (n=2), or the surface material made up over half the recovered items (n=2).

Exploratory excavation at 26Eu790 consisted of five 1 by 0.5 m test units. Assessing the relative depth of the sand drift deposits and the vertical distribution of artifacts were the primary factors determining unit location. Five cm levels were used in Test Units 1 through 3 to determine if discrete lenses of cultural material were present within the sand drift matrix. Finding no evidence of differentiation, ten cm levels were used in test units 4 and 5.

Deposits in Test Unit 1 are typical of those found across the site. The upper 2 cm contain a loose sand layer which rests atop a thin (2-4 cm) carbonate horizon. The sand layer contained the greatest abundance of artifacts; few were noted in the carbonate horizon. Beneath the latter is a sandy-loam deposit of varying thickness; pebbles were infrequent and cobbles rare. This layer was damp, forming small mud balls which were difficult to screen. Artifacts were found in this layer, but less frequently than in the uppermost sand layer. Below this deposit was a dryer, more compacted layer bearing numerous pebbles and cobbles, but from which no artifacts were recovered.

The contact between the sandy-loam and underlying compacted layers is between 40 and 45 cm below surface, although contact in Test Units 2 and 5, both near the sand drift edge, appeared at 35 and 25 cm, respectively. Aside from this thinning at the edges, the cultural-bearing deposits appear to be of a uniform thickness across the site.

Excavation of Test Unit 1 and unit 498N/120E revealed a hearth-like feature (Feature 1) consisting of 25 small (25 x 20 x 5 cm) fire-cracked rocks and one modified cobble (Figure 28). No carbon or ash was noted. Rocks making up the feature lie at a level some 10 cm below the present surface and just below the carbonate horizon.

Based on the testing results, additional units were excavated to a depth of only 10 cm The primary objective was to locate hearths or other features. Initially, 2 x 2 m units were excavated, but as time passed and features did not appear, 1 x 2 m units were employed. Three 2 x 2 m and seven 1 x 2 m units were excavated.

Artifact Descriptions

Projectile Points

Site 26Eu790 yielded five projectile points: four from the present study, one from the earlier survey (Zeier and Stornetta 1984). Two are Humboldt Series basal fragments, the others are relatively complete Elko Series points (see Appendix A for metric data).

Humboldt Series projectile points span the greatest time period of any point type or series identified for the Great Basin, ca. 3000 B.C. to A.D. 700. Because of their time range, they are not good chronologic indicators. They are, as Thomas (1981a) observes, commonly recovered from surface sites

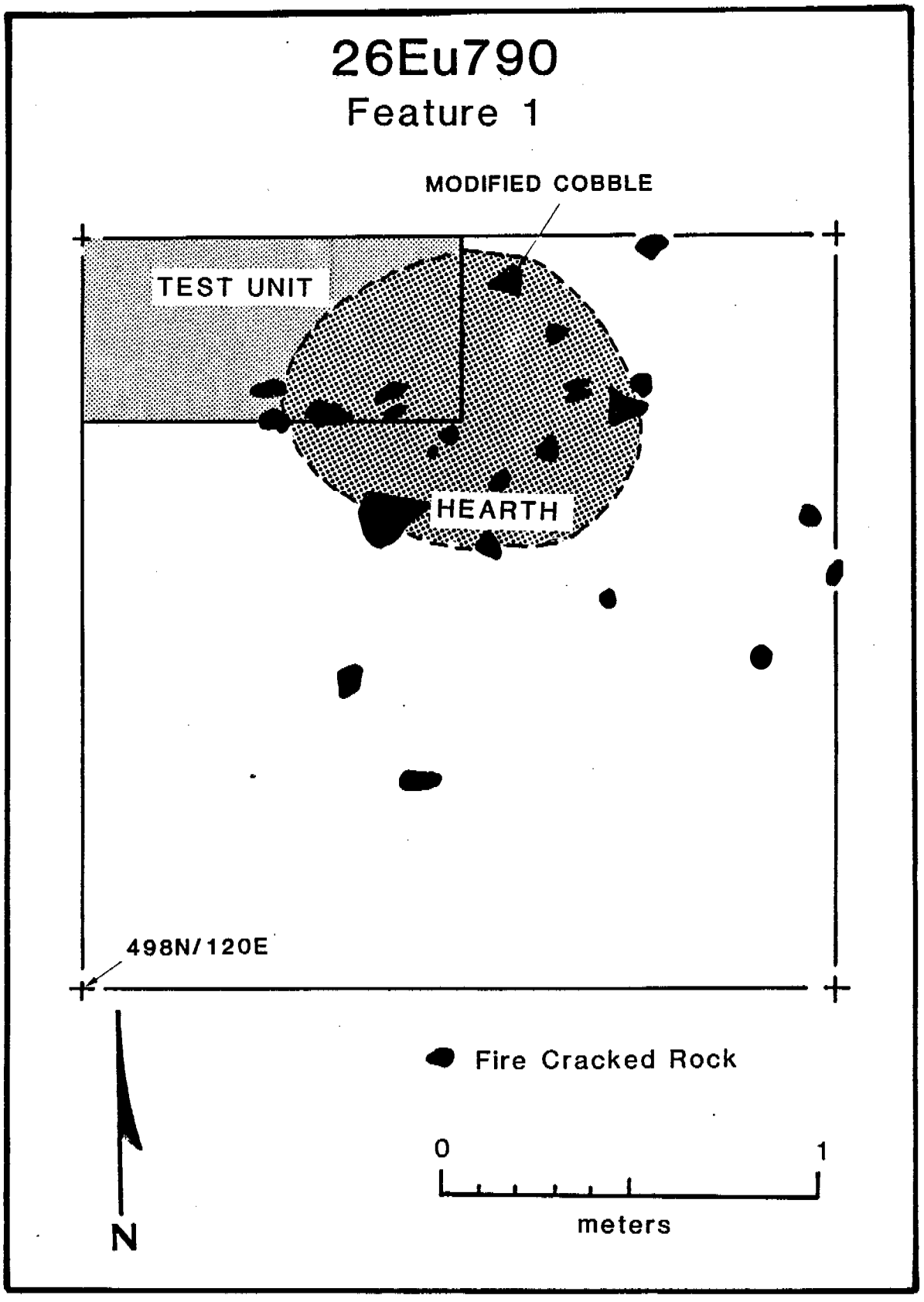


Figure 28. Feature 1, 26Eu790.

associated with intercept hunting strategies. The larger of the two (26Eu790-896-1) is flaked in a parallel-oblique pattern, made of yellowish brown chert, and distally truncated (Figure 29d). The other basal fragment (26Eu790-868-1) is a collaterally flaked basalt piece.

The two obsidian Elko Eared points have both been re-worked. The larger point (26Eu790-1-1) is irregular in outline and quite stubby. It appears to have been made from a slightly larger, truncated biface, possibly a point (see Figure 29b). The other artifact (26Eu790-884-1) is roughly triangular with thick, blunt edges (see Figure 29a). A remnant of the original, collaterally flaked artifact is visible along one edge; the remainder of the point is flaked randomly. The two points are made from very different obsidian types. One (26Eu790-884-1) is shiny and semi-translucent; the other is opaque and has a dull finish. The fact that both points are re-worked, coupled with the paucity of obsidian in the Mt. Hope collection, speaks to the high desirability and curation rate of obsidian. A similar re-worked obsidian projectile point (26Eu983-1857-8) was recovered from site 26Eu983, about 800 meters southwest of 26Eu790 (see Chapter 10).

The Elko Corner-notched point (26Eu790-815-3) is a relatively large, opaque dark brown chert dart point with a truncated shoulder and random flaking (see Figure 29c).

Stage I Bifaces

The manufacture of bifaces at 26Eu790 involved the reduction of tabular cores more than flake blanks, although both were utilized. During the first stage of reduction, the external rind (cortex) of a quarry blank or flake was trimmed away. Thirty bifaces have been assigned to this first reduction stage; five from subsurface excavations, the remainder from surface collection (Table 17, Figure 30b). All are made of chert-siltstone and all but one (26Eu790-878-1) have been heat treated. The collection consists of one nearly complete biface, seven basal fragments, five midsections, five tip fragments, and twelve edge fragments. Cortex is present on 57% of the pieces (n=17), often on both sides, indicating that small, tabular pieces of stone were selected as blanks for cores.

The more nearly complete Stage I biface fragments are asymmetrically biconvex with rounded margins and tend to be leaf-shaped. Flake patterning is highly irregular; hinge and step fractures are common. Flake scars typically are deep, expanding, and often converging at the midline of the piece. Many fragments exhibit alternate flaking: flakes are removed from opposite sides of the original quarry blank edge and, as a result, the edges are sinuous and irregular. Many edges exhibit micro-flake scars and crushing, typical of edge scrubbing performed to enhance the striking platform.

Five bifaces (26Eu790-866-3; 26Eu790-866-4; 26Eu790-833-1; 26Eu790-1147-3, and 26Eu790-1149-3) have crenated truncations typical of thermal shock. End-shock truncations are common in the collection, and six specimens fractured along impurities in the material. The large number of truncations (n=40) is indicative of the poor quality and low tensile strength of the chert-siltstone material. Recognizing these negative qualities, prehistoric knappers heat treated the raw material in hope of improving its workability. All but one of the Stage I bifaces (26Eu790-878-1) have been so treated.

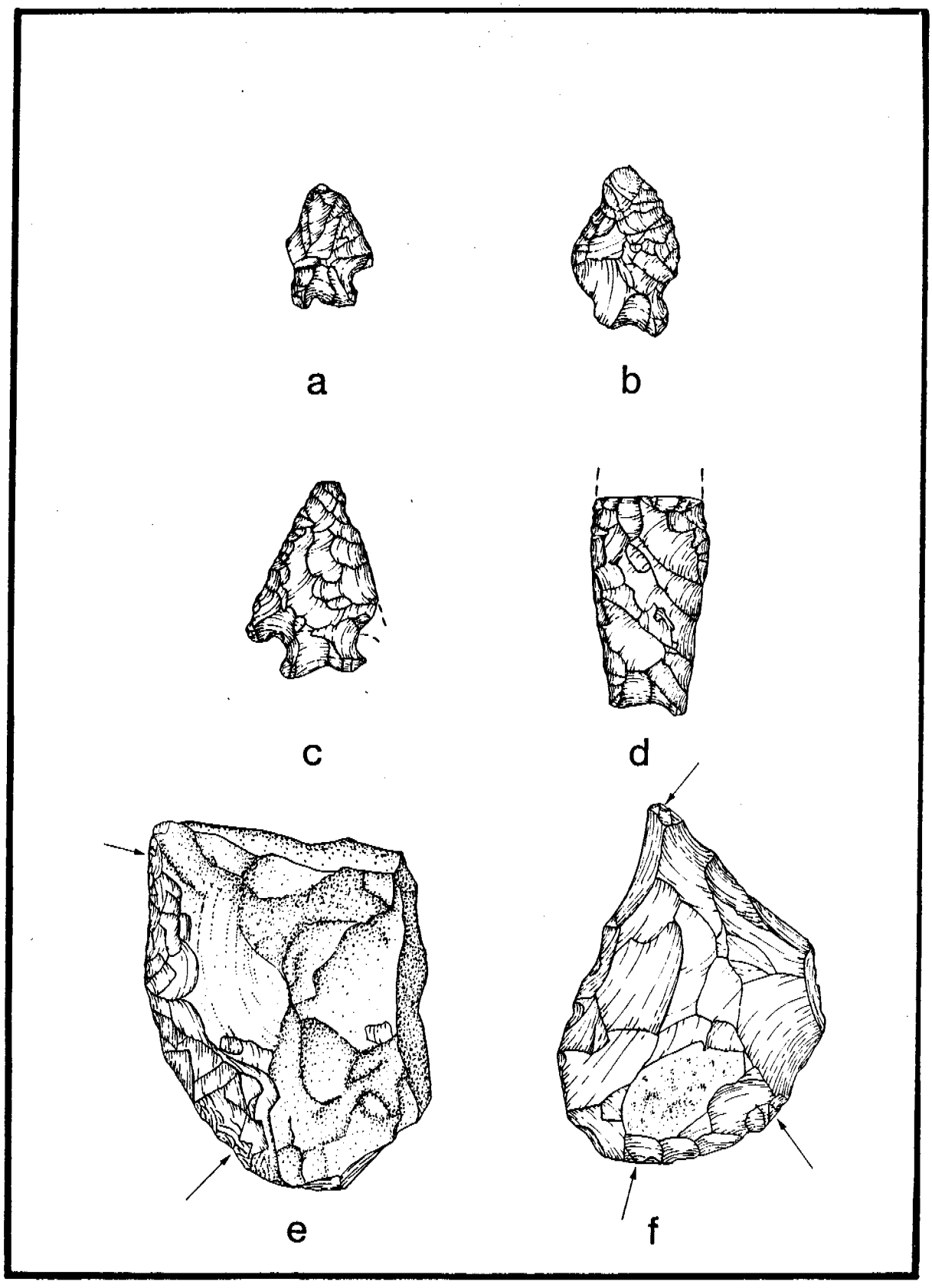


Figure 29. Prehistoric artifacts, 26Eu790. a. and b. reworked Elko Series points (26Eu790-884-1 and 26Eu790-1-1); c. Elko Corner-notched point (26Eu790-815-3); d. Humboldt Series point (26Eu790-896-1); e. battered chert cobble (26Eu790-1145-1); f. basalt scraper/graver (26Eu790-872-1). Arrows indicate EUs. (Scale 1:1).

Table 17. Stage I Biface Attributes, 26Eu790

Site Number	Specimen Number	Provenience		Material	Weight (grams)	Length (mm)	Width (mm)	Thickness (mm)	Thermally Altered	Condition
26Eu790	805-2	Surface	Unit C	Siltstone	24.6	47.3	46.2	12.5	yes	Tip fragment
26Eu790	840-1	Skim	484N/126E	Siltstone	37.0	36.4	62.8	19.6	yes	Midsection fragment
26Eu790	841-5	Skim	486N/126E	Siltstone	15.7	32.2	41.2	10.4	yes	Midsection fragment
26Eu790	854-2	Skim	490N/124E	Siltstone	25.0	62.6	45.4	12.0	yes	Fragment
26Eu790	857-1	Skim	486N/134E	Siltstone	49.7	76.1	49.5	17.4	yes	Fragment
26Eu790	859-1	Skim	488N/126E	Siltstone	17.5	35.8	40.5	12.2	yes	Tip fragment
26Eu790	859-4	Skim	438N/126E	Siltstone	9.8	41.6	26.6	12.6	yes	Nearly complete piece
26Eu790	863-1	Skim	488N/122E	Siltstone	10.5	38.0	21.3	18.5	yes	Edge fragment
26Eu790	866-2	Skim	488N/120E	Siltstone	5.1	30.7	20.8	8.5	yes	Edge fragment
26Eu790	866-3	Skim	488N/120E	Siltstone	11.3	36.2	24.7	11.8	yes	Fragment
26Eu790	866-4	Skim	488N/120E	Siltstone	16.2	35.2	41.5	11.1	yes	Tip fragment
26Eu790	878-1	Surface	484N/124E	Siltstone	13.4	40.0	35.8	11.3	no	Tip fragment
26Eu790	880-1	Surface	500N/110E	Siltstone	9.3	42.4	22.2	9.1	yes	Edge fragment
26Eu790	883-1	Surface	496N/112E	Siltstone	20.3	39.2	34.5	11.6	yes	End fragment
26Eu790	883-2	Surface	496N/112E	Siltstone	53.9	58.2	56.8	18.1	yes	End fragment
26Eu790	887-1	Surface	494N/116E	Siltstone	15.9	43.6	35.5	8.6	yes	Midsection fragment
26Eu790	890-1	Surface	494N/116E	Siltstone	13.1	34.5	47.2	8.6	yes	Tip fragment
26Eu790	893-1	Surface	492N/104E	Siltstone	29.1	53.3	41.3	18.5	yes	Fragment
26Eu790	893-2	Surface	492N/104E	Siltstone	18.3	33.5	36.5	14.4	yes	End fragment
26Eu790	894-1	Surface	494N/102E	Siltstone	18.1	33.4	48.6	9.8	yes	End fragment
26Eu790	901-1	Surface	478N/136E	Siltstone	27.8	51.1	46.7	13.7	yes	Tip fragment
26Eu790	902-1	Surface	484N/104E	Siltstone	8.0	31.1	36.7	7.9	yes	Tip fragment
26Eu790	904-1	Surface	484N/114E	Siltstone	20.5	59.0	24.6	14.5	yes	Fragment
26Eu790	1145-2	Level 2 (2-10)	492N/120E	Siltstone	9.3	31.8	37.0	13.3	yes	Fragment
26Eu790	1147-1	Skim (Level 1)	490N/120E	Siltstone	15.5	34.7	44.3	10.2	yes	Tip fragment
26Eu790	1147-3	Skim (Level 1)	490N/120E	Siltstone	12.4	43.3	21.9	11.0	yes	Fragment
26Eu790	1149-1	Level 2 (2-10)	490N/120E	Siltstone	28.2	58.4	43.7	14.6	yes	Fragment
26Eu790	1149-3	Level 2 (2-10)	490N/120E	Siltstone	12.5	55.2	32.3	10.1	yes	Edge fragment
26Eu790	1160-1	Level 2 (2-10)	490N/134E	Siltstone	14.7	32.3	37.5	14.2	yes	Fragment
26Eu790	1162-1	Level 2 (2-10)	490N/126E	Siltstone	16.4	42.2	32.5	12.3	yes	Fragment

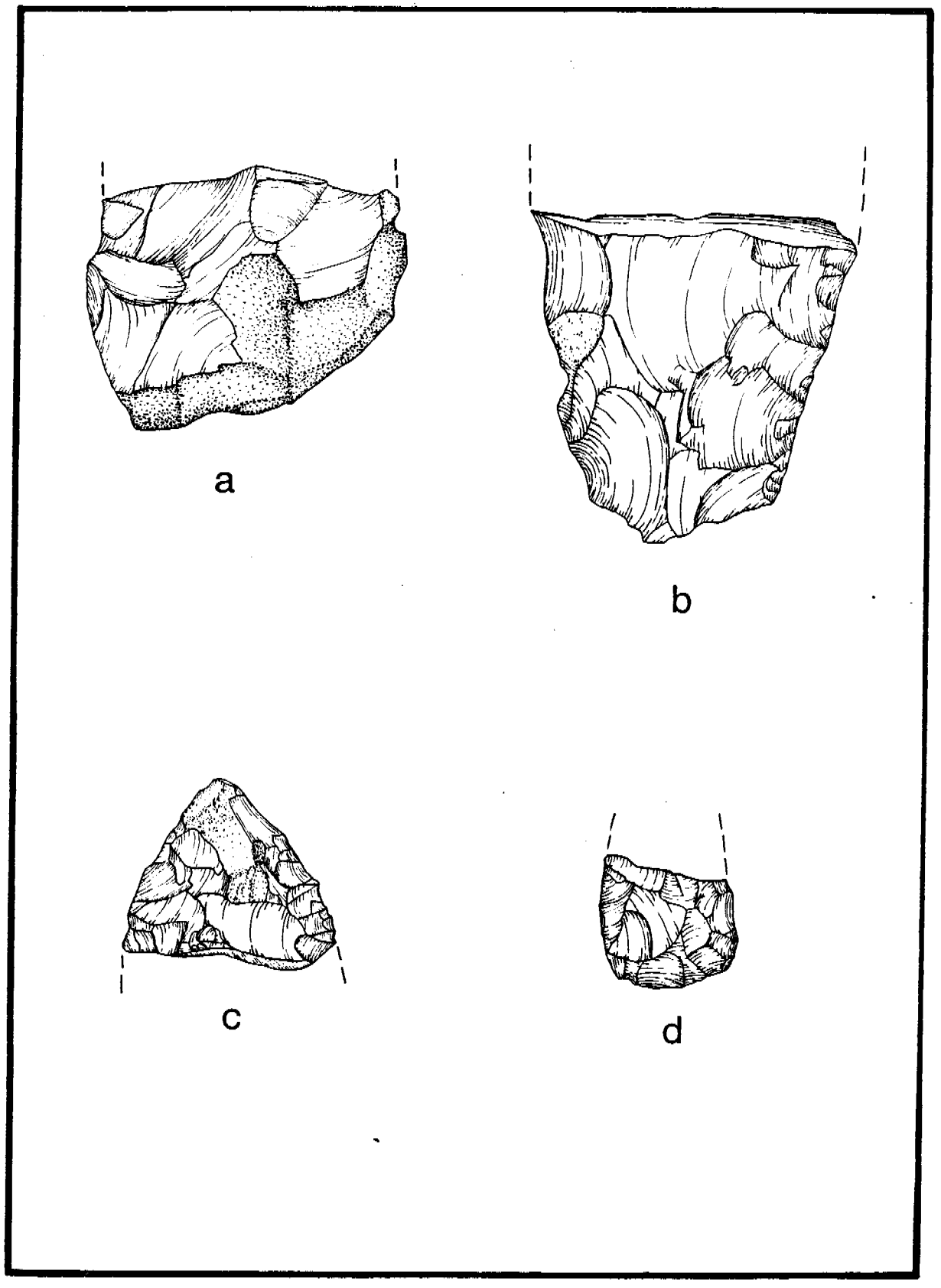


Figure 30. Prehistoric artifacts, 26Eu790. a. chert-siltstone assayed cobble (26Eu790-854-1); b. chert-siltstone stage I biface fragment (26Eu790-883-2); c. chert-siltstone stage II biface fragment (26Eu790-866-1); d. chert-siltstone stage II biface fragment (26Eu790-890-2). (Scale 1:1)

Analytical data suggest that Stage I bifaces measured 70 to 90 mm in length, 35 to 50 mm in width, and 10 to 15 mm in thickness.

Stage II Bifaces

Eleven Stage II bifaces were recovered: nine were on the surface, two subsurface. Nine specimens are chert-siltstone, two are chert and all were heat treated. Present are two tip fragments, four edge fragments, three basal fragments, and two midsections. No complete Stage II bifaces are present in the collection.

Characteristics of Stage II reduction - more regular flaking and greater symmetry than Stage I - are readily apparent. The Stage II bifaces have less sinuous edges than those of the previous stage, and typically are biconvex in cross-section with steep edges (see Figure 30c). Flake scars tend to be shallow and expanding: in every case, flake scars cross the midline of the artifact. Cortex is present on only one specimen. Hinge and step fractures are proportionately as numerous as in the Stage I bifaces, due more to inferior toolstone than poor craftsmanship. End-shock fractures are present on every specimen.

Analytical data for the Stage II bifaces are presented in Table 18. These suggest certain morphological similarities among the categories of biface fragments (midsection, tip, base-end, edge). A typical Stage II biface blank was in the range of 60 to 80 mm in length, 35 to 45 mm in width, and 7 to 10 mm in thickness. The bifaces are approaching their completed size and form at this stage in the trajectory.

Two Stage II tip fragments (26Eu790-867-1 and 26Eu790-882-1) do not fit into the proposed biface trajectory at 26Eu790. The larger of the two is a heat treated, mottled dark reddish brown chert specimen with long, deep flake scars indicative of percussion flaking. The artifact is transversely truncated. The second specimen is a small, dark red chert fragment which exhibits fine pressure flaking scars and an end-shock termination. Considering the exotic nature of these raw materials and artifact morphology, both appear to be projectile point blanks. This suggests that higher quality cherts were selected for projectile point manufacture, or that chert was carried to the site from elsewhere and reduced into tool form.

Stage III Bifaces

Three Stage III bifaces were surface collected at 26Eu790 (Table 19, see Figure 30d): two are knife end fragments, the other is a perforator (drill) tip fragment. One knife fragment (26Eu790-877-1) is made of thermally altered, mottled pale olive and dark brown chert. Although the artifact is not finely or uniformly flaked, it represents a finished tool that has been utilized and re-sharpened. The other knife fragment (26Eu790-890-2) is a heat treated chert-siltstone artifact that has not been utilized. It fractured along a vein of impurity, probably during manufacture. The final chert-siltstone piece is a perforator tip fragment (26Eu790-840-2).

The two chert-siltstone Stage III bifaces are the only recovered examples of finished tools of the biface manufacturing trajectory at 26Eu790. Although

Table 18. Stage II Biface Attributes, 26Eu790

Site Number	Specimen Number	Provenience		Material	Weight (grams)	Length (mm)	Width (mm)	Thickness (mm)	Thermally Altered	Condition
26Eu790	859-2	Skim	488N/126E	Siltstone	9.3	47.9	25.5	9.1	yes	Edge fragment
26Eu790	866-1	Skim	488N/120E	Siltstone	10.2	29.4	36.7	11.0	yes	Tip fragment
26Eu790	867-1	Skim	498N/148E	Chert	2.6	23.9	16.2	7.5	yes	Tip Fragment
26Eu790	882-1	Surface	506N/108E	Chert	11.7	42.5	22.3	11.8	yes	Tip fragment
26Eu790	888-1	Surface	490N/110E	Siltstone	16.7	29.5	45.6	12.2	yes	Midsection fragment
26Eu790	889-1	Surface	488N/106E	Siltstone	15.0	42.2	41.7	13.3	yes	End fragment
26Eu790	892-1	Surface	498N/118E	Silstone	12.6	41.6	34.5	9.0	yes	Edge fragment
26Eu790	903-1	Surface	488N/130E	Siltstone	19.2	35.1	47.4	9.0	yes	End fragment
26Eu790	1147-2	Level 1 (0-2)	490N/120E	Siltstone	20.2	26.0	52.4	11.3	yes	Midsection fragment
26Eu790	1154-1	Level 2 (2-10)	490N/128E	Siltstone	11.2	39.3	30.1	9.7	yes	Edge fragment
26Eu790	1157-1	Skim	490N/136E	Siltstone	2.5	13.6	20.8	9.0	yes	Edge fragment

Table 19. Stage III Biface Attributes, 26Eu790

Site Number	Specimen Number	Provenience		Material	Weight (grams)	Length (mm)	Width (mm)	Thickness (mm)	Thermally Altered
26Eu790	840-2	Skim	484N/126E	Siltstone	0.3	15.0	7.7	4.0	?
26Eu790	877-1	Surface	498N/146E	Chert	8.4	31.3	39.8	6.2	yes
26Eu790	890-2	Surface	494N/116E	Siltstone	2.5	23.8	24.1	6.5	yes

some finished bifaces undoubtedly escaped collection, we presume that most finished tools were carried away from the site by its prehistoric inhabitants.

Scraper

One teardrop shaped, turtleback basalt scraper (26Eu790-872-1) was found at 26Eu790. The artifact exhibits utilization on all edges, including the tang formed at its apex, which may have been used as a graver. The dorsal side is heavily patinated and arrises are rounded by weathering. This scraper is typical of artifacts commonly found at pre-Archaic sites (Elston 1982), but seems out of place at 26Eu790.

Assayed Cobbles

An assayed cobble is a piece from which one to a few flakes are removed as a quality check before the cobble is discarded. Nine assayed cobbles were recovered from the site (see Figure 30a): six during surface collection, three from level 2 (2-10 cm b. s.) of the excavation units (Table 20). All the specimens are chert-siltstone and range in size and shape from small angular chunks (26Eu790-863-3), to long, thin platy pieces (26Eu790-1145-3), to crude sub-angular blocks (26Eu790-854-1). Cortex is present on at least one surface of each cobble, and each typically has four to six deep, expanding flake scars that rarely cross the midline. Deep negative bulbs of force indicate hard hammer percussion. Hinge and multiple step fractures are common, and end-shock fractures are present on seven artifacts. All the cobbles have been heat treated and each bears evidence of post heat treatment flaking.

Table 20. Analytical Data for Assayed Cobbles, 26Eu790

Spec. Number	Provenience	Weight	Length	Condition
831-1	502N114E ss	52.6	54.3	4-5 flake scars
851-1	486N128E ss	19.1	63.1	Tabular; cortex; end shock
854-1	490N124E ss	59.8	42.3	End shock; hinge/step fracture
863-3	488N122E ss	15.0	40.2	Thin tabular; cortex; 6 scars
885-1	500N106E	25.1	38.0	Thin plate; cortex; end shock
886-1	502N100E	41.1	78.4	Thin plate; hinge/step fracture
1145-3	492N120E L 2	61.1	94.4	Thin plate; cortex; end shock
1146-3	498N120E L 2	42.4	58.5	Cortex; end shock; hinge frac.
1156-1	490N132E L 2	23.6	54.1	Hinge/step fractures

ss = Shovel Skim L 2 = Level 2

Weight is a particularly sensitive indicator of the various stages in the biface trajectory at 26Eu790. Average weights for the reduction stages are: assayed cobbles, 37.8 grams; Stage I bifaces, 19.3 grams; Stage II bifaces, 11.9 grams; Stage III bifaces, 3.7 grams. Clearly, there is a marked weight reduction from assayed cobble to the complete biface. The greatest differential between successive stages is between assayed cobbles and Stage I bifaces - 18.5 grams.

Core Tools

Two heat treated core tools were recovered. One specimen (26Eu790-881-1) is a mottled gray chert, split core fragment with a steeply beveled EU (a term denoting the utilized portion of a tool edge [Elston et al. 1977]). The second artifact (26Eu790-1152-1) is a dark gray, banded chert split core with a single, steep EU. Both were probably used as scrapers.

Flake Tools

Eight utilized flakes were collected at 26Eu790 (Table 21): four of obsidian, two of chert, and two of chert-siltstone. The predominance of obsidian and cherts suggests they were carried to the site rather than manufactured there. The preference for these materials reflects their ability to hold an edge longer than the chert-siltstone. The comparatively low number of utilized flakes and the complete absence of modified flake tools at 26Eu790 is typical of a secondary reduction site.

The four obsidian tools appear to be from different sources (quarries). The first (26Eu790-821-5) is a highly weathered, opaque obsidian bifacial reduction flake with a single lateral EU. The second flake tool (26Eu790-847-2) is a secondary flake with one, heavily utilized lateral EU; the toolstone is a translucent obsidian with a matte finish. The third specimen (26Eu790-895-1) is a secondary flake of banded obsidian. One lateral edge and the distal end exhibit evidence of utilization, the other lateral edge may possibly have been broken through use. The fourth flake tool (26Eu790-1150-1) is a speckled obsidian secondary flake with two lateral EUs.

Both chert artifacts are secondary, heat treated flakes with lateral EUs. One (26Eu790-811-3) is reddish brown chert with a single lateral EU; the opposite edge, dorsal end, and platform have been snapped off. The other chert tool (26Eu790-848-3) is a heat crazed, white chert secondary flake with two lateral EUs; its dorsal end is truncated. Only two utilized flakes are chert-siltstone. Both are heat treated secondary flakes (26Eu790-857-4 and 1144-7); the former has one lateral EU, the latter has two.

Fire Altered Rock

Twenty-five fire altered rocks comprise Feature 1, 26Eu790. Four were collected for analysis. Provenience and analytic data for these appear in Table 22. The specimens, made of locally available porphyritic rhyolite, are heat fractured and variously smoke stained or oxidized.

Groundstone

A porphyritic rhyolite groundstone fragment was recovered from Level 2 (5-10 cm b. s.) of excavation unit 499.5N120E. The specimen (26Eu790-1120-1) measures 7 by 4.5 by 3 cm and is fire fractured and oxidized. The ground surface has two shallow, parallel grooves; joint striations cover the entire surface. The artifact may have been used as an arrow-shaft straightener. The piece was found in association with subsurface Feature 1.

Table 21. Flake Tool Attributes, 26Eu790

Site Number	Specimen Number	Provenience		Material	Weight (grams)	Length (mm)	Width (mm)	Thickness (mm)	Thermally Altered	Condition
26Eu790	811-8	Surface	Unit P	Chert	1.2	22.5	15.4	3.3	yes	Secondary flake, 1 EU
26Eu790	821-5	Surface	N. Ext 1	Obsidian	0.6	15.9	12.6	2.8	no	Biface reduction-1 lateral EU
26Eu790	847-2	Skim	500N/148E	Obsidian	1.4	25.2	13.5	4.0	no	Secondary flake-1 lateral EU
26Eu790	848-3	Skim	514N/150E	Chert	4.6	22.1	26.6	8.0	yes	Secondary flake-2 lateral EUs
26Eu790	857-4	Skim	486N/134E	Siltstone	3.7	33.0	26.1	7.0	yes	Secondary flake-1 lateal EU
26Eu790	895-1	Surface	500N/100E	Obsidian	1.6	28.2	18.9	3.4	no	Secondary flake-dorsal and lateral EUs
26Eu790	1144-7	Level 1(0-2)	492N/120E	Siltstone	1.3	25.1	17.7	3.5	yes	Secondary flake-2 lateral EUs
26Eu790	1150-1	Level 2(2-10)	496N/121E	Obsidian	1.6	16.5	24.4	4.3	no	Secondary flake-2 lateral EUs

Table 22. Fire Altered Rock Analytic Data, 26Eu790

Specimen Number	Provenience	Weight (grams)	Approximate Size (cm)
1118-3	Level 1 (2-5 cm)	204.9	8 x 6 x 3
1143-1	Level 1 (0-2 cm)	308.9	7 x 7 x 4
1146-1B	Level 2 (2-10 cm)	820.9	13 x 9 x 5
1146-2	Level 2 (2-10 cm)	253.2	10 x 9 x 3

Battered Cobble

A black chert cobble fragment (5.5 by 4.5 by 2.5 cm), with a dark reddish brown (2.5 YR 3/4) cortical surface, was recovered. The piece is high quality, massive structured chert, and is heavily battered along one edge (see Figure 29e). The multiple step and hinge fractures along its utilized edge indicate the piece was used as a lithic tool fabricator.

Debitage

A total of 2072 pieces of debitage was recovered at 26Eu790; only 667 are complete. Material type frequencies for the assemblage are presented in Table 23. Chert-siltstone dominates, comprising 92.9% of the overall collection. Chert accounts for 3.6% and basalt for 1.5%. Other materials account for 2% of the assemblage.

Table 23. Debitage Material Type Frequencies, 26Eu790

Material Type	Complete Flakes	Fragments	Total
Siltstone	612	1321	1933
Cherts	27	47	74
Basalt	18	13	31
Obsidian	5	12	17
Quartzite	2	7	9
Chalcedony	2	2	4
Megaquartzite	1		1
Other		3	3
	667	1405	2072

Debitage stage frequencies for complete flakes are presented in Table 24. These data reveal that primary and secondary stages are the most numerous, comprising about half the collection. If shatter is included, the percentage of early stage reduction pieces increases to 65.8%. Cursory review indicates that the shatter was produced either during primary reduction, or following thermal alteration during secondary reduction.

Table 24. Reduction Stage Frequencies, 26Eu790

Reduction Stage	N	%
Primary	145	21.7
Secondary	192	28.8
Tertiary	106	15.9
Biface Reduction	70	10.5
Shatter	102	15.3
Indeterminate	52	7.8

Since early stage debitage predominates, cortex was abundant, and it was present on 289 (43.3%) of the 667 complete flakes (Table 25). A majority had cortex over less than 50% of the dorsal surface. Primary and shatter debitage classes are particularly notable for their abundance of cortical pieces. Their number is higher than expected since the observed percentage exceeds that for figures at many quarries. This characteristic most likely is due to the size and nature of the quarry stone. Small, tabular pieces, like those reduced at 26Eu790, have a high surface area to internal volume ratio. As a result, reduction results in a higher percentage of cortical to interior flakes. Larger quarry blocks, on the other hand, have a larger volume of internal material and their reduction results in a lower ratio of cortical to interior flakes (Elston, personal communication). Cortical pieces are also present in late stage debitage. This is a function of the bifacial reduction of tabular core blanks rather than flake blanks.

Table 25. Cortex Abundance by Reduction Stage, 26Eu790

Reduction Stage	Cortex Absent	Cortex Present	% Debitage With Cortex
Primary	24	121	83.4
Secondary	109	83	43.1
Tertiary	95	11	10.2
Biface Reduction	62	8	11.4
Shatter	44	58	56.7
Indeterminate	44	8	15.3
	378	289	43.3

A majority (n=563, 84.4%) of complete flakes exhibit evidence of thermal alteration. Siltstone was nearly always heat treated (90.6%), rendering an otherwise soft, friable toolstone more vitreous and workable. Data for chert debitage suggest that it too was often heat treated (n=8, 29.6%). A number of chert items (n=17, 63.0%) were classified questionable, with regard to presence of heat treatment, reflecting the difficulty of discerning thermal alteration in the absence of comparative quarry pieces. If these were in fact thermally altered, then 92.6% of the cherts were so treated. None of the other material types exhibited evidence of thermal alteration.

Cross-tabulation provides a ready means of comparing the distribution of attributes. Comparison of material type and reduction stage data shows differences in reduction strategies between material types (Table 26). The siltstone sample shows high percentage frequencies of primary and secondary flakes, reflecting the principal activity carried out at 26Eu790, Stage II siltstone biface reduction. Percentages for tertiary and biface reduction siltstone debitage drop significantly. Basalt debitage presents a similar profile, although the sample is very small. Chert flakes, on the other hand, are primarily biface reduction and shatter, suggesting the heat treatment and rejuvenation of artifacts manufactured elsewhere. The small number of flakes represented may reflect rejuvenation of a single tool. The obsidian and chalcedony flakes present similar patterns.

Table 26. Reduction Stage by Material Type and Frequencies of Thermal Alteration, 26Eu790

Reduction Stage	Material Type: Siltstone N	Siltstone %	Cherts N	Cherts %	Basalt N	Basalt %	Thermally Altered Yes	%
Primary	135	22.0	4	14.8	5	27.7	119	82.0
Secondary	185	30.2	2	7.4	5	27.7	174	90.6
Tertiary	102	16.6	1	3.7	2	11.1	97	91.5
Biface Reduct.	54	8.8	9	33.3	1	5.5	56	80.0
Shatter	92	15.0	7	25.9	3	16.6	79	77.4
Indeterminate	44	7.1	4	14.8	2	11.1	38	73.0

Thermal alteration is abundant in all reduction stages (see Table 26), exhibiting a slight peak in the secondary and tertiary stages. Thermal alteration occurred during or just prior to secondary reduction.

The abundance of cortical pieces within a particular material type can indicate how close the site is to the quarry location. Data from 26Eu790 show that Cortex is most frequent on basalt debitage (n=10, 55.6%). Given the limited amount of basalt debitage present (18 pieces), it is uncertain what this means. The debitage may be from a single artifact. Siltstone cortical debitage is also prevalent (n=275, 45.0%), as expected given the abundance of primary stage siltstone debitage and general site function. Data for chert debitage suggest that it is an exotic material; only 11.2% (n=3) of the flakes have cortex present. Meta-quartzite, obsidian, chalcedony, and quartzite frequencies are too low to warrant conjecture.

Faunal Remains

Five bone fragments were surface collected at 26Eu790. Only one fragment (26Eu790-1162-5) is identifiable to the genus level; a mandible fragment, possibly from a vole or meadow mouse (*Microtus sp.*). The others are too fragmentary to identify, and none bear evidence of cultural modification.

Evaluation of Prehistory Related Research Goals

Research problems addressed by 26Eu790 data have to do with determining if multiple components are present; determining if the site can be assigned to the Middle Archaic period; verifying site function as a locus of secondary biface reduction; defining the operative lithic production system; and assessing the effects of cultural and archaeological processes (Schiffer 1976) on vertical and horizontal artifact patterning.

Components Present

The only temporally sensitive artifacts recovered from 26Eu790 were projectile points (Table 27). Excavation failed to provide charcoal samples for radiocarbon dating. Since Humboldt Series points are not discriminating chronological indicators, the more plentiful Elko Series points which place 26Eu790 at 1300 B.C. to A.D. 700 are relied upon. Further refinement is not possible at this time.

Table 27. Temporally Sensitive Artifacts, 26Eu790

Artifacts	Date Range	Number Of Items
Elko Series points	1300 B.C. to A.D. 700	3
Humboldt Series points	3000 B.C. to A.D. 700	2

The two Middle Archaic point types have overlapping time ranges, making it possible that site materials represent either a single occupational event, or serial occupations during one cultural period. Clarification of the issue requires a consideration of natural and cultural transformation processes.

Site Formation Processes

Archaeological materials are often moved vertically within a deposit by natural forces (Villa 1982). Twice as much cultural material moves up in a profile as moves down (Rowlett and Robbins 1982). The direction and degree of movement is largely dependent on surface permeability and artifact size (Baker 1978; Gifford 1978). Trampling on soft, sandy surfaces, as at 26Eu790, tends to displace larger objects upward, smaller objects downward (Stockton 1973). This can occur over a limited time period, perhaps as quickly as over a few days (Gifford 1978). Matthews (1965) suggests that the effects of occupational trampling extend approximately 30 cm below surface. Alternate wetting and drying of sediments or even the percolation of rain water will facilitate vertical displacement (Cahen and Moeyersons 1977). Ethnographic observations of trampling and the vertical displacement of artifacts are provided by Yellen (1977:103), Gifford and Behrensmeyer (1977), and Gifford (1978).

These observations allow for several hypotheses regarding 26Eu790. The only evidence of a buried living surface was at Feature 1 (Test Unit 1 and unit 498N/120E). Rocks making up the feature lie at a level some 10 cm below the

present surface, just below the carbonate horizon. Assuming the site represents a single component, and that its slowly aggrading surface was subjected to trampling during and after occupation, then:

- a majority of material should be found on or near the surface;
- material still remaining on or near the original living surface should be dominated by medium sized pieces, the larger and smaller pieces having been displaced up and down respectively;
- size grading should be apparent, with smaller pieces being the most predominant below the original living surface; and,
- the surface material should be consistently larger in size then items found at depth.

None of these patterns should be apparent if the site represents multiple, vertically distinct site occupations. Surface materials should not predominate and size grades should be more evenly distributed through the profile.

Debitage recovered from the five test units provide the means for assessing the degree to which size grading occurred. Table 28 provides information on the number and average size grade of complete flakes and the number of flake fragments by level for the five units. Three patterns are apparent. First, the average size of the complete flakes tends to decrease with depth. The only major exception is Test Unit 5 where a single large flake was found in Level 3. Second, the percentage of fragments, as opposed to complete items, increases with depth; 65.0% of flakes in Level 1 are broken, while 85.0% of those in Level 4 are broken. This is significant because fragments are, on the average, smaller then complete flakes and breakage by human trampling should compress broken pieces into the ground. Third, the amount of debris varies by level. The upper 10 cm (levels 1A and 1B combined) account for nearly 40% of all material recovered. Levels 2 (10 to 20 cm) and 3 (20 to 30 cm) yielded nearly equal numbers of flakes, while counts dropped off in Level 4 (30 to 40 cm).

Table 28. Vertical Distribution of Debitage in Test Units, 26Eu790

	TU 1			TU 2			TU 3			TU 4			TU 5		
	499.5N120E			506N147E			488N128E			501N136E			490N122E		
LEVEL (cm)	Whole #	Frag Size	Frag #	Whole #	Frag Size	Frag #	Whole #	Frag Size	Frag #	Whole #	Frag Size	Frag #	Whole #	Frag Size	Frag #
0-2	2	24	1			3			1	3	23	5	2	20	3
2-10	3	10	4			2			3	2	34		6	13	12
10-20						1	2	16	5	5	19	8	1	8	8
20-30	1	6	2				1	10	13			5	1	30	8
30-40			4				3	12	9			4			
	6		11			6	6		31	10		22	10		31

Ten subsequent excavation units (dug in search of features in the upper 10 cm of deposit) revealed somewhat attenuated patterns (Table 29). Flakes are consistently more abundant in the sandy, upper layer (Level 1A, 0 to 2 cm);

size grading is present in five (50%) units, with materials from Level 1A being heavier than those from Level 1B (2 to 10 cm). The opposite is true for four units and one exhibited no size grading. Finally, except for one case, fragments outnumber complete flakes; the overabundance of fragments is most pronounced in Level 1A.

Table 29. Distribution of Debitage in Shallow Units, 26Eu790

Unit & Level	Whole #	Whole Size	Frag #	Unit & Level	Whole #	Whole Size	Frag #
490N120E				490N136E			
1A	10	27	6	1A	4	23	26
1B	4	26	1	1B	10	30	50
490N126E				492N120E			
1A	6	23	22	1A	15	32	30
1B	3	25	21	1B	13	23	16
490N128E				494N121E			
1A	16	21	29	1A	4	30	21
1B	9	28	27	1B	3	36	10
490N132E				496N121E			
1A	8	27	34	1A	8	31	20
1B	6	27	19	1B	3	23	5
490N134E				498N120E			
1A	3	26	66	1A	16	25	55
1B	6	16	27	1B	7	23	16

In conclusion, these data are consistent with the expectations of what would happen over time to a single component site situated in a sand drift. Initially, debitage probably was associated with the living surface, now at 10 cm below present surface. Substantial upward and downward size-graded migration has since occurred. Materials above Level 1B (2 to 10 cm) are consistently larger than those below.

Experimental studies (Beckett 1980; Simms 1984) suggest lateral artifact movement in sand dune and sand sheet environments can be pronounced. Therefore, detailed emphasis on horizontal spatial patterns at surface sites in sand drift deposits may be unwarranted. Pieces tend to move downhill or downwind if on a level surface. The smaller the flake, the greater the lateral displacement.

Large surface areas were not excavated at 26Eu790. Rather, random sample units were employed to identify concentrations which then were crossed with perpendicular linear transects of units. This allowed definition of concentration size and content. When skim shovel frequencies were plotted (Figure 31), artifact clusters seemed anything but clear. Some lines of skim units had relatively consistent frequencies (the 486N line), while others had undulating frequencies (the 124E line). One unit had a high count, the next a low count, then a high count again.

In the absence of more areal data, the pattern cannot be attributed to either cultural or natural derivations, but a few observations are noteworthy.

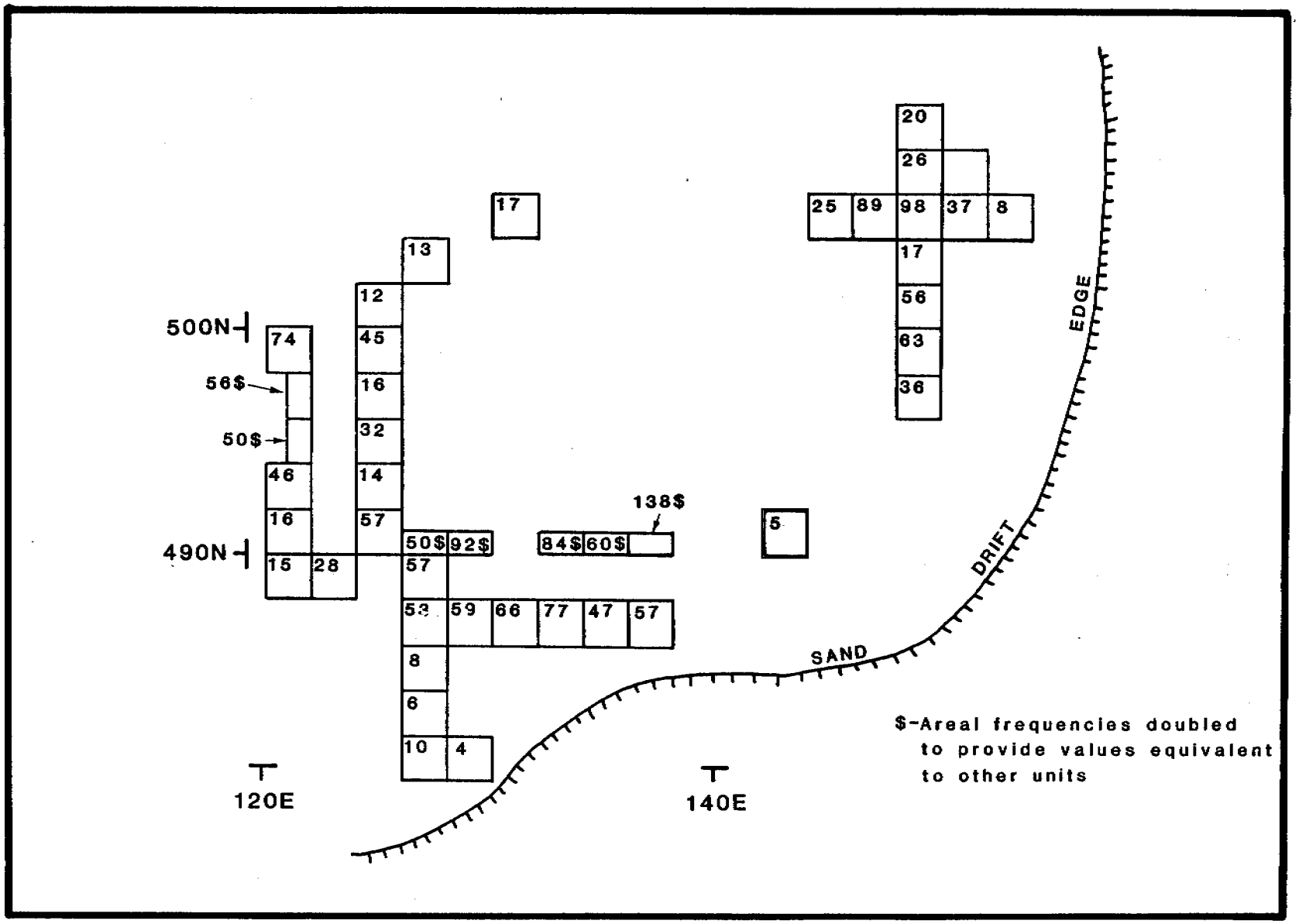


Figure 31. Debitage frequency in shovel skim units, 26Eu790.

Major concentrations are located along the south and east edges of the sand drift. Most transects with undulating debitage frequencies are situated perpendicular to the sand drift margin and those with consistent frequencies are parallel to the margin. This suggests the pattern may be naturally derived, with material moving slowly to the margins of the sand drift. Size grades do not appear to vary based on proximity to sand drift margins. On the other hand, the frequency peaks may reflect concentrations of material in small basins located between humps or coppices of sand semi-stabilized by sagebrush (Rusco and Davis 1982:38).

Nature of the Reductive Strategy

Data recovered from 26Eu790 allow for the definition of a biface reduction trajectory, a sequence of reduction stages following a particular course toward a desired end product. A single biface reduction trajectory is identified for 26Eu790, culminating in the production of large, chert-siltstone bifaces.

Biface reduction began with the procurement of chert-siltstone quarry blanks. Exposures of the material are not present at the site and none were observed in the banks of nearby Tyrone Creek. Bedrock exposures of a similar stone were observed at several locations in the hills to the south and southeast of Mt. Hope (Vinini geological formation), although none appeared "cherty" enough to serve as a workable toolstone. In short, location of the material outcrops are not known, but it is possible the source is somewhere to the south.

There are no quarry blanks in the collection, but quarry blank morphology can be inferred from the assayed cobbles and debitage recovered. Most appear to have been relatively thin, tabular pieces, with opposing cortical surfaces. The cortex is dark red to burgundy in color, the interior is white to pink. Debitage analysis revealed a high percentage (43.3%) of cortical primary reduction flakes, many of which exhibit flat to planar cortical surfaces.

Tabular blocks were assayed to determine toolstone quality and to establish platforms for subsequent reduction. Assaying involved removal of a few flakes by hard hammer percussion. A number of assayed cobbles were recovered which appear to have been rejected at this stage. When assaying revealed a piece to be sound, it was subjected to controlled heat treatment to improve its workability. All assayed cobbles, Stage I and II bifaces, and the majority of the primary and secondary debitage (82.0% and 90.6%, respectively) exhibit thermal alteration.

During Stage I biface reduction, flakes were removed alternately from each side of the heat treated blank by direct percussion, utilizing the edge created during assaying as a striking platform. Flakes and flake scars are deep and expanding, often terminating in multiple step and hinge fractures. At this early stage, bifaces are asymmetrically biconvex with rounded ends, and tend to be leaf shaped. Flake scar patterning is irregular, but scars generally cover the entire piece. All Stage I bifaces in the collection are fragments (n=30), indicating a high "mortality" rate, due partially to the softness and poor quality of the material. It is impossible to determine if flakes were removed using a hard or soft percussion since replicative experiments have not been conducted on chert-siltstone.

Stage II biface reduction is accomplished by direct percussion, and edges are often scrubbed to enhance the striking platform. Thinning flakes on the Stage II bifaces crossed the midline, and biface fragments suggest thin, biconvex, leaf shaped bifacial pieces measuring between 70 and 90 mm long.

Comparatively few Stage III bifaces were recovered (n = 3) and tertiary and biface reduction flakes, typical of this stage, are not frequent. These data indicate the target artifact of the trajectory is the large Stage II chert-siltstone bifacial preform which could be transported to other localities where final reduction took place.

While an occasional chert-siltstone flake was found at other sites in the study area, the material was never as predominant as at 26Eu790. Therefore, the Stage II bifaces produced at 26Eu790 were carried out of the area altogether. The dearth of chert-siltstone observed elsewhere suggests the source may have been exploited intensively only once.

Placement of Site in Tool Production System

Placing 26Eu790 in an overall lithic tool production system can be approached on the basis of stylized artifacts found and certain characteristics of the debitage assemblage. The worked stone artifact assemblage (Table 30) clearly demonstrates a focus on the production of bifaces. Collectively, the three biface stages account for 62.0% of all artifacts recovered. When other artifacts related to biface production are included (assayed and battered cobbles), the percentage increases to 76.1%.

Table 30. Assemblage Composition, 26Eu790

Artifact Type	N	%
Projectile Points	5	7.0
Stage I Bifaces	30	42.3
Stage II Bifaces	11	15.5
Stage III Bifaces	3	4.2
Scraper	1	1.4
Assayed Cobbles	9	12.7
Core Tools	2	2.8
Flake Tools	8	11.3
Groundstone	1	1.4
Battered Cobble	1	1.4
	70	

Thomas (1983b:420) provides cummulative production curves typical of ideal quarry and biface reduction sequences. These curves can serve as models in the assessment of the the reduction sequence from 26Eu790 (Figure 32). The relative abundance of biface stages decreases from Stage I to Stage III and results in a profile most like the ideal quarry curve. This suggests the site is oriented more to the preliminary rather than the final stages of biface reduction.

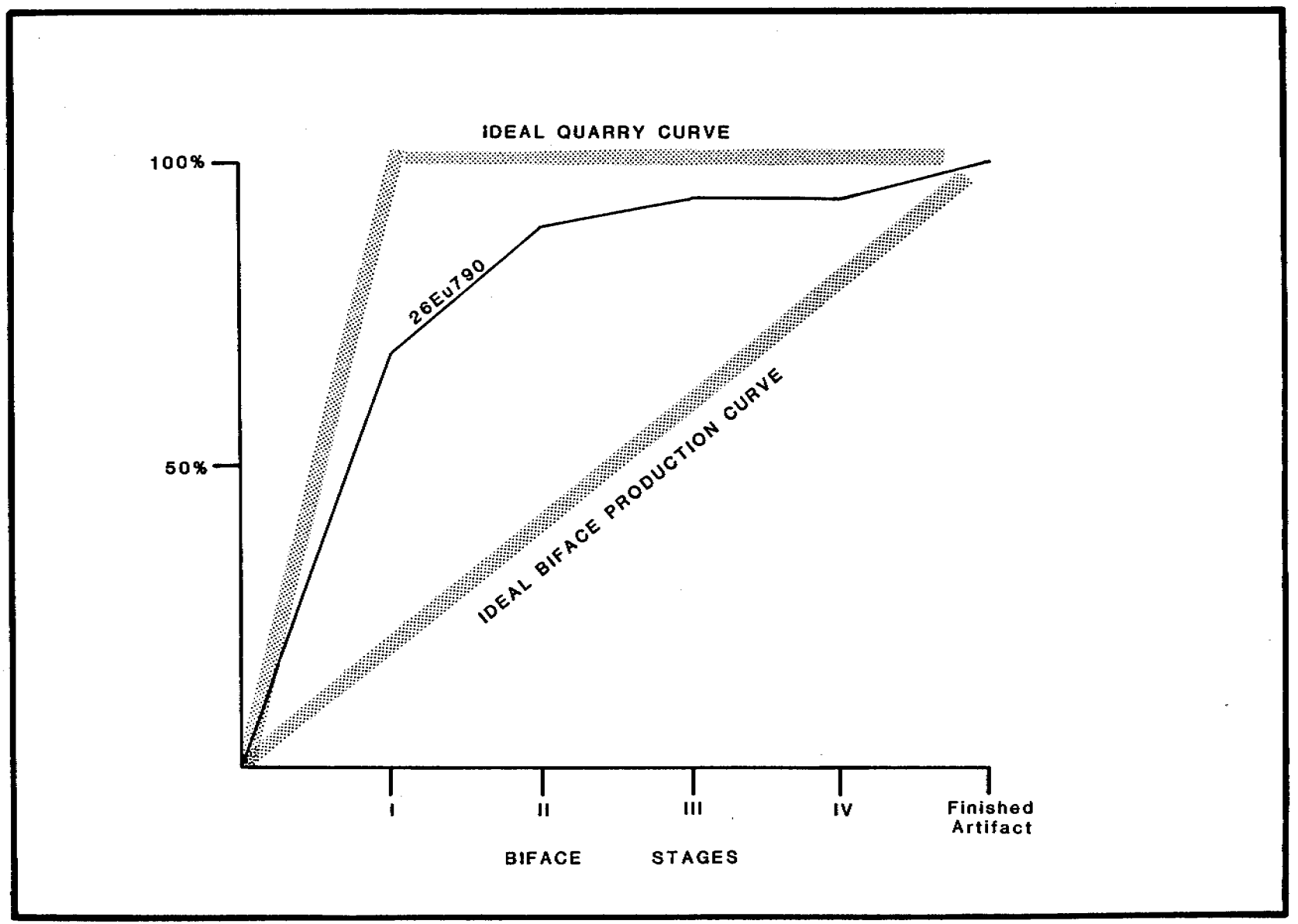


Figure 32. Comparison of 26Eu790 with idealized lithic reduction curves.

Analysis of debitage supports this contention. A total of 2072 pieces of debitage was recovered, of which 92.9% (n=1933) are chert-siltstone. Only 31.7% (n=613) of the chert-siltstone pieces are complete enough to determine debitage stage and flake size. Primary and secondary debitage account for a majority of the collection (n=320, 52.2%). Shatter, most commonly produced during the early stages of lithic reduction, accounts for an additional 15.0% (n=92). These three categories, then, encompass nearly two-thirds of the entire collection. A majority of the pieces (n=555, 90.6%) have been thermally altered and many have cortex present (n=275, 44.9%).

Based on a detailed analysis, Miller, Green and Hattori (1984:126) recommend that sorting debitage by size grades produces groups that roughly correspond to flaking stages. Size ranges they identify include: early stage reduction - greater then 36 mm; middle stage reduction - 18 to 34 mm; late stage reduction - 6 to 16 mm size grades. Green (1984:132, 138-139) applied these size classes in his analysis of debitage from seven sites in Pine Valley, located north of the project area (Table 31). The sites fall into three groups. Two are strongly dominated by later debitage stages, while four had slightly more middle stage debitage. One site, representing the third group, exhibited a marked increase in the early and middle debitage stages. This composition indicates that local cherts were brought to the site for reduction without having undergone preliminary reduction at the quarry source (Green 1984:139).

Table 31. Comparison of Reduction Stage Percentages Across Several Sites

	Reduction Stage %		
Site	Early	Middle	Late
26Eu22	1.0	12.0	87.0
26Eu23	1.0	9.0	90.0
26Eu26	2.5	22.5	75.0
26Eu27	0.5	24.5	75.0
26Eu28	3.0	22.0	75.0
26Eu48	3.0	32.0	65.0
26Eu51	13.5	40.5	46.0
26Eu790	12.9	46.9	40.2

The debitage assemblage from 26Eu790 exhibits a pattern similar to that described for 26Eu51. As at 26Eu51, the toolstone did not undergo significant, preliminary reduction prior to transport to 26Eu790 from the quarry. This suggests that the quarry material was of such a size and configuration that preliminary reduction was not necessary. The surprising abundance of cortical debitage pieces in the assemblage also reflects this limited effort at initial reduction prior to transport. In summary, both the stylized artifacts and the debitage recovered from 26Eu790 exhibit a pattern most typical of a preliminary biface reduction site. Secondary biface reduction activities also are apparent.

Binford (1979:268) states that the acquisition of lithic material and manufacture of personal, situational, and household gear are activities

embedded in general subsistence schedules. Tool production is often anticipatory, preparing for the next subsistence venture and location. If this is the case, then the 26Eu790 location likely was chosen for reasons relating to subsistence rather than lithic resource procurement. Choice of the site as a reduction locus apparently had little to do with the availability of chert-siltstone. Subsistence related tools commonly found at Archaic period field and base camp sites include groundstone, drills, scrapers, and the like. While certain of these tool types were present, they were not abundant and provided few direct clues as to the nature of possible subsistence activities. Thus, the nature of subsistence activity that brought people to 26Eu790 is unclear. Residue from biface production overwhelms evidence of any activities which involved the use of regularly curated tools.

HISTORIC COMPONENT

The historic component of site 26Eu790 is located northwest of the prehistoric component, where sand drift deposits are not present. The component is 60 m distant from and 9 m above the Eureka and Palisade Railroad grade. A rill separates the prehistoric and historic components of the site.

Historic material is dispersed in three small concentrations referred to as clusters A (easternmost), B (central), and C (westernmost). A few other artifacts occurred along the margins of the site. Given the limited number of items present and their tendency to cluster, a grid system was not imposed over the entire site. Rather, isolated artifacts and concentrations were assigned reference numbers and precise locations mapped with a transit. A 5 x 5 ft unit was established over each find (marked by a pin flag), oriented to true north, and all artifacts within the unit were collected. A total of 32, 5 x 5 ft units were so treated. Excavation in the historic component was restricted to Unit DD.

Archival Information

Preliminary interpretation suggested the site was a short-term workcamp occupied by Chinese laborers in 1875 during construction of the Eureka and Palisade Railroad (James and Elston 1983:97). Railroad construction camps were temporary habitations serving for a few days at most. Work trains were often used in lieu of, or in conjunction with, work camps. Cars were equipped with bunks and cooking facilities. Photographs of work camps and work trains typical of the period (Kraus 1969:48; Myrick 1962:27; Raymond and Fike 1981:7-10) reveal that tents were pitched close to the track, that a centrally located campfire hearth was often present, and that the camp occupied an area about 50 ft square.

Chinese railroad workers were organized into fairly autonomous, 12-20 man work gangs, each supervised by a Chinese straw boss. Each gang resided together in a group of half a dozen or more tents. While subsistence was provided for white railroad workers, it was not for the Chinese (Goodwin 1966:12). Each Chinese work gang hired its own cook, who moved camp along the railroad grade as construction progressed. Imported Chinese food stuffs were provided to the cook during construction of the Central Pacific, but whether this occurred along the Eureka and Palisade Railroad is unknown (Goodwin 1969:182-189). The Chinese workmen drank warm tea kept at the worksite in

whiskey-size kegs (Goodwin 1969:183-184; Kraus 1969:41; Raymond and Fike 1981:11). Smaller black powder kegs and cans were used to transport tea from the camp to the worksite (Kraus 1969:46, 50). Black powder cans were also used to hold hot water for evening sponge baths (Kraus 1969:44).

Artifact Descriptions

Indulgences

A pale green glass bottle, represented by 23 fragments, is an incomplete cylindrical specimen of at least 26 oz capacity. An applied bead finish, long neck (2.75 in.), kick-up base, and turn molded 3.25 in. diameter body indicate an alcoholic beverage bottle typical of the latter half of the 1800s. The bead finish and pale green color seem unusual for a wine bottle, suggesting it contained absinthe or some other liquor (Putnam 1965:156).

Pastimes

One opaque white glass gaming piece was recovered. It is round, 0.5 in. in diameter, with a flat bottom and domed upper surface. This artifact conforms in size, shape and color to numerous pieces recovered at Lovelock, Nevada (Hoffman and Zeier 1979:525) and San Buena Ventura, California (Bente 1976:478), and is probably part of a Go game.

Food Consumption

Chinese manufactured rice bowls, of "Swatow" or "Three Circles and a Dragonfly" pattern (Chase 1976:523-524) on porcellaneous-stoneware fabric, were the most abundant artifact type observed at the site. Seven vessels, represented by 101 sherds, were recovered from clusters A and B. They measure 2.50 in. in diameter at the base, 5.83 to 6.00 in. in diameter at the mouth, and stand 2.38 to 2.50 in. tall. Walls are straight, tapering from rim to base, and are all substantially footed. Each has elaborate exterior and minimal interior hand painted designs in cobalt to nearly black pigment on a pale aqua to gray-green background (see Chase 1976:524 and Olsen 1978:17 for illustrations of typical vessels and patterns). These were used as eating bowls by Chinese workmen throughout the western United States during the second half of the nineteenth century. Fragments of a Chinese manufactured porcelain soup spoon, decorated with the "Four Seasons" pattern, were also recovered.

A plain white, improved earthenware dinner plate is represented by 112 sherds. This highly fragmented plate is devoid of molded, printed, or painted decoration, but is probably of American or European manufacture. The style and fabric was popular from the 1850s through the 1890s (Felton and Schulz 1983:44). It is the only non-Chinese ceramic artifact recovered from 26Eu790.

Food Storage

Two artifacts were identified as food storage containers. Represented by six small fragments, a brown-glazed stoneware vessel is too incomplete for measurement. The second artifact is a round iron can lid (3.63 in. diameter)

recovered from Test Unit 1 in Feature DD. A ridge spaced 1/8th in. inside the disc edge may be the remnant of a lapped, solder seam which has since been flattened; the disc retains no solder. The lid's center has been gouged, but not pierced, by a rectangular blunt object. The lid had been carefully removed from the can body.

Three large iron cans are represented by one large rectangular can body, and two lids from cylindrical black powder cans, embossed "PAT JULY 12, 1859" (see Figures 33 and 34). The round lids (8.75 and 9.25 in. in diameter) have been purposefully removed, cut from just inside the body-lid seam. Bodies of the two cans are not present at the site; perhaps carried away by Chinese workmen to serve as tea or water containers.

The rectangular can body, of post-1847 to ca. 1880 vintage (Rock 1984:102-105), measures 8.75 in. tall, 5.50 in. wide, 3.12 in. thick, with a containing volume of 74 ounces. What the hand soldered seam container originally held is unknown (perhaps olive oil, lard, or kerosene). The top end of the can has been removed in a manner similar to the black powder lids described above. Very likely, the can was also used as a water or tea container, though no side holes (for a bale handle) are present.

Camp Maintenance

A complete iron shovel blade and a short wooden tool handle offer evidence of camp maintenance activities. The round-nosed shovel blade shows very little evidence of wear, but has a mangled and broken neck. The complete wooden handle (12.37 in. long by 0.75 in. in diameter) is cylindrical, with tapering, rounded ends, one of which is four-pronged. Perhaps the handle was attached (by nails or rivets) to a cooking utensil or tool.

Structural Hardware

One cut spike and five cut nails comprise the architectural assemblage. The cut spike (just over 6 in. long) and the three largest cut nails (one 50d; two 40d) were usually associated with structural members such as rafters, studs, or framing. The spike and 50d nail appear unused, though the tip of each is broken off. Both 40d nails are bent from use. The two remaining cut nails (20d and 6d), normally associated with framed structures, may also have been common in railroad car construction (Datin 1985:personal communication), or used in camp for any number of purposes.

Draft Animal Equipment

One roller buckle, a "D"-shaped iron piece, may be evidence of a horse or mule harness (Herskovitz 1978:87). Draft animals were part of the railroad building effort in the west.

Media of Exchange

A brass Chinese coin (Figure 35a) of Dao Guang Dynasty (A.D. 1821 - 1850) was recovered (Olsen 1983:45, 46). While not used in the American exchange

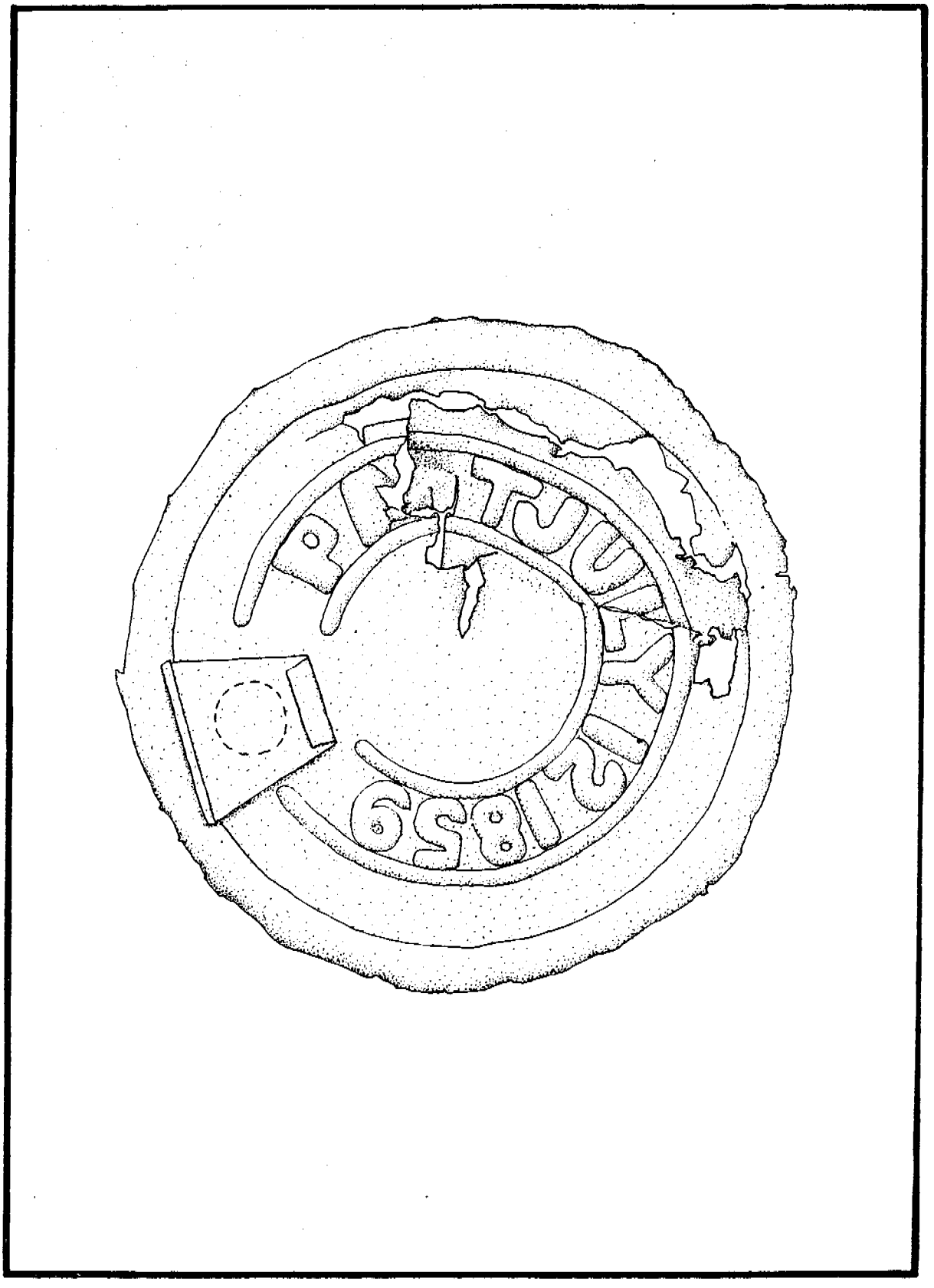


Figure 33. Black powder can lid, 26Eu790-825-1 (scale 1:2).

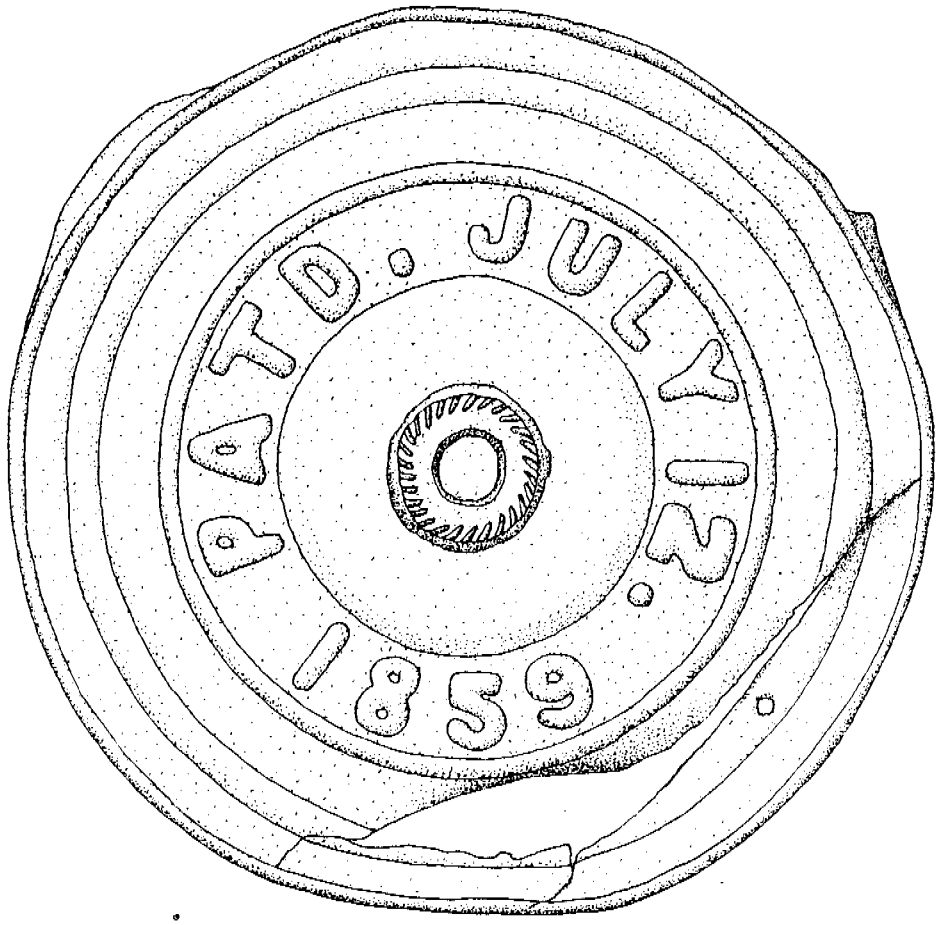
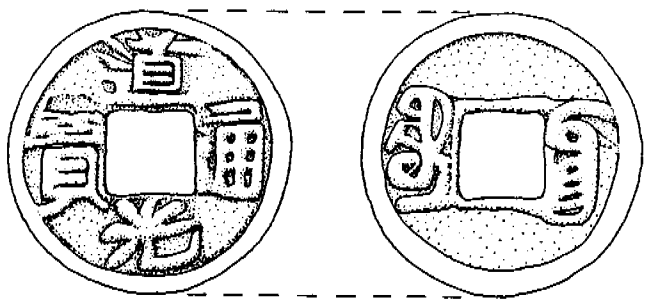


Figure 34. Black powder can lid, 26Eu790-803-1 (scale 1:2).



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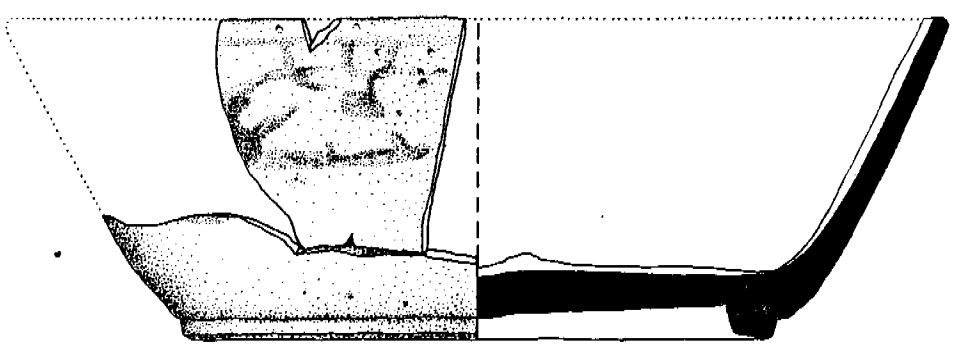

b

Figure 35. Historic artifact illustrations, 26Eu790. a. Chinese coin, two views (26Eu790-810-4, scale 2:1); b. Chinese ceramic dish (26Eu790-811-1 and 26Eu790-817-1, scale 1:1).

system, such coins actively circulated amongst the American Chinese community of the period (Farris 1980:28; Hattori 1979:429-431).

Railroad Construction

A complete black powder can is cut in half horizontally. The two can parts form a cylinder approximately 11.00 in. high, 9.50 in. in diameter, with a calculated volume of 3.2 gallons. Sides are horizontally corrugated and the flat bottom is embossed "PACIFI.. MINES/POWDER/ 卅 ". The top has been punctured by a square nail and a long knife slit. The bisecting edges around the body circumference are irregular, suggesting they were cut by an ill-suited implement.

Unknowns

Six artifacts could not be assigned to a functional class. Two identical shallow porcellaneous-stoneware dishes are assumed to be Chinese in origin. Fabric, hand-painted pigments, and glaze are identical to the more common "Swatow" bowls previously described. A hand-painted motif, a band design of repeated irregular honeycomb shapes, decorates the exterior of each bowl (see Figure 35b). The pattern is presently unidentified. The dishes are not presumed to be food-related since the interior bases are unglazed. Another piece may have sat atop each dish, such as a flower pot or incense vessel (Hardesty 1985:personal communication), although no charring is evident on the interior surface of either dish.

A third unknown artifact is a rectangular iron can of unusual construction (Figure 36). The can, apparently opened by knife across one face, is crudely constructed of hand soldered, lapped seams with a rectangular piece of iron applied to the opened face and over the folded corners. This type falls into a broad date range from 1818 to the 1880s (Rock 1984:100, 103). The can does not exhibit a vent cap or hole-in-cap typical of processed food cans. Its original contents are unknown, although it must have been solid matter rather than liquid.

The remaining three items are scrap metal pieces cut from soldered, lapped seam tin cans (ca. the 1840s to the 1880s). The reworking of metal objects like shovel blades and tin cans seems to have been an integral element of temporary Chinese camps in the west. Similar objects were consistently recorded at Chinese gold miner's camps in the Cottonwood/Dutch Gulch area southwest of Redding, California, witnessed by the author (Furnis in press).

Excavation

Excavation in the historic component of 26Eu790 was restricted to Unit DD which contained a feature consisting of a concentration of large boulder sized fieldstone. Sand and silt had blown in among the rocks forming a slight mound which was covered by sagebrush. Excavation of a 2.5 x 5 ft unit revealed that the feature is restricted to the surface (an excavated pit is not present below the rock layer). The feature is circular with no fieldstone in the center. Small flecks of charcoal were observed within the feature, but these appear to

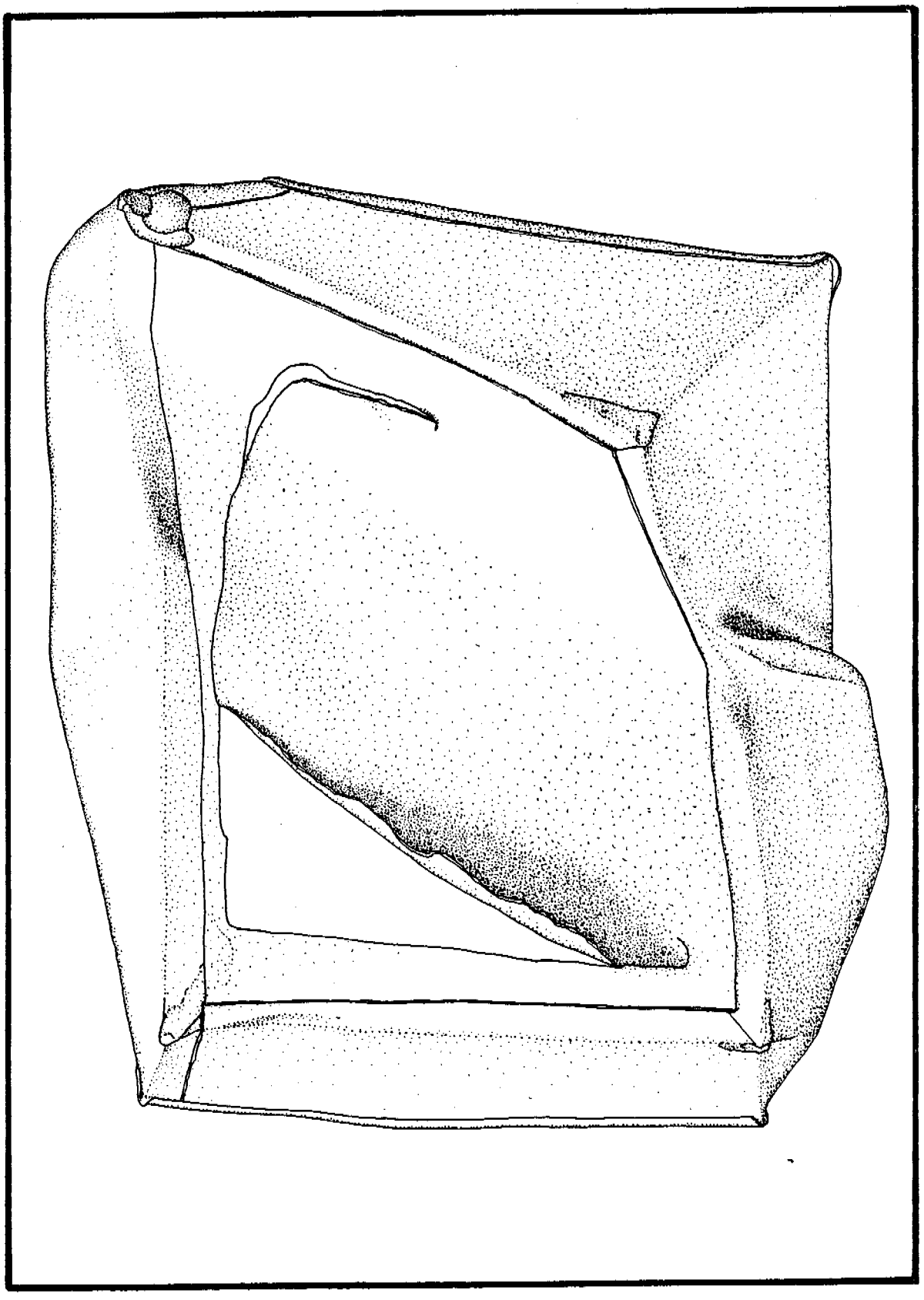

Figure 36. Rectangular tin can (26Eu790-803-1, scale 1:1).

have been roots and may have been charred by a range fire. None of the rocks were fire cracked or charcoal stained.

Discussion

A total of 32 artifacts (MAC), represented by 367 fragments, was recovered from the site. The distribution of items by cluster is presented in Table 32. Differences between the number of pieces and artifacts is most pronounced in the domestic and personal categories, especially among ceramic and glass artifacts.

Table 32. Surface Clusters, 26Eu790

Major Functional Category	Artifact Clusters A N MAC	B N MAC	C N MAC	Other N MAC	Total
Personal Items	1 (1)			23 (1)	24 (2)
Domestic Items	148 (6)	99 (6)	20 (5)	4 (0)	271(17)
Architectural Items	4 (4)	2 (2)			6 (6)
Transportation			1 (1)		1 (1)
Commerce & Industry	3 (2)				3 (2)
Unknown	2 (1)	58 (2)	2 (1)		62 (4)
	158(14)	159(10)	23 (7)	27 (1)	367(32)

Cluster A included the rectangular can of unknown contents, Chinese coin and gaming piece, complete but bisected black powder can, cut spike and three of the largest nails, black powder can lid, soy pot, dinner plate, three rice bowls, and one metal scrap fragment. Cluster B contained four rice bowls, shovel blade, wooden handle, two Chinese dishes of unknown function, two metal scrap fragments, and two small nails. Cluster C has a Chinese spoon, round food can lid, round black powder can lid, and rectangular can without a lid. This last cluster also contained the only evidence of horse tack - a roller buckle. Feature DD is located in Cluster C and appears to have been built as a surface, rock ring type of hearth. Use of the feature for only one or two days could explain why charcoal and ash were not present. The association between the liquor bottle fragments from the southern margin of the site and the three clusters is uncertain. Sherds from individual vessels were contained in individual clusters with no overlap of sherds among clusters.

Evaluation of History Related Research Goals

Of the historic sites, 26Eu790 is most obvious in its association with ethnic Chinese and with Eureka and Palisade Railroad construction. Research questions posed for the site were directed to chronological placement of the occupation, verification of the presumed associations of Chinese and railroad affiliations, and definition of an artifact pattern specific to Chinese work camps.

Chronological Considerations

Only three artifact types represented at 26Eu790 exhibit a manufacturing period of fewer than 50 years: rectangular hand soldered cans with machine stamped ends, black powder cans, and the Chinese coin (Figure 37). The coin can be discounted in dating the site since such items were highly curated by Chinese in their homeland as well as in this country.

Manufacturing dates for the hand soldered and black powder cans largely overlap, ranging between 1859 and 1887. Construction of the railroad through the site area occurred during the summer of 1875 and the initial occupation of the site can be limited to that date. If the site was not occupied during the 1875 construction period, then it was established by maintenance crews working on the line sometime thereafter. Chinese were hired to perform maintenance along the Eureka and Palisade Railroad up into the 1890s. However, once the line had been established, these seasonal work crews were usually housed at section house stations (Bowers and Muessig 1982:64). Site 26Eu790 is several miles from any such station.

Given the close correspondence between historical records of railroad construction crews and camps and the derived archaeological evidence, we conclude that 26Eu790 dates to the 1875 construction of the railroad.

Presence of Non-Chinese

Artifacts of Chinese manufacture include food serving bowls, a spoon, food storage jugs, a game piece, and a coin. The bowls and soup spoon indicate distinctively Chinese food consumption traditions. The absence of western flatware implies the continued use of chopsticks (Hardesty 1985:223). The presence of food storage containers points to the importation of preserved foods from China. The absence of food tins and food waste (bones) indicates site occupants did not rely on tinned foods or fresh meat. Rather, they may have maintained a more traditional Chinese diet.

Artifacts of non-Chinese manufacture included items associated with railroad construction and maintenance, black powder tins, a wine bottle, and a ceramic plate. All except the plate and wine bottle are industrial items common on any site associated with railroad construction during the mid 1800s. Perhaps more significant is that some of these items were recycled to serve a distinctly Chinese purpose. The black powder tins, for example, were modified presumably for use in the preparation and transport of tea (Kraus 1969:46, 50).

The presence of numerous Chinese artifacts and the recycling of some non-Chinese artifacts to serve ethnic behavior patterns is clear evidence that the site was occupied by Chinese. If non-Chinese were present, they did not contribute significantly to the artifact assemblage.

Assemblage Definition

Files maintained by the Nevada State Museum were reviewed to identify Chinese railroad construction sites recorded along the Central Pacific, Eureka and Palisade, Nevada Central, or Colorado and Carson railroads. All are known to have been built largely by Chinese laborers. This review proved largely

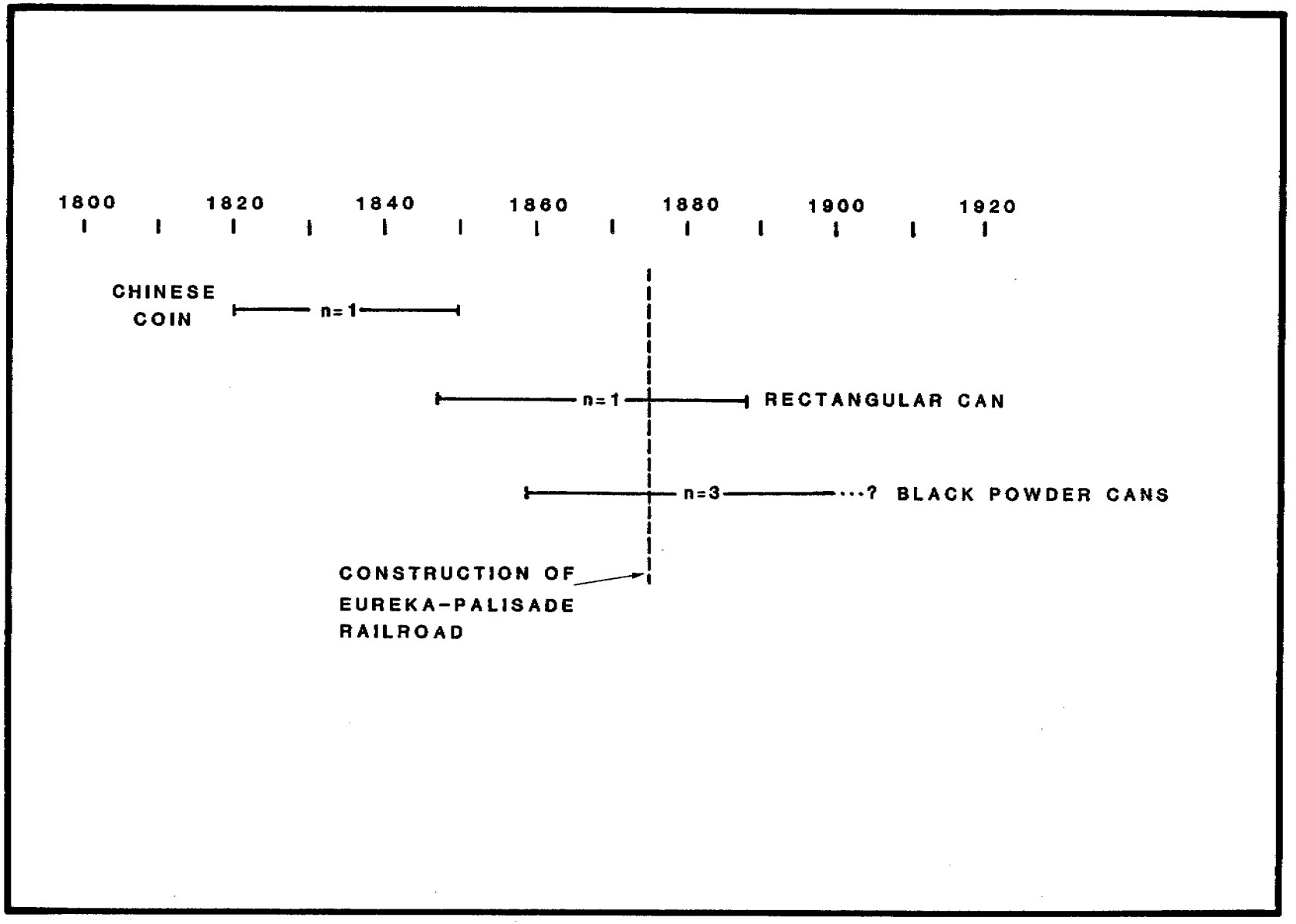

Figure 37. Temporally sensitive artifacts, 26Eu790.

futile. Only two sites were identified, 26Ek1837 near Elko and 26Mn655 near Mt. Montgomery (Stornetta 1984). Inquiries brought to light two others, 4SBr2328 and 4SBr2330 along the Atchison, Topeka, and Santa Fe Railroad in southern California (Fowler et al. 1978:123).

Even though few Chinese railroad construction sites have been documented, they do reflect a remarkable consistency. Artifact categories present included porcelain bowl fragments, large (two to five gallon) tin cans, box fragments, and an occasional wine bottle or hole-in-top tin. Rock circles interpreted as hearths are also typical. Also of interest is that artifacts tend to be located in discrete clusters. Site 26Eu790 is typical of this pattern and is discussed as an example thereof.

Archival research indicates that Chinese work crews would occupy an area about 50 ft square and that most artifacts present should be domestic items. Site 26Eu790 yielded three artifact clusters somewhat larger than expected: Cluster A was 90 by 100 ft; Cluster B was 60 by 100 ft; and Cluster C was 75 by 100 ft in size. The greater size of the scatters may include toss zones, or may be the result of lateral movement of surface items by natural forces. Given the general correspondence between the archaeological and historical data (Kraus 1969), each cluster was probably occupied by a group of some 12 to 20 workmen for one or two nights.

The paucity of the collection suggests not only a short stay, but a population with little to discard. The most frequent item is the Chinese rice bowl. The bowl type present was an inexpensive variety costing from two to five cents wholesale in the 1870s (Sando and Felton 1984:11). More expensive Celadon wares, costing twice as much, were not found at the site. The recycling of containers, the use of cut-up tin cans, and the manufacture of expediency implements indicate an efficient and self reliant group.

Construction of the Eureka and Palisade Railroad involved several hundred Chinese laborers. Individual work gangs probably were assigned particular tasks, such as building culverts or laying ties. Archaeologically, then, individual work gang camps may have slightly different patterns reflecting their assigned tasks. This may, in part, explain subtle differences between clusters at 26Eu790. Cluster C contained the only hearth (Feature DD) recorded at the site. Cans associated with tea preparation and transport are abundant in this cluster, supporting the identification of Feature DD as a hearth. Clusters A and B, on the other hand, contained an abundance of food consumption related artifacts. Perhaps clusters A and B were occupied by work gangs, while Cluster C was used by the camp cook. Cluster A contained construction hardware typical of bridge or culvert construction, but clusters B and C did not.

Chapter 9. PREHISTORIC SITE 26EU982

SITE DESCRIPTION

Site 26Eu982 is an isolated feature located along the southernmost margin of Garden Creek Pass Valley at an elevation of 6398 ft (1950 m) above mean sea level (Figure 38). The area around the site is broken terrain at the transition between the steeper side slope of hills to the southwest and the gentler upper slopes of Garden Pass Creek Valley. The site is situated in a level clearing at the northern end of a low ridgeline emanating from the hills to the south. Small northeast flowing ephemeral drainages demark the east and west margins of the site, eventually to converge north of the site. The site sits on a gentle slope rising to the south-southwest.

Pinyon pine and juniper are the predominant vegetation, along with an occasional mountain mahogany. The understory of Mormon tea, sage, buckwheat, and unidentified grasses is sparse. Most of the site is devoid of any vegetation.

Present at the site are remnants of a low circular rock ring (5 m outside diameter; 3 m inside diameter) (Figure 39) initially identified as a pinyon cache (Zeier and Stornetta 1984:78). Rocks used in ring construction are similar to those in a small bedrock outcrop northeast of the feature and in drainages adjacent to the site. Other rocks associated with the feature are scattered outside the ring. The ring consisted of 116 rocks which average about 20 cm by 20 cm by 15 cm; the largest is 55 cm by 40 cm by 12 cm. The rocks were not stacked, but must have been at some point in time.

Soil surrounding the ring is shallow, loose alluvium. The north side of the ring forms a natural catchment and approximately 10 cm of colluvium have been deposited. Rocks forming the south side of the ring are also partially buried, but to a lesser degree (about 2 cm). The west edge of the ring is obscured by thick duff deposited from two nearby pinyon trees.

The area surrounding the rock feature was inspected to determine if artifacts were present, but none was found. Rocks within the feature were inspected, but none exhibited evidence of use as manos or metates. Surveys of the surrounding area failed to reveal any other sites that may have been associated with 26Eu982.

A wooden datum stake was placed near the center of the rock ring and a north-south line established. Test Unit 1, measuring 1 m x 0.5 m, was located one meter north of datum. This unit straddled the intact northern portion of the rock ring; five large, angular rocks that form part of the ring were within, or partially within, the unit. Slope wash has deposited small (less than 2 cm) angular pebbles and gravels across the ground surface. Two 10 cm levels were excavated in Test Unit 1; no artifacts were recovered. At 10 cm below datum, a rich organic layer containing charred pine nut shells and charcoal was encountered. This 5 cm thick layer was observed only in the southern half of the unit, that portion within the rock ring. The lack of charcoal in the north half of the unit indicates it was outside the feature. Sterile, very compact, loamy sand with 70-80% pebbles was encountered at 15 cm below datum.

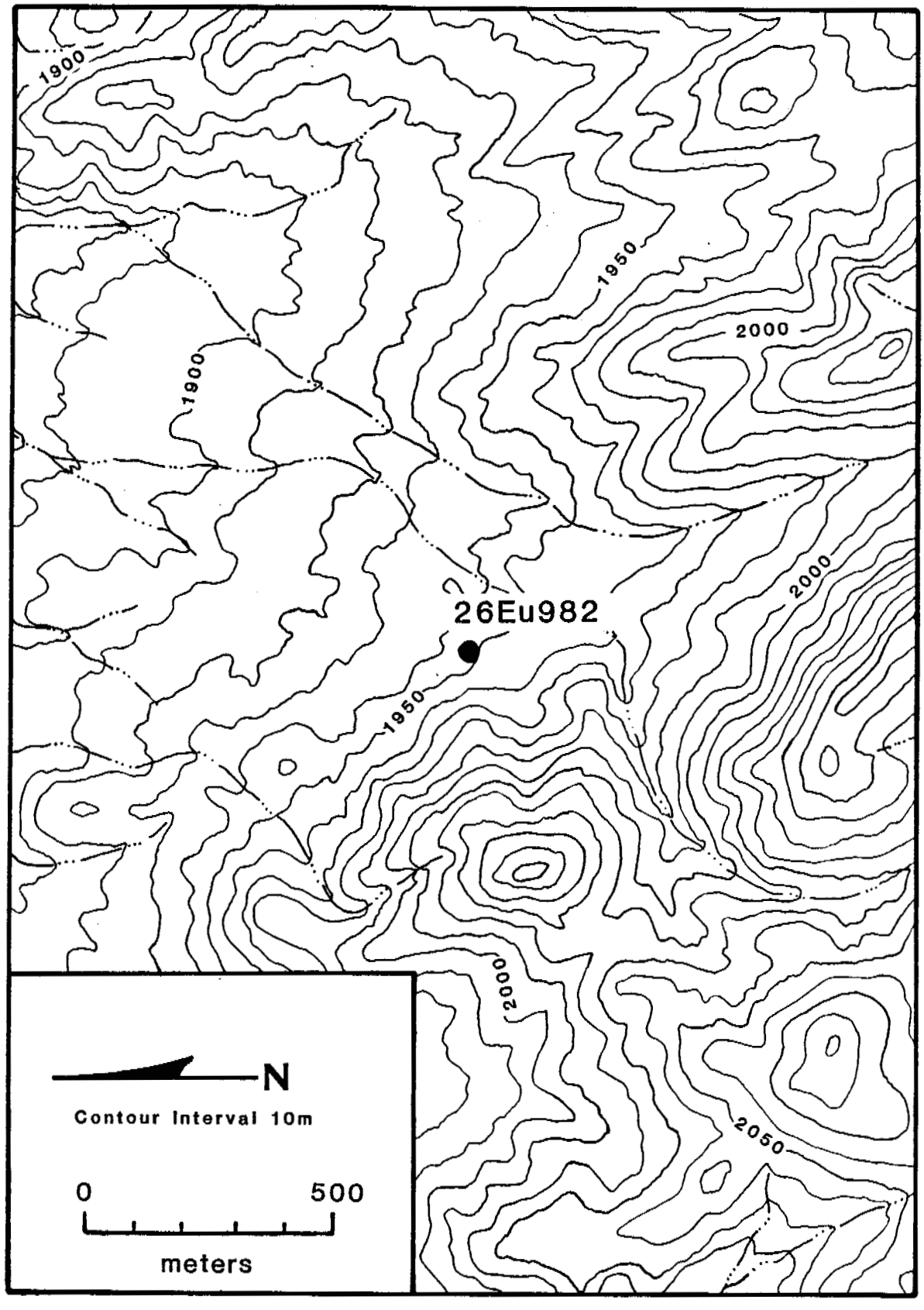

Figure 38. Site location map, 26Eu982.

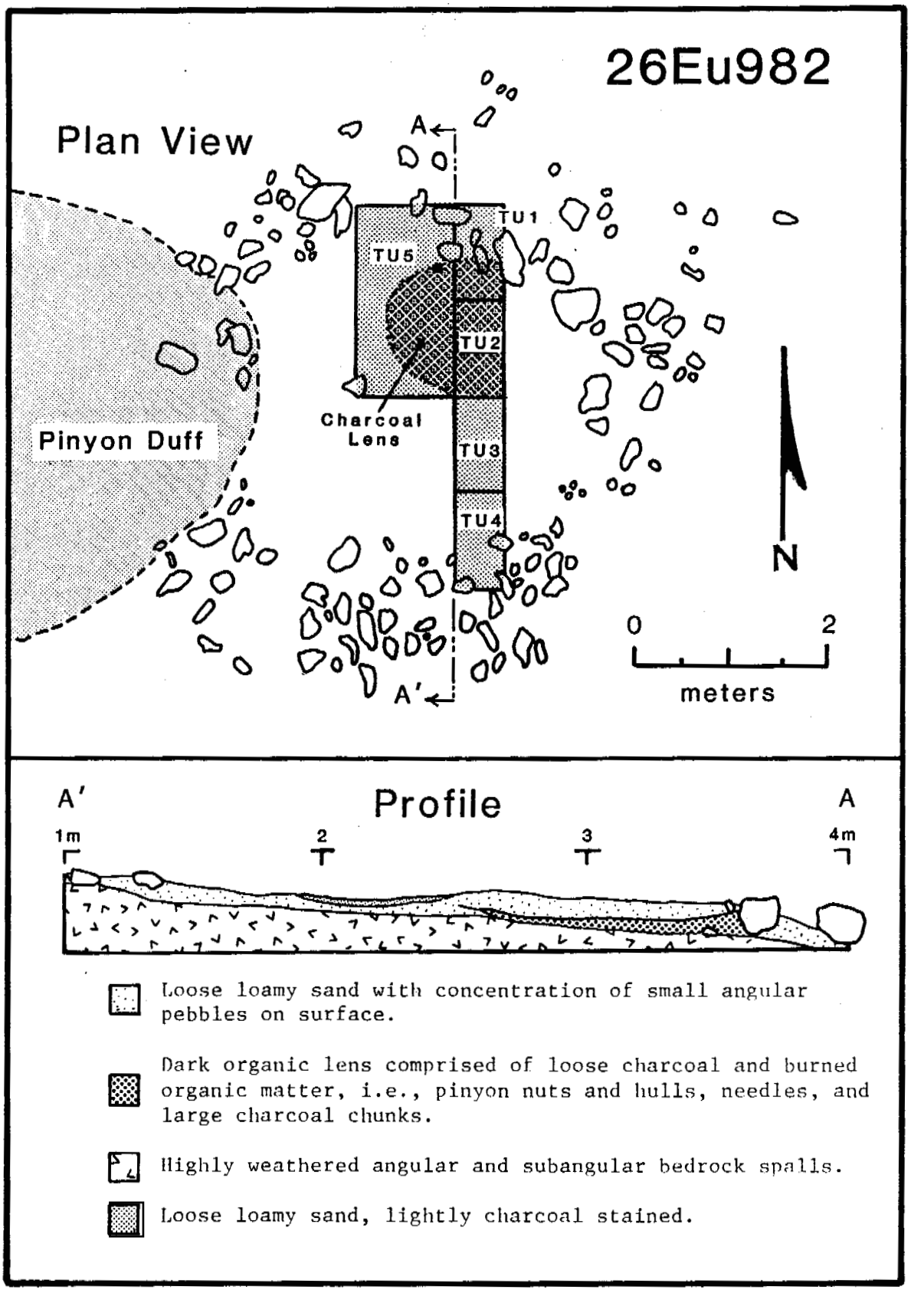

Figure 39. Site map, 26Eu982.

Additional test units (0.5 m x 1.0 m) were dug to determine if an excavated pit was present and to determine the diameter of the charcoal lens. The three units were located south of Test Unit 1 (see Figure 39) along the north-south line. Test Unit 2 was located in the center of the ring. Excavation revealed that the charcoal layer was thinner and did not extend across the full length of the unit. The outer limit of the layer appeared to be curved in plan view, confirming a circular feature. Excavation also revealed that a pit was not present.

Test Units 3 and 4 continued the excavated trench further south. Unit 3 was within the apparent rock ring, while Unit 4 straddled the southern portion. The charcoal lens was not present in either unit. A very thin veneer of charcoal was observed in Test Unit 3, at the same level as the upper surface of the charcoal lens in Test Unit 2. Soils in both units were loose, sandy surface sediments sitting atop a compacted, loamy sand layer with weathered bedrock fragments.

A fifth, larger unit (1 m by 2 m) was excavated in the western portion of the feature to define the lateral distribution of the charcoal lens. The unit was shovel shaved to the top of the lens which was then followed out to its margins. This revealed that the east-west dimension of the lens is about 2 m while the north-south dimension is only 1.5 m.

After completing excavation work, all the visible rocks were gathered and an attempt to "reconstruct" the ring as it might have appeared was undertaken. The result was some 0.6 m in height by about 2 m in diameter.

EVALUATION OF RESEARCH GOALS

The age and function of the feature recorded at 26Eu982 were the two questions guiding investigations at the site. Based on the assumption that the feature was prehistoric in age, its implications regarding subsistence and settlement strategies was identified as a secondary research concern.

Function

Ethnographic descriptions of pinyon caches and roasting pits provide clues to what can be expected archaeologically. While pinyon caches should be apparent archaeologically, few have been recorded. Pinyon caches are described in the ethnographic literature:

> A number of stones are collected, each of them from one-half to one cubic foot in bulk, which are arranged in the shape of a circle having a diameter of from two to four feet. When the fruit is abundant ... it is collected and piled into this circle, covered over with sticks and leaves, and finally a layer of earth, so as to secure them from rodents and birds. (Hoffman 1878:473)

Pinyon cones frequently were gathered before they began to open (before the first frost), thereby increasing yield and beating competitors to the harvest. The practice requires greater processing time to extract the pine nuts from the cones. The cones were opened either by pounding or roasting:

> The squaws and children gathered a little dry brush, which was thrown loosely over the pile of cones and set fire to. The cones are thickly covered all over with pitch, for this reason they make a hot fire, the squaw watching and stirring it up as needed to keep the nuts from burning, as all she wants is to burn the pitch off. When this is done she rakes them back from the fire as a man would do when raking charcoal. (Egan 1917:241-242)

The abundance of charcoal in test units 1, 2 and 5 led to reexamination of the original designation of the feature as a pinyon cache. Rather, it more closely approximates the ethnographic description of a pinyon roasting pit. Use of the term "pit" is a misnomer. The charcoal lens, as revealed in the test units, is level.

Surface evidence and excavation findings at 26Eu982 revealed somewhat different patterns. While the rock ring is presently some 4.5 m in diameter, the charcoal lens is a maximum of 2 m across. Rocks along the northern margin of the ring are contiguous with the edge of the charcoal lens, those along the southern margin are as much as 1.5 m away from the lens edge.

Two interpretations are possible: the rock ring may be in its original position while the charcoal lens has washed downslope, damming up behind rocks that form the northern (downslope) feature wall; or, the charcoal layer is in place, while the southern portion of the rock ring has been displaced, thereby expanding the apparent size of the feature. The second interpretation is favored here. Roasting pits were partially dismantled to extract the opened cones and loose nuts. This disturbance of the ring may be what happened to the south wall of the feature, with the light charcoal staining observed in Test Unit 3 reflecting the extraction of charcoal stained cones.

Age

A charcoal sample from Test Unit 2, Level 2 (the dark organic lens) was submitted for radiocarbon dating. Results indicate that the sample is essentially modern (Beta-11742). The sample is less then 170 years B.P. (1780 A.D.) on the two sigma basis, or 85 years B.P. (1865 A.D.) on the one sigma basis.

The feature's physical characteristics clearly argue for its use in pinyon roasting. Recalling that pinyon trees were cleared from the Mt. Hope area during the 1870s, the feature would have to date to before forest reduction or after its reestablishment (post 1900 ?). The later period is supported by the radiocarbon date, but the earlier period is within the one sigma range. It is difficult to accept that the feature was created post-1900. Seldom does the twentieth century American do anything in the woods that he does not leave debris to mark his presence, and 26Eu982 is remarkable for an absence of any cultural material.

There is a possibility that the sample date falls between the one and two sigma values; ie., between 1780 and 1865. It is also possible that it is older then the two sigma value (pre-1780). In the absence of supporting evidence, both possibilities are remote. The feature is most likely historic in age.

Features similar to that excavated at 26Eu982 are present at 26Eu788, located near the present Mt. Hope mine complex. Perhaps excavations there will shed additional light on this feature type and its age. The proximity of 26Eu788 to known historic mining operations and the modern radiocarbon date from 26Eu982 raise the possibility that the features are not pinyon roasting pits (despite their appearance), but are somehow related to historic mining. Clarification of the issue must await work elsewhere.

Subsistence Implications

Research concern with the subsistence implications of the pinyon roasting pit were most relevant if it was prehistoric in age. Since it is not, definitive observations regarding prehistoric use of such features in the Mt. Hope area cannot be advanced. The only argument possible is based on negative evidence: pinyon caches and roastings pits were not regularly employed in the project area during the prehistoric period.

Chapter 10. PREHISTORIC SITE 26EU983

SITE DESCRIPTION

Site 26Eu983 is located east-southeast of Mt. Hope at an elevation of 6283 ft (1915 m). The site is situated on top of a relic fan remnant paralleling Tyrone Creek. The creek channel is 250 m north of the site. An elevational difference of 12 m separates the ridge top and the stream channel floodplain. The surface of the site slopes gently east.

Steep sideslopes of the fan remnant define the northern site margin, lesser erosional cuts the western and southern boundaries (Figure 40). The eastern margin is not defined by physical features. Gullying along the face of the fan remnant has resulted in a series of small cuts, especially along the western edge. A sand drift is present on the flat upper surface of the fan remnant. The accumulation of eolian sand present at 26Eu983 is much larger then the one recorded at 26Eu790 and its formation would require prevailing west or northwest winds.

Vegetation observed (in order of relative abundance) included big sage, rabbitbrush, wild rye, cheat grass and foxtail chess, lupine, pinyon pine, juniper, Indian rice grass, and beavertail cacti. Situated in the sagebrush zone, the site has easy access to pinyon with the ecotone between the two zones just to the south.

No evidence of historic use is visible, and no recent modifications are present within the site boundaries. A roadway is in the small erosional gully southwest of the site and the Eureka and Palisade Railroad grade is along the base of the fan remnant.

Initial investigation of 26Eu983 revealed a very diffuse debitage scatter, mostly of siltstone and basalt (Zeier and Stornetta 1984). The scatter covers the top of the ridge and some flakes are exposed in small deflated areas along the southwestern edge of the sand drift. Virtually all tools recorded during the reconnaissance survey are basalt: bifaces, an Elko-eared projectile point, utilized and modified flakes, large turtleback scraper, and a core/chopper.

Upon returning to the site, no difficulty was experienced in finding the artifacts originally recorded; but little else was found. The debitage scatter extended further to the northeast, but little more was present even there (Figure 41). Cultural materials at 26Eu983 were distributed over a somewhat triangular shaped area approximately 65 m on a side. Given the sparsity of material observed, a grid system was not established. Rather, parallel transects were walked across the site, spaced approximately 3 m apart. Artifacts were assigned unique field numbers and each location noted by a pin flag. Artifact locations were mapped and the artifacts recovered.

Five 0.5 by 1 m test units were excavated at 26Eu983. Positioning of the units was determined on the basis of location with respect to sand drift geography, and potential for yielding subsurface cultural materials. Once a general area had been selected for a test unit, its final location was determined by the presence of an artifact.

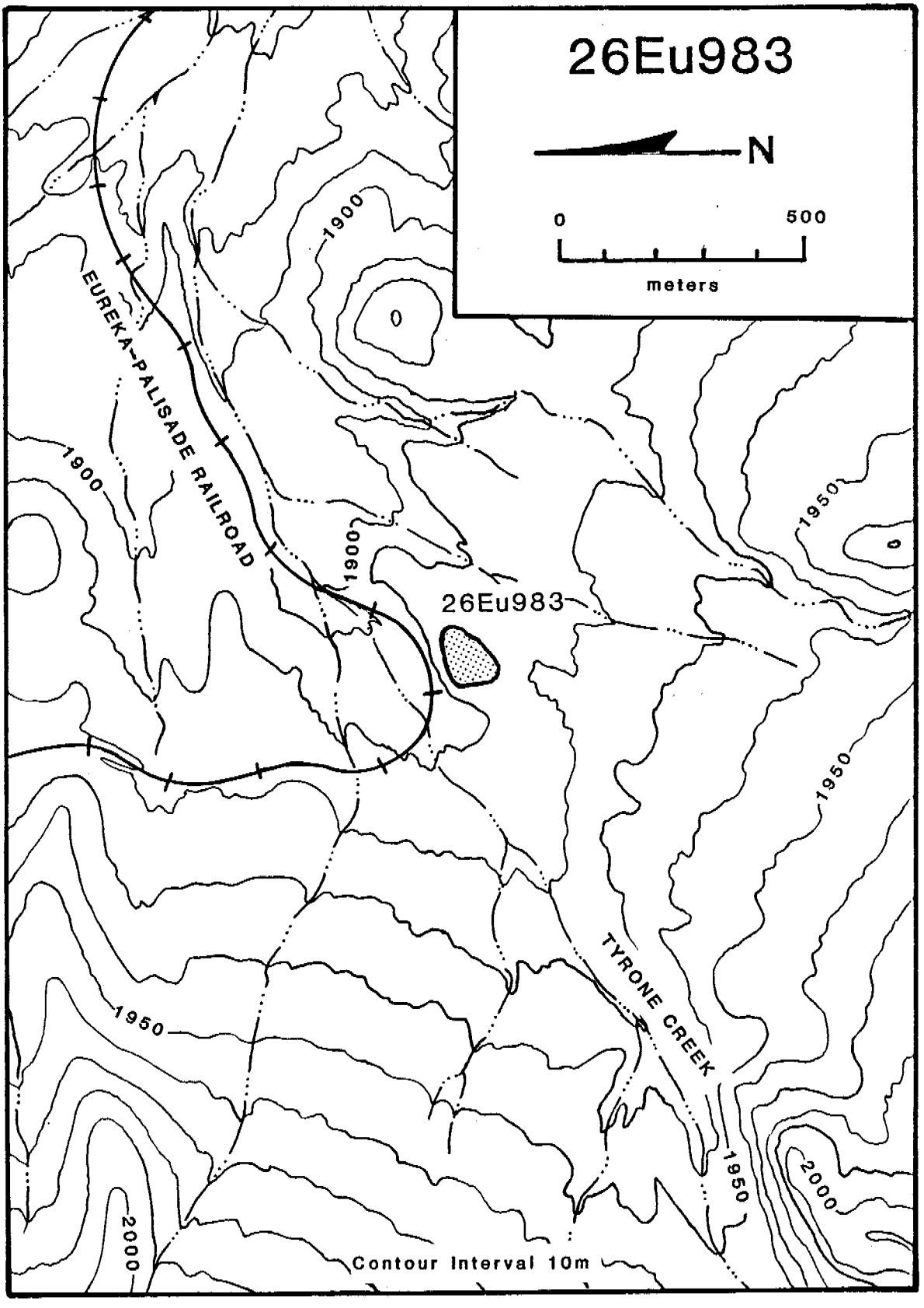

Figure 40. Location map, 26Eu983.

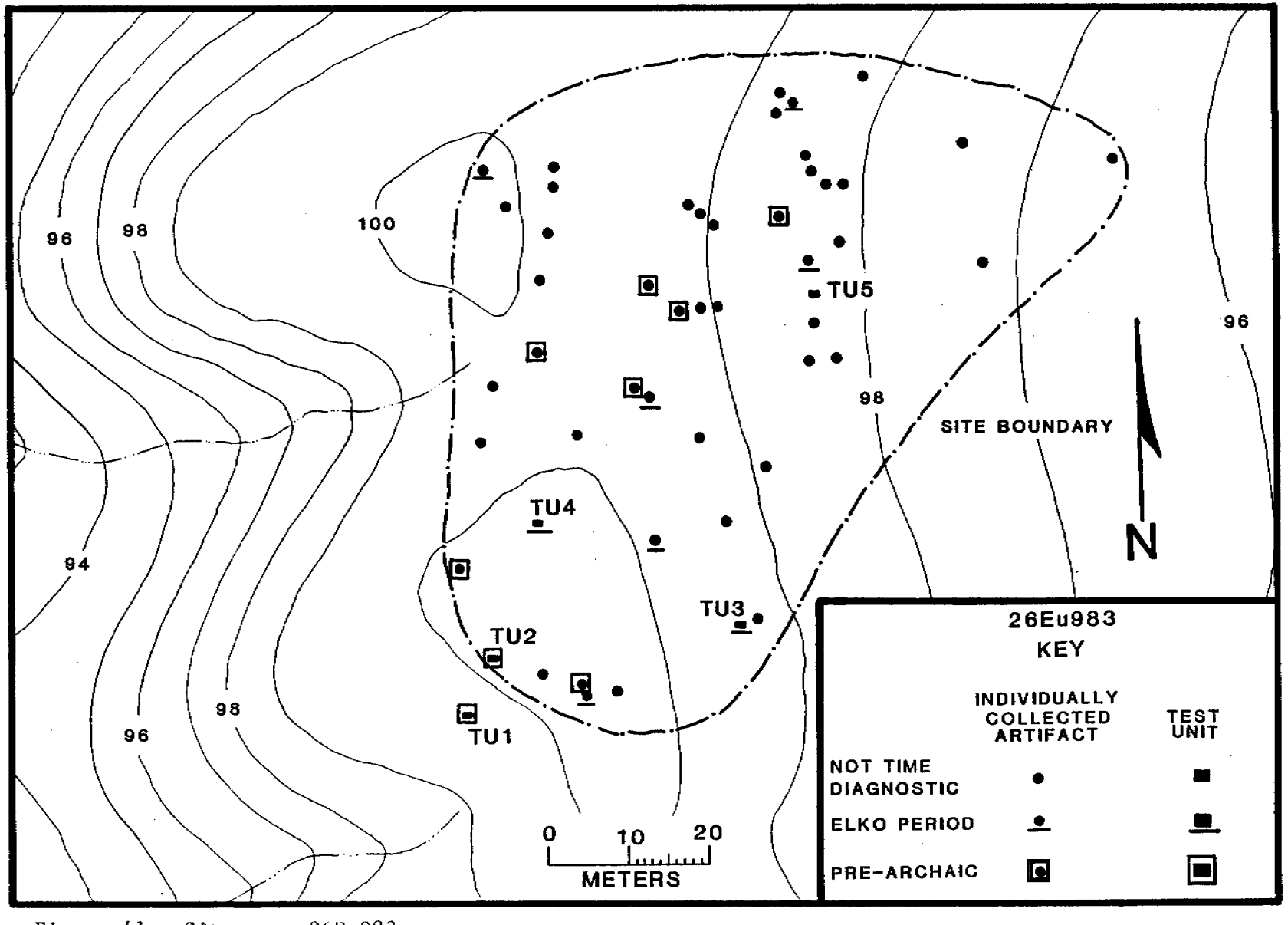

Figure 41. Site map, 26Eu983.

Test Unit 1 was located on the edge of the fan remnant in the southwest corner of the site on the edge of the sand drift. A small rill is adjacent to and cuts across the southeast corner of the unit. Sediments are the loose sandy parent material from the sand drift and concentrations of small angular pebbles. The single artifact found on the unit surface, a large basalt core, was buried to a depth of some 2 cm in very fine alluvial sediments. Below this, a shallow carbonate horizon was found. The contact between these upper sediments and the underlying, more compacted, yellow, sandy loam deposits occurred at 10 to 12 cm below the surface.

Test Unit 2, approximately 6 m north-northeast of Test Unit 1, was located along the break in slope between the steep side of the fan remnant and its flat upper surface. This location was selected because of its position along the leading edge of the sand drift. Deposits in the unit were very thin; the contact with the compacted yellow substratum occurred at 6 cm.

Test Unit 3 was located in the southeastern portion of the site. Surface topography suggests an elevated area just west of Test Unit 3 which is likely the crest of the sand drift. Unit 3 was situated just east of, and below, this topographic feature. Excavation revealed nearly 0.5 m (42 to 43 cm) of loose sand before the yellow, compacted substratum was encountered.

Test Unit 4 was north-northeast of Units 1 and 2, along the edge of the sand drift crest. Sediments were nearly as deep (41 cm) as in Unit 3, but more compacted.

Test Unit 5 was excavated in the northeast portion of the site, some distance away from the prime sand drift features. The loose sandy layer was thinner (about 30 cm), indicating the sand drift is deepest in the southwestern part of the site and thins gradually northeast.

ARTIFACT DESCRIPTIONS

Projectile Points

A basalt Elko Eared projectile point (26Eu983-1) was recovered during the previous site survey (Zeier and Stornetta 1984:50; Figure 6). The artifact is quite long (53.0 mm), collaterally flaked, and patinated from surface exposure (Figure 42a).

Two pre-Archaic point fragments were recovered during surface collection. The first (26Eu983-1858-9) is a Great Basin Stemmed Series basalt, edge ground, stem fragment (see Figure 42b). Points of this series are typically large, sometimes 100 mm long, shouldered or unshouldered, with parallel to slightly contracting stems (Tuohy and Layton 1977). Although temporally diagnostic, overall point morphology cannot be estimated. The second artifact is a reworked obsidian notched-base fragment (26Eu983-1857-8). The specimen is collaterally flaked and edge ground, attributes indicative of pre-Archaic lithic technology (Elston nd.:6); otherwise the point does not conform to any described point series or type (see Figure 42c).

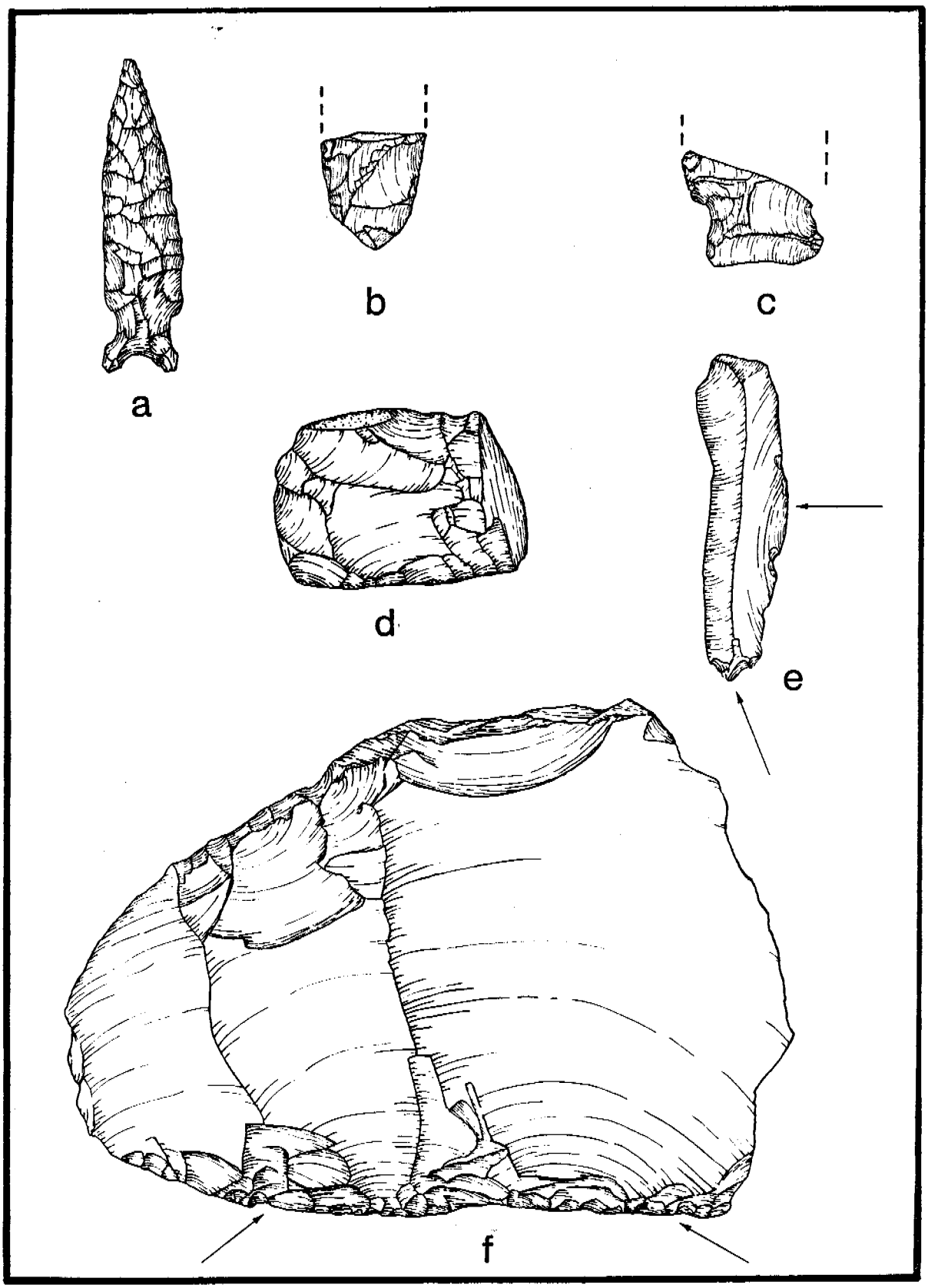

Figure 42. Selected artifacts, 26Eu983. a. Elko Eared point (26Eu983-1-1); b. Great Basin Stemmed Series point base (26Eu983-1858-9); c. reworked Paleo point (26Eu1857-8); d. basalt biface (knife) fragment (26Eu983-1885-36); e. chert blade tool (26Eu983-1868-19); f. basalt chopper (26Eu983-1888-39). Arrows indicate EUs. (Scale 1:1)

Bifaces

Six bifaces were collected: one Stage I, three Stage II, one Stage III, and one unassignable fragment (Table 33). The Stage I biface (26Eu983-1895-46) is a small, thin, roughly flaked piece of thermally altered, dusky red chert. The artifact exhibits minimal alteration and has cortex on one side.

The three Stage II bifaces exhibit a greater degree of modification. The first (26Eu983-1804-1) is a triangular basalt biface edge fragment broken off a larger blank during manufacture. It has the characteristic sinuous edge of Stage II bifaces, as well as cortex on one side. Specimen 26Eu983-1817-1 is a triangular tip fragment, diamond shaped in cross-section. It is made of mottled, pale red granular chert with incipient pot lids, a consequence of thermal alteration. The artifact is most likely a projectile point preform; further reduction was abandoned after a basal transverse-snap. The third Stage II biface (26Eu983-1885-36) is a basalt knife end fragment broken during manufacture (see Figure 42d).

The single Stage III biface is the midsection of a small, narrow basalt biface, probably a knife. The remaining edge portion is too small to determine the presence of use wear.

The final specimen (26Eu983-1892-43) is a bifacially worked piece of brecciated pinkish white chert. Both edges have been retouched, one bifacially, one unifacially; both exhibit minimal use wear. This tool is probably a midsection fragment of a small, leaf-shaped bifacial knife that split longitudinally.

Flake Tools

Seven utilized flakes were surface collected at the site (Table 34). With the exception of one blade tool, all are utilized secondary flakes. The blade tool is of particular interest since many researchers believe blade tool technology is a hallmark of pre-Archaic Great Basin cultures (Elston 1982:191-193). The artifact (26Eu983-1868-19) is a prismatic blade made of good quality yellowish red chert. Both lateral edges have been heavily utilized and the distal end has been fashioned into a burin (see Figure 42e). Two utilized flakes are basalt. One (26Eu983-1865-16), a secondary flake with two EUs, is highly weathered as evidenced by rounded dorsal arrises and a brown matte finish. Similar weathering patterns have been observed on pre-Archaic basalt stemmed projectile points and lithic tools from Grass Valley, Nevada (Elston, personal communication 1985). The other basalt artifact (26Eu983-1859-10) is a secondary flake with three EUs. Its lateral edges have broken from use and the distal end, which terminated in a hinge fracture, has been used as a scraper. The remaining four tools are chert flakes. Two (26Eu983-1879-30 and 26Eu983-1884-35) are quite small, have two lateral EUs each, and distal ends truncated from use. A third specimen (26Eu983-1807-1) is a dark red chert flake with three EUs; both lateral edges and the dorsal end have been heavily utilized. The final item (26Eu983-1851-2) is a thermally altered, brown, mottled chert flake with one lateral EU.

Table 33. Biface Attributes, 26Eu983

Site Number	Specimen Number	Provenience	Material	Weight (grams)	Length (mm)	Width (mm)	Thickness (mm)	Thermally Altered	Condition
				STAGE I					
26Eu983	1895-46	Surface	Chert	6.6	35.5	25.3	7.8	yes	Discarded before completion
				STAGE II					
26Eu983	1804-1	Surface, Test Unit 2	Basalt	9.3	47.2	28.1	7.5	no	Fragment
26Eu983	1817-1	Surface, Test Unit 4	Chert	8.9	39.6	22.5	11.8	yes	Tip fragment.
26Eu983	1885-36	Surface	Basalt	15.4	42.0	29.0	10.3	no	End fragment
				STAGE III					
26Eu983	1896-47	Surface	Basalt	4.1	30.0	21.1	7.6	no	Fragment
				UNTYPABLE FRAGMENT					
26Eu983	1892-43	Surface	Chert	14.5	69.3	28.1	9.3	yes	Fragment

Table 34. Analytical Data on Simple Flake Tools, 26Eu983

Site Number	Specimen Number	Provenience	Material	Weight (grams)	Length (mm)	Width (mm)	Thickness (mm)	Thermally Altered	Condition
26Eu983	1807-1	Test Unit 3/Surface	Chert	3.0	37.0	17.1	3.3	no	Secondary flake-2 lateral, distal EUs
26Eu983	1851-2	Surface	Chert	4.5	33.3	26.2	4.6	yes	Secondary flake-1 lateral EU
26Eu983	1859-10	Surface	Basalt	7.0	35.9	30.5	7.5	no	Secondary flake-3 EUs
26Eu983	1865-16	Surface	Basalt	3.1	33.7	26.0	4.4	no	Secondary flake-2 lateral EUs
26Eu983	1868-19	Surface	Chert	5.9	55.1	14.5	7.3	no	Complete blade-3 EUs
26Eu983	1879-30	Surface	Chert	0.6	3.6	13.0	2.4	yes	Scondary flake-2 lateral EUs
26Eu983	1884-35	Surface	Chert	0.7	21.2	14.4	2.7	no	Secondary flake-2 lateral EUs

Table 35. Analytical Data on Cores and Choppers, 26Eu983

Site Number	Specimen Number	Provenience	Material	Weight (grams)	Length (mm)	Width (mm)	Thickness (mm)	Thermally Altered	Condition
26Eu983	1800-1	Test Unit 1/Surface	Basalt	399.1	114.7	94.1	38.9	no	Core, 1 EU - 59.5 mm; spokeshaves, 50% cortex on dorsal
26EU983	1888-39	Surface	Basalt	570.2	123.8	86.7	44.8	no	Chopper/core, 2 EUs-both lateral edges are heavily battered/bashed, 50% cortex on dorsal

Basalt Core Tools

Two heavy basalt core tools were recovered (Table 35). One is a large, bifacial core (26Eu983-1800-1) with about 50% cortex on its dorsal surface. An opportunistic spokeshave at each end of the core has been moderately utilized. Spokeshaves typically were used in woodworking. The core exhibits weathering patterns similar to the basalt flake tools described above. The second basalt core tool (26Eu983-1888-39) is a bifacial chopper with both lateral edges heavily battered from use (see Figure 42f). Tools of this sort were used to break long bones to extract protein-rich marrow. Both artifacts are typical of pre-Archaic assemblages.

Debitage

Forty pieces of debitage were recovered from the site, of which only 12 are complete. Given the small size of the collection, attempts were made to identify each piece as to reduction stage, whether complete or broken (Table 36). Secondary and biface thinning reduction stages are the most abundant, followed by tertiary stages. This reflects the reduction of biface blanks carried to the site, and final production and/or rejuvenation. The paucity of primary flakes and the absence of shatter supports the contention that material was brought to the site as bifaces, or perhaps cores like the two basalt pieces discussed above.

Table 36. Reduction Stage Debitage Frequencies, 26Eu983

Reduction Stage	Number of Complete Flakes	Number of Fragments	Total
Primary	2	1	3
Secondary	1	10	11
Tertiary	4	5	9
Biface Thinning	5	6	11
Indeterminate		6	6
	12	28	40

Since the majority of debitage represents middle and final stage reduction, cortex was not expected to be abundant; cortex was absent on 72.5% of the debitage. Based on the abundance of cortical pieces and contrary to current perception of material availability in the project area, basalt appears to be the nearest available material type, followed by obsidian and then chert (Table 37). Cherts are available to the west (see Chapter 12), and siltstone is abundant at 26Eu790 (see Chapter 8). Basalt and obsidian, on the other hand, are not known to occur in the project area.

Only the siliceous material types found at the site would have needed to be heat treated. Six of 20 such pieces clearly exhibited evidence of heat treatment.

Table 37. Frequency of Cortex by Material Type, 26Eu983

Material	Cortex Present	Cortex Absent	Total	% With Cortex
Chalcedony	-	3	3	0.0
Quartzite	-	4	4	0.0
Siltstone	-	1	1	0.0
Chert	2	11	13	15.3
Obsidian	1	3	4	25.0
Basalt	7	8	15	46.6
	10	30	40	

EVALUATION OF RESEARCH GOALS

The principle research question explored at 26Eu983 was the significance of basalt tools and debitage in terms of site chronology, technology, and subsistence. Specific research topics included identification of a pre-Archaic component in addition to the previously recorded Archaic component, the role of basalt tools in subsistence activities, and the assessment of subsistence range (distance regularly traveled in conduct of subsistence activities) based on debitage analysis.

Number of Components Present

Projectile points recovered from 26Eu983 (Table 38) demonstrate two distinct occupations separated by a lengthy hiatus. The first occupation is defined by the presence of pre-Archaic points, the other by an Elko point. The possibility that the pre-Archaic points were scavenged from other sites by Middle Archaic folks, is dismissed due to distinct pre-Archaic characteristics of other artifacts found at the site.

Table 38. Temporally Sensitive Artifacts, 26Eu983

Artifact Class	Date Range	Number Of Items
Elko Series points	1300 B.C. to A.D. 700	1
Pre-Archaic Series points	9000 B.C. to 6000 B.C.	2

Excavation revealed the site is essentially a surface phenomenon. Surface collection yielded a small quantity of fairly large pieces widely scattered over a broad area. It is possible that artifacts have been brought to the surface and dispersed laterally over the site by natural processes similar to those operative at 26Eu790.

Cultural material recovered from test units largely was restricted to the surface (Table 39). Only Test Units 3 and 5 revealed any subsurface material, but even here a majority of buried artifacts were found within the upper 10 cm of deposit.

Table 39. Artifact Frequencies by Depth, 26Eu983

Level	Test Unit 1	Test Unit 2	Test Unit 3	Test Unit 4	Test Unit 5
Surface	1	1	1	1	-
0-5 cm	-	-	1	-	2
5-10 cm	-	-	1	-	-
10-15 cm	-	---	-	-	-
15-20 cm	---		-	-	-
20-25 cm			-	-	-
25-30 cm			1	-	-
30-35 cm			-	-	---
35-40 cm			-	-	
40-45 cm			---	---	

Distinctiveness of Components

Site materials reflect a mixing of two occupational events. Therefore, the artifact collection was divided into two distinct assemblages; one pre-Archaic in age, the other Elko in age. Identification of an artifact to the pre-Archaic component was based on technological characteristics and/or the presence of pronounced patination. Artifacts not clearly attributable to the pre-Archaic were assigned to the Elko assemblage.

The distribution of artifact types by assemblage (Table 40) reveals that the two assemblages are equal in size, but vary in composition. Bifaces from the pre-Archaic assemblage are final stage pieces while those from the Elko assemblage tend to represent earlier stages of reduction. The abundance of utilized flakes in the Elko assemblage reflects the increasing emphasis on flake tools during the Middle and Late Archaic. The reverse trend is reflected by the three bifacial knife fragments and the large core/choppers assigned to the pre-Archaic assemblage.

Table 40. Assemblage Composition, 26Eu983

Artifact Type	Pre-Archaic Component	Archaic Component
Projectile Points	2	1
Stage III Bifaces	1	
Stage II Bifaces	2	1
Stage I Bifaces		1
Biface Fragment		1
Utilized Flakes	2	5
Core/Chopper	2	
	9	9

The locations of pre-Archaic and Elko period artifacts reveal no clear or mutually exclusive patterns. The pre-Archaic tools do fall into two clusters. Given the wide and relatively even distribution of material across the site area, however, no significance can be assigned to these clusters; especially in

light of findings at 26Eu790, where artifact movement in sand drift deposits was pronounced.

Lithic Material Availability

As discussed above in the section on debitage, an apparent contradiction exists between the relative abundance of cortex on material types and what is known of their local availability. Resolving this contradiction requires consideration of the pre-Archaic component present at 26Eu983, and possible differences in lithic procurement strategies over time.

Except for a single chert blade tool, all the tools assigned to the pre-Archaic assemblage are made of basalt or obsidian. It seems reasonable, therefore, to assume that most, if not all, the obsidian and basalt debitage from the site is also assignable to that assemblage. A preference for basalt and obsidian toolstones (over siliceous materials) and a high curation rate are hallmarks of pre-Archaic cultures (Elston nd.:6-9).

This suggests that during pre-Archaic times, lithic toolstone was transported with the group during subsistence ventures, often some distance away from the original material sources. If the large basalt pieces found at 26Eu983 served as cores, as well as choppers, then relatively sizable pieces of toolstone were so transported. This would explain the abundance of cortical pieces of basalt and obsidian in an area where these materials are not known. Binford (1979:260) states that variability in raw material proportions at a site is a "function of the scale of the habitat which was exploited from the site location coupled with a founder effect resulting from discard on the site of items which had been manufactured previously at some other location." Clearly, the basalt and obsidian at 26Eu983 are examples of discarded rather than locally produced artifacts. This does not mean that basalt observed elsewhere was necessarily left by pre-Archaic folks, but it does point out that other sites in the region that contain basalt deserve careful examination.

Debitage assumed to be associated with the Archaic period complies with the Archaic pattern of relying on local toolstone sources. Cherts within the assemblage have a higher abundance of cortex. Here, toolstone procurement was a secondary activity embedded in subsistence activities that focused on the logistic exploitation of smaller areas during particular seasons of the year.

These data suggest that during the pre-Archaic, people ranged farther in their subsistence quest then during the Archaic. Given their more extensive range, pre-Archaic folks would have had a greater variety of lithic sources available to them. Consequently, they may have been able to opt solely, or at least primarily, for high quality toolstones which were then transported. Lower population densities typical of the period would result in lower competition levels, even for the more desirable toolstones.

In conclusion, lithic material variety at 26Eu983 may be a reflection of differing subsistence ranges between the pre-Archaic and Archaic periods, and has little to do with how "local" various material types are. If subsistence ranges were similar, then relative variety could be used as a measure of local availability. The two cultural systems represented at the site did not employ similar subsistence strategies, however, and inter-assemblage comparisons are inappropriate.

Chapter 11. HISTORIC CHARCOAL PRODUCTION SITES

Charcoal production sites can be divided into three basic types. Most obvious are the centrally located sites from which activities in the surrounding area were directed; they are the Carbonari ranches to which Earl (1969) referred. Surrounding satellite charcoal production sites are the second basic type. Ranches are far more complex than the outlying sites; most having multiple charcoal ovens, habitation structures, corrals, and extensive artifact scatters. Satellites, on the other hand, have no structures and seldom contain an artifact assemblage of consequence. Mt. Hope data suggest a ratio of nine satellite oven sites for each Carbonari ranch. The third site type represents Carbonari activities not associated with charcoal ovens. The type includes small artifact scatters and features interpreted as probable lunch break locations, trails, isolated piles of cut wood, and lost or discarded tools.

Eight sites were selected as representative of the charcoal production theme. All are located in a remote, undeveloped canyon drained by an ephemeral stream that flows almost due north before joining Tyrone Creek (Figure 43). Canyon bottom elevations range from 1980 m at its confluence with Tyrone Creek to over 2060 m. The ridgeline east of the drainage rises to a height of 2090 m, that to the west, 2100 m. Relief in the canyon is asymmetric, sloping gradually to the west while the eastern canyon wall is more abrupt. Numerous rills and ephemeral streams drain the eastern canyon wall and have formed alluvial fans along its base.

Sites in the canyon contain evidence of all major aspects of historic charcoal production. Site 26Eu988 is a Carbonari ranch, the remaining sites (26Eu923, 26Eu924, 26Eu931, 26Eu987, 26Eu991, 26Eu993, and 26Eu994) are its satellite charcoal lenses. With few exceptions, charcoal lenses are located close to the stream bottom, mostly on the eastern bank.

Site 26EU988

Site Description

Site 26Eu988, located south-southeast of Mt. Hope at an elevation of 6293 ft (2010 m), is situated on a north sloping inset fan terrace between two small ephemeral stream channels. The eastern channel is the main drainage, the one to the west drains part of the west canyon wall. The site area exhibits some 18 ft of relief. Isolated pinyon and juniper are present in the center of the site, with more abundant stands on adjacent hillsides.

First investigation of the Carbonari ranch revealed the remains of three charcoal production ovens (Lenses 1, 2, and 3) and a leveled terrace with a rock pile at one end (Feature A). (Figure 44). Surface debris concentrated near Feature A (nails, window glass, dish fragments, and butchered bone) suggested a structure, probably a residence, was once present. Maximum site area is some 200 by 200 ft; the artifact scatter covers 150 ft north-south by 100 ft east-west between the two ephemeral drainages. The outlying charcoal lenses account for the overall site dimensions.

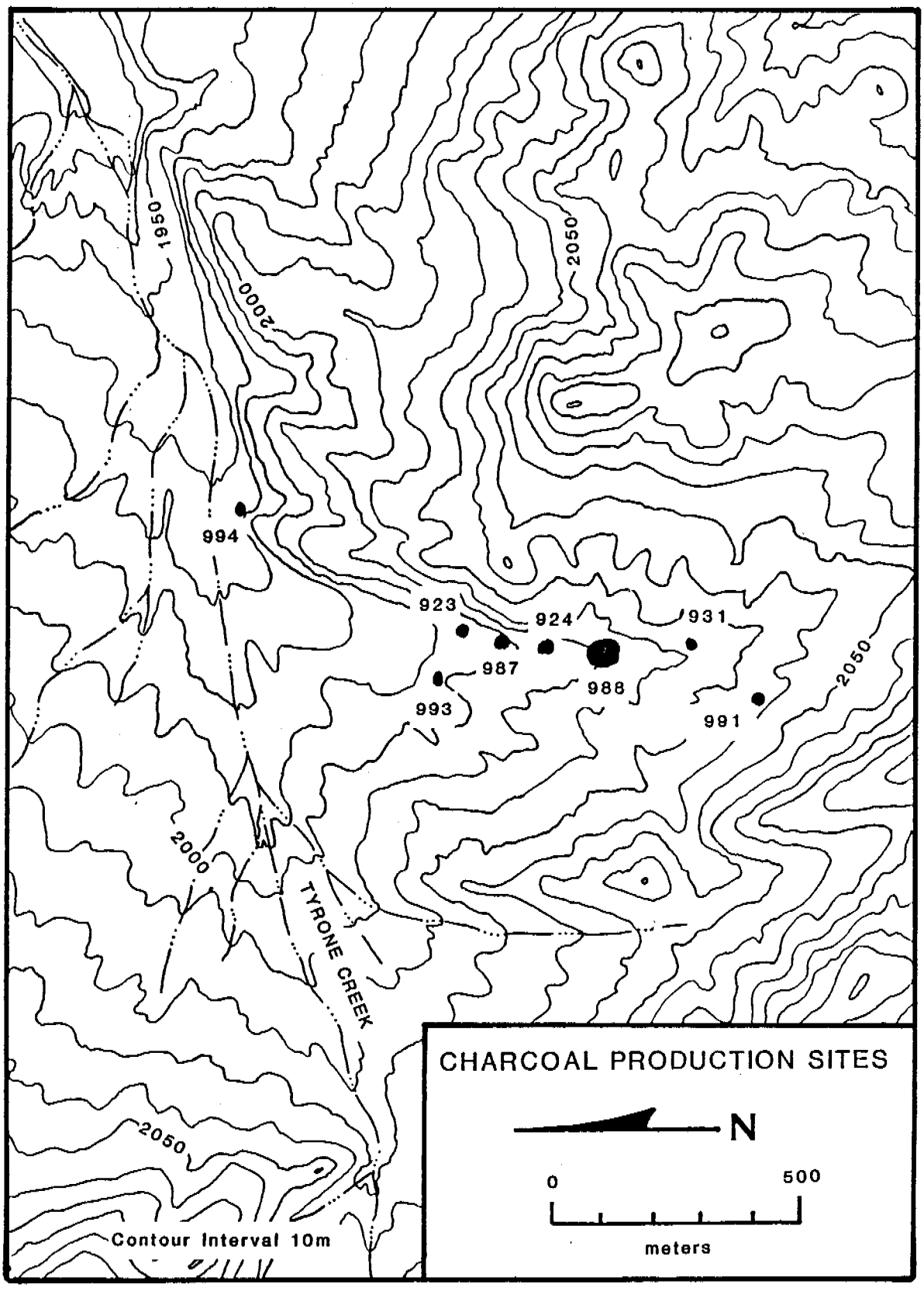

Figure 43. Location map, 26Eu988 (the site number prefix, 26Eu, is deleted for graphic clarity).

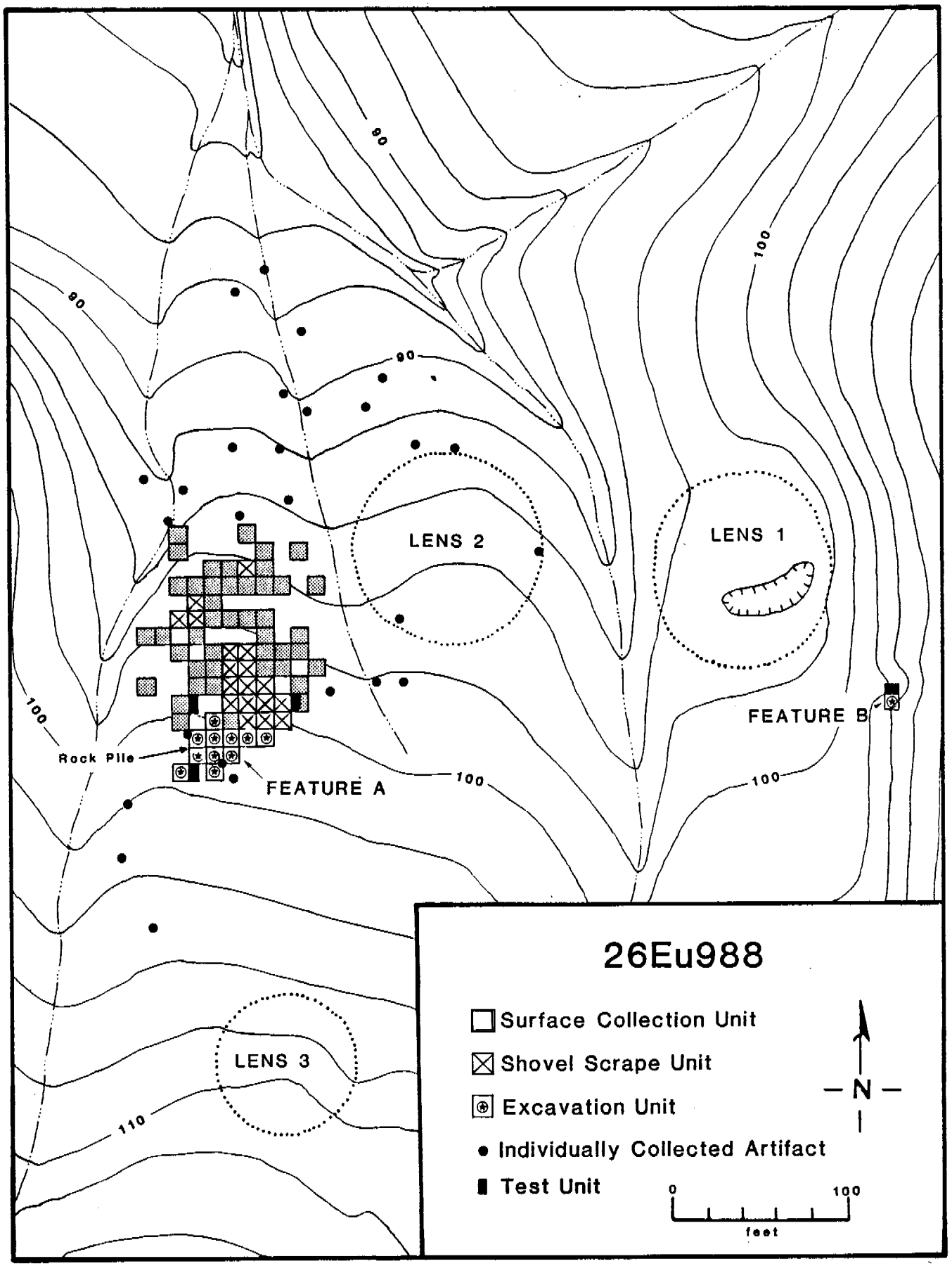

Figure 44. Site map, 26Eu988.

Investigation of the site also revealed a small parabolic depression about 14 ft across, cut 8 ft into the west-facing hillside (Feature B). Surface indications suggested that a rock wall was once present along the southern face of the depression and several timbers were located at its mouth.

Prior to surface collection, a 5 x 5 ft grid was established. Each unit was scanned to determine if cultural material was present. Rather than employ a random sampling strategy, attention was focused on Feature A and the area downslope (north). A total of 54 units was surface collected. Twenty-five isolated artifacts located outside the grid were described but not collected. Twelve diagnostic artifacts were pin flagged, assigned a reference number, mapped with a transit, and collected.

The surface of 26Eu988 is quite sandy, and several surface artifacts were partially buried. As a result, the possibility that soil deposition had buried a substantial portion of the original occupation surface was a potential problem. To test the effect this might have on the surface appearance of the site, four surface collection units were shovel skimmed, two which had surface artifacts present and two which did not. In all cases, cultural material was found in the one inch thick, skimmed layer.

Three 2.5 by 5 ft test units were dug at Feature A. One unit was placed below the edge of the terrace at Feature A, another on the terrace. The third unit was placed some 10 ft northeast of the terrace but still within the area of artifact concentration. One 2.5 by 5 ft unit was excavated in the center of Feature B.

Test excavation revealed that the uppermost soil horizon at 26Eu988 is a light brown, loose, loamy sand that includes a moderate amount of gravel and pebbles. Rootlets are present, but do not significantly penetrate into the lower horizon. This upper horizon extends from the surface to a depth of approximately 4 to 6 in. Below this is a much more compact, sandy loam sediment with far less gravel and pebbles. Lighter in color, this stratum contains some clay. Fill in the terrace area does not differ noticeably from the uppermost horizon except that a moderate amount of charcoal and ash was present.

Artifacts recovered from the test units demonstrate that subsurface material was most abundant on the terraced area at Feature A. Otherwise, deposits are shallow and the few artifacts present are in the upper two inches. Test excavation in Feature B yielded no artifacts, but did reveal a compacted floor. Based on these findings, excavation activities were concentrated around Feature A, including units on the terrace and shovel skimming nearby. Excavation included a total of eleven 5 by 5 ft units, two 2.5 by 5 ft units, a 7.5 by 5 ft unit, and narrow trenches along three identified structure walls at Feature A. A total of 18 units were shovel skimmed, 11 of which had been surface collected. Investigation of Feature B was continued to determine if architectural features were present.

Archival Information

Archival research regarding charcoal production was directed at identifying patterns in household composition and verifying an ethnic Italian presence in the Mt. Hope area.

The 1880 federal census (National Archives 1880) provides information on the demographic structure of charcoal producers in the project area. At the time of the census, the McGarry district (the census area nearest to, and probably including 26Eu988) contained 16 households occupied by fifty people (Table 41). Occupations listed for the households included two farms (one with a father and two children but no wife), the six men living at 26Eu787-B, four 'wood choppers' living in two houses, and 36 'coalburners' living in eleven households. The number of persons in the coalburner households varied from one to six, with an average of three and a mode of four.

Table 41. Demographic Information, McGarry District, 1880

Household Number	Occupation	Number of Occupants	Principle Surname	Cohabiting Kin ?
469	Wood/Coal Dealer	6	Fagan/Dargan	No
470	Wood Chopper	3	Hoover/McConel	No
471	Wood Chopper	1	Elwood	--
472	Farmer	3	Coleman	Yes
473	Farmer	1	Stevens	--
474	Coalburner	4	Gior	No
475	Coalburner	6	Farovini	Yes
476a	Coalburner	2	Febiola	Yes
476b	Coalburner	1	Scesa	--
477	Coalburner	4	Pinchi	No
478	Coalburner	4	Bonetti	Yes
479	Coalburner	3	Strozzi	Yes
480	Coalburner	4	Capriri	Yes
481	Coalburner	4	Capetti	Yes
482	Coalburner	3	Tognetti	Yes
483	Coalburner	1	Barbi	--

Source: 1880 Federal Census (National Archives 1880).

All 36 coalburners are men listed as having been born in Italy (n=24) or Switzerland (n=12). The average age of the coalburners was 31, ranging from 20 to 50. Eight (22.0%) are listed as married, though only two women of the same surnames are present in the county. Either most of the men planned on earning enough money to bring their wives to the new country, or they intended to earn a sum of money and return home to Italy.

Of the nine multiple occupant, coalburner dwellings listed, seven housed men who were related (brothers or cousins): in three (households 476a, 479, and 482) all the occupants of the household were related to one another, in the other four, non-kin were present as co-residents. In the mixed households, the related pair were frequently (75.0%) listed as the principle occupants, suggesting they enjoyed an elevated status within the household. A phenomenon common during times of large scale immigration is the movement of village groups: men from a village, some of whom would be related, immigrate and work together. It is possible that some of the households listed in the census data reflect such a pattern.

In summary, charcoal production in the Mt. Hope area was carried out exclusively by ethnic Italians. Further, coalburner households included a

number of adult males (normally about four) who were frequently relatives. The census data confirm that charcoal production was ongoing in the Mt. Hope area during 1880.

Artifact Descriptions

Site 26Eu988 yielded a varied assemblage of 1396 artifacts and bone fragments (see Appendix B). Artifact descriptions are organized by secondary function category.

Clothing and Shoes

Remnants of hats, coats, shirts, men's work pants and jackets, leather belts, suspenders, and shoes were recovered. A minimum of 44 artifacts are represented by 120 whole and fragmentary specimens. Twenty-two fragments of one brown felt hat revealed a brim width of 2-1/2 in. Distance from front to back of the inner brim edge is 7-3/4 in. Machine stitching near the brim edge was executed with black or dark green thread. No determination of crown shape could be made.

Coats or jackets are indicated by the presence of three large buttons. The largest (1-3/16 in. diameter) is a plain, four-hole, sew-through black rubber button with concave face and convex back. Of note is the absence of an embossed backmark. American rubber buttons almost always carry their maker's mark plus recognition of Goodyear's 1849 or 1851 patents for vulcanized rubber (Albert and Kent 1949:68; Luscomb 1979:91). The remaining two buttons are smaller (3/4 in. diameter) shanked types. One is a cloth-covered metal disc, with a flat face, fiber filler, and missing back plate and shank. The second is a plain rubber disc, flat on front and back, with a brass pinhead shank piercing both faces. An embossed backmark, "N.R.Co./GOODYEAR'S P=T. 1851", is evident (Figure 45c). Novelty Rubber Company, the maker, is known to have been in business between 1855 and 1885 (Hale 1978; Luscomb 1979:140).

Shirts and underwear are represented by 18 porcelain, ocean shell, and rubber buttons. All but one are two- or four-hole sew-through varieties, ranging from 7/16 in. to 5/8 in. in diameter. The exception is a shanked porcelain button. Three plain styles of inexpensive porcelain sew-through buttons, compression molded forms made in France, account for 12 of the 18 shirt buttons. They date from 1840 to ca. 1910. The three ocean shell buttons, two- and four-hole versions, have no decoration other than depressed hole panels. The two two-hole rubber buttons are identical and may have been attached to a shirt. Both are embossed "NRCo/GOODYEAR'S P=T." These are very plain buttons, being merely flat, smooth discs (9/16 in. diameter), except for the embossings (see Figure 45d).

Fragments of dark brown woven fabric, resembling flannel, may represent a shirt, but too little remains to allow much conjecture.

Fifteen metal sew-through buttons and one metal rivet button are from men's trousers. The 15 four-hole buttons are of two styles and two sizes, 9/16 in. and 11/16 in. diameters. They are three-part gadgets comprised of a flat to concave brass or iron face disc, a fibrous center filler disc, and a tin convex to flat metal back disc. They were commonly employed as fly and

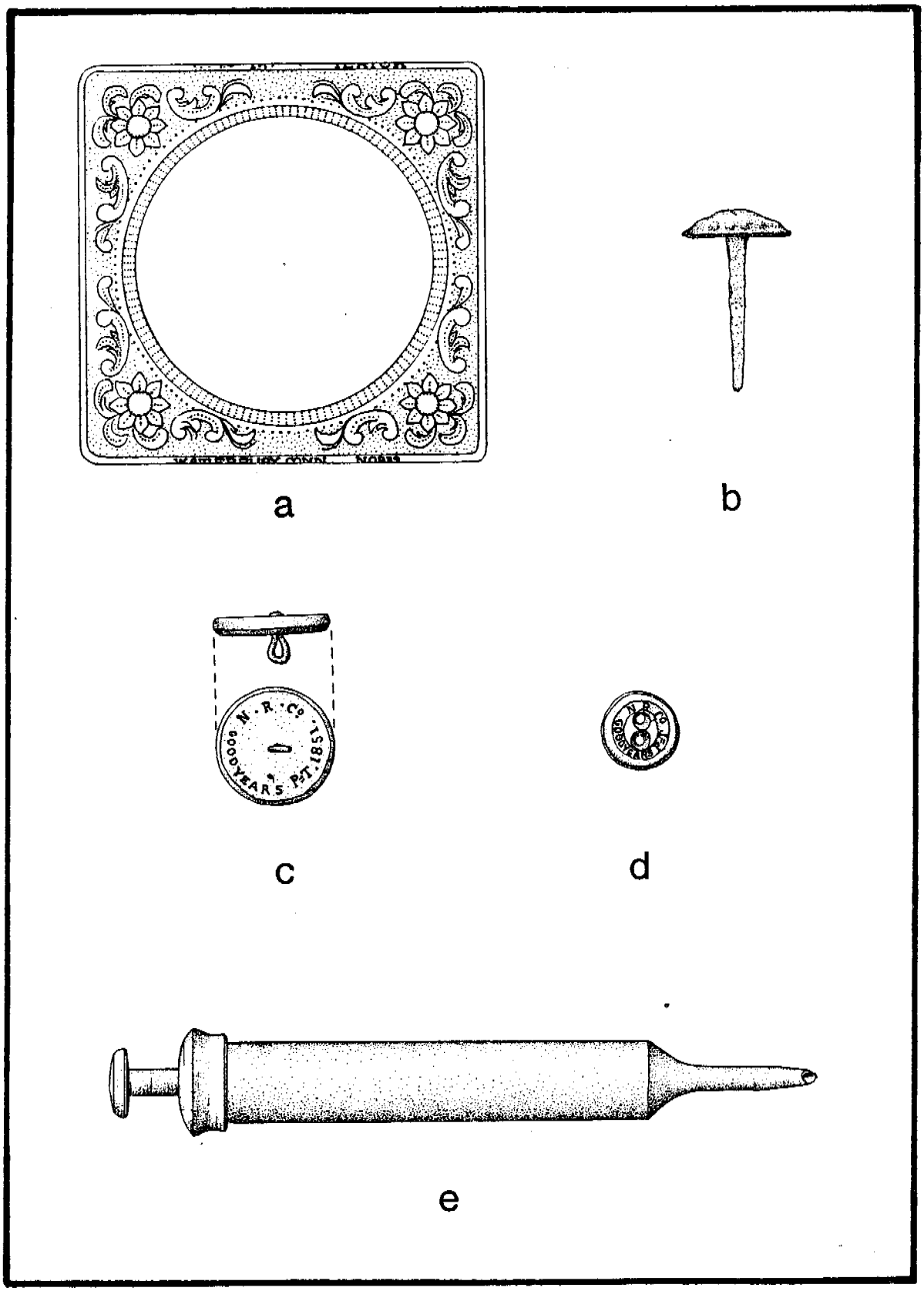

Figure 45. Artifact illustrations, 26Eu988. a. copper picture frame (26Eu988-2690-6); b. trunk rivet (26Eu988-2386-1); c. rubber button, two views (26Eu988-2660-8); d. rubber button (26Eu988-2694-4); e. rubber syringe (26Eu988-2687-6). (Scale 1:1)

suspender buttons. Crimping a face disc over a back disc began in England in the late 1820s, and was almost immediately applied to shanked and sew-through metal buttons alike (Jones 1946:26,97). The single metal rivet button is round (9/16 in. diameter) and composed of an iron face and brass back. This type of fastener is characteristic of denim work pants and jackets and is still found in today's market. Thread remnants are intact at the rivet back.

A suspender buckle was also recovered. Of plain form, the iron buckle is 1-1/8 in. wide, two-pronged, and retains a bit of black cloth on one prong. Seven leather strap fragments represent remains of two belts: one with machine-stitching, the other with lacing holes along the edges.

Two shoes or boots were found. Remains of a leather boot included machine-stitched upper and sole fragments and a leather tab pull strap. Based on the machine-stitched sole, the shoe must postdate 1860 (Anderson 1968:59). A rubber boot or shoe is indicated by numerous heel, outsole, and upper fragments. Construction entailed alternating layers of black rubber and cloth. Absence of heel holes suggest the heel was cemented to the shoe. Rubber footwear was attempted soon after Goodyear's successful vulcanizing of rubber in 1844 (Wilcox 1948:137).

Adornment

Items of personal adornment include two small objects. The first is a glass "Cornaline d'Allepo" bead 2.0 mm long and 4.0 mm in diameter. The bead has a white opaque center overlain by a translucent scarlet glass layer (Type IVa 9 as defined by Kidd and Kidd 1970:60, 79). Such beads were a common trade item in the west after about 1840 (Motz and Schulz 1980:53). Its occurrence suggests either the passing presence of Indians at the site, or perhaps collection from local Native American sites by the Carbonari. The other adornment object is a broken piece of transparent cobalt blue glass resembling an eyeglass lens or the stone from a brooch. Flat, oval in shape, and one inch wide, this piece is ground and beveled along its outer edge.

Medical and Health Items

The thirty-one whole and fragmentary medical and health items include one rubber syringe, one dense rubber bottle stopper, and one "plain oval" style prescription bottle. The complete syringe (see Figure 45e) consists of three parts: the barrel, a compressor pin, and a slightly convex cap. All three are made of a dark brown hard rubber. A similar specimen recovered from Fort Bowie, Arizona, resembles those advertised during the late 1800s as especially suited for human nose, ear, and urethra treatments (Herskovitz 1978:132, 133).

The plain oval-style prescription bottle is of pale aqua glass with an applied, tooled extract finish. The oval base measures 3 in. long by 1-5/8 in. wide, embossed with an "H" at one side. The bottle is incomplete, but based on manufacturing technique, the bottle is common to the period between 1840 and World War I (Schulz et al. 1980:2-8). The very dense, light brown rubber bottle stopper fits nicely into this bottle's mouth; "4 1/2" is embossed on the stopper top, possibly referring to a 4-1/2 ounce bottle capacity.

Indulgences

Three white clay tobacco pipes and seven liquor bottles were found. One of the two white, ball clay pipe bowls is devoid of decoration (Figure 46a). The bowl is 1-5/8 in. high, and one inch in diameter. The second bowl exhibits a stylized repeat leaf design (see Figure 46b). Both bowls retain a spur at their bases as well as evidence of charring on interior and exterior surfaces. A third clay pipe is represented by stem fragments. Oval in cross-section, the stem is at least 3-1/4 in. long. Impressed model number and maker's marks are found near the bowl end of the stem; "S 79 W. WHITE" on one side, "GLASGOW" on the reverse. White was a pipe producing firm from 1805 to 1955 (Lenik 1967:45). The style of pipe to which S 79 refers is presently unknown.

Seven bottles and one cork (141 fragments) represent a variety of alcoholic beverages. Two champagne bottles are identified by their distinctive nineteenth century finish, consisting of a beveled mouth edge, with heavy and regular applied laid-on-rings, and by their characteristic base kick-ups (Schulz et al. 1980:75; Switzer 1974:23-26). One appears to be a 13 ounce size; the other volume cannot be determined. A third olive green glass bottle, also free-blown, is very fragmentary. It has a high kick-up, characteristic of Bordeaux-style wine and champagne bottles (Schulz et al. 1980:75). One deep amber glass bottle is represented by finish, neck, and body fragments. Thought to have held hock wine or brandy, the container has a substantial, applied finish identical to the olive green champagne finishes described above. Such bottles were used from the 1860s to Prohibition (Schulz et al. 1980:75; Wilson 1981:20; Wilson and Wilson 1968:119, 145, 146).

Two "champagne" style beer bottles were recovered. These black glass containers, formed in Rickett's-type molds, held approximately 12 fluid ounces (Figure 47). This is one of two bottle styles which became popular with the advent of pasteurized lager beer after 1873 (Wilson 1981:8). The complete specimen measures 9-1/4 in. tall by 2-7/8 in. in diameter and retains a laid-on-ring finish. The remnant of a paper label in red and black pigments is present and the letters "...TTE.../...BB.../...O...D.../..." can be discerned. The bottle's manufacturing technique was common in England from 1822 on, but in the western United States was employed between the 1840s and 1880s (McKearin and Wilson 1978:216-218; Wilson and Wilson 1968:13-16).

Two small body fragments of an embossed aqua bottle, cross-mend to form the letters "...HE.../IX..."; they are parts of a Dr. Henley's Wild Grape Root IXL Bitters bottle. Dr. Henley's Bitters were produced from 1866 until at least 1912 (Schulz et al. 1980:56-58). They were, apparently, a popular alcoholic commodity stocked by Eureka bars and advertised in local newspapers during the 1870s and 1880s (Holabird and Haddock 1981:23).

Luggage

A suitcase and possibly a trunk are represented by one iron suitcase frame and four brass-head trunk rivets (see Figure 45b). The iron frame consists of two interlocking, hinged straps which form curved corners. The straps are flat iron (3/4 in. wide by 1/16 in. thick), forming a frame 11 in. long by 5-1/2 in. wide. Each retains one intact iron trunk rivet.

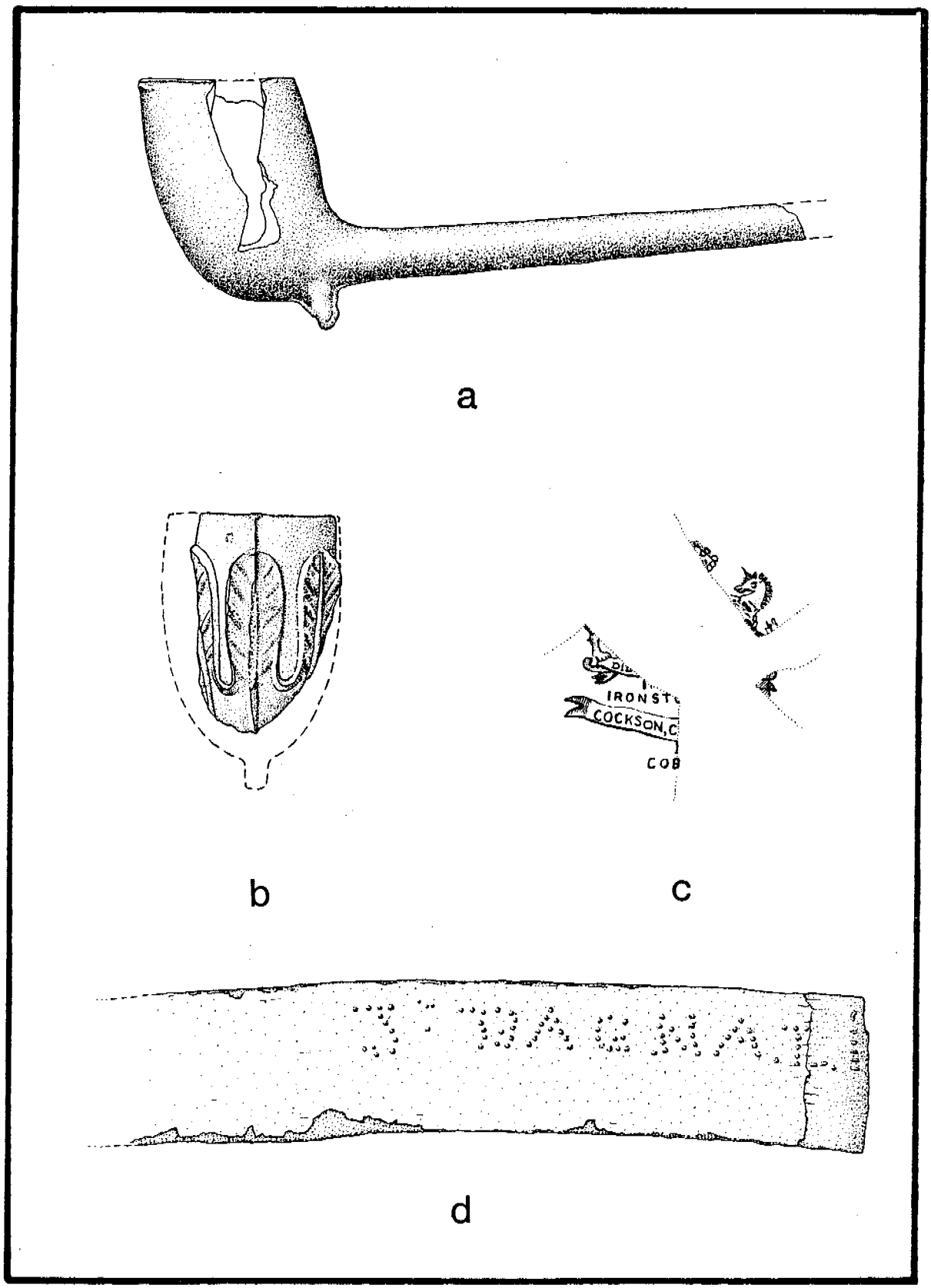

Figure 46. Artifact illustrations, 26Eu988. a. clay pipe (26Eu988-2710-15); b. clay pipe bowl (26Eu988-2705-2 and 26Eu988-2707-5); c. ceramic maker's mark (26Eu988-2442-1 and 26Eu988-2443-1); d. galvanized barrel hoop with embossed letters (26Eu988-2377-2). (Scale 1:1)

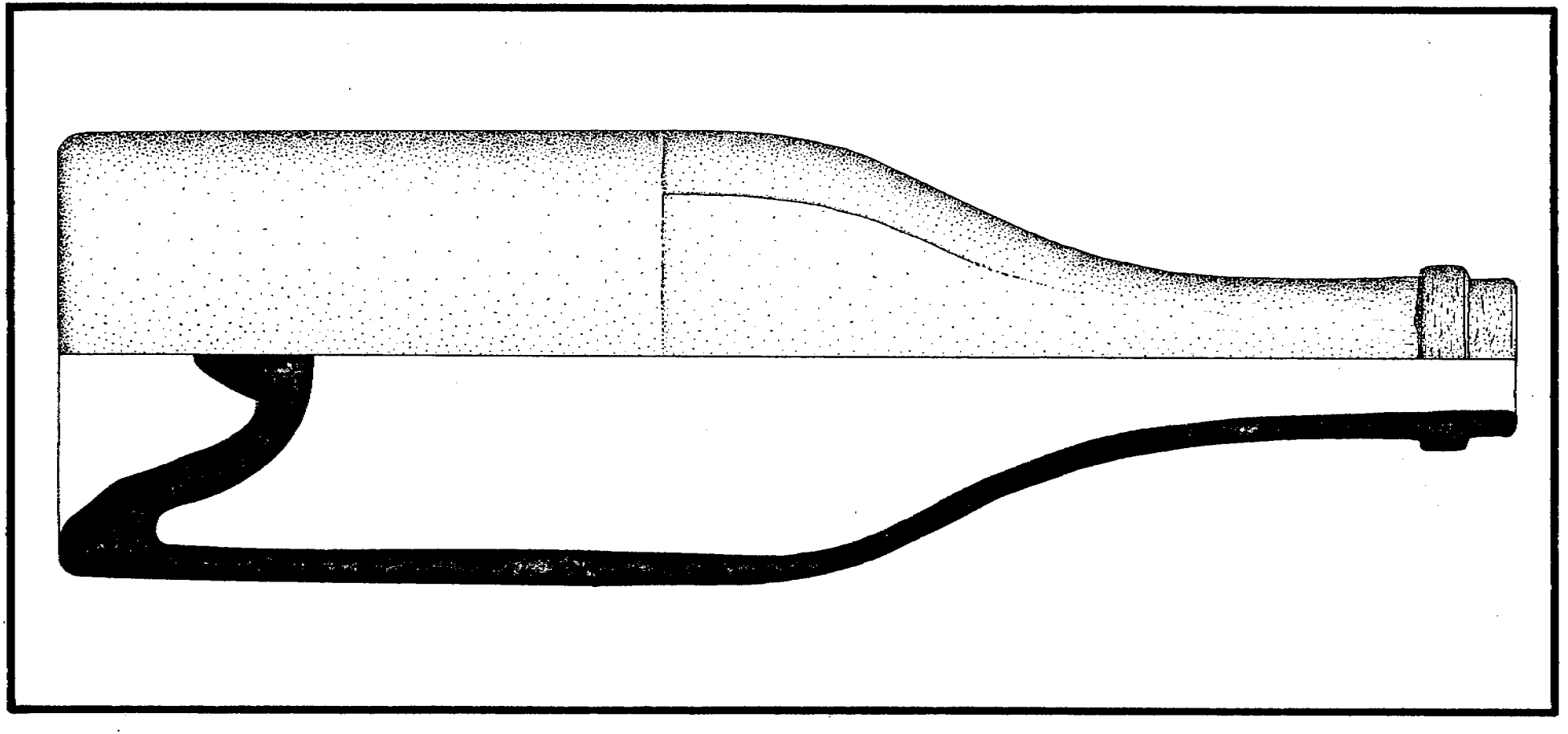

Figure 47. Champagne-style beer bottle (26Eu988-2451-1, scale 1:1).

Two types of brass trunk rivets were recovered. One specimen is identical to those found in the suitcase frame, except that its head is brass. This rivet is incomplete but has a flat, round, solid head 7/16 in. in diameter. The head edge is beveled and an iron shank of unknown length was originally attached at back. The other three specimens are iron, machine-cut nails with round, flat heads. Each head is concealed by a larger (3/4 in. diameter) three part brass head which is crimped over a fiber filler disc and an iron back disc. The full length of the rivet is 1-1/4 in. This manner of construction is identical to that employed for Sanders-type buttons which date to the late 1820s (Jones 1946:24).

Pocket Tools and Accessories

A small iron ring (7/8 in. diameter) made of small gauge wire (1/16 in. diameter) was recovered. The ring could have been used to attach chains to wallets and belt loops, straps to pouches, pocket knives to key chains, etc.

Furnishings

Evidence of furnishings is scant; the total assemblage consists of three carpet tacks, one stamped copper foil tintype frame, and the ornate brass fittings from a wooden box. Carpeting in such an outpost seems highly unlikely, but three carpet tacks were found. They may have been used in any number of ways on other objects. The ornate copper tintype frame, which has a stamped design, is square (2.5 in. on a side) with an oval center meant for use with a small photo or tintype (see Figure 45a). The brass box fittings are stamped with a floral motif. The main escutcheon and two smaller matching plates have three small attachment holes. One plate, in fact, is still attached to a fragment of wood. One brass hinge was recovered, having three holes which align with those on the plates. We have no idea of the box dimensions; it may have been a cigar box, jewelry box, game box, etc.

Food Storage

Three glass bottles and 48 iron cans comprise the food storage assemblage. A pickle or honey bottle, possibly a cathedral-style vessel, is noted. Wide-mouthed (1.63 in. outer diameter), with ball neck and folded lip finish, the bottle is fragmentary. The glass has turned amethyst, suggesting an 1880 terminus post quem (Munsey 1970:82). Two rectangular aqua glass "dry ingredient" bottles, formed in two-part leaf molds, exhibit chamfered body corners, applied bead finishes, and centrally-depressed bases, each embossed with a "4." Bases measured 2.5 in. long by 1.25 in. wide. These resemble the well-known "Hunnewell" brand bottles used for spices and yeast during the third quarter of the nineteenth century (Schulz et al. n.d.).

Of the 48 cans (83 pieces), eight contained food preparation ingredients. Two are large, rectangular lard cans. They measure 9 in. tall by 5.5 in. wide by 4.5 in. thick and have a volume of 115 ounces. Featuring hand-soldered lapped seam construction, each carries a soldered, round cap (3.88 in. diameter). One cap is embossed "PURE LEAF/LARD." Capped ends have been removed from the cans by knife cuts, probably for easier removal of the lard. Six small canisters with re-usable lids are thought to have held baking powder.

Each cylindrical can body measures 3 in. tall by 2.25 in. wide, with a raised horizontal rib just below the open end. Can capacity is 5.5 ounces. One lid retains evidence of a paper seal. These and the lard cans are of 1847 to 1880s vintage, based on their hand-soldered lapped seams and machine-stamped ends (Rock 1984:100, 103). The remaining 40 cans, all knife-opened are assumed to have held solid foods such as vegetables, fruits, soups and sauces. All are cylindrical, hole-in-cap containers, with machine-stamped ends.

Can opening patterns differ based on can size and type. Ten 20 ounce machine-soldered, hole-in-cap cans (4.63 in. tall by 3.5 in. in diameter, with soldered caps of 1.88 in. diameter) were introduced ca. 1883 (Rock 1984:104-105). Three knife cuts, each about 2.5 in. long are present on one end of each can, forming a square flap bent upwards (Figure 48). Seven were opened at their flush ends; three at the hole-in-cap end. Thirty hole-in-cap, soldered-seam cans of various sizes, dating from post-1847 to 1880s (Rock 1984:100, 103), exhibit a different opening pattern (Figure 49). Each was opened via four, five, or six knife cuts on its hole-in-cap end, the cuts always falling between the central soldered cap and the lid rim. Cans opened in this manner are larger than those opened by the square flap method.

Differences in can opening techniques may be due to one of several causes: idiosyncratic behavior of two people living at the site concurrently, serial occupation of the site by two individuals each of whom had a distinct pattern, or they may simply be a "typical" response to differing can sizes or contents. Originally, the first interpretation was favored. However, since opening patterns do not cross over between cans of different sizes or temporally distinct technologies (hand-soldered versus machine-soldered cans), either of the latter two alternatives appear more likely. Since all the cans discussed are hole-in-caps, the opening styles seem more attributable to personal preference than to can differences.

Food Preparation

Four artifacts reflect the preparation and serving of food. One large knife handle and blade fragment may have served as a kitchen knife. The iron handle (5.25 in. long by 1.13 in.) retains five rivets for attaching bone or wood handle grips. An iron serving spoon, complete but in two pieces, was recovered. Eight inches long, it is an unmarked example of the nineteenth century "fiddle" or "tipped" pattern (Hagan 1981:9; Israel 1968:438; Henley 1975:72; Anonymous 1980:341, 345). One incomplete platter or serving dish of white improved earthenware is a heavy, unfooted vessel with slightly rounded and flaring sides and an angled, flaring rim (see Figure 46c). A brown, printed maker's mark on the base (the Royal Victorian Arms symbol with "I.../IRONST.../COCKSON, C.../COR..." beneath) is complete enough to date the platter to an 1867 to 1877 period (Godden 1983:159). The final artifact consists of body and rim fragments of a glazed, yellow earthenware bowl; size and shape are unknown. It may represent a mixing, serving, or even soup bowl. Decoration includes an off-white slip, applied to the lower part of the bowl's exterior surface.

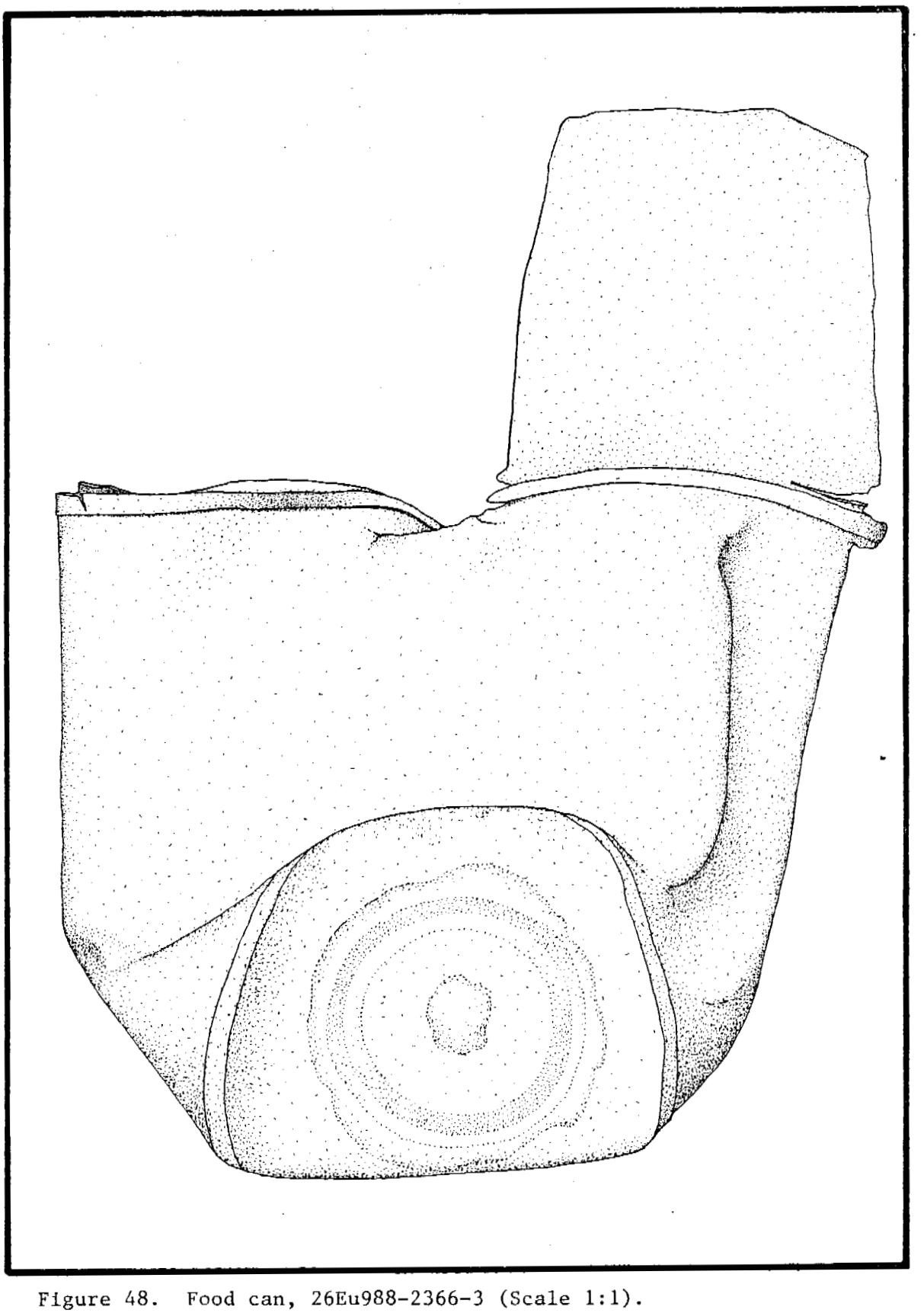

Figure 48. Food can, 26Eu988-2366-3 (Scale 1:1).

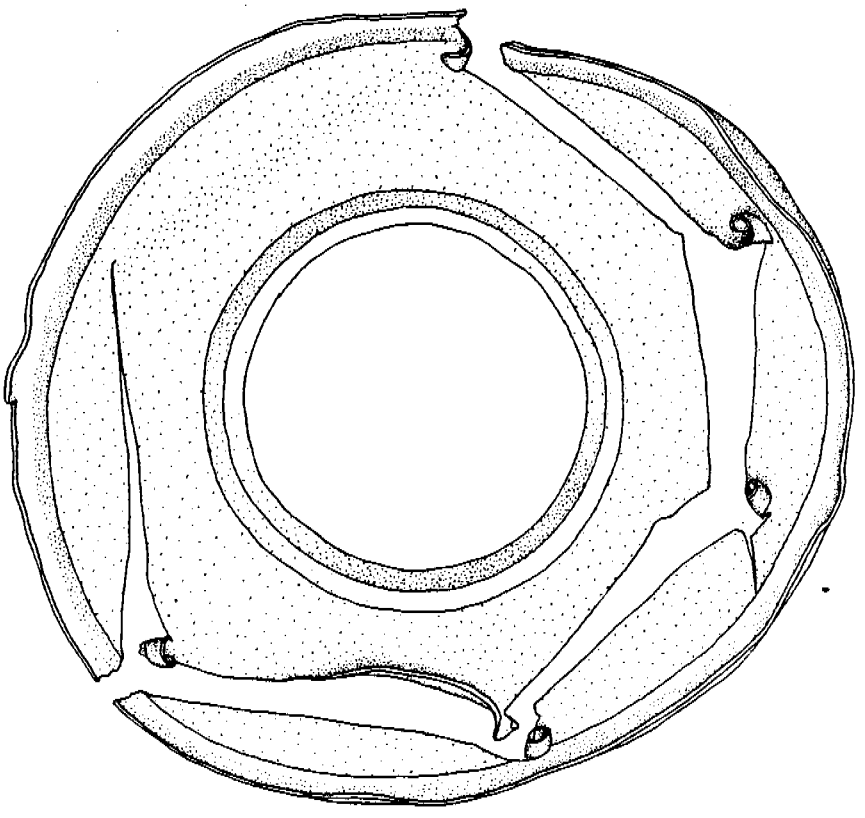

Figure 49. Food can lid, 26Eu988-2372-1, 2 (Scale 1:1).

Food Consumption

Two forks, one fork or spoon handle, two tinplate drinking cups, and one saucer reflect food consumption. The forks are three-tined iron utensils with riveted bone handles. Each is 7.13 in. long. Parallel incised wavy lines decorate the handles. A lone iron handle, with three rivets for grip attachment, represents an additional table fork or spoon. Two cylindrical tinplate drinking cups, of 20.8 ounce capacity, were found. Each is 3.13 in. tall by 4.25 in. in diameter. Rims are rolled in a bale type manner, seams are lapped and soldered, and tinplate handles are soldered to the outer cup walls. The handle of one has broken off entirely. Finally, one plain ceramic saucer was found. It has a slight foot 3.25 in. across, a rim diameter of 6.25 in., and a height of 1.25 in. This white improved earthenware piece, a style popular during the second half of the last century (Felton and Schulz 1983:44), has rounded, flaring sides. A fragmentary black printed maker's mark is evident, but not identifiable.

Portable Waste Disposal and Sanitation

A sheet iron wash tub of about one gallon capacity was probably associated with portable waste disposal. Round and tapering towards the base, the vessel has a rolled rim (10 in. diameter) with lapped, solderless side seams and a flat base (8 in. diameter). Handles were once attached to opposing sides of the 4.25 in. deep tub, as evidenced by four solder blobs.

Home Education, Information, and Business

One ink bottle (8 fragments) and a fountain pen nib were found at 26Eu988. The conical "umbrella-style" bottle is an aqua glass vessel, decorated with eight vertical facets. The base measures 2.5 in. by 2.5 in. Formed in a two-part leaf mold, the vessel is common to the mid-1800s to ca. 1914 period (Schulz et al. 1980:2-8). The iron pen nib is very corroded and incomplete with no maker's name apparent.

Household Cleaning

An 11.25 in. diameter sheet-iron bucket, or wash kettle, at least 6.25 in. deep was recovered. The vessel held at least 300 ounces (2.35 gallons). A rolled rim, tabs for bale handle attachment, and a raised rib two inches below the mouth are present. The bottom is missing, apparently purposefully removed rather than simply disintegrated over time.

Structural Materials and Hardware

Milled lumber, axe cut posts, and window glass fragments were observed at the site. Window glass, consisting of 47 small fragments 0.63 in. thick, represents 8.12 square in. pane surface area. Based on the work of Horn and Roenke, this glass thickness is indicative of the 1845-1855 time period in the Pacific Northwest (Horn 1982:2), but the date range is much too early for the Great Basin region.

The fastener collection includes 277 whole nails and fragments. The large majority are common machine-cut nails, dated between 1830 and ca. 1900 (Callaway 1978:8; Fontana et al. 1962:45, 54). A single wire nail was present. While in popular use from the 1890s to present, wire nails were available in limited supply from 1855 to their time of most extensive use (Anonymous 1980:253; Fontana et al. 1962:55).

Of the 130 cut nails assigned to a size category (each at least 3/4 complete), 51% (n=66) fall within the 12d, 10d, and 8d size. These sizes are commonly used in light framing, finishing, flooring, and boarding of frame structures. The larger 20d to 50d fasteners (n=27) were probably employed in heavier framing. Smaller 5d, 6d, and 7d sizes (n=26) were used for sheathing and interior finishing and for constructing boxes and crates (Fontana et al. 1962:57).

L-head nails were reportedly used for sheathing and flooring "..as late as the late 1850s" (Fontana et al. 1962:46). Assuming that 26Eu988 was occupied in the 1870s and/or 1880s, nails purportedly not manufactured beyond the 1850s apparently remained in circulation for many years. A number of L-head nails were found elsewhere in the Mt. Hope project area, at Fort Churchill (Hardesty 1978b:49-55), and at the Rock Creek Stage Station (Hardesty 1978a:47), indicating this nail type was widely used throughout the region.

One cut nail, with wrought head, was recovered. This 10d nail has a broad head, 0.44 in. across, formed by three or four irregular facets into an angular dome. Such nails were most common between 1800 and 1825, when nails were still headed by hand. This time range clearly precedes any probable occupation of 26Eu988.

Vehicles And Draft Animal Equipment

Eight iron artifacts were recovered that likely indicate the presence of wagons and draft animals. Six probably represent wagon hardware. A beveled-headed carriage bolt with square nut attached, one additional square nut, a larger iron hexagonal nut, a complete iron washer, and two iron brackets complete the assemblage.

The first of the two wrought iron "brackets" is a simple rectangle (6.5 in. long by 0.95 in. wide by 0.13 in. thick) with the corners removed, leaving the ends three-sided. A round hole of 0.38 in. diameter is situated near each end. The second bracket is rectangular at one end, pointed at the other, and has a complex lateral edge design. The piece (9.25 in. long, 1.0 in. wide, and 0.32 in. thick) is stepped down 1.5 in. from the squared end, the "step" being 0.75 in. deep. Three holes pierce the bracket; a square hole (0.5 in. square) is located near the rectangular end, a round hole (0.38 in. diameter) is one in. from the step, and the third hole (0.38 in. diameter) is centered 1.0 in. from the pointed end. The exact uses of the brackets are unknown. However, it is noteworthy that they each bear two round holes of 0.38 in. diameter, which are spaced 5.5 in. apart, center to center.

Evidence of equipment for maintaining draft animals is limited. An incomplete horseshoe nail with a rose head was recovered. The head is flat and unbent, as if never used. A heavy iron ring is possibly part of horse or mule tack. It measures 2.5 in. in diameter, the ring metal itself being 0.25 in.

thick. It is identical in size and shape to one found at Simpson Springs (Berge 1980:249, 254).

Hunting/Fishing

Two artifacts comprise this category. A .22 caliber cartridge without headstamp and a hollow, iron sphere (partially bisected by a slit) which resembles a fishing weight or sinker. Most sinkers, however, are of lead rather than iron. The sphere measures .68 in. in diameter and has a very rough surface texture.

Charcoal-Making

Two lengths of heavy iron chain were recovered. They were most likely used in skidding logs to the site in preparation for loading a charcoal oven. One chain consists of eleven links, each being 2.0 in. long by 0.88 in. wide, made of cylindrical iron 0.25 in. thick. The second chain is complete, measuring 9.25 ft long. Each link is 2.13 in. long by 1.5 in. wide. The iron is 0.5 in. thick. A large iron hook, 6.5 in. long by 4.0 in. wide by 0.63 in. thick, is attached to each end of the chain by means of larger end links which are 3.75 in. long by 2.0 in. wide. Each hook is impressed with the mark "G.W. GILMORE."

Handicrafts

One gimlet bit, with screw, represents woodworking. It is complete, measuring 3.32 in. long and 0.13 in. thick.

Media of Exchange

An American half dime, dated 1868, is the only coin from 26Eu988. It is in good condition, sporting a seated Liberty on one side and a wreath of leaves and grain shocks on the other. The mint mark "S" (San Francisco) is discernible at the wreath's base.

Unknown Items

The majority of objects within this category (Table 42) cannot be identified to a specific function. Also included are fragments of various materials which are not identifiable beyond material type, including six fused glass lumps (either deep aqua in color or colorless) and fifty-four fragments of sheet iron (0.063 in. thick).

Table 42. Generic Materials Found at 26Eu988

Object	Complete	Fragments	MAC
Glass Bottle		15	1
Bone Handle		1	1
Can Spout	1	2	1
Lead Foil	1?	1	1
Iron Strap		9	3
Iron Spring		1	1
Galv. Barrel Hoops	2	3	3
Iron Barrel Hoops	8	14	12
Re-Used Can		1	1
Can Parts	4	7	4
	16	54	28

Most interesting are the iron barrel hoops. Hoops recovered could represent four to eight barrels, assuming two to four hoops per barrel. Barrel contents is not known. Further, there were two types present: iron hoops and galvanized hoops. One galvanized hoop is embossed with stippled letters (see Figure 46d), but the name is not discernible. The hoops may be from reused barrels. During a charcoal oven burn, mud was always kept at hand to fill cracks that might develop in the dirt sealing skin (Young and Budy 1979:116). Perhaps the barrels served to hold the sealing mud or were used at remote Carbonari sites to collect and store snow melt during the winter for summer use (Grazeola 1969:30).

DISCUSSION

Feature A

The terrace at Feature A was 20 ft by 35 ft in size, with the long dimension oriented east-west. No scarp, or cut line, into the upslope surface was apparent. Rather, a small (one foot) drop-off was present along the downhill edge, suggesting that the terrace was constructed by building up the downhill area rather than cutting into the upper slope. Fill material may have been borrowed downhill and thrown upslope. Evidence for this approach was found in unit 505N160E where the contact between the loose upper horizon and the more compacted lower horizon was flat rather than parallel to the sloping surface as would normally be expected. This cut area, however, would have been insufficient to supply the amount of fill required to build the terrace, some 16 in. deep along the northern terrace edge. Most likely, fill was excavated from the banks of the small drainages near the site.

Excavations at 26Eu988 revealed the remains of a small cabin situated atop the leveled terrace (Feature A). Cabin margins are defined by vertically embedded wooden post fragments set in a narrow trench excavated into the surface of the leveled platform. The cabin sat at an angle, facing slightly northeast (Figure 50). For ease of discussion, however, reference is made to north, south, east, and west walls.

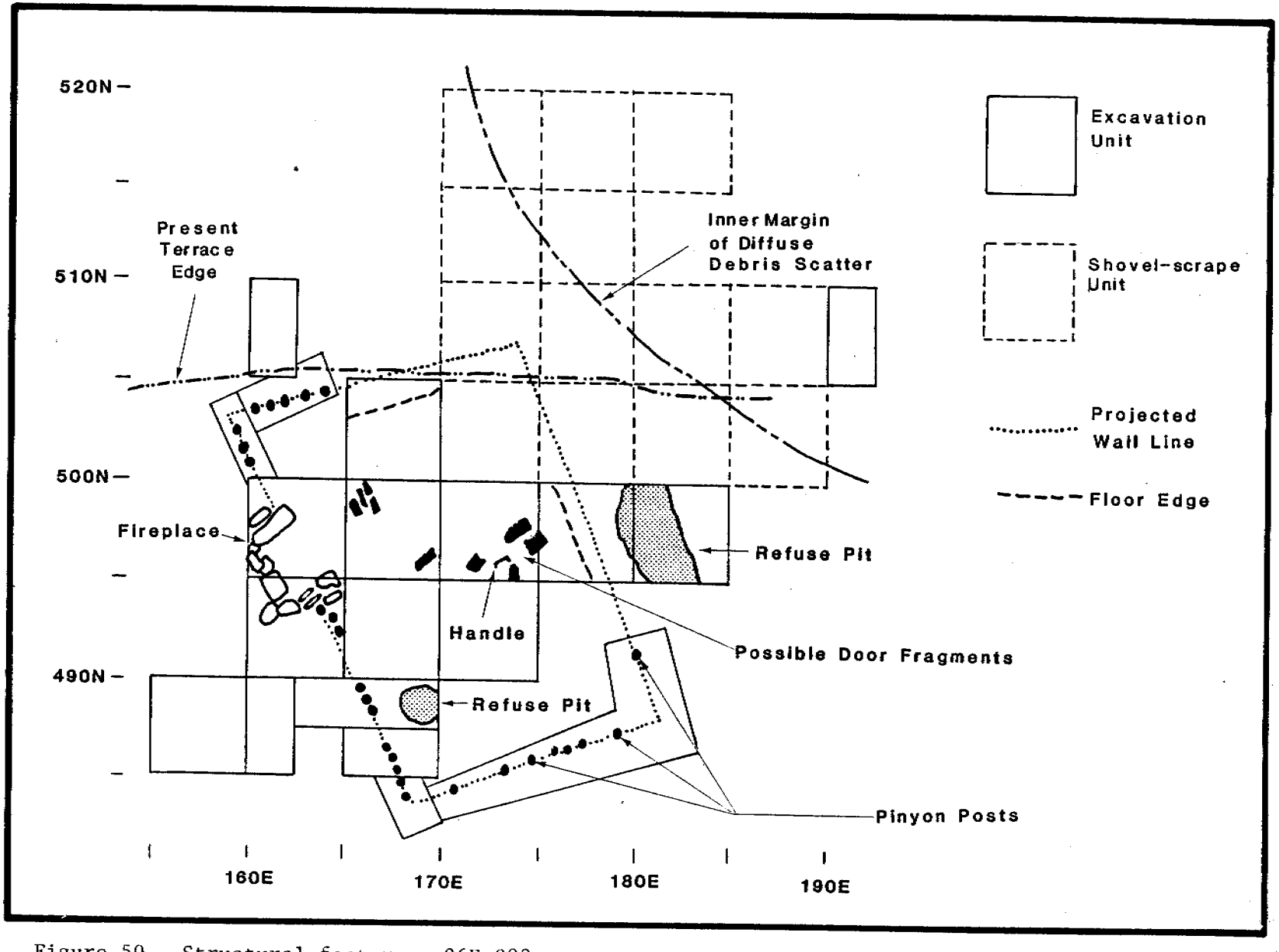

Figure 50. Structural features, 26Eu988.

Initial field strategy was to excavate the terrace using 5 by 5 ft units, but dwindling field time forced adoption of alternate methods. As an expediency measure, trenches were dug along the northern and southern walls to document their existence and define cabin size. The south wall was more or less continuous, but the southeast corner post was not located. However, one timber of the east wall and the easternmost edge of the floor were found, allowing definition of the southeast corner. The north wall was followed for only a short distance before evidence of it was lost.

Extension of the north and east wall lines placed the northeast corner of the structure off the terrace. It appears this corner of the structure, and the underlying terrace, have eroded away. This explains the abundance of artifacts found in shovel skims just to the northeast of the structure. Slightly trapezoidal in plan view, the building was 14 ft wide by 22 ft long. The compacted earthen floor was encountered consistently at 4 in. below the present ground surface.

Discussing the inadequacies of pinyon as a building material, Browne (1867:97) (see also Hattori, Thompson and McLane 1984:5) describes a "stockade plan" of building construction. Pinyon logs were faced, thereby forming flat surfaces. These were then set vertically with the flat faces forming the interior and exterior wall surfaces. Hattori, Thompson and McLane (1984:27) state that two such structures were built at Cortez in 1864. The embedded posts recorded at 26Eu988 ranged in size from 2 to 6 in. in diameter. In places, posts abutted one another, suggesting that the original cabin walls were stockade-like. Three pinyon posts were observed adjacent to the cabin remains at 26Eu988. All are axe-cut at one or both ends. None exhibited the faceting described above, but it is likely they once formed part of the stockade type cabin walls.

Evidence of chinking or daub was not found at 26Eu988. Chinking vertical gaps between the posts of a stockade-like structure would have been difficult. In addition, chinking requires maintenance. However, fragments of a heavy canvas-like cloth were found associated with the walls or located nearby. It is possible that the inside walls of the cabin were covered with canvas tarps or cloth. This form of covering might explain the presence of carpet tacks at a site without a wooden floor. Cheesecloth was frequently used as a liner in structures dating to the gold rush period in California (Greenwood and Shoup 1983:207). Other materials mentioned included newspaper or wallpaper. A flour-and-water paste was commonly used in attaching these materials to the walls.

Fragments of wood planking (1 in. thick and of various widths) found in unit 495N170E appear to be part of the original door. The boards are lying at a right angle to the east cabin wall. The door had fallen inward onto the cabin floor. Posts were not found in the east wall where the door was presumed to be. The ornate bracket (26Eu988-2687-3) identified as a wagon fitting was found in conjunction with the door fragments and may actually be part of a door handle.

The rock pile at Feature A was a concentration (7.5 by 10 ft) of large and medium sized field stones. Excavation revealed the rock pile was a collapsed fireplace situated along the west wall of the cabin. The fireplace and the door opposed one another and were set in the long walls of the cabin. Constructed of loose lain angular fieldstone collected in the site vicinity,

the base of the firebox/chimney measured 85 by 60 in. on the outside and 75 by 50 in. on the inside. Excavated fill from the hearth continued some 12 in. below the compacted floor surface. This excavated hearth pit extended slightly out into the structure in a circular arc. The soil in the bottom of the hearth pit is reddish brown (7.5 YR 5/4) in color. Fill in the pit is darker brown (10 YR 5/3) in color and contains an abundance of ash, charcoal, and bone fragments. Given the number and size of building stones, the chimney easily could have been 8 to 10 ft tall.

Thirty-five fragments of milled lumber were observed on the ground surface; a variety of sizes was noted. Most are 1.0 to 0.25 in. thick, range in length up to 2.0 ft, and are 2.0 to 3.0 in. wide. These pieces may be roof shingle fragments. The sizes noted above are within the size limits of modern wood shingles. Two complete boards measuring 1.5 ft long by 8.0 in. wide by 0.75 in. thick were also recorded.

How and when the cabin met its demise are uncertain. Evidence suggests it collapsed or was torn down. The distribution of fireplace rock suggests it fell inward across the cabin floor. Since the fireplace rocks were stratigraphically superior to the door remnants, it is likely that the door fell in before the fireplace collapsed. Wooden post ends in situ were rotten and weathered, suggesting that some posts snapped off. Scavenging of the site area is indicated by the presence of only a few pinyon stockade posts. The others were probably removed from the site and used as fence posts.

Feature B

Two units were excavated in the depression at Feature B; one 2.5 by 5 ft and one 5 by 5 ft. Soils consisted almost entirely of coarse gravels and pebbles deposited from the steep hillside just above the depression. A flat, relatively thin (1/4 in.), compacted floor was encountered. While still quite coarse-textured, the floor contained bits of charcoal, wood fragments, and some clay. One square nail fragment was found on the floor. Excavation revealed that rock wall originally assumed to exist was not present, nor were posts or other architectural features found. As excavation approached the south edge of the depression, evidence of the floor ceased to exist.

Whatever structure was once present at Feature B, only the compacted floor, one nail, and what appeared to be timbers located in front of the depression remain. Apparently, a frame was built in front of the depression (ie., the posts) with stringers or rafters extending into the hillside at the back of the depression. The frame was then covered, creating an enclosure that could have functioned as a root cellar.

Artifact Distributions

For distributional studies, the site was divided into three areas: the excavated area at Feature A cabin; the excavated and shovel skimmed area adjacent to Feature A (mostly to the northeast of the cabin); and the remaining portions of the site. The distribution of artifacts across these areas is presented in Table 43.

Table 43. Artifact Category Frequencies, 26Eu988

Artifact Category	Excavated Area #	Excavated Area MAC	Adjacent Area #	Adjacent Area MAC	Other #	Other MAC	Total #	Total MAC
Personal								
Clothing	44	(24)	9	(9)	8	(8)	61	(41)
Headgear	22	(1)					22	(1)
Footwear	22	(1)	4	(1)	11	(0)	37	(2)
Adornment			2	(2)			2	(2)
Medicine	2	(2)	29	(1)			31	(3)
Indulgences	45	(8)	20	(1)	80	(4)	145	(13)
Luggage	2	(2)	1	(1)			3	(3)
Other			1	(1)			1	(1)
Domestic								
Furnishings	6	(2)	2	(2)	1	(0)	9	(4)
Food	260		38		17		315	
Food Storage	23	(9)	20	(0)	85	(38)	128	(47)
Food Consumption	112	(4)	1	(0)	3	(2)	116	(6)
Food Preparation	1	(1)	1	(1)	35	(1)	37	(3)
Waste Disposal					1	(1)	1	(1)
Home Ed./Business	2	(1)	7	(1)			9	(2)
Unknown	2	(1)			12	(2)	14	(3)
Architecture								
Materials	14	(3)	23	(2)	20	(1)	57	(6)
Hardware	166	(132)	67	(50)	44	(38)	277	(220)
Transportation								
Vehicles	4	(4)	2	(2)			6	(6)
Animal Equipment	1	(1)			1	(1)	2	(2)
Commerce & Industry								
Hunting/Fishing	2	(2)					2	(2)
Handicrafts			1	(1)			1	(1)
Charcoal Manuf.	1	(1)	1	(1)			2	(2)
Coins	1	(1)					1	(1)
Group Services								
Water Supply					3	(1)	3	(1)
Unknowns	83	(12)	18	(2)	21	(14)	122	(28)
	815	(212)	247	(78)	342	(111)	1404	(401)

Three refuse areas were identified at the site. One is an excavated secondary refuse pit located near the doorway along the outside of cabin's east wall. The pit was some 3 ft wide, over 5 ft long, and 6 in. deep. The second is a discrete ash and debris filled depression located in the southwest corner of the cabin. The third was a broad scatter of material spread downslope (northeast) from the cabin. These three refuse areas account for a large number of items recovered from the cabin area.

A majority of clothing and footwear type artifacts was found either inside the structure, from the downslope refuse area, or from the outdoor secondary refuse pit (Figure 51a). Headwear was found exclusively within the cabin. Medical and indulgence items were more common outside the structure (see Figure 51b). Fragments of the one recovered medicine bottle, for example, were from

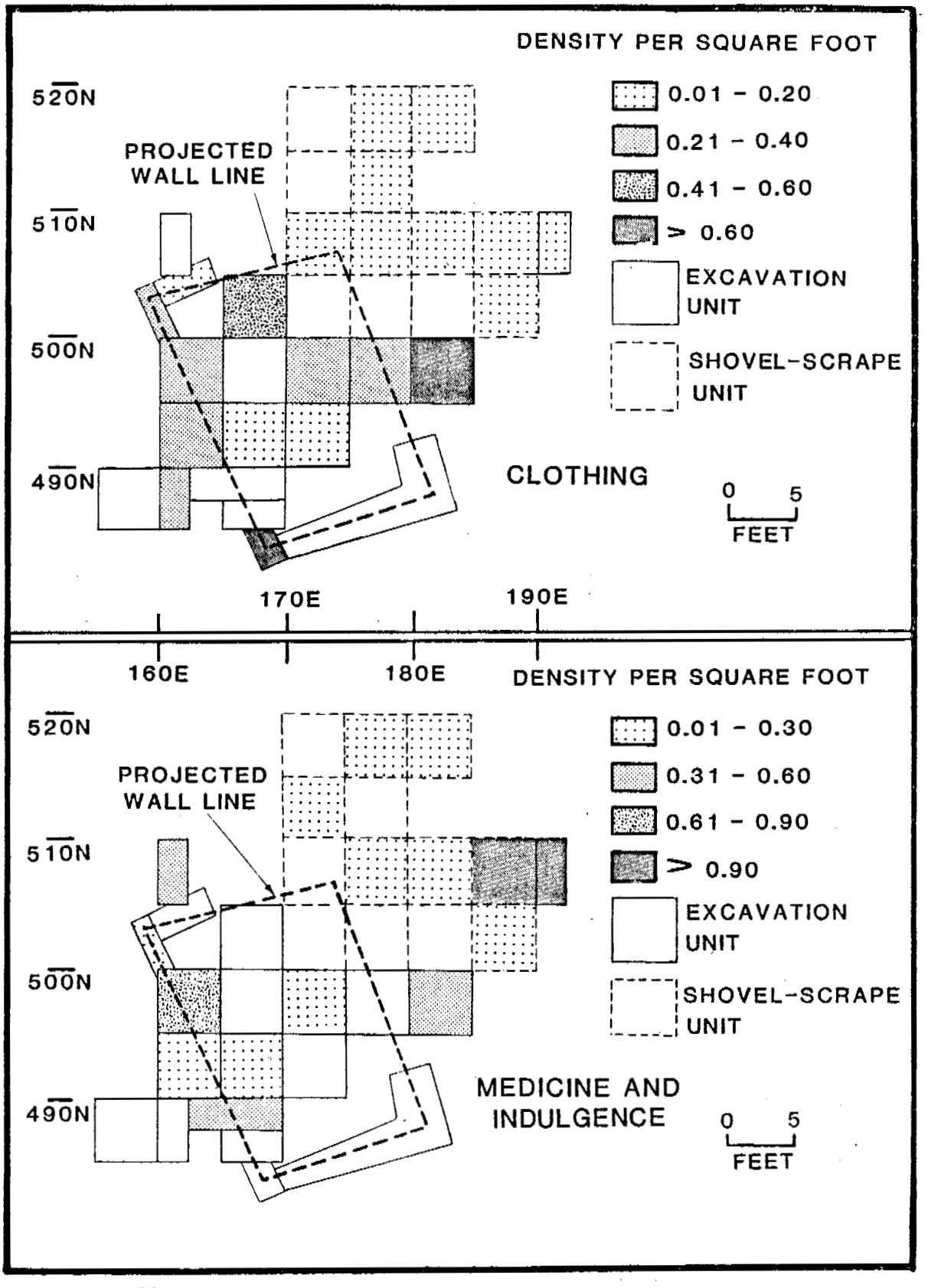

Figure 51. Personal category artifact density, 26Eu988.

the diffuse scatter northeast of the cabin. Pastime items were found outside, along the east wall. Indulgence items appeared both inside the cabin (in the hearth and in the small refuse pit) and some distance away from it. Relatively few indulgence items were found adjacent to the cabin.

Domestic artifact types exhibit distinct distributional patterns (Figure 52). Food waste was concentrated in the three identified refuse disposal areas and in the hearth. The faunal assemblage is moderate in size (n=295) and restricted in composition. Only four species of mammal are represented, of which one is an intrusive rodent (see Appendix B). Food storage containers were found on the cabin floor and at some distance from the cabin. Few food containers were found in the refuse disposal areas. Two chronologically distinct can types were discussed earlier in this chapter, an earlier hand soldered form and a later machine soldered form. Only the earlier form was found within the cabin. All the machine soldered cans were found some distance down the terrace.

Of all the categories in the domestic class, food preparation items were expected to be restricted to the cabin. Surprisingly, none were found there, and only a few were found adjacent to the cabin. Most were found some distance downhill. Food consumption artifacts, however, were almost totally confined to the cabin interior.

Evidence of cabin furnishings was limited. Most furnishings were portable including a picture frame, an ornate box, and carpet tacks. Other than these items, the best evidence of possible furniture might be the suitcase and trunk categorized here as luggage.

Nails and other construction hardware were most abundant in units which overlapped the walls or were near them (Figure 53b). In addition, nails were numerous in the shovel skim units. Artifacts once associated with walls adjoining at the northeast cabin corner have eroded downslope. A majority of the window glass was recovered from the northeast refuse scatter (n=34), although six pieces were found adjacent to the east wall (see Figure 53a). Together, these areas account for 83.3% of the recovered window glass, all of which is the same thickness. This consistency suggests that the glass represents a single pane. The most likely location of the window was somewhere near the northeast corner, in either the north or east wall.

The paucity of tack and wagon equipment, intrinsic to the basic technology of charcoal production, was unexpected. Perhaps the finding was a result of the placement of test units. If a corral was present, it may have been located away from the cabin, a pattern noted at other Carbonari ranches in the Mt. Hope area. Likely areas for the corral would have been either north or south of the cabin on the inset fan terrace. Parts of the terrace to the north were examined during surface collection, but little was found. The terrace south of the cabin may have been the more likely location.

Evaluation of Research Goals

Like 26Eu790, the ethnic affiliation of 26Eu988 seems clear. Ethnic Italians dominated the Eureka based charcoal production industry. Documentation of when the site was occupied, verification that Italians were

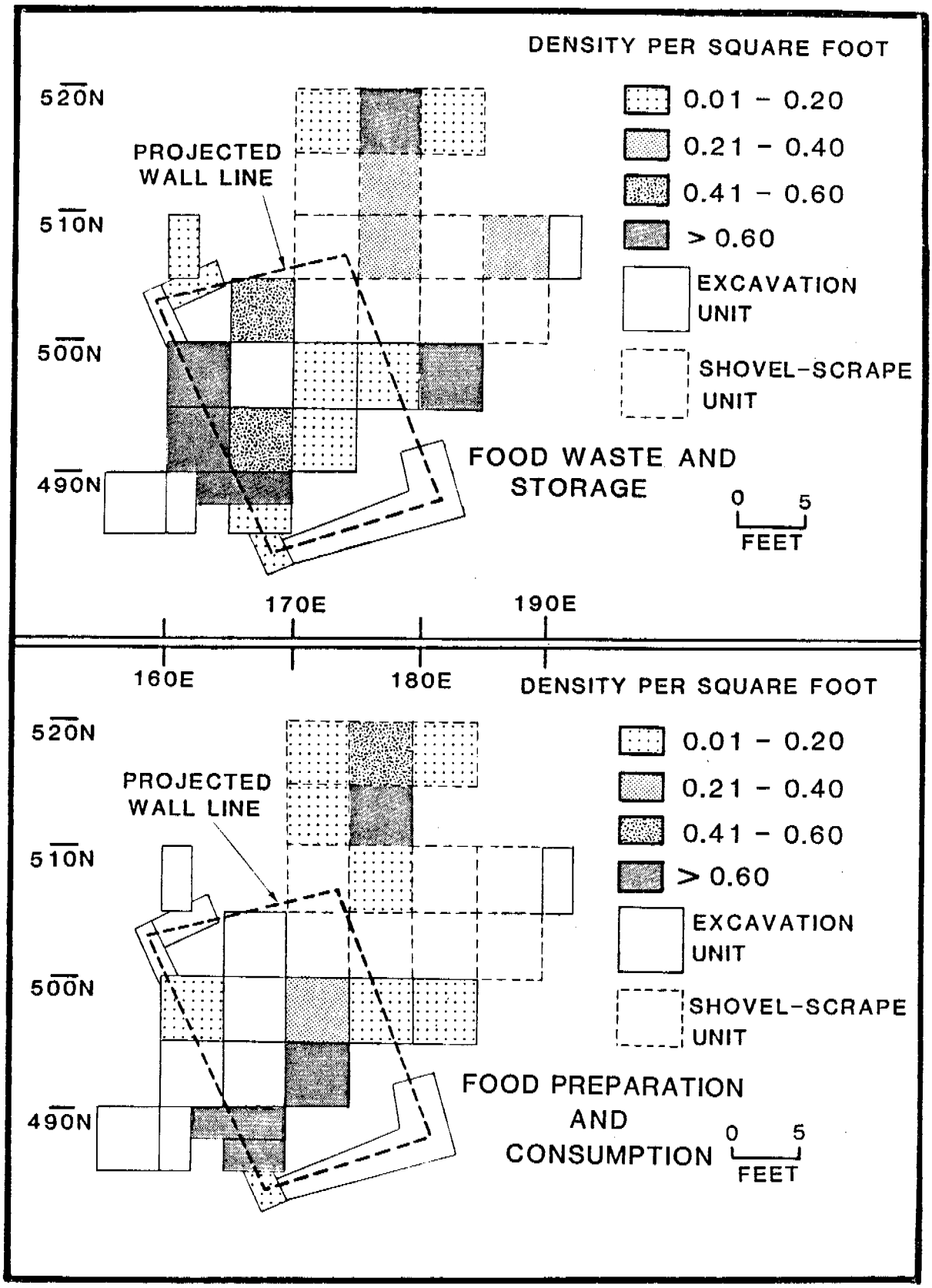

Figure 52. Domestic category artifact density, 26Eu988.

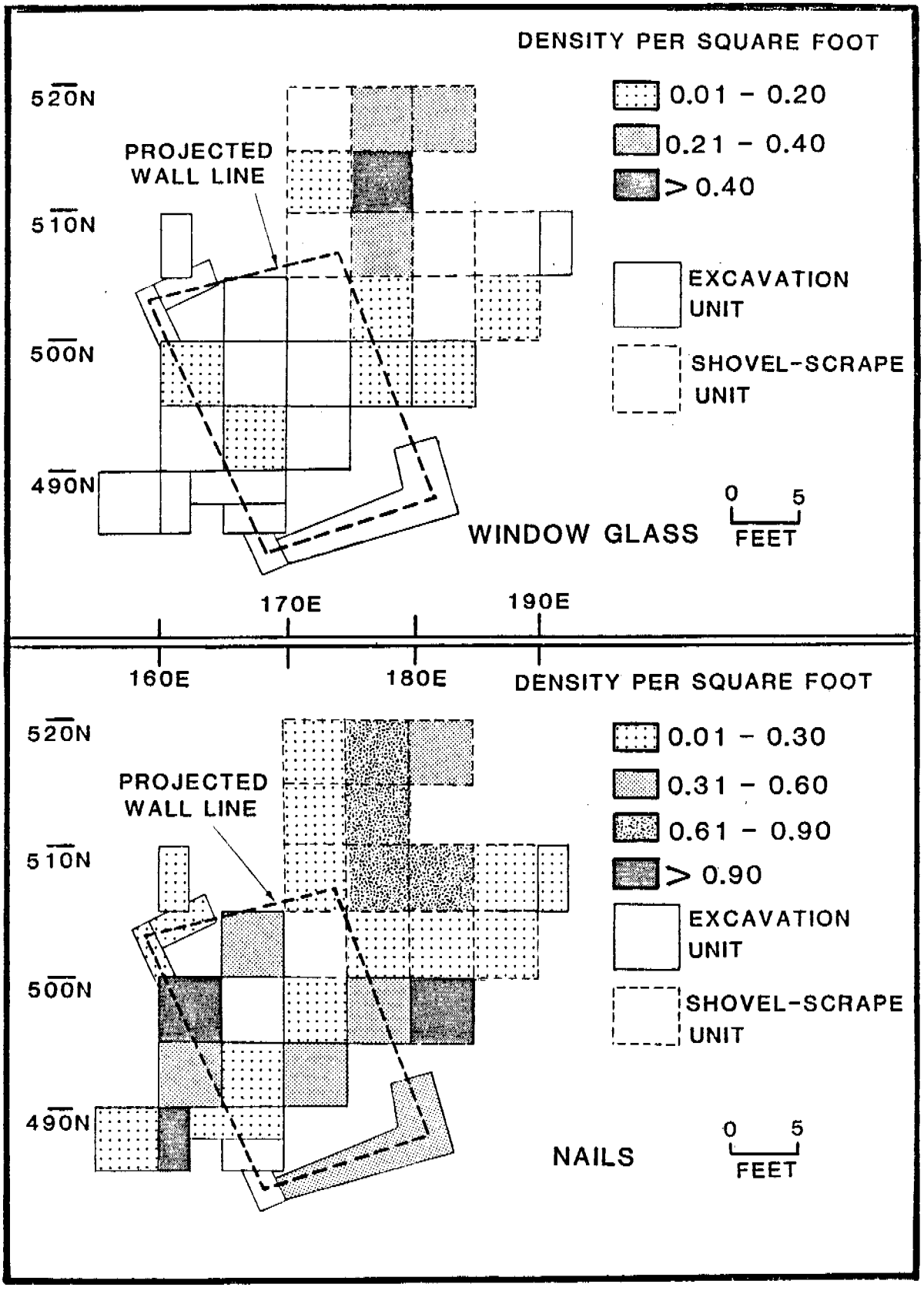

Figure 53. Architectural category artifact density, 26Eu988.

present at the site, and clarification of Carbonari lifeways were the principle research questions addressed at 26Eu988.

Site Chronology

Residential occupation of the region would not have occurred prior to 1869, the onset of major mining activities in Eureka. Therefore, one artifact type with an earlier date range (the hand wrought nail) seems out of place. Other temporally sensitive artifact types recovered from 26Eu988 (Figure 54) range in age from 1840 to 1914. As noted above, however, the earliest possible occupancy would have been 1869.

Differences in can technology are represented at the site. Both hand soldered and machine soldered cans were present in abundance. The two techniques of can manufacture are nearly temporally exclusive with machine soldering the more recent. The presence of both types suggests either a protracted site occupancy or separate occupations isolated in time.

Two artifact types have time ranges similar to that of the hand soldered food tins: Novelty Rubber Co. rubber buttons and a ceramic maker's mark. The maker's mark represents the narrowest time range of occupation, 1869 to 1877. The hand soldered food cans and the rubber buttons have a terminal date of 1885. Collectively, these types account for 42 (64.6%) of the temporally sensitive artifacts recovered from the site. The second occupation is represented by 19 (29.2%) machine soldered tin cans.

The two assemblages are considered representative of separate occupations for several reasons. First, occupation specific assemblages exhibit different distributional patterns. Early period artifacts are concentrated in and around the cabin, while later pieces are only found at some distance from the cabin. Second, food tins from the site exhibit two different opening styles: one on cans from the early component, one on cans from the later component. Third, food tins dating to the second occupation are clustered together and suggest a separate camp area. If the cabin was uninhabitable due to its deterioration over several years, or even a decade, then the second camp occupation would have occurred during the late 1880s or early 1890s.

Based on their manufacture dates, the Dr. Henley's bitters bottle (1866 to 1912) and the amethyst pickle bottle (1880 to 1914) could be associated with either occupation, but since the fragments of both are present inside the cabin they assigned to the early occupation. Initial manufacture dates for the pickle bottle suggest the cabin was being occupied during the early 1880s.

In summary, the artifact assemblage suggests the site was occupied during the 1870s or early 1880s and again sometime after the mid-1880s. The early 1880 occupation is supported by census data (National Archives 1880). The length of occupation is uncertain. Based on the amount of debris accumulated, the presence of a root cellar type dugout, and the presence of three charcoal ovens, it is reasonable to think that the site was occupied for at least several months: the time required to cut, stack, and reduce the pinyon. A relatively short term of residency is suggested by the portable nature of the household technology. Dependence on metal eating utensils is reflected by presence of metal cups and cookware, which travel well, and the paucity of

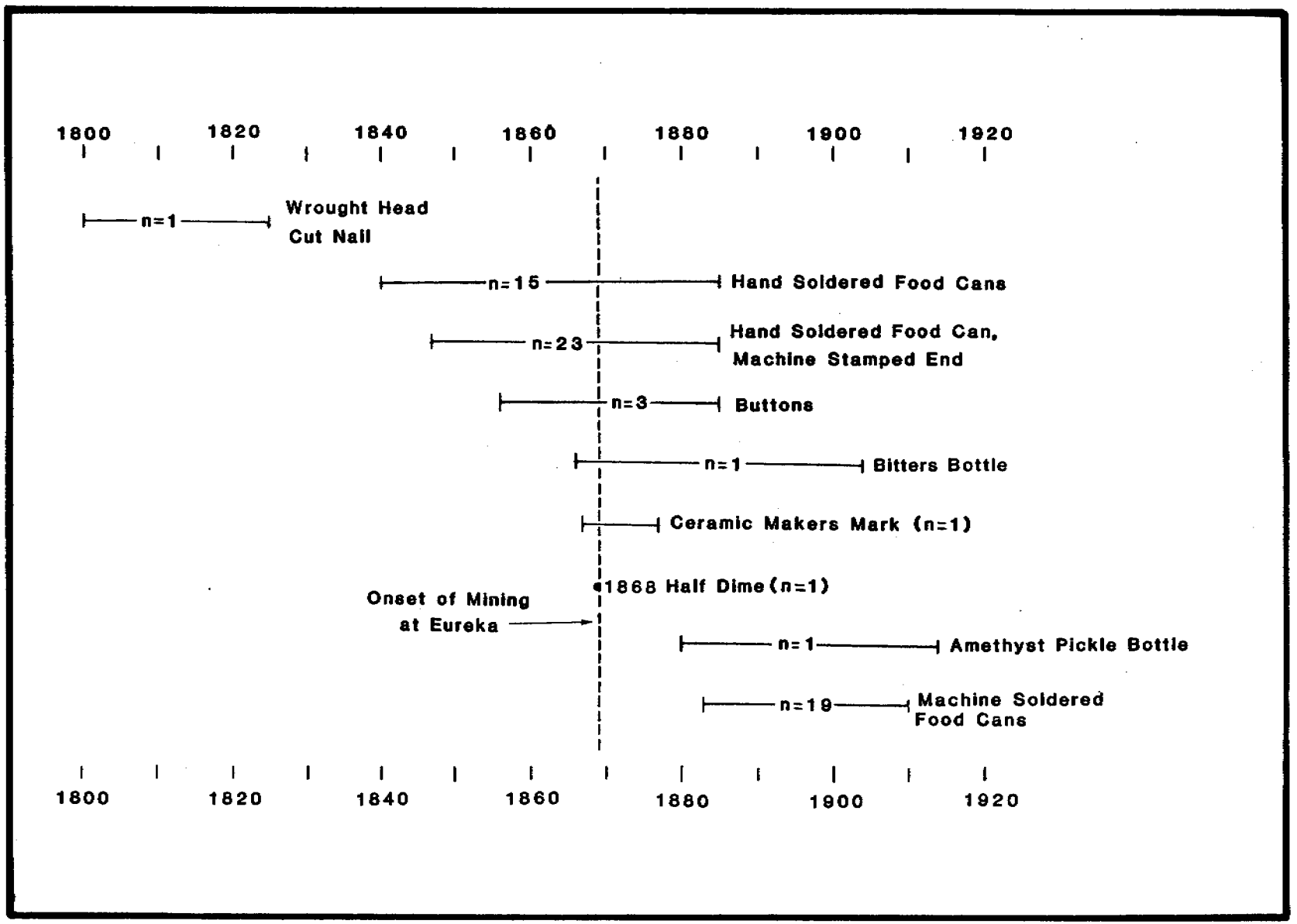

Figure 54. Temporally sensitive artifacts, 26Eu988.

ceramic tableware, which does not. Trunks and suitcases, of which there are remains, could have doubled as packing containers and site furniture.

However, it seems inconceivable that the time and effort evidenced at 26Eu988 would have been devoted to a structure with an intended life span of only a few months. More likely, the building was occupied for the length of time required to work all the charcoal lenses in the surrounding area; and for this, one to two years seems a more appropriate time span.

Italian Assemblage Definition

The historical literature indicates that charcoal production in the Eureka area was the provenance of Italians or Swiss-Italians. Site 26Eu988 was probably inhabited by ethnic Italians, but data recovery failed to yield specifically Italian artifacts. Many of the retail establishments in Eureka were owned and operated by Italians and newspaper advertisements of the period indicate that several carried items of a distinctively Italian nature. That such items were available, but not present at Carbonari sites, supports the contention that Carbonari could not afford high priced, imported goods.

While a fair variety of artifacts is represented, none would have been expensive for the times. Site occupants owned personal possessions of modest quality, but allowed themselves the luxury of liquor and tobacco. At the same time, they, like the Chinese at 26Eu790, were resourceful enough, or poor enough, to recycle tin cans for other purposes.

The cabin at 26Eu988 did not exhibit any characteristics specifically related to the presence of Italians. Cabins often fail to exhibit architectural features or construction practices specific to an ethnic group (Greenwood 1982:222). This reflects the utilitarian nature of such structures. They were constructed of the most locally available materials, which also often dictated the construction practices employed. For example, at 26Eu988, the use of pinyon posts dictated construction techniques. Technological investment in structures was limited since they were viewed as temporary. They were seldom sold, most often they were simply abandoned.

Viewed collectively, these observations indicate that the Carbonari were active participants in American culture; the culture evidenced by the site collection is similar to non-ethnic sites documented elsewhere (Hardesty 1978a, 1979). While the Carbonari did not maintain their ethnic identity in a material sense, they did employ non-material means: language, social customs and mores, and kinship alliances (Earl 1969; Grazeola 1969; Murbarger 1965).

Carbonari Lifeways Documentation

Archival information provided only a general notion of how many individuals may have once lived at site 26Eu988; somewhere between two and six. Floor space (308 square ft) would have allowed for 4 to 6 people, based on size estimates reported by Greenwood and Shoup (1983:210). The two sets of data, then, correspond nicely. Food cans assigned to the early period of site occupation are of various sizes, all of which contained portions sufficient for more than one person. The later occupation, on the other hand, is represented by small food tins which held single servings. This provides additional

support to the contention that the primary site occupation was different from its subsequent use by a transient individual or two.

None of the artifacts recovered indicates the presence of either women or children at 26Eu988. Consequently, it is reasonable to assume that all of the site inhabitants were men, a fact attested to by the census data (National Archives 1880). The wide array of personal and domestic items suggests intensive occupation. Highly personal items, e.g. the tintype frame, clay tobacco pipes, and ornate brass box findings show that the Carbonari were carrying favored possessions with them. None, however are markers of social status. This argues against any status differentiation between site occupants.

Little evidence was recovered indicating seasonality of use. Some artifacts (heavy boots and coats) are suggestive of occupation during colder months, but the boots could also reflect the industrial nature of the site, and any traveler of central Nevada knows that a warm coat is useful even during summer months.

While moderate in size, the faunal collection from 26Eu988 was restricted in the number of species represented. Only 10.5% of the faunal remains were identifiable, the lowest percentage of the three excavated historic sites. This appears to reflect an intensive use of not only the meat, but the bones as well. Some of the bones were broken to facilitate marrow extraction. Very few rabbit bones were found, but some pieces exhibited burning. Rodents were not prevalent. Cow and pig were the major identified meat sources, with beef predominant. The beef cuts present were preferred, and presumably expensive, cuts (Appendix B; Table 2). Medium to large sized mammal bone fragments make up a large portion of the faunal collection. This reinforces the predominance of beef use and the pronounced degree of processing ongoing at the site.

The presence of both high quality meat cuts and stress related, intensive bone processing, seems incongruous. If times were hard for the site occupants, greater use of locally available resources (such as rabbit) would be expected and small mammal bone fragments should be abundant. This, however, is not the case. No evidence of food production or the hunting of locally available game was recovered. Rather, there is a heavy, if not total, reliance on local retail markets and commercial foods. Perhaps the Carbonari living at the site were employees or contractors for whom provisions were supplied.

That few work-related or complete artifacts were recovered suggests the occupants left in an organized, efficient manner, having time to pack up still functional items.

CHARCOAL LENSES

Charcoal is produced by carbonizing wood through controlled combustion, thereby driving off volatile gases and water. The resulting material is fairly pure carbon. Reduction could take place in either a temporary surface oven or in a permanent kiln. Of the two techniques, kilns produced a higher quality charcoal and were more versatile (Egleston 1880; Young and Budy 1979). However, they required a great deal of effort to construct and represent a major capital investment. Once constructed, wood had to be transported to them, sometimes from great distances. In the central Great Basin, kiln use was restricted to the reduction of mountain mahogany and juniper, which require

higher temperatures than could be maintained in surface ovens (Young and Budy 1979). Insufficient quantities of these woods were present to have made permanent kilns commercially feasible in the Mt. Hope area.

The other form of charcoal production was via the temporary surface oven frequently referred to as a charcoal pit in the literature. The term charcoal pit is misleading since no excavation occurred. Ovens were constructed above ground where, at most, a certain amount of leveling was undertaken prior to oven construction. Clearing the surface produced a "dust ring" or berm of surface debris, mostly humus and rocks (Buckles 1978:863). If the oven was being reused, the floor was first raked, adding a new layer of charcoal bits to the dust ring. Once the ground surface had been prepared, wood was stacked on end around a central chimney. Only the top layer of wood was laid flat.

Once stacked, the wood was covered with grasses and twigs, then with earth, and finally with a layer of clay that formed an airtight seal over the wood pile (Young and Budy 1979:116). Sandy soils typical of the Mt. Hope area would not have worked well as the final sealing skin. Clay or some substitute may have been brought to some sites. Small holes, cut through the bottom of the earthen skin, and the chimney in the top provided draft and allowed burning to be controlled. Buckles (1978:861-862) documents that, in Colorado, fill for the earthen covering was dug from around the pile, resulting in a shallow (1 to 1.5 ft) trench some 8 to 10 ft wide surrounding the oven. Similar trenches surround ovens in the Mt. Hope area.

Burn management required careful attention (Figure 55). Burning conditions were judged by watching the color of the smoke emanating from the chimney. Given the reduction in volume over the course of the burn, sealing skin failure or cracking was a constant problem. A ready supply of wet clay was maintained to repair cracks as they developed (Young and Budy 1979:116), an activity known as "jumping the pit" (Buckles 1978:881). If cracks were left untended, increased air flow could easily turn a smoldering oven into a flaming inferno. Thus, an oven was watched night and day over the three to four week duration. Once the charcoal reached the desired stage, oven openings were closed off and the fire smothered. Cooling took seven to ten days. If unsealed too soon, the charcoal might re-ignite (Young and Budy 1979:117).

Tools employed by colliers at earthen ovens were somewhat distinct (Buckles 1978:880). Sleds, designed to be drawn by one horse, were used to haul cord wood to the oven location. A sled that had two wooden runners was found just south of Mt. Hope Station. Baskets were used for moving charcoal from the oven to wagon or bagging area. Charcoal rakes had long wooden handles and iron teeth. Shovels used by colliers were noted for their long handles and rounded blades. Ladders used to get on top of the oven (to light it at the start, and to fill cracks during the burn) were common.

Site Descriptions

Backhoe trenches were excavated through four charcoal lenses. The first trenching was at the Carbonari Ranch site (26Eu988) where three lenses were present, but only one was trenched. Site 26Eu994, located at the mouth of the unnamed drainage along the southern edge of the Tyrone Creek inset fan, was selected for trenching because it is the lens farthest from the Carbonari Ranch. Lens 26Eu923 was selected because it sits on a pronounced alluvial fan

Figure 55. Charcoal oven during a burn, ca. 1879 (photo by Louis Monaco Studios, courtesy Richard Monaco, San Francisco).

where separation between stratigraphic layers may be possible. The fourth site, 26Eu924, is located some 80 m downstream from the Carbonari Ranch on a level terrace above the unnamed stream channel.

Surface Collection Results

Systematic surface collection was not carried out at the investigated charcoal lenses. During trench recording activities, however, artifacts were encountered and collected at 26Eu987 (one spoon) and 26Eu994 (one rake).

The iron rake head from 26Eu994 is made of cast iron. All 12 prongs are intact, each measuring 2.75 in. long, and spaced 1.2 in. apart. The prongs and rake top are perpendicular to, but one piece with, the cylindrical neck. The 4.0 in. long neck curves down, then out again, tapering to a pointed, two-sided end. Pierced by a hole, the tip is broken at the hole. It is perhaps due to this break that the rake was left at the site.

A complete metal serving spoon was collected from 26Eu987. The spoon (8.75 in. long and 1.75 in. wide) is an example of the popular "fiddle" or "tipped" pattern (Anonymous 1980:341, 345; Hagan 1981:9; Henley 1975:72; Israel 1968:438). The maker's mark "A & N B CO" is stamped on the backside of the neck. The mark could not be traced further. The "B" may refer to "Brittania", a common metal used in flatware during the 1800s.

Excavation Results

Unfortunately, the backhoe operator removed surface oven evidence adjacent to the backhoe trench at 26Eu924. Both edges of the trench were leveled off, thereby obliterating the upper two feet of the profile. The three remaining backhoe trenches were excavated along the contour of the alluvial/colluvial surface on which the oven was situated. In each case, however, the original surface was not level and the dust ring was lower at one end than the other. The trenches revealed a remarkable consistency between sites (Figure 56), so much so that a single set of horizon designations could be employed. Strata descriptions are provided below.

Stratum A. "Parent material." A thick strata, to bottom of trench, of compact sandy loam; 10 YR 5/3 dry, 10 YR 3/3 moist. Numerous angular to subangular pebbles (0.05 square to 0.5 x 2 cm), some gravel, few cobbles, no roots, few rootlets. Contacts with other strata are all abrupt (less than 1 cm).

Stratum B. "Charcoal lens." A thin (15-20 cm) stratum of loose loamy sand, charcoal, ash, and small (0.5 x 1 cm) subangular pebbles; 10 YR 3/2 dry, very dark grayish brown (ash) to 10 YR 2/2 - 2/1 dry very dark brown to black. Charcoal particles are 0.5 x 1 cm chunks. Many roots and rootlets.

Stratum C. A thin, 5-12 cm lens of loose charcoal, partially carbonized plants and trees, ash and small amounts of sand, concentrated near center of charcoal oven. Charcoal particle sizes range from small to large, 5 x 30 cm branches/limbs. Numerous "modern" roots and rootlets. Stratum C deposits also occur in small pockets throughout the profile. Ashy concentrations are white to grey, 10 YR 8/1 dry - 10 YR 7/1 dry. Charcoal is black; 10 YR 2/1 dry.

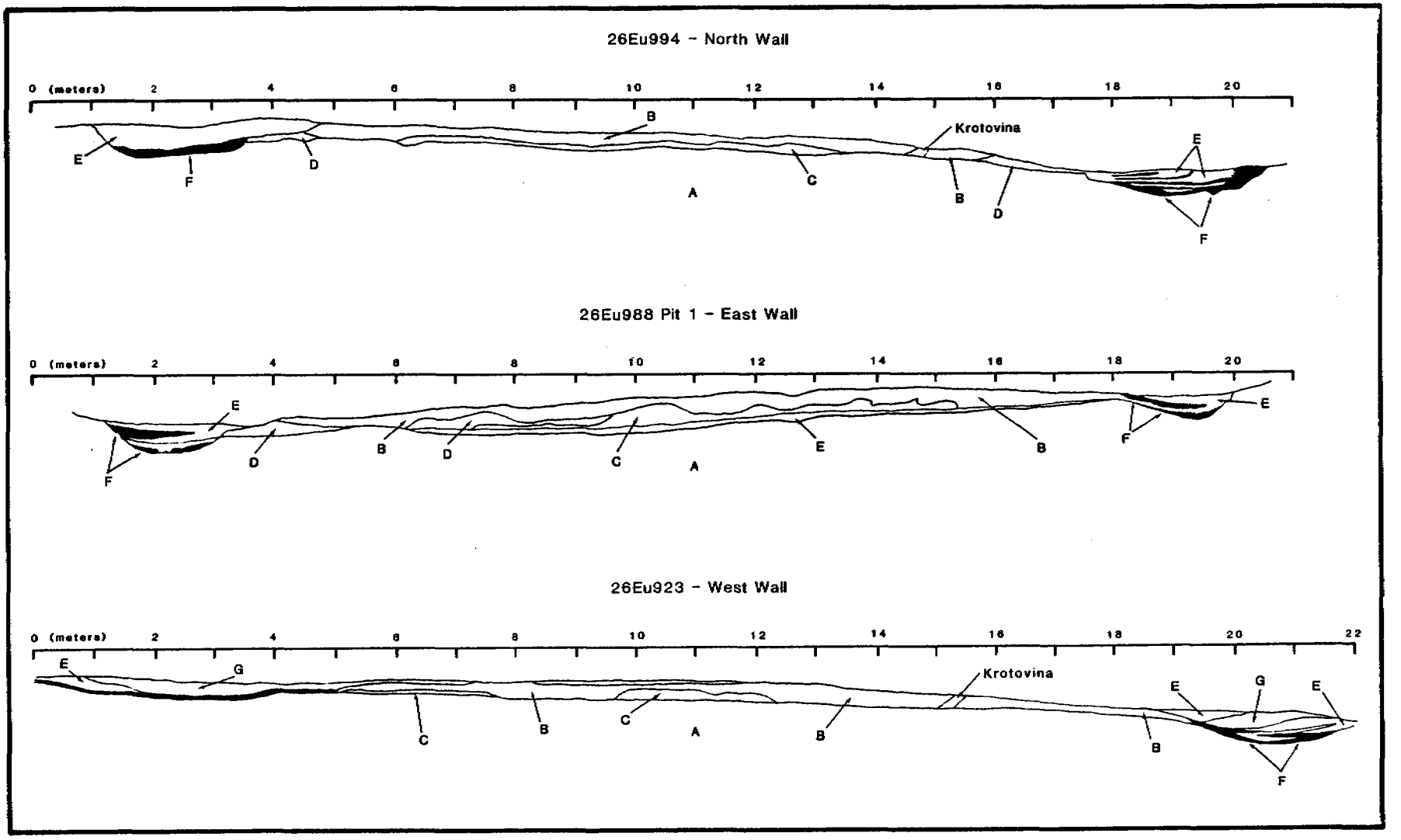

Figure 56. Charcoal oven profiles.

Apparently the oven center is the least efficient area of the oven since the wood/charcoal fragments here are only partially carbonized.

Stratum D. "Dust Ring?" Small pockets of firm sandy loam which occur toward the inner edge of the surrounding trench. Numerous unsorted subangular pebbles 1 x 2 cm. Many carbonized pine needles within these deposits; 10 YR 5/3 dry, 10 YR 3/3 moist, brown and dark brown. No charcoal.

Stratum E. Typically thick (about 25 cm) stratum of silt loam, silts and loess/alluvial deposits. Very few tiny pebbles (less than 0.05 cm square), no roots, few rootlets. Stratum E occurs as most recent (upper) deposits in surrounding trench due to low velocity slope wash and eolian depositions. 10 YR 5/3 dry, brown; 10 YR 3/3 moist, dark brown.

Stratum F. Thin lens, pockets of mixed unsorted charcoal, ash, loamy sand, and small (less than 0.5 cm square) pebbles. These are alluvial deposits occurring only within surrounding trenches, often separated by thin layers of silty deposits (Stratum E). Charcoal flecks are small (0.5 cm square) with few larger chunks (more than 4 cm square). Larger particle occur near center, or bottom, of lens. Soil is 10 YR 5/3 dry, 10 YR 3/3 moist, brown to dark brown, some ashy deposits, 10 YR 7/1. Charcoal 10 YR 2/1.

Stratum G. Loose loamy sand, 2.5 Y 5/2 dry, 10 YR 4/2 moist, numerous angular and subangular pebbles (0.5 - 1 cm), numerous small pebbles, many roots and rootlets, no cobbles. This unsorted, apparently alluvial fill, probably filled the lens basin in a single episode. Contact with other strata is gradual (1-3 cm).

Evaluation of Research Goals

The primary reason for continued research at charcoal production sites was to seek evidence of their reuse. A second research concern was to look at the relationship between surface and subsurface feature size.

Charcoal Oven Reuse

Charcoal residue was present in two forms. Stratum B, the surface expression of the charcoal ovens, was a mixed layer of charcoal chunks and soil, apparently the remains of the oven's earthen seal. Stratum C, underlying Stratum B, contained large chunks of charred wood in a matrix of finer charcoal fragments and dust. This stratum was more restricted in its lateral distribution than Stratum B, and most often rested directly on the contact with the parent material. Some apparently usable charcoal (Stratum C) was left behind.

The abrupt contact between the oven floor and the underlying parent material is characterized by an oxidized layer of burned earth 0.5 to 1.0 in. thick; mats of burnt needles and twigs were common. Oxidation was most evident in the central portions of the lenses, coincident with the distribution of Stratum C and, in some cases, Stratum B. The contact was usually even, suggesting preliminary site leveling. Walking over the clearing during wood pile construction and the weight of the pile probably contributed to the even surface. Lens 1 at 26Eu988 was distinctive in that a thin lens of light

colored, fine textured material was atop the parent material, but below the carbonized needle layer.

Each oven was surrounded by a trench which contained alternating layers of charcoal rich sediment (Stratum F) and very fine, charcoal free alluvial materials (Stratum E) or deposits similar to the parent material (Stratum G). Trench fills appear to have been water deposited; those in the lower parts of the trench appear size sorted.

Oven reuse could take several forms including discrete floors separated by layers of sealing skin sediments, progressively enlarged surrounding trenches (the fill being used to cover subsequent ovens), multiple needle layers within an oven profile, and stratified dust ring deposits along the outer oven margin (Stratum D?). The best place to seek evidence of reuse was the dust rings since construction of a second wood pile might eliminate evidence of the first, and covering the wood pile with earth may have enlarged the surrounding trench.

Grubbing a terrace area in preparation for the first oven probably produced a dust ring difficult to see archaeologically. However, subsequent dust rings should be charcoal rich and easily observable. If sealing fill for the second oven was from off-site, the dust ring should be evident in the surrounding trench as a fine layer of charcoal. If the surrounding ring was just enlarged, then earlier dust rings would be obliterated.

Are the charcoal bearing deposits in the trenches evidence of dust rings or natural infilling? If evidence of reuse, then the Carbonari were getting the cover material for their second oven somewhere else; ie., they were not simply expanding the trench. No evidence of trench enlargement, stratified dust rings (Stratum D), or off site borrow areas was observed. Nor did evidence of multiple needle layers or oxidized oven floors exist.

Based on these observations, the ovens do not appear to be reused; rather, the alternating trench layers were deposited by natural processes. During periods of intensive rainfall, charcoal laden sediments were washed into the trenches. During drier periods (years), infilling would have been due to eolian or colluvial action. The finer layering in the down slope portions of the trenches may reflect pooling of water during high runoff and a concentration of charcoal and other light (floatable) materials.

Assessments of Oven Size

Based on evidence in backhoe trenches, the size estimates assigned to the charcoal lenses during survey (see Zeier and Stornetta 1984) cannot be employed with confidence. For example, the lens at 26Eu994 was estimated at 5 m in diameter, but excavation showed it to be 11.5 m in diameter. Slope wash, alluvial and colluvial action, and oven unloading have affected the surface appearance of the oven.

Estimates can be determined based on stratigraphic profiles, using either the lateral limits of the B horizon or the inner diameter of the dust ring. The volume formula for a spherical segment is used to represent a dome shaped wood pile

$$V = 1/3 \text{ pi } h^2(3r-h)$$

where r is the oven radius and h is the height of the wood stack (some 10 ft [3.05 m] for a two-tiered oven, 15 ft [4.57 m] for a three tiered oven). A two-tiered, one hundred cord oven would have had a diameter of 88.16 ft (26.88 m), a three-tiered oven a diameter of 46.22 ft (14.08 m).

Based on the lateral margins of the B horizon, the mean oven diameter was 43.3 ± 4.7 ft (13.2 ± 1.4 m) (Table 44). Using the inner edge of the dust ring, the mean diameter was 47.0 ± 4.7 ft (14.3 ± 1.2 m). These data suggest that Mt. Hope ovens were smaller than estimated in historical records if two-tiered, or very close to the estimate if three-tiered (Murbarger 1965:26).

Table 44. Estimated yield of charcoal ovens in cords and bushels

"B" Distribution

	Radius		Two Tiered Oven		Three Tiered Oven	
	ft	m	Volume	No. Cords	Volume	No. Cords
26Eu994	18.9	5.8	4890	38.2	9825	76.8
26Eu988	23.0	7.0	6179	48.3	12,724	99.4
26Eu923	23.0	7.0	6179	48.3	12,724	99.4
	21.6	6.6	5739	44.8	11,734	91.7

Terrace (Dust Ring) Distribution

	Radius		Two Tiered Oven		Three Tiered Oven	
	ft	m	Volume	No. Cords	Volume	No. Cords
26Eu994	21.3	6.5	5644	44.1	11,522	90.0
26Eu988	24.6	7.5	6681	52.2	13,854	108.2
26Eu923	24.6	7.5	6681	52.2	13,854	108.2
	23.5	7.2	6336	49.5	13,077	102.2

Data from the three charcoal lenses indicate consistency or standardization in size and form, features assumed to reflect the industrialization of charcoal production (Elston, Hardesty, and Clerico 1981:154). One must recall that the sites selected for investigation are in a cluster of charcoal lenses thought to have been worked by the group of people occupying 26Eu988. Therefore, the observed intra-cluster consistency in lens size is not unexpected. It would be useful to know if the consistency transcends clusters worked by different groups. Inter-cluster consistency would argue for regional industrialization, but a lack of consistency would argue for individualistic or crew specific charcoal production patterning.

Many immigrant Italians came to the Eureka area as experienced Carbonari. If inter-cluster consistency is present, it may be a holdover from old world production patterns and not an indication of regional industrialization. Are charcoal lenses of different sizes produced by non-Italians and do they reflect a different style of manufacture? Resolution of questions must await future research.

Chapter 12. PREHISTORIC SITE 26EU1011

SITE DESCRIPTION

Site 26Eu1011 is a large site (150 by 400 m) located in a narrow saddle on a ridgeline projecting from the southern flank of Mt. Hope. Saddle elevation is 7356 ft (2242 m). The saddle rises sharply to the southwest (7375 ft, 2248 m at the southwestern extreme of the surface collection grid) and to the northeast (7408 ft, 2258 m, at the road intersection which forms the northern extreme of the site). The saddle is situated at the headwaters of two drainages: Tyrone Creek drains south-southeast, and an unnamed ephemeral drainage flows west (Figure 57).

Vegetation includes pinyon pine, Utah juniper, big sage, mountain mahogany, prickly pear cactus, rabbitbrush, black or low sage (found on top of the saddle where soils are shallow), cheat grass, foxtail chess, Elymus, Indian rice grass (very sparse), and wild buckwheat.

Mountain mahogany is predominant and the sage understory is dense (up to 75% in many areas). Pinyon and juniper coverage increases as one moves off the saddle. There are dense, but isolated patches of beavertail cactus and Indian rice grass. Along the northeast ridgeline, the understory is very sparse. The only ground cover is an occasional cactus, but the remains of big sage and some low sage are present. The reason for their apparently recent demise is unknown.

Recent disturbance is evident within the site boundary. A fenceline and maintenance road pass through the site. Before construction, the fenceline route was bladed to remove vegetation. The remains of felled trees and slash are present as are the berms along the edges of the blade cuts (Figure 58).

Initial investigation (Zeier and Stornetta 1984) revealed that 26Eu1011 contained numerous lithic tools and debitage. This is the only site in the project area that contained projectile points thought to date to more than two cultural periods. A large side-notched (observed during the survey but not collected), an Elko Corner-Notched, a Rosegate, and a Cottonwood projectile point were recorded. Subsequent review indicates that the point typed as a large side notched should be assigned to the Numic period. The limited number of different artifact types observed at the site suggests that, although the site was visited numerous times, its function was narrowly defined. Given the location of the site and its artifact assemblage (projectile points and bifaces, predominantly), it was interpreted as an ambush site for game driven up Tyrone Creek ravine (Zeier and Stornetta 1984).

A small historic component is also present at 26Eu1011, consisting of hole-in-top cans, glass fragments, a glass trade bead, and a clay pipe fragment of English 1870 to 1910 manufacture. Numerous axe-cut stumps were observed in the vicinity and the historic debris likely reflects activities of charcoal producers during the 1870s or 1880s. Historic debris was not systematically collected from the site.

Prior to the onset of surface collection, parallel transects were walked at 3 m intervals; artifact concentrations were pin flagged and assigned unique field specimen numbers. Several observations could then be made. First,

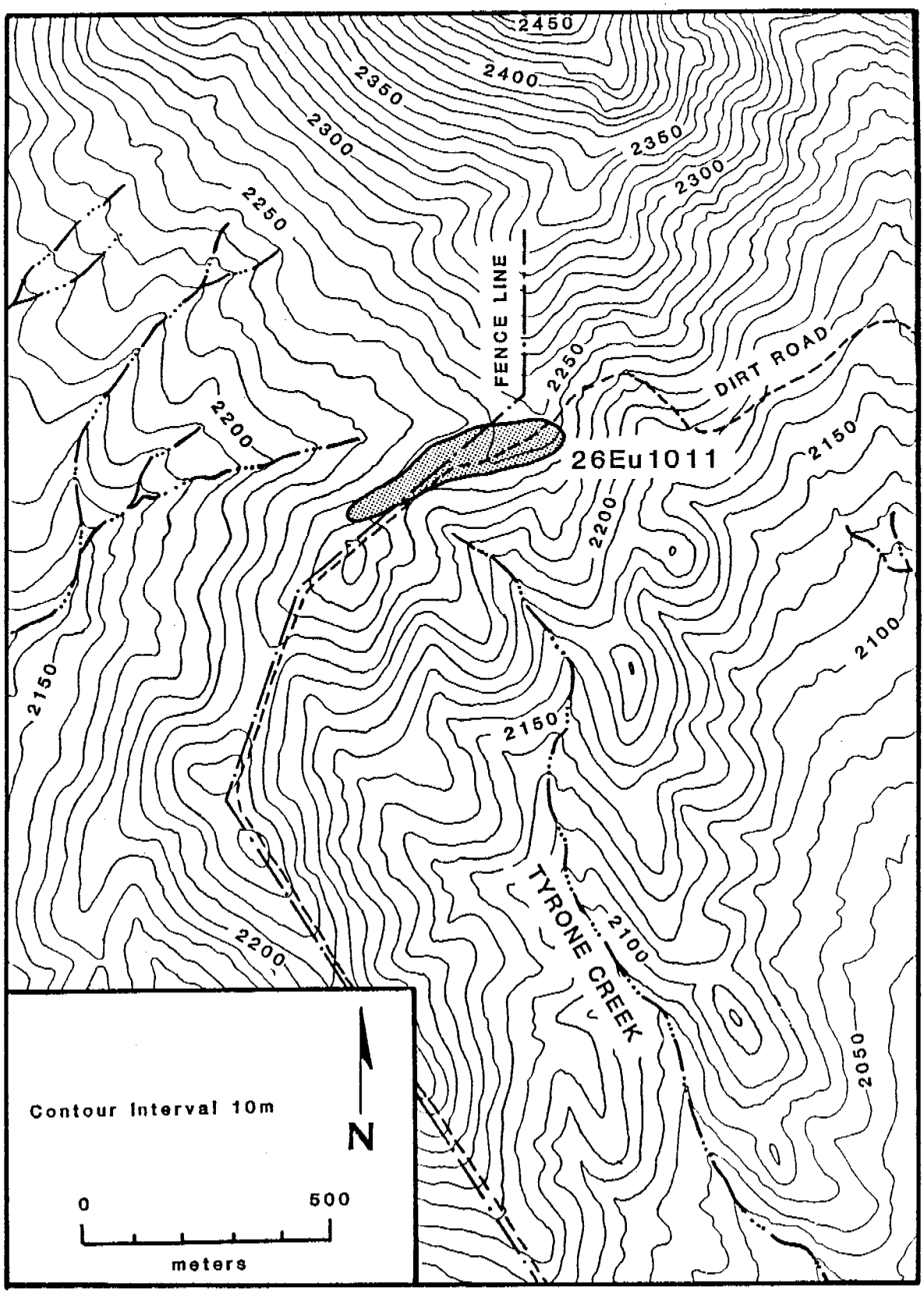

Figure 57. Location map, 26Eu1011.

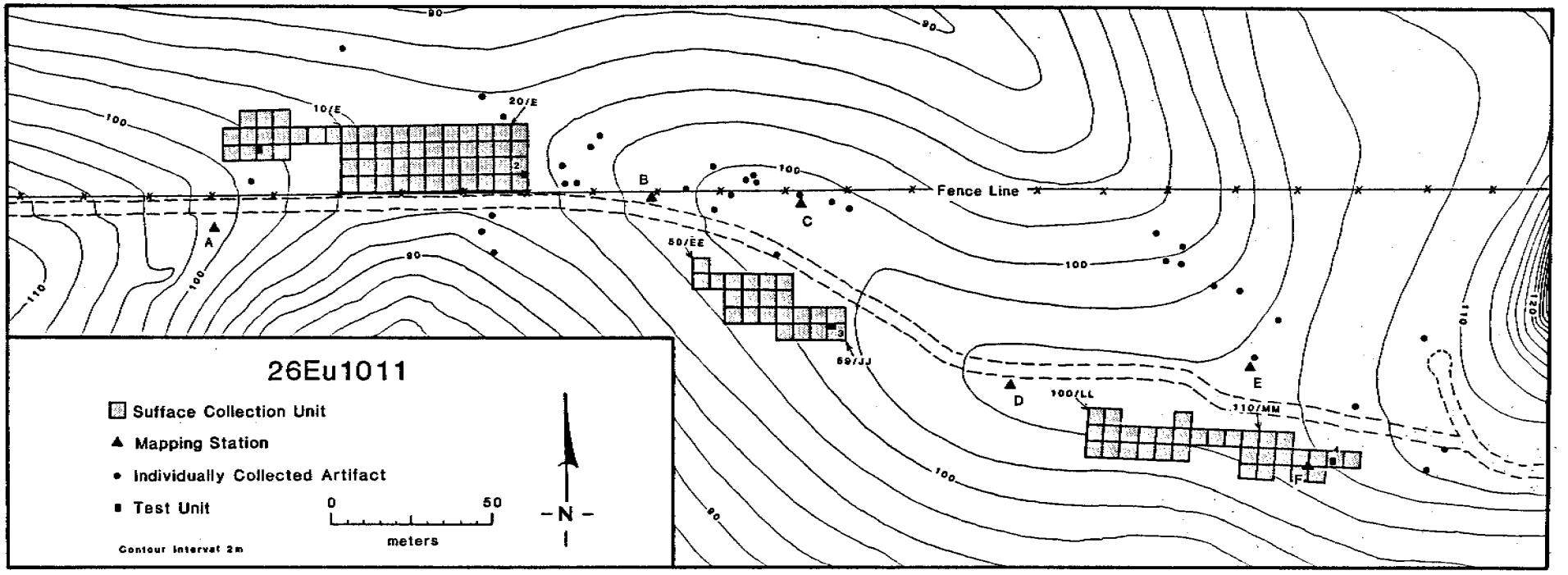

Figure 58. Site map, 26Eu1011.

artifacts tended to cluster and clusters were widely separated from one another. The density of items per unit area appeared low, even in concentrations. The greatest concentrations were found on the flatter ridge tops. Materials found on the steeper sideslopes were in rills or sheetwash surfaces, suggesting erosion from their primary contexts. Finally, portions of the site were obscured by thick accumulations of pinyon pine, juniper, or mountain mahogany duff.

Independent grid systems were established in three areas referred to hereinafter as blocks A, B, and C. North/south lines in each block parallel the fenceline bisecting the site. Five meter grid lines were designated by numbers (northing) and letters (easting), working from the fenceline out. Surface collection made use of 5 by 5 m units.

A total of 58 units was collected in Block A, which occupies the main saddle at the head of Tyrone Creek. The ground surface slopes 12-15% at the west end to 2-3% in the saddle. Block B is situated atop the ridge northeast of Block A and a total of 22 units was collected there. Carbonari activities are evident in Block B. Solder-top tins, purple glass fragments, and more recent artifacts were identified. Block C is located further out (northeast) on this ridge, above the head of the west flowing creek. A total of 32 units was collected in Block C. In addition, 41 stylized tools that fell outside the three grid areas were collected.

Four 0.5 by 1 meter test units were excavated, one each in blocks B and C, and two in Block A. Soils in all the units were quite thin, containing an abundance of sand to pebble sized clasts, with the pebbles concentrated in a thin layer across the surface. Angular to subangular bedrock cobbles were encountered at about 10 cm below surface and bedrock from 15 to 20 cm. Artifacts recovered during excavation were largely restricted to the uppermost 5 to 10 cm of deposit (Table 45). No tools were found in a sub-surface context. Based on these data, the site was considered a surface manifestation.

Table 45. Artifact Frequencies by Depth in Test Units, 26Eu1011

Level	Test Unit 1	Test Unit 2	Test Unit 3	Test Unit 4
Surface	2	-	-	-
0-10 cm	5	1	1	2
10-20 cm	-	-	-	1

ARTIFACT DESCRIPTIONS

For analytic and descriptive purposes, four chert types were distinguished in the 26Eu1011 collection: types A, B, B1, and C. Other chert varieties are combined into an "other" category. All cherts found at the site are known to occur locally, in quarries along Roberts Creek and Pete Hanson Creek, located 6 miles west and 14 miles northwest, respectively.

Chert Type A is a light gray (10 YR 7/1) to light brownish gray (10 YR 6/2) translucent chert with a dull surface, massive structure, numerous vugs,

and few inclusions. This type is nearly always heat treated, resulting in a shiny surface.

Type B is a brecciated light gray (10 YR 7/1) to gray (10 YR 6/1) translucent chert with a dull surface. Bedding planes are present; inclusions are few. This type is often heat treated resulting in internal crazing and a slightly shiny luster.

Type B1 is a brecciated pale red (10 Y 6/3) to weak red (10 Y 4/3) chert. It is often mottled and banded, and it pot lids and crazes when heated. Type B1 is similar in all respects to Type B except for color. Chroma gradients between the two are present. Specimens from the quarry site indicate that the two types co-occur on individual clasts.

Type C is a dark red (10 Y 3/4) or dark reddish brown (2.5 YR 3/4) translucent chert with reddish brown (5 YR 5/3) bands, massive structure, and few inclusions. This material is nearly always heat treated, resulting in a waxy luster.

Projectile Points

The collection from 26Eu1011 includes 30 projectile points and point fragments (see Appendix A). Twenty are identifiable to type: five Desert Series, eight Rosegate Series, five Elko Series, one Humboldt Series, and one included in the Carson Series. In addition, four points not assignable to a type and six nondescript point fragments were recovered.

Desert Series

The Desert Series as defined by Thomas (1981b:15-19) includes Cottonwood Triangular, Cottonwood Leaf-shaped, and Desert Side-notched points. The Cottonwood types are small, thin, unshouldered (unnotched) arrow points, typically made on narrow flakes. Cottonwood Leaf-shaped points are lanceolate and basally rounded. Cottonwood Triangular points are, by definition, triangular. Desert Side-notched points are usually smaller, triangular points with notches high on their sides.

The collection contains four chert Cottonwood Triangular base fragments (26Eu1011-3268-1, 26Eu1011-3231-1, 26Eu1011-3336-1, and 26Eu1011-3338-1). Each is of a different chert type and all appear to have been thermally altered. Each has been shaped by parallel oblique pressure flaking (Figure 59d). The tips of these points are truncated. The single Desert Side-notched point (26Eu1011-3234-1) recovered at the site is without a tip (see Figure 59c). When complete, the artifact was less than 15 mm long.

Rosegate Series

Thomas (1981b:19-20, 30-32) recently collapsed Rose Spring and Eastgate projectile point types into a single Rosegate point series. Rosegate points are small, corner-notched arrow points with slightly expanding stems (see Figure 59e); eight are present in the collection. Of these, seven have truncated tips. Estimated complete projectile point lengths range from 22 mm to greater

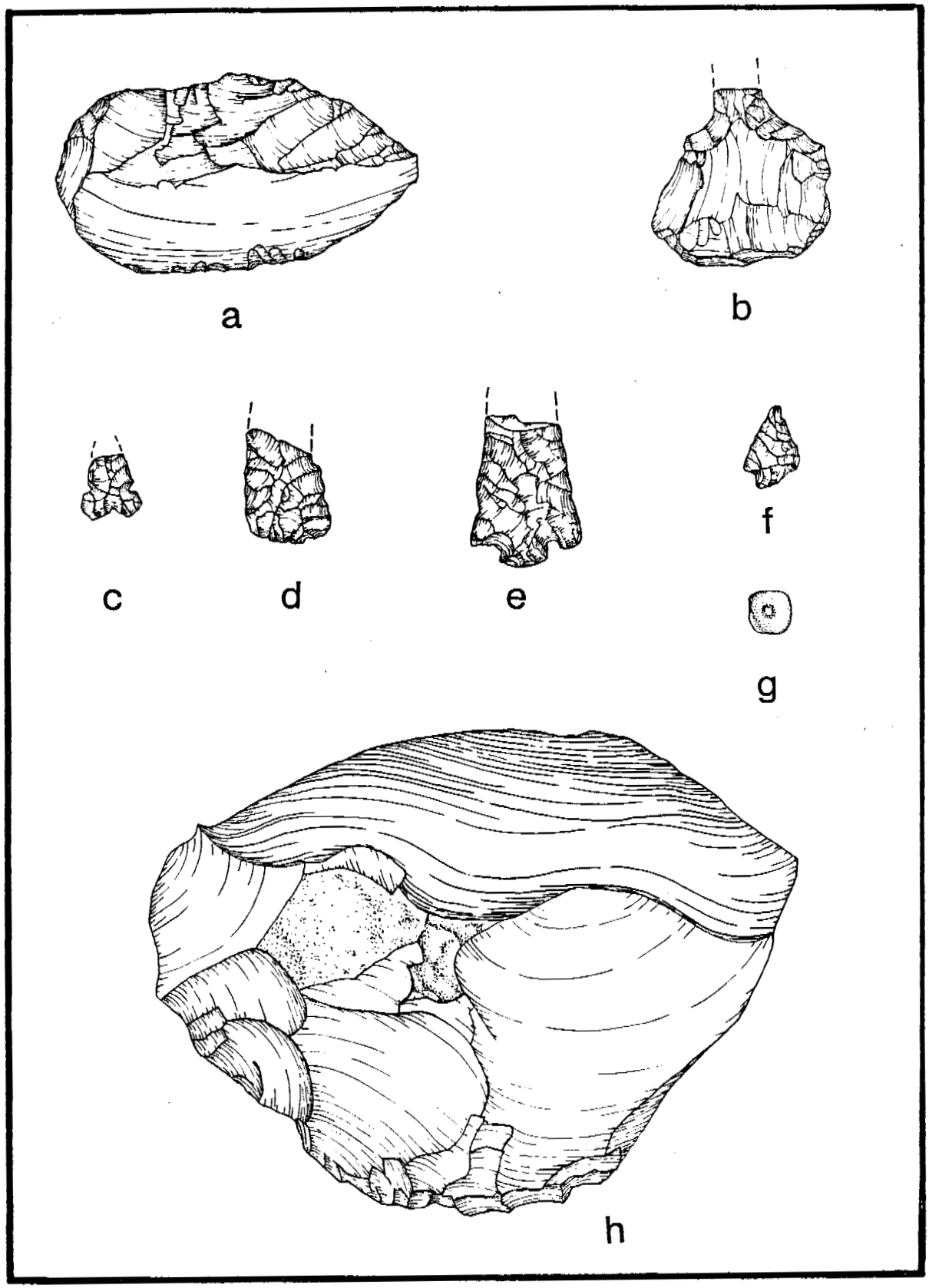

Figure 59. Prehistoric artifacts, 26Eu1011. a. basalt biface (26Eu1011-3322-1); b. chert drill (26Eu1011-3309-1); c. Desert Side-notched point (26Eu1011-3234-1); d. Cottonwood Triangular point (26Eu1011-3231-1); e. Rosegate Series point (26Eu1011-3272-1); f. Carson Series point (26Eu1011-3249-1); g. olivella shell bead (26Eu1011-3355-1); h. basalt chopper (26Eu1011-3335-1). (Scale 1:1)

than 40 mm. The eighth point (26Eu1011-3283-4) is complete except that a portion of one shoulder has been removed. This artifact appears to have been re-worked, as suggested by its thick edges and blunt, wide tip. The points are manufactured from various types of chert and flaking technology is varied. Four points are collaterally flaked, three are randomly flaked, and the final specimen (26Eu1011-3300-1) is made on a thin flake only minimally altered. All exhibit evidence of thermal alteration.

Elko Series

Characteristics of Elko projectile points are discussed in Chapter 8. Five Elko Corner-notched projectile points were collected at 26Eu1011; no Elko Eared points are present. Two points (26Eu1011-3292-1 and 26Eu1011-3354-1) are nearly complete, each lacking a portion of one shoulder and their distal ends. The other three are base fragments with breakage patterns typical of impact fractures incurred through use, not during manufacture or from trampling. Estimated point lengths range from 24 to about 40 mm. The points exhibit diagonal or collateral pressure flake scar patterning which is more or less regular depending on toolstone quality. Four chert types are represented but only one (26Eu1011-3292-1) point is made of high quality, vitreous chert. All appear to have been thermally altered.

Humboldt Series

A single Humboldt Series point base, made on a thick chert flake, was collected. The ventral side is virtually unworked while the dorsal side is obliquely pressure flaked. The reconstructed point length is roughly 46 mm, placing it in the upper length range for Humboldt Series points.

Carson Series

One very small stemmed chert point (26Eu1011-3249-1) was recovered (see Figure 59f). Kelly (1983:33-36) reports a series of small points from the Carson Sink area and Rusco (Rusco and Davis 1982:42, Plate 6) has noted others from sites along the Humboldt River, calling them Rye Patch Miniature points.

After reviewing metric data, Kelly (1983:34) concludes that the two point type are distinct, with Rye Patch Miniature points being longer. Rusco assigns this type to the same temporal period as Rosegate points (A.D. 700 to A.D. 1300), while Kelly draws no conclusions regarding the age of Carson Points. On the basis of size, the small point found at 26Eu1011 is most likely a Carson Series point.

Unclassifiable Points

Three projectile points could not be classified to type. Two morphologically similar chert artifacts (26Eu1011-3311-1 and 26Eu1011-3345-1) appear to be re-worked Rosegate Series points. Both are complete and have short stems and are corner-notched from only one side. It is impossible to determine if these points were ever hafted for use. A third, untypable chert base (26Eu1011-3201-1) is best described as a large, side-notched point, but

its measurements do not conform to Thomas's (1981b) Large Side-notched type. These points have not been assigned to a time period.

Projectile Point Fragments

Six unclassifiable projectile point fragments were collected: a white chert tip (26Eu1011-3347-1); a light gray chert tip (26Eu1011-3310-1), most likely from a Desert Series point; a white-gray mottled chert midsection (26Eu1011-3307-1), possibly a Rosegate fragment; a mottled gray chert midsection (26Eu1011-3607-3) from a Desert Series (?) point; an incomplete chalcedony base fragment (26Eu1011-3304-1); and a pale red and gray chert shoulder fragment (26Eu1011-3281-2) of an Elko-like point that broke during manufacture. The two basal fragments are the only "unfinished" projectile points recovered at 26Eu1011. The other fragments exhibit breakage patterns incurred through use.

Bifaces

Two distinct biface trajectories are apparent at 26Eu1011. Since archaeological remains at the site represent palimpsests of occupation, these trajectories may represent lithic reduction sequences separable in time.

In Trajectory 1, small primary flakes are bifacially worked into small projectile points by pressure flaking. This expedient form of point manufacture is often seen in Late Archaic assemblages (Elston et al. 1981:198; Elston nd:41). During Stage I reduction in Trajectory 2, large flakes are reduced by means of direct percussion. The resultant Stage II bifaces are of two sizes; larger bifaces or mid-sized bifaces. During Stage III reduction, the two preform classes are further reduced to their finished forms. The larger bifaces become bifacial knives, whereas the mid-sized bifaces become Elko-sized projectile points, drills, or smaller bifacial knives. Bifaces, key-shaped drills, and large corner notched points are characteristic of Middle Archaic assemblages (Elston 1982:194-197; Elston nd:20-22).

Stage I Bifaces

The six Stage I bifaces collected from the site exhibit a high degree of technological and morphological variability (Table 46, Figure 60a). Two classes of Stage I bifaces are recognized in the collection. Class A bifaces are small flakes bifacially worked by fine, controlled pressure flaking. Class B bifaces are relatively large flakes reduced by means of percussion flaking. These classes are the starting points for the two distinct biface trajectories discussed above. As such, they represent an initial stage of production sequences and not necessarily tightly defined morphological types.

The three Class A, Stage I bifaces are heat treated primary flakes that exhibit minimal bifacial reduction by means of pressure flaking. Considering the paucity of cores at 26Eu1011 (n=6), the flakes were probably struck from heat treated cores at another locality, then transported to the site where they were further reduced. The smallest (26Eu1011-1) is a fingernail sized,

Table 46. Stage I Bifaces, 26Eu1011

Specimen Number	Provenience	Material	Type	Weight (gms)	Length (mm)	Width (mm)	Thick-ness (mm)	Thermally Altered
* 26Eu1011-3214-1	Surface 13-E	Chalcedony	Chal.	1.3	17.1	23.5	2.6	Yes
# 26Eu1011-3235-2	Surface 18-E	Chert	A	5.1	40.4	17.6	7.8	Yes
# 26Eu1011-3265-3	Surface 101-MM	Chalcedony	Chal.	8.2	24.4	38.4	10.1	Yes
* 26Eu1011-3305-1	Surface	Chert	A	0.5	11.6	13.8	2.6	Yes
# 26Eu1011-3327-1	Surface	Chert	C	8.0	28.2	28.9	11.6	Yes
* 26Eu1011-3349-2	Surface 50-FF	Chert	B	6.0	31.3	28.0	6.6	Yes

* Small Class A Bifaces — Class A = 2.6 grams average

Large Class B Bifaces — Class B = 7.1 grams average

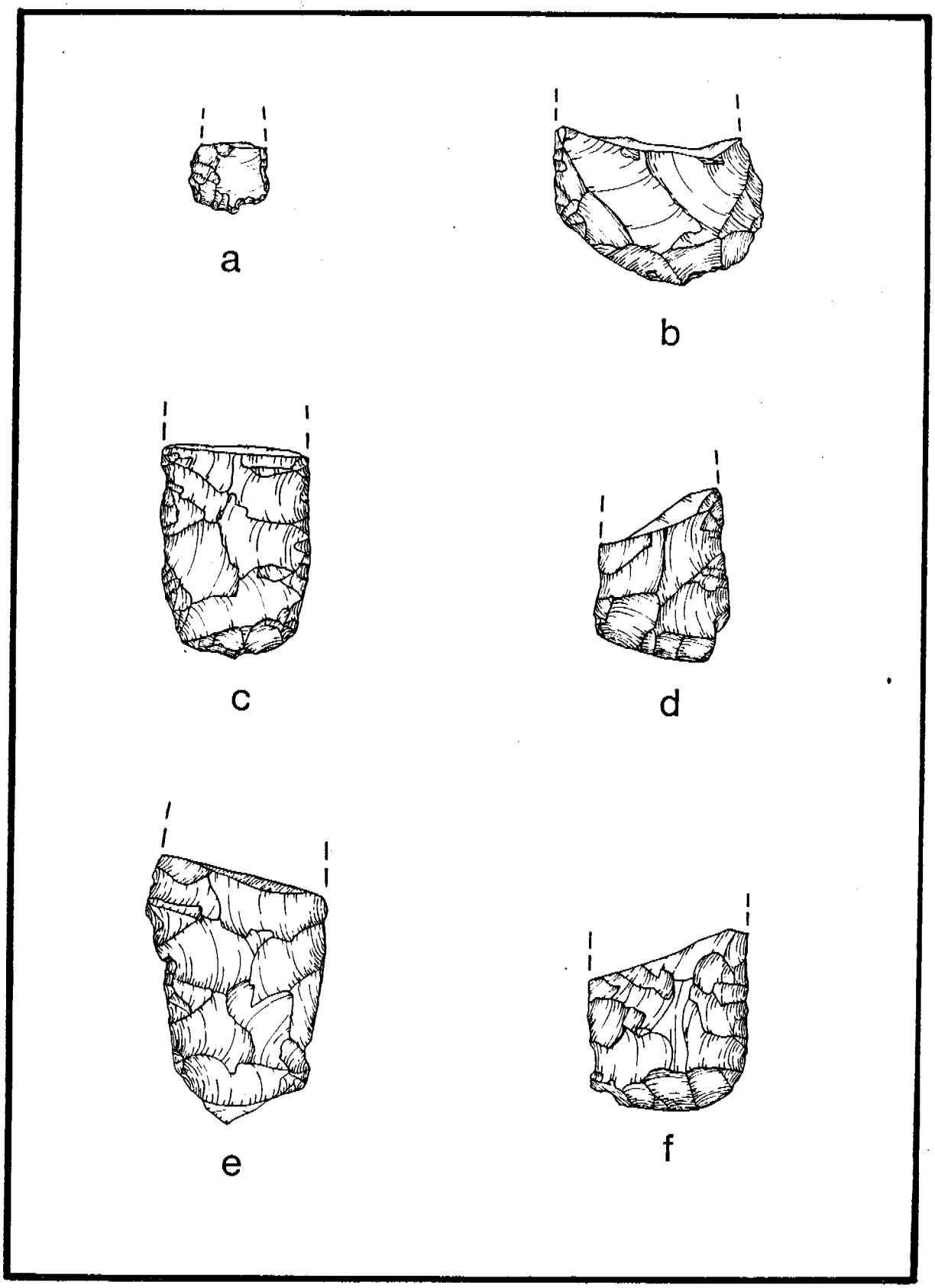

Figure 60. Prehistoric artifact fragments, 26Eu1011. a. chert stage I biface (26Eu1011-3305-1); b. chert stage II biface (26Eu1011-3290-2); c. chert stage II biface (26Eu1011-3235-1); d. chert stage II biface (26Eu1011-3306-1); e. chert-siltstone stage II biface (26Eu1011-3308-1); f. chert stage II biface (26Eu1011-3303-1). (Scale 1:1).

bifacially worked, truncated chert flake. Its size and shape suggest a small projectile point (Desert Series) blank. A bifacially worked chalcedony flake fragment (26Eu1011-3214-1) also probably represents the initial stage of projectile point manufacture. The final artifact (26Eu1011-3349-2) is a chert flake fragment with initial platform preparation along its edge. The piece is somewhat larger than the other two specimens, but still is likely a Desert Series preform.

The three Class B, Stage I biface fragments represent curtailed efforts at producing medium to large bifaces (knives and Elko-sized projectile points). Each entered the biface trajectory as either a nodule or flake blank sufficiently large that, at the end of Stage I reduction, none of the original nodule or flake morphology is evident. The artifacts have been flaked by direct percussion and each has at least one end-shock fracture from use of excessive force. Flake scars of differing lusters indicate post-heat treatment reduction.

Stage II Bifaces

A total of 48 Stage II biface fragments and a single complete Stage II biface were collected. These bifaces are diverse in form and material; a number of chert types are represented and a variety of flaking techniques and patterns are apparent. Specimens range in weight from 0.2 grams to over 16 grams (Table 47, see Figure 60b-e).

Three size classes were differentiated within the Stage II biface collection--classes A, B, and C. Classes A and B retain their parameters defined for Stage I bifaces: "small" flakes and "large" flakes, or small bifaces and large bifaces, respectively. Size Class C flakes form an intermediate size category between classes A and B. Thus, Class C Stage II bifaces are medium size bifaces that during final shaping could become either Elko Series or Rosegate Series projectile points, or small bifacial knives and drills. Each size class is discussed separately.

Ten Class A, Stage II bifaces are identified and all represent curtailed efforts at projectile point manufacture. Of these, four are base fragments (26Eu1011-3252-3, 26Eu1011-3298-1, 26Eu1011-3301-1, and 26Eu1011-3326-1); three are projectile point blanks (26Eu1011-3217-1, 26Eu1011-3270-2, and 26Eu1011-3319-1); two are midsections (26Eu1011-3224-1 and 26Eu1011-3325-1); and one is a tip fragment (26Eu1011-3289-2). Three of the base fragments are triangular in outline and have been reduced variously by pressure flaking or direct percussion. Each specimen was broken during manufacture. The fourth base fragment (26Eu1011-3301-1) is a basally rounded pressure flaked specimen resembling an early stage Humboldt Series point. The three point blanks are nearly completed Elko or Rosegate series points that were broken during the final stages of manufacture. The two midsections and one tip fragment are failed attempts at projectile point manufacture.

There are 22 Stage II biface fragments assigned to size Class B. All but two of these larger pieces are percussion flaked. Only one specimen (26Eu1011-3233-1) was complete upon discard; it is a thin leaf-shaped biface that probably has been broken by trampling. The remaining seven fragments are midsections and a single edge fragment. They are larger and thicker than Class A Stage II bifaces and represent bifacial knife fragments. Biconvex in cross-

Table 47. Stage II Bifaces, 26Eu1011

Specimen Number	Provenience		Material	Sub-Type	Weight (grams)	Length (mm)	Width (mm)	Thickness (mm)	Thermal Alteration	Size Class
26Eu1011-3217-1	Surface	14-C	Chert	Other	2.2	23.4	19.5	4.0	yes	A
-3224-1	"	16-D	Chert	B	0.8	12.1	14.5	4.5	yes	A
-3230-3	"	17-D	Chert	B	1.3	14.8	7.9	7.5	yes	C
-3233-1	"	18-C	Chert	B	16.7	53.2	40.0	7.3	yes	B
-3234-2	"	18-D	Chalcedony	Chal.	2.5	21.1	22.6	6.0	no	C
-3235-1	"	18-E	Chert	B	5.1	40.4	17.6	7.8	yes	B
-3238-1	"	19-D	Chert	A	12.7	40.0	32.0	8.5	yes	C
-3238-2	"	19-D	Chert	A	2.5	27.1	19.6	4.6	yes	B
-3242-1	"	20-D	Chert	B	5.1	21.6	28.4	7.2	yes	B
-3245-1	"	21-C	Chert	A	0.8	32.8	8.4	3.5	yes	C
-3249-2	"	50-FF	Chert	B	6.0	31.3	28.0	6.6	yes	B
-3252-3	"	52-FF	Chert	B	2.5	18.2	23.2	5.7	yes	A
-3270-2	"	102-MM	Chert	C	2.2	25.1	19.1	4.0	yes	A
-3278-1	"	55-II	Chert	C	14.9	38.5	39.4	8.2	yes	B
-3279-1	"	56-II	Chert	A	4.2	21.1	24.8	7.2	yes	C
-3281-5	"	57-II	Chert	B1	1.5	11.1	23.6	5.6	yes	C
-3289-2	"	5-E	Chert	B	0.8	12.5	18.4	3.8	yes	A
-3290-1	"	4-E	Chert	B	15.7	33.1	45.1	10.0	yes	B
-3290-2	"	4-E	Chert	B1	8.0	22.6	39.1	6.0	yes	B
-3290-3	"	4-E	Chert	B1	5.9	20.0	36.4	7.0	yes	B
-3290-4	"	4-E	Chert	B1	6.2	21.0	41.1	6.9	yes	B
-3290-7	"	4-E	Chert	B	5.2	33.5	23.0	8.4	yes	B
-3290-8	"	4-E	Chert	B1	2.1	14.5	24.4	5.4	yes	C
-3293-1	"	4-D	Chert	B1	7.5	36.5	34.0	6.8	yes	B
-3298-1	"	4-F	Chert	B	2.0	18.1	20.7	4.6	yes	A
-3298-3	"	4-F	Chert		1.9	27.3	11.7	6.5	yes	C
-3301-1	"		Chert	C	2.2	16.2	24.2	5.6	yes	A
-3306-1	"		Chert	C	4.0	29.5	23.0	5.8	no?	C
-3312-1	"		Chert	B	4.9	34.0	26.0	6.1	yes	C
-3313-1	"		Chert	A	9.1	44.2	26.3	8.2	yes	C
-3314-1	"		Chert	B1	16.2	33.3	37.5	8.4	yes	B
-3315-1	"		Chert	B1	6.2	27.3	27.6	7.4	yes	C
-3316-1	"		Chert	C	0.2	8.0	12.0	3.2	no	C
-3318-1	"		Chert	B	3.8	31.0	23.3	6.8	yes	C
-3319-1	"		Chert	Other	1.5	18.8	18.6	4.3	yes	A
-3320-1	"		Chert	C	1.7	20.6	26.6	3.9	yes	C
-3320-2	"		Chert	B	6.0	26.5	28.2	8.8	yes	B
-3324-1	"		Chert	A	6.9	31.9	24.1	7.8	yes	B
-3325-1	"		Chert	A	5.2	24.6	27.1	9.8	yes	A
-3326-1	"		Chert	B	2.1	16.7	25.2	5.2	yes	A
-3328-1	"		Chert	A	4.4	29.0	30.0	5.1	yes	C
-3330-1	"		Chert	A	4.3	33.9	21.8	6.5	yes	B
-3331-1	"		Chert	B	5.2	24.6	27.1	9.8	yes	B
-3334-1	"		Chert	A	7.4	38.5	27.1	6.5	yes	B
-3340-1	"		Chert	B	3.8	23.4	20.5	6.7	no	B
-3340-8	"		Chert	B1	3.3	29.3	23.6	4.6	yes	C
-3341-1	"		Chert	A	4.4	31.6	25.5	5.5	yes	B
-3352-1	"		Chert	C	5.5	43.3	13.3	8.3	yes	B
-3601-1	"		Chert	B	3.5	23.3	19.5	8.1	yes	B

section, they are nearly twice as thick as those in the former size class. Flake scars typically are deep, broad and expanding, and indicative of percussion flaking. Only two specimens (26Eu1011-3290-1 and 3290-3) have been further reduced by pressure flaking. Judging from the more complete pieces (26Eu1011-3290-2, 3278-1, 3293-1, and 3314-1), the prototypical Class B Stage II biface measured about 60-70 mm long and 30-35 mm wide by 7-10 mm thick.

Seventeen specimens are included as mid-sized Class C, Stage II bifaces. As noted earlier, their size places these artifacts at a middle point in the trajectory, a point at which the knapper decided which end product would or could be made (bifacial knife, projectile point, or drill). One nearly complete biface (26Eu1011-3313-1) is present in the collection. The artifact is about 4.5 cm long, 2.5 cm wide, and 0.5 cm thick. Although this specimen was discarded because of a prominent, irreducible dorsal arris, it could easily have served as a knife, drill, or projectile point blank. Seven tip and five base fragments are present. The tip fragments have all been thinned by either direct or pressure flaking. Some tips have broad, shallow flake scars usually attributed to soft hammer percussion. Each was broken during manufacture. The final specimen (26Eu1011-3245-1) is a biface "bite" fragment. A bite is removed by a mis-directed percussion blow too far from the edge. This removes an arcuate segment of the edge rather than flowing through the piece and detaching a flake.

Two Class B bifaces and one Class C biface have been utilized. The one large base fragment (26Eu1011-3278-1) shows evidence of nibbling and nicking on its lateral edges, and as such, was probably only briefly utilized. The smaller base fragment (26Eu1011-3306-1) also bears evidence of short duration or minimal utilization. The large tip fragment (26Eu1011-3293-1) is heavily edge damaged (crushed, nicked) indicating heavy, sustained use.

Stage III Bifaces

The collection of ten Stage III bifaces includes three tips, two midsection, three bases, and two nearly complete bifacial knives (Table 48, see Figure 60f). All three tip fragments indicate utilization and represent fragments of large (Class B) bifacial knives broken during use or maintenance. Likewise, the midsections are fragments of large, utilized bifaces. The three basal knife fragments offer some indication of the size, shape, and form of the bifacial knives in use at 26Eu1011. One specimen (26Eu1011-3308-1) of interest is a Stage III biface made of the siltstone material found at 26Eu790, located 1.3 miles to the east (see Chapter 8).

The one complete basalt leaf-shaped biface (26Eu1011-3322-1) and a nearly complete specimen (26Eu1011-3333-1) are unique in the collection (see Figure 59a). They are the only examples of leaf-shaped knives and, with one exception, are the only basalt artifacts recovered. Both have been heavily utilized, as evidenced by severe edge damage, and are highly weathered.

Pièce Esquillée

Pièces esquillées functioned as bone, antler, and wood splitting wedges and, secondarily, as slotting and grooving tools (Flenniken 1981:48-56). Pièces esquillées are common in Old World paleolithic assemblages and have been

Table 48. Stage III Bifaces, 26Eu1011

Specimen Number	Provenience		Material	Sub-Type	Weight (grams)	Length (mm)	Width (mm)	Thickness (mm)	Thermal Alteration	Description
26Eu1011-3203-1	Surface	10-E	Chert	B1	5.6	31.5	28.0	5.5	yes	Base fragment
-3235-1	Surface	19-C	Chert	B	6.6	35.8	25.0	5.4	yes	Base fragment
-3250-1	Surface	51-FF	Chert	B	2.2	19.8	20.1	5.9	yes	Tip
-3270-1	Surface	102-MM	Chert	C	4.4	34.8	26.7	5.1	?	Tip
-3290-5	Surface	4-E	Chert	B1	3.5	28.2	27.6	5.5	yes	Tip
-3302-1	Surface	72.20N/13.9E	Chert	B1	4.6	24.8	30.0	4.7	yes	Midsection
-3308-1	Surface	0.00N/43.5E	Siltstone	Silt	10.2	42.3	32.0	7.2	?	Base fragment
-3322-1	Surface		Basalt	--	19.4	61.0	34.5	9.7	no	Leaf-shaped knife
-3333-1	Surface		Basalt	--	20.3	60.4	36.7	9.3	no	Leaf-shaped knife, 3/4 complete
-3349-1	Surface	114-NN	Chert	B	9.5	24.0	40.7	8.5	yes	Midsection

noted in later New World assemblages (Flenniken 1981:49), but none has been previously reported for the Great Basin. Thomas (1982d:163), citing Steward, notes "...the absence of such 'useful implements as axes, wedges, adzes, and others' (Steward 1941:234) among the Great Basin Shoshoneans, and these artifacts are missing from the archaeological assemblages of the central Great Basin."

A bifacially worked chert piece was recovered at the site which we believe to be a pièce esquillée. It is 4 cm by 1.5 cm by 1 cm in size and wedge-shaped. The tip and adjacent edges are extremely battered, as if from use. The end which would have been struck to drive the wedge is sheared off. The absence of pièces esquillées in Great Basin collections may merely be due to the archaeologist's failure to recognize these distinctive artifacts.

Scraper

Two chert scrapers were collected from 26Eu1011. One (26Eu1011-3224-2) is a side/end scraper, made from a small split core, with evidence of utilization. The other is a gray chert, turtle-back scraper (26Eu1011-3227-1) exhibiting use wear on one lateral edge.

Drill or Perforator

Three incomplete drills were recovered. Two (26Eu1011-3309-1 and 26Eu1011-3297-1) are key-shaped drills with truncated bits. The more complete of the two is illustrated in Figure 59. The third specimen (26Eu1011-3206-2) is a base fragment, but exhibits constriction near the break.

Basalt Chopper

A basalt chopper (26Eu1011-3335-1) was recovered from the site which weighs over 600 grams and is heavily battered along one edge. The artifact is made from a large split core, and six large flake scars coalesce to form the chopping edge (see Figure 59h). This tool may have served to smash bones or chop wood.

Modified Bifacial Tool

A rejuvenated, obsidian biface (Stage I?) fragment (26Eu1011-3280-1) was collected. The artifact exhibits bifacial rejuvenation flakes and has been utilized. Original biface surfaces have a weathered, dull matte finish, whereas the more recent pressure flake scars exhibit a vitreous luster. This suggests that the piece was picked up and modified, perhaps in an attempt to manufacture a small projectile point. Efforts were curtailed due to multiple step fractures on one side, and to an end-shock truncation. At this point, the piece was retouched and utilized as a cutting edge.

Utilized Flakes

Thirteen utilized flakes were collected at 26Eu1011 (Table 49). Chert is the dominant toolstone material in the collection (n=10), with two flakes of obsidian and one of chalcedony. The utilized flakes were produced at various

Table 49. Utilized Flakes, 26Eu1011

Specimen Number	Provenience	Material	Type	Weight (grams)	Length (mm)	Width (mm)	Thickness (mm)	Thermally Altered	No. EUs
*26Eu1011-3201-2	Surface 10-C	Chert	B	0.6	20.9	12.2	2.6	Yes, waxy luster	3
* -3234-5	" 18-F	Chert	A	0.8	17.3	16.5	3.3	Yes, waxy luster	3
# -3237-2	" 19-C	Chert	Other	11.2	49.2	25.9	9.5	Indeterminate	1
# -3251-1	" 52-GG	Chert	A	10.4	57.4	23.1	10.1	Yes, waxy luster	1
* -3263-1	" 100-MM	Obsidian	O	1.0	21.7	12.6	2.6	No	2
• -3264-1	" 100-LL	Obsidian	0	1.0	18.1	18.0	3.1	No	2
# -3265-1	" 101-MM	Chal.	B1	3.5	23.2	33.5	5.1	Indeterminate	1
# -3292-3	" 3-D	Chert	B1	12.1	50.7	32.6	9.5	No	1
* -3341-2	" 110-NN	Chert	A	2.5	24.2	19.6	6.0	Yes, waxy luster	2
* -3341-3	" 110-NN	Chert	C	1.3	22.2	14.4	4.7	Yes, waxy luster	1
* -3343-1	" 111-MM	Chert	G	1.4	35.5	12.7	3.7	Yes, waxy luster	1
# -3348-2	" 113-00	Chert	B1	11.0	63.3	30.0	6.7	Indeterminate	2
* -3353-1	" 108-MM	Chert	Other	2.4	27.2	18.4	5.5	Yes, waxy luster	1

• = Flakes classified as "small"
= Flakes classified as "large"

points in the biface reduction sequence: 10 secondary flakes, 2 primary flakes, and a single biface thinning flake. Twenty-one EUs are present. Seven flakes have one EU each, four flakes have two EUs each, and two flakes have three EUs each. On artifacts with one and two EUs, the EUs are on the lateral edges. In cases with three EUs the third is always on the distal edge.

The collection of utilized flakes was divided into two size categories - small (n=8) and large (n=5). Summary statistics are provided in Table 50. Small utilized flakes tend to be rectangular and are relatively thin in cross section. The large utilized flakes weigh, on the average, nearly four times that of the smaller group. They also tend to be rectangular but with fewer parallel edges and are considerably thicker.

Table 50. Utilized Flake Summary Statistics, 26Eu1011

	Small Group			Large Group		
	N	Range	Mean	N	Range	Mean
Length	8	17.2-35.5	23.4	5	23.2-63.3	48.4
Width	8	12.6-18.4	15.5	5	23.1-33.5	29.0
Thickness	8	2.6-6.0	3.9	5	5.1-10.1	8.2
Weight	8	0.6-2.5	2.3	5	3.5-12.1	9.7

Evidence of thermal alteration is present on seven of the chert utilized flakes. Heat treatment could not be determined for three pieces (26Eu1011-3237-2; 26Eu1011-3265-1, and 26Eu1011-3348-2) since other pieces of the toolstone were not available against which a comparison could be made.

Cores

Two cores and four core fragments were recovered from the site (Table 51). All are made of chert and exhibit evidence of thermal alteration. Three core fragments (26Eu1011-3340-1; 26Eu1011-3341-6; and 26Eu1011-3348-1) are nondescript chunks with end shock truncations. The other fragment (26Eu1011-3252-1) is a bifacial core that fractured from excessive force. The two complete cores are quite distinct. One specimen (26Eu1011-3303-1) is a split core. Splitting the core longitudinally created a planar ventral surface, the edges of which could serve as a platform for subsequent flake removal. The other core (26Eu1011-3337-5) is a small exhausted core of low quality, mottled gray and white chert.

Debitage

A total of 909 pieces of debitage was collected at 26Eu1011. The collection is dominated by locally available cherts (Table 52). Types A, B, and B1 comprise 71% of the debitage collection. Of interest is the absence of siltstone, the dominant material type at site 26Eu790 and a type apparently available in the Mt. Hope vicinity.

Table 51. Core Attributes, 26Eu1011

Spec. Number	Provenience	Chert Type	Weight	Length	Description
3252-1	52-FF	B1	14.0	37.2	Bifacial; end shock
3303-1	Surf.	B	30.4	57.1	Split; platform truncated
3337-5	109-MM	Other	11.6	40.0	Multifaceted exhausted core
3340-3	110-MM	A	17.0	38.1	Multifaceted; end shock
3341-6	110-NN	G	13.7	37.2	Multifaceted core fragment
3348-1	113-00	B	22.1	47.5	Multifaceted; some cortex

Table 52. Debitage Material Type Frequencies, 26Eu1011

Material Type	Complete	Fragments	Total	%
Type A Chert	58	200	258	28.4
Type B Chert	43	249	292	32.1
Type B1 Chert	17	102	119	13.1
Type C Chert	14	65	79	8.7
Chert (Other)	19	81	100	11.0
Obsidian	3	4	7	0.8
Chalcedony	9	41	50	5.5
Metaquartzite	3	5	8	0.9
Basalt		1	1	0.1
Quartzite		1	1	0.1
Chert-Siltstone		1	1	0.1
Indeterminate		2	2	0.2
	166	752	918	

Only 166 pieces are complete and assignable to a production stage (Table 53); later biface reduction stages and artifact rejuvenation are dominant. Primary reduction debitage and shatter comprise about one-third of the collection, suggesting that initial stage biface reduction and tool manufacture were less frequent activities.

Table 53. Reduction Stage Frequencies, 26Eu1011

Reduction Stage	Number	%
Primary	25	15.1
Secondary	47	28.3
Tertiary	39	23.5
Biface Reduction	30	18.1
Shatter	23	13.9
Indeterminate	2	1.2
	166	

The cross-tabulation of material type and reduction stage information allows for the recognition of material specific reduction strategies (Table 54). The assemblage of complete flakes from 26Eu1011 is relatively small and material types are unequally represented. As a result, statements based upon these data must be viewed as tentative.

Table 54. Material Type by Reduction Stage Frequencies, 26Eu1011

Material Type		Reduction Stage: Primary	Secondary	Tertiary	Biface Reduction	Shatter	Indeterminate	Total
Type A Chert	N	12	13	13	13	6	1	58
	%	20.6	22.4	22.4	22.4	10.3	1.7	
Type B Chert	N	4	9	13	11	6		43
	%	9.3	20.9	30.2	25.5	13.9		
Type B1 Chert	N	3	7	3	2	2		17
	%	17.6	41.1	17.6	11.7	11.7		
Type C Chert	N	2	5	5		2		14
	%	14.2	35.7	35.7		14.2		
Chert (other)	N	2	11	1		5		19
	%	10.5	57.8	2.5		26.3		

Material Type A debitage is quite evenly distributed across reduction stages, suggesting that it is locally available and was reduced from raw form to finished artifact at the site. Type B chert is dominated by the tertiary and biface thinning reduction stages, indicating that most initial reduction took place elsewhere, probably at the lithic source. Chert types B1 and C debitage consist mostly of secondary and later stage pieces. Obsidian, chalcedony, and metaquartzite samples are small (fewer than 10 items), but suggest that later reduction stages were dominant.

Given the predominance of later stage debitage in the collection, cortex percentages were not expected to be high. Cortex was observed on 42 (26.3%) of the complete flakes and, where present, tended to cover less than 50% of the flake's dorsal surface. The primary, secondary, and shatter categories account for 83.3% of the cortical pieces. The percent of cortex drops significantly as one proceeds into the later reduction stages. The frequency of cortex on complete flakes by material type is presented in Table 55. Type B1 chert debitage most frequently has cortex present, suggesting that it is the most locally available of the cherts. Cortical debitage frequencies are also moderately high for chert types B, C, and "other".

Table 55. Cortex by Chert Material Type, 26Eu1011

Material Type	Cortex: Absent	Present	% With Cortex
Type A Chert	47	11	19.0
Type B Chert	31	12	28.0
Type B1 Chert	9	8	47.0
Type C Chert	10	4	28.6
Chert (Other)	14	5	26.4

Thermal alteration was apparent on 75.9% (n=126) of the complete flakes, and was indeterminate on an additional 10.2% (n=17). All of the cherts present at the site (Table 56) exhibit high percentages of heat treatment, but it is most pronounced for types B and C. Both are brecciated materials and are less vitreous than other cherts in the collection. None of the obsidian, chalcedony, or metaquartzite exhibited evidence of heat treatment, but several pieces of the latter two were noted as indeterminate.

Table 56. Thermal Alteration by Chert Material Types, 26Eu1011

Material Type	No	Yes	Indeter-minate	%
Type A Chert	7	50	1	86.2
Type B Chert	3	40	0	93.0
Type B1 Chert	1	13	3	76.4
Type C Chert	1	13	0	92.8
Chert (Other)	3	10	6	52.6
	15	126	10	

More interesting is the distribution of thermally altered specimens across debitage stages (Table 57). The higher frequencies of thermal alteration are in the secondary, tertiary, and biface reduction debitage stages, indicating the thermal alteration and subsequent refinement of Stage II bifaces. Shatter shows a high percentage of thermal alteration, but it may be a by-product of any reduction stage, including final refinement of Stage II bifaces.

Table 57. Frequency of Thermal Alteration by Debitage Stage, 26Eu1011

Debitage Stage	No	Yes	Indeter-minate	% Thermally Altered
Primary	5	14	6	56.0
Secondary	8	34	5	72.3
Tertiary	4	33	2	84.6
Biface Reduction	2	25	3	83.3
Shatter	3	19	1	82.6
Indeterminate	1	1	0	50.0
	23	126	17	

Shell Bead

A single *Olivella* bead (26Eu1011-3355-1) was recovered. In size and overall morphology, it conforms to the Type F3a "square saddle" as defined by Bennyhoff and Fredrickson (1967:18). It is squarish in form with round

(see Figure 59g). Beads of this type originated in Central California and were traded across the Sierra. Bennyhoff and Heizer (1958) identified similar specimens (their type 3b2) at Tommy Tucker Cave and the Humboldt lakebed site (Ch-15). Their findings indicate the type dates from 2000 BC. to 0 A.D. (Bennyhoff and Heizer 1958:65-67).

Mano

One discoidal sandstone mano (26Eu1011-3317-1) was collected. The specimen is about 95 mm in diameter and 47.2 mm thick. The entire piece is extremely weathered and no evidence of use wear is apparent. The specimen is classified as a mano on the basis of its morphology and the uniqueness of the rock type which had to be transported to the site.

Faunal Remains

A single unidentifiable bone fragment (26Eu1011-3607-2) was recovered in Level 1 (surface to 10 cm) of Test Unit 4. The piece measures 6.2 cm long, 5.0 cm wide, and 2.2 cm thick.

Historic Artifacts

Four historic artifacts were collected during investigation of 26Eu1011. A single cobalt blue, hexagonal, hand ground, faceted bead was collected from unit 52-HH (26Eu1011-3253-1). The bead most likely dates to post 1850 (Greenwood 1982:116, 123).

A molded, amber glass, shanked button (26Eu1011-3356-1) was collected as an isolated artifact. The button is of a type collectors call "swirl back", referring to the manner in which the shank is attached. Manufacture of this button type appears to have ceased after 1880 (Jones and Fuoss 1945:21). The button face is elaborate, suggesting it was sewn to woman's apparel or possibly a man's fancy vest. This particular button size is typically a blouse or shirt fastener.

A 44-40 caliber Winchester brass, centerfire shell casing was recovered (26Eu1011-3329-1). The headstamp reads "W.R.A. Co./44 W.C.F." This cartridge was made for use in the Winchester Model 1973 rifle and the Colt single-action revolver (Herskovitz 1978:49). Manufacture of the cartridge continues today (Bearse 1966:153-154).

An undecorated clay ("Kaolin") tobacco pipe bowl fragment (26Eu1011-2) was collected during site survey (Zeier and Stornetta 1984). The specimen is unusual in that its walls are extremely thick (7.8 mm). Clay pipe bowls are typically half this thick. Clay pipes were commonplace items through out the west in the 1880s to early 1900s. Lacking decoration or a makers mark, it is impossible to assign a firm date to the specimen.

EVALUATION OF RESEARCH GOALS

The location of 26Eu1011 clearly indicated its function as a hunting site used to ambush game passing over the saddle and ridgeline that dominate site geography. Several projectile point types were recorded at the site, verifying its use over an extended period. What is unclear is the type of game ambushed: mule deer (Odocoileus hemionus) or bighorn sheep (Ovis canadensis).

Aspects of bighorn behavior make it likely they were sought. Bighorn prefer more rugged terrain then deer and depend on their ability to hide and climb to avoid predators (Monson and Sumner 1980:77). Open woodlands were common foraging habitats during summer months. They descended to lower elevations during the winter due to deep snow, but tended to remain in as rugged terrain as possible (Monson and Sumner 1980:67). Typically, groups of animals return to the same home range following seasonal shifts (Pippin 1979:336).

With regard to daily movement, bighorn tend to move downhill during the morning and uphill in the afternoon (Monson and Sumner 1980:137). They frequently bed down (at night and during the day) near the top of a ridge or along a spur where they can see the surrounding territory. If alarmed, they run over the ridge or down slope (Monson and Sumner 1980:78). On occasion, they will move from the east to the west side of a ridge during mid-day, taking advantage of the shifting effects of solar radiation. On hot summer days they will seek breezes on ridgetops (Monson and Sumner 1980:144).

Geographic features present at 26Eu1011 would lend themselves well to the exploitation of such behavior patterns. The site is located along a high saddle in a ridgeline that runs roughly north-south near the steep southwestern face of Mt. Hope.

Research concerns identified for 26Eu1011 included determining if temporally distinct components are spatially separate; identifying evidence for changes in hunting behavior and/or toolkits over time; and assessing the role of lithic reduction at hunting sites.

Horizontal Component Differentiation

Debitage densities were plotted to determine if distinct clusters could be defined within surface collection blocks. Seven clusters were defined; three in Block A (Figure 61), and two each in blocks B and C (Figures 62 and 63). The clusters range in size from 150 to 575 square m, with an average of 314 square m. During surface collection, decisions regarding units to be collected were made on the basis of apparent artifact density and the prevalence of ground cover. Block and cluster margins mark pronounced declines in artifact density. Therefore, the clusters probably denote isolated prehistoric activity areas. Artifact densities were consistent except Clusters A2 and C2, which were lower and higher, respectively. Clusters A1, B2, and C2 were dominated by one or two high density units surrounded by units of diminishing density. Others, A2 and C1 for example, showed a more even and diffuse pattern. The clusters are quite distinct with little evidence of overlap. Where temporally sensitive artifacts indicate serial occupation of a cluster, overlap appears to be complete.

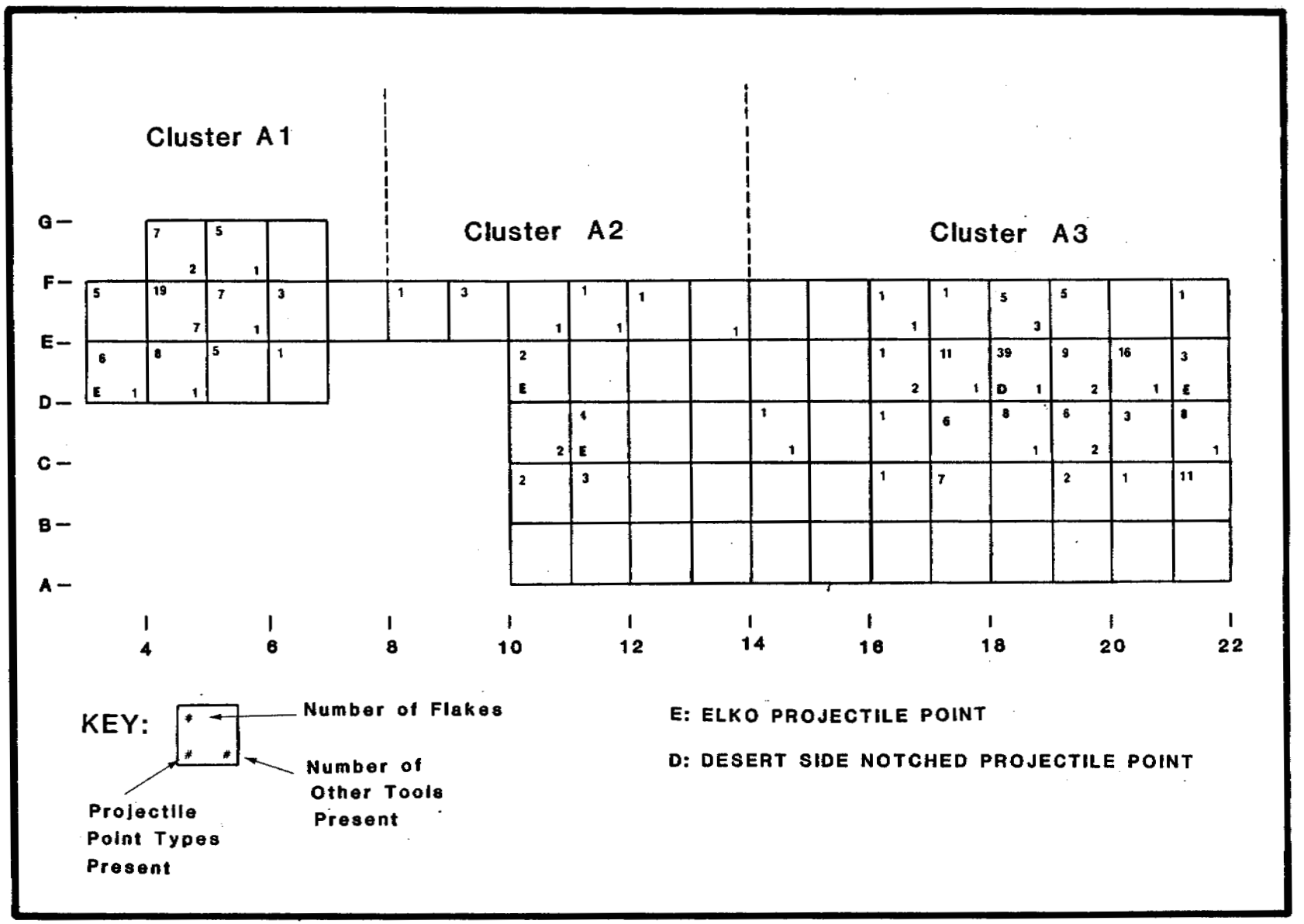

Figure 61. Artifact frequencies, A block, 26Eu1011.

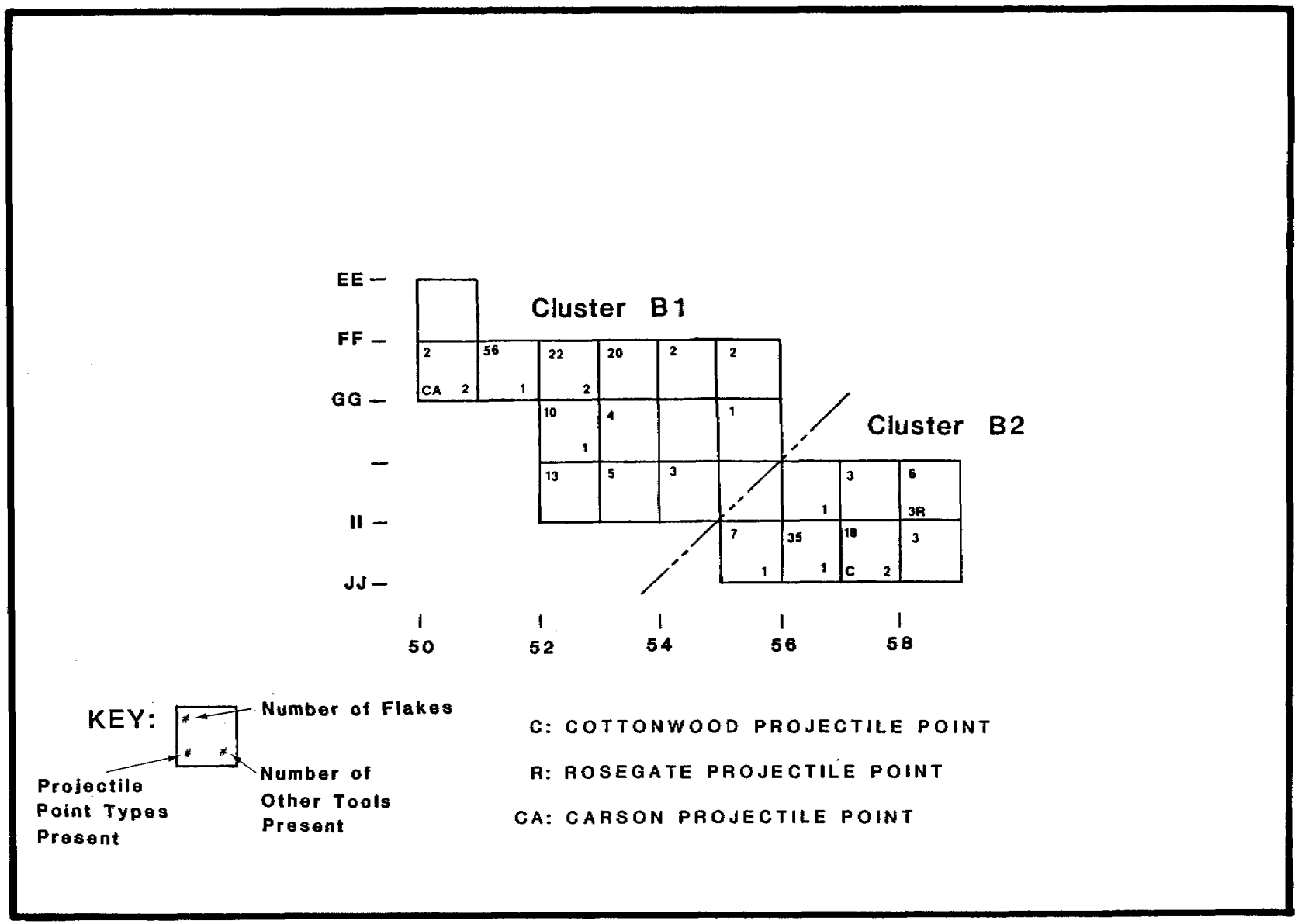

Figure 62. Artifact frequencies, B block, 26Eu1011.

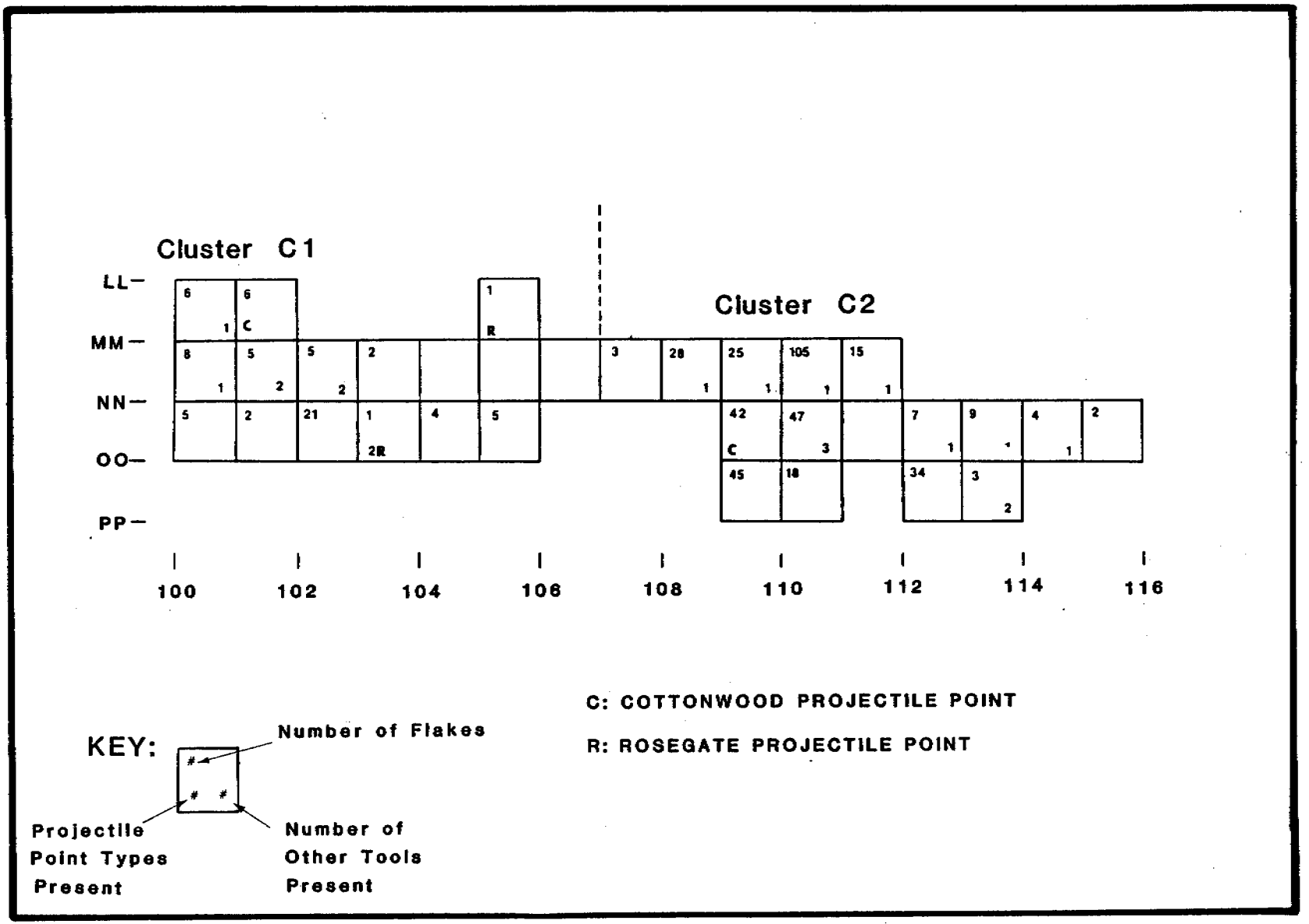

Figure 63. Artifact frequencies, C block, 26Eu1011.

Temporal Distinctiveness of Components

Prehistoric, chronologically sensitive artifacts recovered from 26Eu1011 are summarized in Table 58. These data suggest the site was probably used between 1300 B.C. and historic times.

Table 58. Temporally Sensitive Artifacts, 26Eu1011

Artifact Class	Date Range	Number Of Items
Desert Series points	A.D. 1300 to A.D. 1850	5
Rosegate Series points	A.D. 700 to A.D. 1300	8
Elko Series points	1300 B.C. to A.D. 700	5
Humboldt Series points	3000 B.C. to A.D. 700	1
Shell Bead	2000 B.C. to A.D. 0	1

Distribution of temporally sensitive artifact types (Table 59) shows that four of the seven clusters have only one point style present: Clusters A1 and A2 have Elko (Middle Archaic period) points, Cluster B1 has a single Carson point, and Cluster C2 a Cottonwood point (Numic period). The other three clusters have two point types present: Cluster A3 has an Elko and a Desert Side Notched point (Numic period), while Clusters B2 and C1 have Rosegate (Late Archaic period) and Cottonwood points.

Table 59. Artifact Class Distribution Between Clusters, 26Eu1011

Artifact Class / Cluster	A1	A2	A3	B1	B2	C1	C2	Other	Total
Projectile Points									
Humboldt								1	1
Elko	1	2	1					1	5
Rosegate					3	3		2	8
Cottonwood					1	1	1	1	4
DSN			1						1
Carson				1					1
Fragments		1			1		2	5	9
Bifaces									
Stage I		1	1	1		1		2	6
Stage II	10		10	2	3	1		22	48
Stage III	1	1	1	1		1	1	4	10
Other Tools									
Util. Flakes	1	1	2	1		3	5		13
Cores				1			4	1	6
Choppers								1	1
Scrapers			2						2
Drills	1	1						1	3
Mod. Bifaces					1				1
Pièces Esquillées								1	1
	14	7	18	7	9	10	13	42	120

Elko points and a Desert Side Notched point were found only in Block A, situated in the open saddle above the head of Tyrone Creek. The shell bead also came from the saddle area. Cottonwood and Rosegate points, on the other hand, were found only in blocks B and C, located along the ridge at the head of the unnamed ephemeral drainage that flows westerly. Other differences are also apparent between clusters dating to the Middle and Late Archaic periods. Most of the bifaces and all the drills and scrapers were found in Elko clusters, while all the cores and a majority of the utilized flakes came from Rosegate and Cottonwood clusters. Projectile points are more abundant at the Late Archaic clusters.

The distribution of material types across the artifact clusters is presented in Table 60.

Table 60. Distribution of Material Types by Artifact Cluster, 26Eu1011

Material Type	Artifact Cluster A1	A2	A3	B1	B2	C1	C2	Total
A	3	5	52	43	31	21	101	256
B	14	7	60	18	11	28	150	288
B1	43		3	10	13	3	46	118
C	1		3	28		5	44	81
Other Chert	5		14	32	10	5	34	100
Other		5	15	9	7	9	12	57
	66	17	147	140	72	71	387	900

Cluster A1 is dominated by types B and B1 chert (86.4%). Other material types are rare and non-chert types are absent. Only three material types are present in Cluster A2, including an abundance of non-chert lithic types. All material types are represented at cluster A3. Types A and B cherts are slightly over represented, while types B1 and C are slightly under represented. Cluster B1 is distinct in that Type C chert and other cherts are over represented (42.9% in the cluster compared to 19.1% for the site total) while types B and B1 are infrequent. At Cluster B2, Type C chert is totally absent. Type A chert is relatively abundant, while types B and B1 are again somewhat rare. Clusters C1 and C2 are quite similar with all material types present in roughly equal percentages. Both collections are dominated by Type A and B cherts. The only measurable differences are that Type B1 is more prevalent in Cluster C2, while non-chert lithic types are more abundant in Cluster C1.

Only two material types were present in all seven clusters (types A and B). Type C, on the other hand, was found in five clusters, and prevalent in only one (Cluster B1). As first described, chert types B and B1 are similar in all respects except color. A common source was postulated. However, the two types do exhibit somewhat distinct distributional patterns. In clusters A1 and A3, they exhibit an inverse relationship; one is relatively abundant, the other infrequent. Elsewhere (Clusters B1 and C2), they seem to co-vary.

When grouped by chronological period, these data reveal that, in large part, the same lithic resources were present in both the Elko and Rosegate/Cottonwood clusters. Types B1 and B are slightly more abundant, on a

percentage basis, in the Elko components. Types A and C are more abundant in the Rosegate/Cottonwood clusters. The differences are probably within normal sampling biases and do not suggest alternate lithic procurement strategies.

Changes in Hunting Technology Over Time

Elko materials were found in the lower saddle, a windy gap presently clear of overstory. The Rosegate and Cottonwood points were found further up the ridge in an area covered by pinyon-juniper. It appears that each group relied on a different drainage for congregating game. During Elko times Tyrone Creek to the east was used, Rosegate and Cottonwood hunters used the unnamed drainage to west.

Environmental conditions such as temperature, precipitation, and vegetation changed during the 3000 year period in which the site was utilized (Davis 1982:67-68). Given the site location, centered vertically within the pinyon-juniper woodland, none of the postulated climatic variation appears significant enough to have caused major change in site conditions or its possible habitat associations. Therefore, the shift from the lower saddle area to the ridge does not appear to have been a response to shifting climatic or vegetational patterns.

A major technological difference between site occupants was use of the atlatl during the Middle Archaic and the bow-and-arrow during the Late Archaic and Numic periods. Wooded areas may have restricted full and effective use of the atlatl, forcing hunters to make use of the sage covered, lower Tyrone saddle. The bow-and-arrow suffered no such restrictions. Hunters may have been able to let the animals stay in the wooded areas (which they probably preferred), and dispatched them as they came over the ridgeline.

Earlier it was noted that end-products of the biface reduction trajectories were either small, Desert Series projectile point blanks (Trajectory 1) or larger, Elko-sized projectile point blanks, bifacial knives, and drills (Trajectory 2). Intermediate sized Stage II bifaces relate to the second trajectory. If this is the case, then pieces representing the trajectories should exhibit a spatial distribution similar to that of projectile points. Large bifaces should be restricted to the Middle Archaic clusters, smaller bifaces to the later clusters. Site data (Table 61) provide limited support to the presumed pattern. Large bifaces are the most prevalent type in the early clusters, but small bifaces are also present. Large and small bifaces are equally abundant in the Late Archaic and Numic period clusters.

Table 61. Biface Category Distributions by Cultural Period, 26Eu1011

Biface Category	Middle Archaic	Late Archaic/ Numic
Trajectory 1 (large)	17	3
Trajectory 2 (small)	5	3

Lithic Reduction at Hunting Sites

Debris from artifact manufacture and repair is commonly found at hunting sites. Most often, however, it did not result from the production of tools needed for the hunt, but was oriented toward "the reduction of boredom" (Binford 1978:331; 1983:130). Lithic reduction revolved around the repair of previously broken tools and the continuation of some partially completed task. Tool production or repair was in anticipation of some future situation; not the hunting site. Tools required for the hunt were prepared prior to arrival at the site.

Early stage bifaces were brought to the site in anticipation of having idle time. Their presence and reduction at a hunting site often results in a disjunctive relationship between the site function and the types and number of tools and debitage observed (Binford 1979:270). This situation is seen in the cumulative ogive of debitage stage abundance (Figure 64). Based on the percentage of flakes assigned to each stage, 26Eu1011 appears very much like 26Eu790, which functioned almost exclusively as a biface reduction site. Shatter and primary debitage account for 29.0% of the sample; secondary flakes, 28.3%; and tertiary and biface reduction flakes, 41.6%.

Flaking stage as defined by size grade (Miller, Green and Hattori 1984:126) has allowed identification of three general patterns (Table 62): those strongly dominated by later stages of debitage (26Eu23), those with slightly more middle stage debitage (26Eu48), and those with a marked abundance of early and middle stage debitage (26Eu790) (Green 1984:132, 138-139). Assignment of debitage from 26Eu1011 on the basis of size grades reveals a somewhat different pattern than reflected by intuitive stage assignment as discussed above. It failed to reflect the dominance of early stage pieces and greatly increased the amount of middle stage debitage. The relative abundance of late stage debitage remained fairly constant.

Table 62. Relationship of 26Eu1011 to General Debitage Patterns

	Debitage Stage Percentages		
Site	Early	Middle	Late
26Eu23	1.0	9.0	90.0
26Eu48	3.0	32.0	65.0
26Eu790	12.9	46.9	40.2
26Eu1011	6.6	56.6	36.7

This suggests that material may have been partially reduced at the quarry site before transport to 26Eu1011. Consequently, early stage debitage was smaller in size than would be found at the quarry or a site where previously unmodified cobbles were reduced through numerous biface stages (i.e., 26Eu790). Another possibility is that the initial cores or quarry blocks were smaller in size than those in the Pine Valley sites and at 26Eu790. The relatively low percentage of late stage debitage at the site reflects a limited concern with final tool manufacture. Dominance by middle stage pieces suggests that the

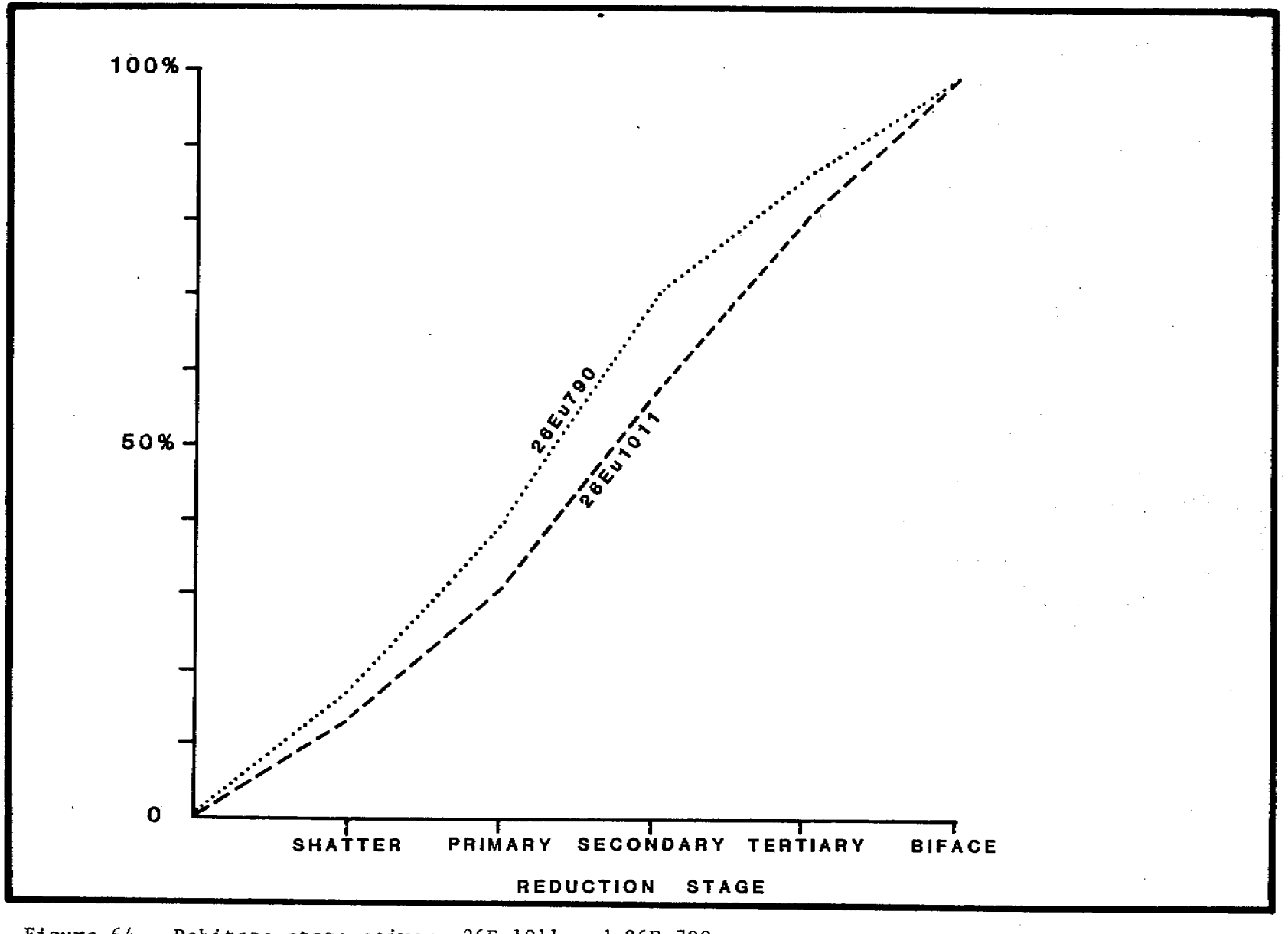

Figure 64. Debitage stage ogives, 26Eu1011 and 26Eu790.

primary site activity was reducing Stage I bifaces into Stage II and III forms. This is also reflected by the relative abundance of the biface stages (Stage I, 9.4%; Stage II, 75.0%; Stage III, 15.6%).

Chapter 13. CONCLUSIONS AND OBSERVATIONS

Archaeological and historical studies undertaken in conjunction with the Mt. Hope Project have proceeded through three stages. The third stage, documented in this report, involved evaluation and data recovery at ten sites: three prehistoric sites, six historic sites (including the trenching of three charcoal ovens), and one site with both historic and prehistoric material present. The sites yielded a total of 3259 prehistoric and 6676 historic artifacts. Site and artifact descriptions and interpretations appear in preceding chapters. This chapter presents concluding remarks which tie survey and excavation data together, and selected observations.

PREHISTORIC SITES

Intensive survey indicated that Mt. Hope was an area used intermittently throughout prehistory for the procurement of resources. However, the distribution of site types by cultural period suggests that local subsistence and settlement patterns changed over time (Zeier and Stornetta 1984:106-111).

While not abundant at Mt. Hope, pre-Archaic period sites are present; two such sites were recorded. A fragment of a stemmed projectile point was recorded during intensive survey at 26Eu1015, along with artifacts diagnostic of the early and middle Archaic (Zeier and Stornetta 1984). The site was not examined further since it was outside the area of immediate impact. When excavation and surface collection began at 26Eu983, the site was thought to contain Middle Archaic period materials (see Chapter 10). Work did, however, reveal a small pre-Archaic component. This site also was a palimpsest; a Middle Archaic component was intermixed with the pre-Archaic component. Both of the sites are small, are located away from permanent water in open sage covered areas, and are within a mile of the valley floor margin. These data suggest that, prior to 6000 B.C., the marginal areas around Mt. Hope were exploited on an infrequent basis. A foraging type subsistence pattern is suggested by the absence of field camps or residential base camps. At 26Eu983, the predominance of lithic types not readily available (basalt, obsidian, and high quality cherts), indicates that pre-Archaic groups using the Mt. Hope area were exploiting large territories, or subsistence ranges.

Intensive survey revealed that artifacts diagnostic of the Early Archaic were present at five sites (Zeier and Stornetta 1984:Appendix B); three locations (26Eu902, 26Eu1001, and 26Eu1030) and two larger, multi-component sites designated as field camps (26Eu1015 and 26Eu1040). Whether the two larger sites constitute actual field camps or palimpsests of several temporally distinct locations was unresolved. The Early Archaic was thought to have been represented at 26Eu1011 (Zeier and Stornetta 1984), but data recovery failed to substantiate its presence. All the Early Archaic components are identified by the presence of Gatecliff and Humboldt series projectile points which date from about 3000 B.C. to 1000 B.C. Point series dating to the earlier portions of the Early Archaic, from 6000 B.C. to 3000 B.C., are comparatively rare. This increase in site density through the Early Archaic is consistent with general trends observed elsewhere in the Great Basin (Elston 1982:199; Thomas 1982d:165). Subsistence patterns appear similar to those of the pre-Archaic, and are marked by the abundance of resource procurement locations and a lack of residential bases.

Far greater and more organized use was made of Mt. Hope during the Middle Archaic. Twenty-five sites contain Elko Series projectile points; eight of these sites contain evidence of reoccupation during Late Archaic or Numic times (Zeier and Stornetta 1984:107-108). Of the single component, Middle Archaic sites, four were designated as base camps, nine as field camps, and twelve as locations. The relative mix of Middle Archaic site types suggests that resource exploitation was carried out in a logistically organized manner. The presence of both residential base and field camps indicates slightly different patterns of use. Most often, people lived elsewhere, perhaps in Diamond Valley, Pine Valley, or along Roberts Creek. They visited Mt. Hope on a seasonal basis, living in temporary field camps while exploiting specific resources. At other times, Middle Archaic groups found it advantageous to establish residential base camps in the area, mostly along the western base of Mt. Hope where permanent water was accessible. Resource exploitation around these camps is represented archaeologically by an abundance of locations.

While both 26Eu790 and 26Eu1011 revolved around the procurement of a specific resource (a lithic toolstone at 26Eu790 and bighorn sheep at 26Eu1011), each seems to exemplify a different subsistence pattern as discussed above. The toolstone found at 26Eu790 is not commonly found at sites elsewhere in the Mt. Hope area. It would seem that the site occupants established a temporary field camp, reduced the toolstone, and then left the area; probably returning to a base camp located elsewhere. The hunters who made use of 26Eu1011 may have resided at the base camps located 1000 to 1500 m to the west. The lithic suite present at 26Eu1011 is affiliated with lithic sources in the Roberts Creek area, as are those of the nearby base camps. This suggests that 26Eu1011 was employed as a location rather than as a field camp. Quite probably, the Mt. Hope area was being used by groups centered in very different areas of central Nevada; Diamond Valley versus Monitor Valley, for example.

Nine Late Archaic and twelve Numic sites were recorded, of which seven are Late Archaic and six Numic sites are multi-component. Field camps outnumber locations, especially during Numic times, and residential base camps are not present (Zeier and Stornetta 1984). This shift in the relative mix of site types probably reflects changing subsistence and settlement patterns. Base camps were located far enough away from Mt. Hope that temporary field camps are required. The infrequency of locations seems to indicate that resources were, most often, acquired from immediately around the field camp. The field camps were not occupied long enough to facilitate development of numerous outlying locations. Alternately, perhaps a different set of resources was being exploited in a manner that left fewer archaeological locations. For example, hunting, a primary activity during the Middle and Late Archaic, appears deemphasized during Numic times. Or, changes in technology may have reduced the archaeological visibility of the smaller Numic sites.

On the Use of Upland Areas Through Prehistory

A shift toward the greater use of upland areas has been postulated for the Great Basin beginning toward the end of the Early Archaic (Madsen and Berry 1975, Simms 1977, and Thomas 1982d). This trend is thought to have peaked during Middle Archaic times. Evidence for the shift is based largely on negative evidence: the perceived absence of pre-Archaic and Early Archaic sites in upland areas. Explanation for the shift toward use of upland areas include use of uplands as refugia from low-land areas during the Altithermal, the

greater exploitation of pinyon after 6000 B.P., or the increased emphasis on the hunting of bighorn sheep.

The Mt. Hope data show, however, that all periods of prehistory are present in proportions similar to those recorded for valley floor and valley margin areas. Overall, the site density pattern revealed by the Mt. Hope data is consistent with general population and site density trends observed in the central and western Great Basin (Elston 1982:199; Thomas 1982d:165). Clearly, this upland area was exploited through out prehistory as were several others; for example, Ellsworth Canyon (Drews, Clerico, and Armstrong 1983:84-87), the High Rock country (Lohse nd.), the Tuscarora Range (Rusco et al. 1982:35), and Steens Mountain (Beck 1984:230).

Subsistence patterns at Mt. Hope did change over time, but perhaps the presumed shift to upland exploitation is a product of sampling, where not enough archaeological investigation has been done in upland areas to document the true length of exploitation. In addition, site reoccupation may have obscured earlier sites. For example, both the pre-Archaic sites recorded at Mt. Hope consisted of small assemblages located in areas reoccupied by later Archaic period groups. If this pattern is common, then upland pre-Archaic components may be difficult to see due to the limited number of artifacts present, lack of diagnostics, and the possible predominance of later materials. In short, the handful of pre-Archaic items may be lost in a sea of Middle Archaic biface reduction waste and residential debris.

On Archaeological Transformation Processes

The effects of transformation processes on site formation, and their implications in assemblage analysis, should be taken into consideration by Great Basin archaeologists more consistently. Sandy soils, which form the primary matrix at most regional sites, are highly conducive to post-depositional artifact movement, and rocky soil to artifact breakage.

All three prehistoric sites investigated during data recovery (26Eu790, 26Eu983, and 26Eu1011) revealed evidence of extensive post-depositional transformation. Artifacts at 26Eu790 and 26Eu983 were within a sand drift matrix that facilitated their vertical displacement, although the degree to which surface artifacts were displaced laterally is uncertain. Horizontal displacement was pronounced at 26Eu1011, where artifacts located along the edge of the saddle moved downslope. Undoubtedly, the recorded clusters are larger now than when deposited, but quantification of growth rate is not possible.

Recurrent trampling by animals and humans can have a marked effect on archaeological assemblages. Breakage ratios in debitage assemblages from the three prehistoric sites were very different. At 26Eu1011, where artifacts were within thin soil overlying bedrock, 81.7% of the debitage was broken. Breakage was less prevalent in the sandy deposits of sites 26Eu790 and 26Eu983, where ratios were 67.8% and 70.0%.

On Seeing Forests for the Trees

Lithic tool production was ubiquitous in prehistoric times, and production waste is present on the majority of prehistoric sites. A pronounced focus on

the study of debitage and lithic tools as a means of investigating prehistoric subsistence has been established within the last decade. Recently, the manner in which artifacts and manufacturing debris are deposited has received increased scrutiny. As a result, it has become clear that not all lithic reduction activity was related to subsistence. Based on an approach developed by Stevenson (1985), lithic reduction can be divided into three components:

- reduction related to the site's subsistence function;
- reduction related to site maintenance and house keeping; and,
- reduction carried out in anticipation of future subsistence activities or site locations.

The importance of the dissonance between subsistence and lithic reduction activities was highlighted by the analyses of 26Eu1011 and 26Eu790. At 26Eu1011, the site context strongly indicated a large game intercept or ambush site, whereas 26Eu790 was a lithic workshop where primary biface reduction took place. Yet, the artifact assemblages from the two sites were dominated by bifaces and early stage biface reduction debitage. What would the behavioral inferences have been had the 26Eu1011 context been different? Biface reduction probably was not related to primary subsistence function of either site, but rather reflects anticipatory behavior.

In the absence of floral and faunal data, the subsistence function of a site is sought via lithic analysis, but how are maintenance and anticipatory activities separated? How can the lithic assemblage from a site be viewed other than as a collective whole? How can lithic reduction relating solely to subsistence activities carried out within the immediate site area be isolated? One approach might be to remove biface production artifacts (early stage bifaces and debitage) from the overall assemblage and then assess the residual. Following this approach, 26Eu1011 is dominated by projectile points (see Table 56); the 26Eu790 residual is more diverse (see Table 50).

On CRM Practices

Prescribed cultural resources management practice is to conduct limited testing prior to specifying whether a site should be the subject of data recovery. For the Mt. Hope Project, a field strategy involving both testing and data recovery in the same effort was developed. Flexibility was built into scheduling so that sites not warranting data recovery were isolated early on, but there was still concern that some sites might be getting more attention than they deserved.

For instance, the initial examination of 26Eu983 was not encouraging. Few artifacts were observed (other than the basalt pieces first recorded at the site) and test units were disappointing. It was decided to surface collect the site, but not conduct any more intensive investigations. It seemed inappropriate that so much attention had been paid a site that yielded a mere 58 artifacts.

Careful examination of those artifacts, however, revealed considerable information about pre-Archaic period use of the area and the validity of assessing cross-cultural lithic suites. Site 26Eu983 served as a reminder that

it is not the number of artifacts present, but their variety and associations that are the most vital in determining site significance. Given present knowledge, most upland pre-Archaic sites are probably similar to 26Eu983. One wonders how many such sites have been dismissed given the all too prevalent bias against small sites.

HISTORIC SITES

The historic sites investigated are all located within four miles of one another. Three were occupied during the same period - the 1870s through the 1910s - while the fourth (26Eu787-II) is more recent. Some were occupied at the same time. For example, Dargan and Fagan had only recently purchased 26Eu787-B when Chinese laborers, constructing the Eureka and Palisade Railroad, camped at 26Eu790. The Carbonari, who cut and reduced pinyon around 26Eu988, were also temporary, if more distant, neighbors of Dargan and Fagan. Miners exploring the Mt. Hope area added yet another dimension to the socio-economic history of the area.

How can these distinct phenomena best be integrated into a single historical perspective? The most appropriate model is that advanced by Steffen (1980) who describes two types of cultural frontier developments: the insular and the cosmopolitan. Insular frontiers are characterized by permanent, economically self-sufficient, agriculturally oriented settlements at the margins of colonial expansion (Lewis 1984). Cosmopolitan frontiers, on the other hand, are short-termed, industrially oriented, economically dependent, exploitative, and marked by rapid rise and decline based on external market conditions (Greenwood 1982; and Greenwood and Shoup 1983; Lewis 1984:268-269). Given their narrow industrial focus, sites associated with cosmopolitan frontiers can exhibit considerable variation.

The intensive mining period in the Eureka area is an example of a cosmopolitan frontier. The district relied on the outside world for basic provisions, items of material culture, infusion of new people into the work force, social values, and development capital (Lewis 1984:269). Occupants were usually unskilled, racially and ethnically heterogeneous, most often propertyless, and at the bottom of the class structure (Greenwood and Shoup 1983:7-8). External economic and political forces were dominant; local people seldom had the ability to control the forces affecting them. As a result, local developments were not autonomous, self sufficient, or self perpetuating (Greenwood 1982:245).

Sites 26Eu787-II and 26Eu790 are representative of the transportation sub-type of the cosmopolitan frontier (Lewis 1984:268, 288-289). Unlike other sub-types, transportation sites were not positioned to exploit a resource, but as an expediency defined on the basis of system operations. Such sites seldom contain artifacts typical of any production related activities and are totally dependent on external conditions and markets. Unlike 26Eu787-II, which served a prolonged maintenance or service role, 26Eu790 was an integral element only during construction of the Eureka and Palisade Railroad. Since construction camps are occupied for very short periods of time, their content is very specific and highly redundant from site to site.

Site 26Eu988, which best fits the industrial sub-type of cosmopolitan frontier (Lewis 1984:267, 284-286), represents a transient, physically

isolated, short-termed economic activity, intent solely on extracting a resource for use elsewhere. Behavior at such sites is responsive to resource needs in external market places. Seldom is there an attempt to deal with their isolation via more local adaptations.

Only 26Eu787-B appears not to meet expectations prescribed by the cosmopolitan model. Site occupation for nearly forty years by the same individuals is not consistent with the notion of a temporary and exploitative enterprise. Activities as diverse as cobbling, mining, and wood-cutting are represented at 26Eu787-B, reflecting a strategy of limited self-sufficiency. Over the course of their stay, Dargan and Fagan shifted from providing a product (cord wood) to providing a service (use of stock horses). This shift from an exploitative to a more agrarian activity would seem consistent with the transition from a cosmopolitan to an insular frontier (Lewis 1984:269). However, Lewis (1984:265-266, 279-281) describes ranching as a specific subtype of colonization. As such, while the site came to serve others engaged in establishing an insular frontier (the Diamond Valley farmers), it remained in a marginal area, best explained by use of the cosmopolitan frontier model.

On the Correlation of Historical and Archaeological Data

Historical records offer a data base to compare to the archaeological record. That the correlation of historical and archaeological data sets is often fraught with uncertainty was clearly illustrated at Mt. Hope. Site 26Eu787-B was interesting to excavate, but difficult to evaluate. The site has been identified as the Dargan and Fagan wood ranch based on references in the County Assessor's records. These records, however, are often vague or conflicting with regard to the wood ranch location. Therefore, the assignment must be viewed as somewhat tenuous.

The siding at 26Eu787-II presented another ambiguity. Based on historical records, the artifacts were anticipated to date either to the 1890s or the 1930s. However, analysis showed most artifacts had been manufactured from the 1900s through the early 1930s. Some periods of historic site use are not particularly noteworthy and, as a result, seldom make it into the written record. This appears to have been the case with 26Eu787-II between 1900 and the the 1930s when the site served as a section station. Conversely, quite noteworthy historical events may leave behind very skimpy archaeological records. While renewed mining at Mt. Hope brought about the siding's establishment, it left very little behind at the station in the form of archaeological remains.

On Sampling

Random sampling techniques were employed at only one historic site, 26Eu787-II, the first investigated. The primary goal was to provide an unbiased sample of cultural material present. On visual inspection, the site exhibited a very clear pattern of activity areas, but only one was sampled by a randomly drawn unit. A total of 17 (40.4%) of the 42 random sample units contained no cultural material. Thus, any point or population estimates generated on the basis of the randomly derived data would sorely underestimate site content. The sample units selected would have produced statistics of only

limited relevance to what was observed on the ground. The effort was, in retrospect, non-productive.

Site 26Eu787-II typifies Mt. Hope historic sites and probably many others throughout the region. They were small, single purpose locations exhibiting a central core of artifacts and features surrounded by a diffuse cultural scatter. Two related problems may arise by sampling an entire site area as a single stratum. If the central core area is small, as at 26Eu787-II, there is a chance that it will not be sampled at all. This increases the risk of placing too much emphasis on the marginal scatter. Simple surface inspection of these kinds of sites clearly revealed that the distribution of surface artifacts was biased. Based on the lessons learned at 26Eu787-II, random sampling was not employed at the other historic sites (26Eu787-B, 26Eu790, or 26Eu988). What was lost in statistical elegance was gained in number of units excavated. Random sampling is labor intensive: if a sampling strategy is deemed necessary at small, single purpose historic sites, systematic linear transects or stratified random sampling would be more productive and rational techniques to use.

Surface patterning was not apparent on the prehistoric component at 26Eu790 and random sampling proved useful in pointing out subtle concentrations. However, patterns were apparent at 26Eu1011 and random sampling was not employed. It was clear that ample and comparable information could be derived from 26Eu1011 without application of formal sampling methods.

On Bits and Bottles

Using fragment counts could be misleading in describing historical artifact patterns since various material types have distinct transformation rates. A ready example would be ceramics versus nails. Consequently, an attempt was made to determine the minimum number of artifacts (MAC) represented by each group of fragments. Comparison of the fragment and minimum artifact count by site allows for an assessment of the extent to which assemblage transformation effects artifact pattern definition. Data required to test the effect of fragmentation on overall assemblage composition, as viewed by general artifact class, are provided in Table 63. Bone counts have been excluded from the fragment counts to provide the clearest comparison of fragment abundance and minimum artifact counts.

Table 63. Inter-site Comparison of Primary Functional Category Abundance by Percentage.

Artifact Class	26Eu787-B		26Eu787-II		26Eu790		26Eu988	
	Frags	MAC	Frags	MAC	Frags	MAC	Frags	MAC
Personal	39.6	15.7	12.1	16.4	6.5	6.3	27.7	16.5
Domestic	12.1	6.7	64.6	31.9	73.8	53.1	28.8	16.5
Architectural	33.3	56.8	12.0	37.5	1.6	18.8	30.7	56.4
Transportation	4.6	10.0	0.7	1.1	0.3	3.1	0.7	2.0
Comm./Industry	2.4	5.0	2.6	7.7	0.8	6.3	0.6	1.5
Group Services			0.3	0.7			0.3	0.2
Unknown	8.1	5.8	7.6	5.0	16.9	12.5	11.2	7.0
Number of Items	2085	720	2206	562	367	32	1089	401

Cumulative ogives for fragment and MAC counts (Figures 65 and 66) show the greatest differences in domestic, personal, and architectural categories. Domestic and personal categories are emphasized in the fragment ogive due to the greater tendency of indulgence and medicine bottles, and ceramics to break. The architectural category is emphasized in the MAC ogives since items are less likely to break.

Both sets of ogives reveal similar inter-site patterns. Differences in domestic artifact abundance are more pronounced in the MAC ogives, while the fragment ogives reveal greater separation of personal class artifacts. In spite of these differences, the relative ranking of sites does not differ significantly between the two sets of ogives. In conclusion, use of either fragments or MACs will yield essentially similar results, and the greater time required to derive the MACS may not be warranted. These conclusions should be assessed in other contexts to assure that the results are not specific to the sites investigated here.

Hardesty has employed cumulative ogives as a means of isolating artifact assemblage and related behavioral patterns at historic sites (Hardesty 1978a:Figure 15, 1979:Figure 18). Artifact categories employed include bottles, nails, ceramics, bones, cans, clothing, personal items, pipes, and arms. Hardesty (1979) notes that the first four categories allow for the greatest site differentiation and that the relative percentages of bones and bottles seem to be inversely related; where one is abundant, the other is not (Table 64). Nail and ceramic abundances do not appear to co-vary with one another, or with bottles or bones.

Table 64. Comparative Historic Site Artifact Class Percentages

	Hardesty Sites					
Artifact Class	Sand Spring	Cold Spring	Fort Churchill	Rock Ck. 1	Rock Ck. 2	Rock Tele.
Bottles	20	25	56	52	65	80
Nails	2	18	22	14	8	5
Ceramics	7	25	1	25	23	11
Bones	66	28	7	3	4	3
Cans		1		6		1
Clothing	2	1	9			
Personal	1	1				
Pipes	1		2			
Arms	1	1	3			

Percentages approximated based on Hardesty (1978a:Fig. 15)

The Mt. Hope artifact classification does not allow a direct correlation with Hardesty's categories. Rather, clusters of secondary functional classes were combined to arrive at comparable units. Site specific ogives based on fragment counts are presented in Figure 67. Data employed in their construction are presented in Table 65.

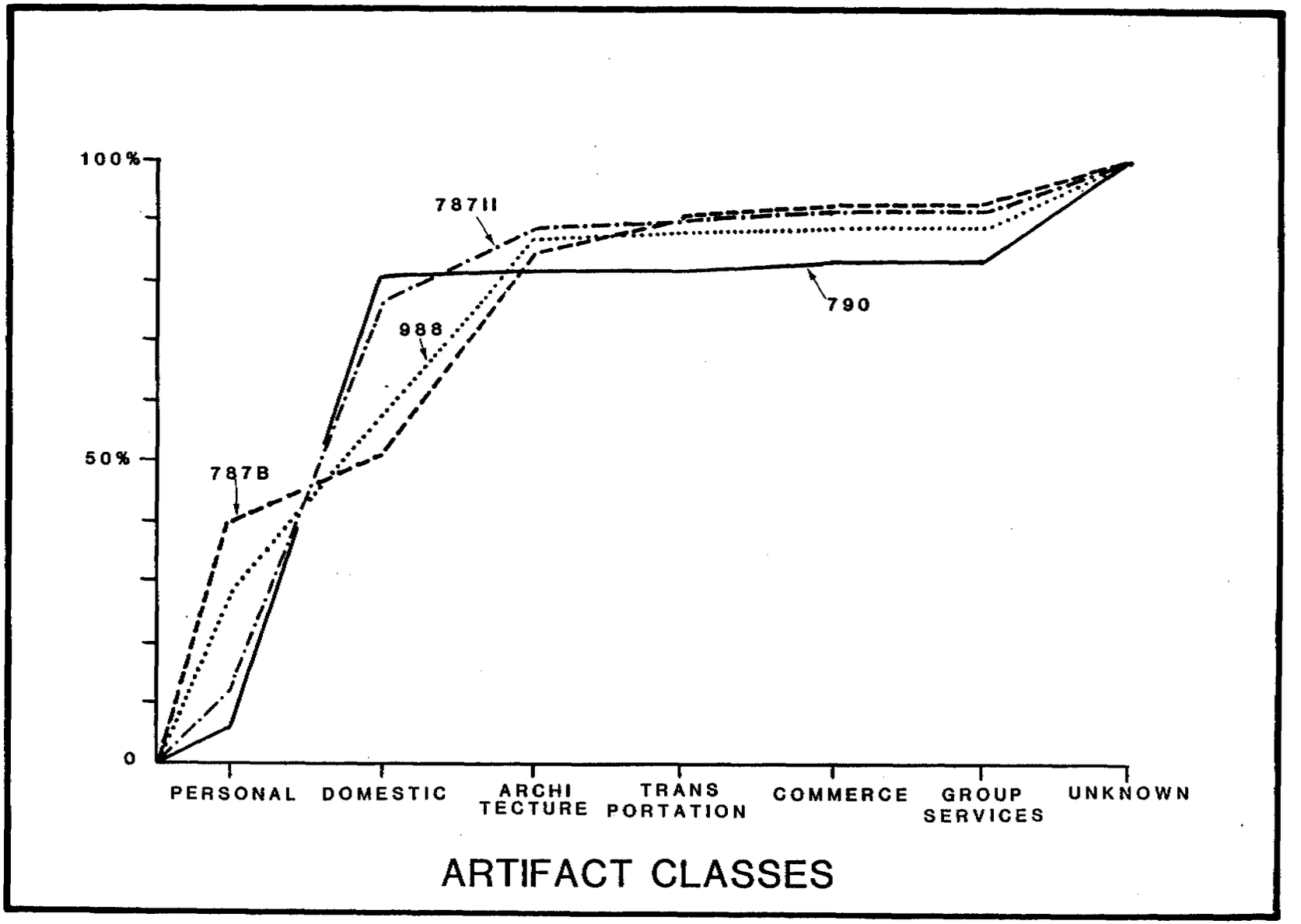

Figure 65. Cumulative ogives based on fragment abundance.

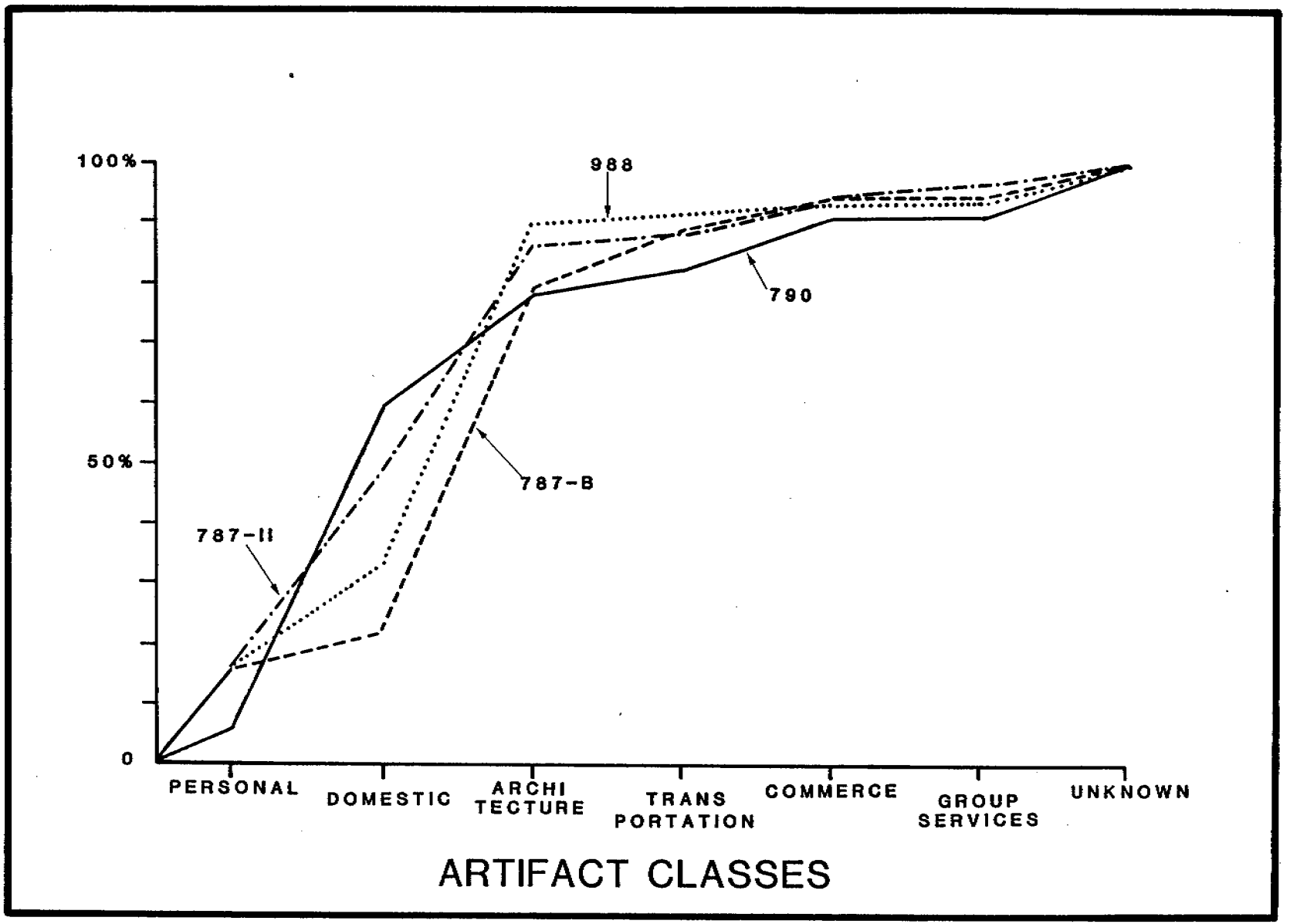

Figure 66. Cumulative ogives based on minimum artifact counts.

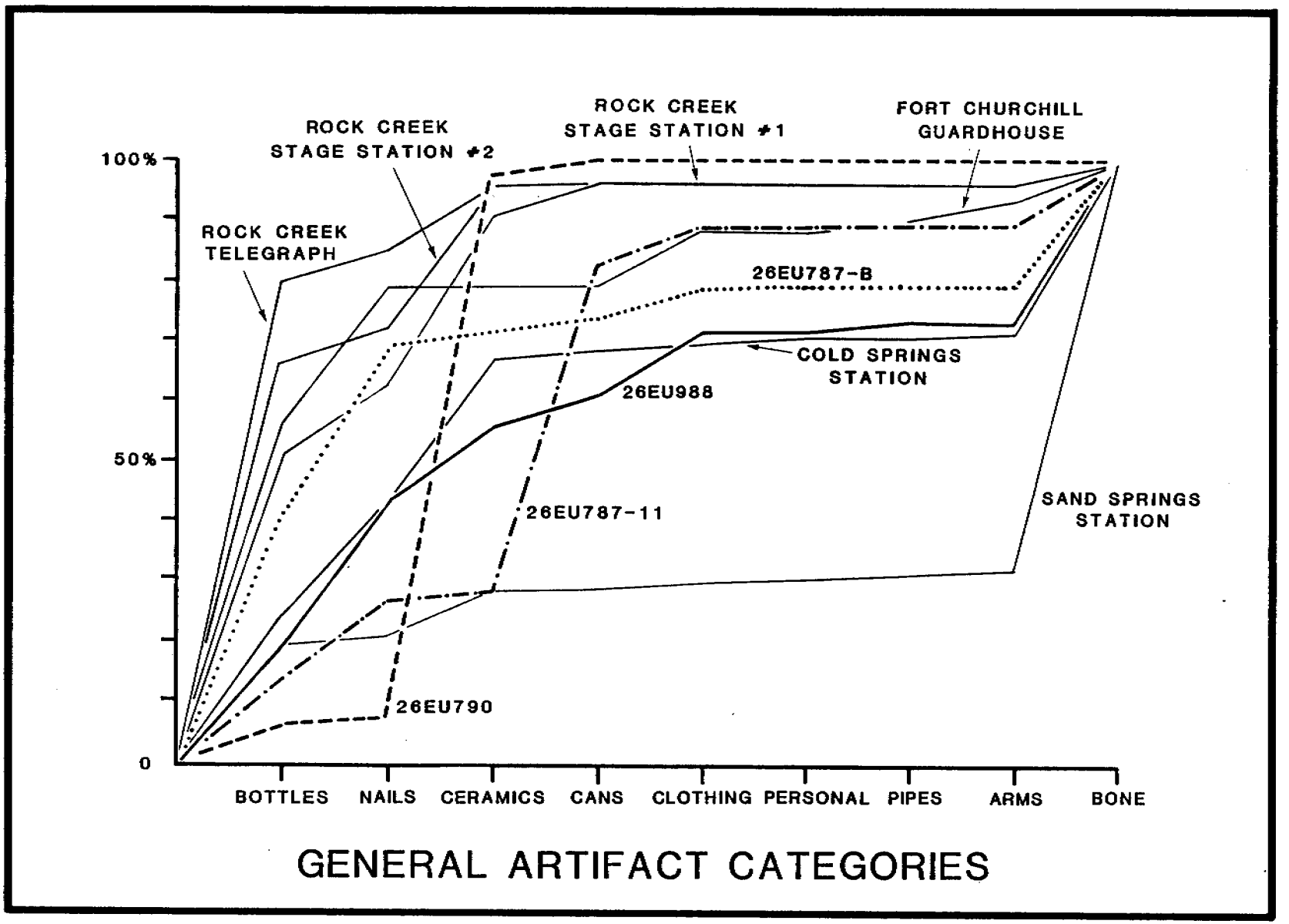

Figure 67. Cumulative ogives for selected historic sites.

Table 65. Mt. Hope Historic Site Artifact Class Percentages

Artifact Class	Mt. Hope Sites 26Eu787-B	26Eu787-II	26Eu790	26Eu988
Bottles	40.7	14.8	6.4	20.0
Nails	27.6	12.4	1.4	23.7
Ceramics	3.8	2.2	89.7	12.7
Bones	20.3	11.1		26.5
Cans	2.3	53.3	2.5	4.9
Clothing	4.1	5.9		10.1
Personal	0.2			0.9
Pipes	0.3			1.2
Arms	0.6	0.3		0.1

(Artifact classes as defined by Hardesty 1978)

The most distinctive pattern is that reflected by 26Eu790, assumed to be typical of most mid- to late-1800 Chinese railroad construction camps. The assemblage is dominated by ceramics with an occasional bottle and can thrown in. The cans are usually somewhat large, reused industrial items, such as black powder cans. Bones are rare on such sites for two reasons. First, Chinese dietary practices placed less emphasis on the use of meat, and second, most such sites are surface sites and any discarded bone would soon waste away.

The ogive for 26Eu787-II is also different and is probably representative of remote sites occupied during the first half of the twentieth century. The artifact pattern is dominated by sanitary cans which were having such a pronounced effect on the food storage industry during that period. In addition, site occupants were railroad section gangs who stayed for only short periods of time and lived largely on canned food. Bones are present, but at a lower percentage than at continuously occupied sites.

Site 26Eu787-B exhibits a strong correspondence with the artifact assemblage from the Fort Churchill guardhouse. The guardhouse yielded a high percentage of bottles (many of which are medicine bottles) and nails, relatively few bones, and almost no ceramics (Hardesty 1978b). Clothing, recreation (pipes), and guard related items (arms and other military equipment) are represented. At 26Eu787-B, bottles are the most dominant artifact class, followed by nails and bones. With regard to behavioral patterns, both sites seem to reflect a limited emphasis on food storage and preparation.

The reason for this similarity is not immediately apparent. The two structures were functionally distinct; the Fort Churchill guardhouse was a special purpose structure designed to house prisoners (Hardesty 1978b:25), while 26Eu787-B was a residence. Both structures were used for an extended period and the maintenance of interior spaces was probably pronounced, the refuse being secondarily deposited away from the structure. The main garbage dump at 26Eu787-B presumably was destroyed during highway construction in 1947. The effect of this on relative artifact category percentages is uncertain. Anticipated effects include a disproportionately high nail count and a lesser representation of food storage artifacts and food waste. An increased presence of such artifacts at 26Eu787-B would have resulted in an ogive more similar to 26Eu988 and Cold Springs Station.

The artifact assemblages from 26Eu988 and the Cold Springs Pony Express station are similar. The Cold Springs Pony Express station assemblage contained a relative abundance of bone, nails, and ceramics, but few bottles (Hardesty 1979). Bones, nails, and bottles co-dominate the assemblage at 26Eu988. The most notable differences between the sites are that clothing is more prevalent at 26Eu988, while ceramics are more abundant at Cold Springs station.

Both sites were occupied over only a short period and maintenance of interior spaces was probably minimal. In both cases, garbage barely made it out the door; refuse was concentrated along interior walls or dumped just outside the structure door (Hardesty 1978:52). As a result, archaeological excavations which focus on such short-termed structures are more likely to realize a complete assemblage of artifacts once present. Long-termed occupation, on the other hand, causes the assemblage to be dispersed and segregated, forcing a more expansive archaeological effort to recover a fully diverse artifact assemblage.

Nail percentages at sites with structures fall into three clusters; they are represented heavily (Fort Churchill guardhouse, 26Eu787-B, and 26Eu988), moderately (Cold Spring, Rock Creek stage station # 1, and 26Eu787-II) or lightly (Rock Creek stage station # 2, Rock Creek Telegraph Station, and Sand Spring). This patterning most likely reflects differences in construction methods (milled lumber versus pinyon posts, for example), architectural features present (ie., a roof, porch, interior walls, or flooring), or materials (adobe vs. wood). It seems clear that if wood was the primary material, and if numerous features were present, then nails will be very abundant archaeologically.

On Length of Occupancy

Literature review brought to light analytic techniques that may facilitate comparisons of historic site residency periods. These techniques focus on such topics as faunal assemblage variability, abundance of rodents in faunal collections, and prevalence of artifact reuse.

Two techniques deal with faunal materials. The number of food source species may serve as an indicator of how long a structure was occupied. The longer the occupation, the more faunal assemblage variability. In addition, Stahl (1982:823) discusses the symbiotic relationship between rodents and human habitation. Habitation activities attract rodents by enhancing animal habitat, thus allowing an increase in their number and density (Stahl 1982:826). The longer the term of human occupation, the greater the number of rodents observed archaeologically.

Schiffer, Downing, and McCarthy (1981) discuss the recycling, secondary use, lateral cycling, and conservation of artifacts (Schiffer 1976:38-40). They conclude that artifact reuse is dependent on four variables: the developmental stage of the household, the degree of residential stability, the length of time since the last move, and the wealth or income of the inhabitants (Schiffer, Downing, and McCarthy 1981:83). Reuse is greatest in new, highly mobile, low-income households.

These patterns can be assessed at the excavated historic sites, ranked on the basis of the identified variables (household developmental stage does not appear relevant). The sites can also be ranked on the basis of their term of residency. Site 26Eu787-B was occupied for the longest time, 26Eu790 the shortest. Of the two intermediate sites, artifact data ranges suggest that 26Eu787-II was occupied longer then 26Eu988.

Faunal data provided in Appendix B were arrayed to assess their correspondence with expected patterns (Table 66).

Table 66. Inter-site Comparison of Faunal Collections

Site	Total Species	Food Species n	Food Species %	Rodent Species n	Rodent Species %
26Eu787-B	17	9	52.9	7	41.2
26Eu787-II	9	7	77.8	2	22.2
26Eu988	4	3	75.0	1	25.0
26Eu790	-	-		-	

The faunal data reveal several patterns. Total assemblage variability and the abundance of rodent species do increase with term of residency, precisely the patterns anticipated. The percentage of food species decreases with term of residence while the number of rodent species increases. Sites 26Eu787-II and 26Eu988 are surprisingly similar on a percentile basis, contrasting nicely with 26Eu787-B. Whether this bimodal pattern is real or simply an artifact of limited sample sizes is unknown. The data do provide a beginning point for the development of inter-site comparisons.

Data can also be arrayed to assess the frequency of artifact reuse (Table 67). The assemblage employed in this analysis excludes food waste, architectural materials, and hardware, since these items are less frequently reused or their reuse is difficult to detect.

Table 67. Inter-site Comparison of Artifact Reuse

Site	Assemblage Size Frag	Assemblage Size MAC	Reused Artifacts Frags n	Reused Artifacts Frags %	Reused Artifacts MAC n	Reused Artifacts MAC %
26Eu787-B	1390	311	16	1.2	11	3.5
26Eu787-II	1941	351	4	0.2	4	1.1
26Eu988	755	175	14	1.9	9	5.1
26Eu790	361	26	9	2.5	6	23.1

Fragments and minimum artifact counts (MAC) reflect similar trends which are, for the most part, consistent with expectations. The shorter the length of occupation, the greater the abundance of reused artifacts. The assemblage from 26Eu790 contains the most evidence of reuse with nearly a quarter of the artifacts (MACs) being recycled pieces. An alternative explanation is that

this high percentage, when compared to the other three sites, may be due to ethnicity rather than term of residency. Site 26Eu787-II contains the least evidence of artifact reuse, possibly due to its occasional occupation for short periods of time. The sites also differ in the types of artifacts reused. At 26Eu787-II food storage cans were recycled, whereas at 26Eu787-B industrial pieces (iron straps, barrel hoops, leather fragments, etc.) were reused.

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APPENDIX A

PROJECTILE POINT ATTRIBUTES

Projectile Point Attributes

Type	Site No.	Spec. No.	Material	Portion	L_S	L_T	L_A	L_M	W_M	W_B	TN	Wt.	Est. Wt.	N_W	DSA	PSA	DSA-PSA	(BIR)	L_T/W_M	W_B/W_M	Max. Wpos.	Comments
EE	26Eu983	1-1	Basalt	Complete	53.0	53.0	49.1	---	14.5	13.1	6.6	4.0	4.0	9.0	245	144	105	.93	3.70	.90	---	
EE	26Eu790	1-1	Obsidian	Complete	29.1	29.1	26.0	---	18.6	14.0	5.6	2.9	2.9	11.5	230	115	115	.89	1.60	.75	---	Reworked
ECN	26Eu790	815-3	Chert	Base/mid	34.7	34.7	31.3	---	25.3	15.4	5.6	3.8	(3.9)	12.2	152	117	35	.90	1.37	.61	---	Tip & 1 Barb Missing
EE	26Eu1011	884-1	Obsidian	Complete	21.6	21.6	19.3	---	16.0	12.3	4.6	1.5	1.5	9.4	185	134	51	.89	1.35	.77	---	
HS	26Eu790	868-1	Chert	Base	10.0	(30.4)	(28.3)	15.1	15.1	15.1	4.8	.9	(1.3)	15.1	---	---	---	.93	2.00	.10	.50	
HS	26Eu790	896-0	Chert	Base/mid	37.3	(58.7)	(57.0)	20.0	20.0	13.0	6.3	6.0	(6.5)	---	---	---	---	.97	2.90	.65	.34	
RGS	26Eu1011	1-1	Chert	Base/mid	31.2	(40.5)	(40.5)	---	23.6	8.6	3.4	2.5	(2.6)	8.3	124	95	29	.10	1.70	.36	---	
ECN	26Eu1011	3202-1	Chert	Complete	24.0	24.0	24.0	---	(16.7)	13.2	4.0	1.4	(1.6)	(8.6)	181	128	52	1.00	1.44	.80	---	Side broken
ECN	26Eu1011	3204-1	Chert	Base	11.4	(40.0)	(40.0)	---	(33.0)	(15.0)	3.9	1.3	(2.0)	(13.4)	132	105	27	.10	1.20	.45	---	
DSN	26EU1011	3234-1	Chert	Base/mid	10.8	(17.6)	(15.4)	---	(11.1)	(11.1)	2.4	0.3	(0.5)	6.5	213	164	49	.88	1.59	1.00	---	
ECN	26Eu1011	3246-1	Chert	Base	22.1	(37.9)	(37.9)	---	21.3	15.9	4.9	2.3	(2.7)	11.1	180	113	67	.10	1.80	.75	---	Tip broken
RPM	26Eu1011	3249-1	Chert	Tip/mid	14.0	14.0	14.0	---	9.3	4.2	2.4	0.2	0.2	5.2	216	90	129	.10	1.50	.45	---	
CT	26Eu1011	3268-1	Chert	Base/mid	18.5	(30.5)	(27.8)	14.6	14.6	14.4	2.8	0.9	(1.3)	---	---	---	---	.91	2.10	.99	.48	
RGS	26Eu1011	3269-1	Chert	Base/mid	27.7	(35.4)	(35.4)	---	20.4	6.6	3.6	2.0	(2.1)	5.8	140	96	44	.10	1.70	.32	---	
RGS	26EU1011	3272-1	Chert	Base/mid	26.2	(40.5)	(40.5)	---	19.5	8.2	4.5	2.3	(2.5)	7.5	144	97	47	.10	2.10	.42	---	
RGS	26Eu1011	3272-2	Chert	Base/mid	19.5	(30.1)	(30.1)	---	15.7	7.0	3.5	0.9	(1.3)	5.8	128	102	26	1.00	1.92	.45	---	
CT	26Eu1011	3281-1	Chert	Base/mid	20.6	(33.4)	(33.4)	14.2	14.2	13.5	2.7	0.9	(1.1)	13.5	---	---	---	.10	2.40	.95	.43	
RGS	26Eu1011	3283-2	Chert	Base	15.6	(33.7)	(33.7)	---	19.3	9.4	3.1	1.1	(1.6)	7.2	145	119	26	1.00	1.75	.49	---	
RGS	26Eu1011	3283-3	Chert	Base/mid	13.1	(25.8)	(25.8)	---	15.9	6.0	2.6	0.5	(0.9)	5.1	141	111	30	1.00	1.62	.38	---	
RGS	26Eu1011	3283-4	Chert	Complete	20.4	20.4	20.4	---	16.8	5.5	3.8	1.1	(1.2)	4.9	134	96	38	.10	1.20	.38	---	Barb broken
ECN	26Eu1011	3292-1	Chert	Complete	24.5	(27.1)	(27.1)	---	20.4	13.0	3.1	1.3	(1.4)	11.1	142	131	11	.10	1.33	.64	---	Tip, barb & part of base broken
RGS	26Eu1011	3300-1	Chert	Base	14.2	(26.4)	(26.4)	---	16.6	9.5	2.1	0.4	(0.7)	6.5	139	129	10	1.00	1.59	.57	---	
HS	26Eu1011	3332-1	Chert	Base	19.3	(46.2)	(42.7)	19.1	19.1	14.3	4.8	1.9	(2.3)	---	---	---	---	.92	2.40	.75	.41	
CT	26Eu1011	3336-1	Chert	Base/mid	22.7	(26.4)	(26.4)	11.2	11.2	13.8	3.1	0.6	(0.9)	13.8	---	---	---	.10	2.60	1.20	.42	
CT	26Eu1011	3338-1	Chert	Base	15.1	(30.7)	(30.7)	10.1	10.1	9.4	2.5	0.5	(1.0)	9.4	---	---	---	.10	3.00	.90	.33	
ECN	26Eu1011	3354-1	Chert	Base/mid	28.6	(28.6)	(28.6)	---	17.8	10.2	4.1	2.1	(2.3)	8.8	151	111	40	1.0	1.61	.57	---	

Projectile Point Attributes, Continued

Type	Site No.	Spec. No.	Material	Portion	L_S	L_T	L_A	L_M	W_M	W_B	TN	Wt.	Est. Wt.	N_W	DSA	PSA	DSA-PSA	(BIR)	L_T/W_M	W_B/W_M	Max. Wpos.	Comments
UNK	26Eu1011	3201-1	Chert	Base/mid	18.5	(24.9)	(24.9)	---	14.5	13.0	3.0	0.9	(1.1)	9.6	226	122	104	.1	1.70	.90	---	Untypable
UNK	26Eu1011	3281-2	Chert	Base	19.3	---	---	---	10.6	---	4.0	0.9	---	---	---	---	---	---	---	---	---	Untypable
UNK	26Eu1011	3304-1	Chert	Base	14.2	---	---	---	17.6	---	4.5	1.2	---	---	---	---	---	---	---	---	---	Untypable
UNK	26Eu1011	3307-1	Chert	Mid	13.7	---	---	---	16.1	---	4.2	1.2	---	---	---	---	---	---	---	---	---	Untypable
UNK	26Eu1011	3310-1	Chert	Tip	20.6	---	---	---	12.4	---	3.9	0.7	---	---	---	---	---	---	---	---	---	Untypable
UNK	26Eu1011	3311-1	Chert	Complete	21.5	21.5	21.5	---	14.3	10.6	4.1	14.2	1.2	---	---	---	---	---	---	---	---	Reworked
UNK	26Eu1011	3345-1	Chert	Complete	21.3	21.3	---	---	13.6	6.6	3.3	0.8	(0.8)	---	---	---	---	---	---	---	---	Reworked
UNK	26Eu1011	3347-1	Chert	Tip	9.4	---	---	---	---	---	0.2	0.1	---	---	---	---	---	---	---	---	---	
UNK	26Eu1011	3607-1	Chert	Mid	11.4	---	---	---	13.4	---	0.7	0.4	---	---	---	---	---	---	---	---	---	

Measurements are in millimeters and grams; numbers in parentheses are estimated

Abbreviations:

RPM - Rye Patch Miniature Series
HS - Humboldt Series
ECN - Elko Corner-notched
EE - Elko Eared
RGS - Rosegate Series
DSN - Desert Side-notched
CT - Cottonwood Triangular
UNK - Untypeable

Spec. No. - Specimen Number
L_S - Actual Length;
L_T - Total Length;
L_A - Length of Longitudinal Axis;
L_M - Length from Proximal End of Point to the Maximum Width;
W_M - Maximum Width;
W_B - Basal Width;
TN - Thickness;
MaxWpos - Maximum Width Position, L_M/L_T x 100;

Wt. - Weight in Grams;
N_W - Neck Width;
DSA - Distal Shoulder Angle, between 90°-270°;
PSA - Proximal Shoulder Angle, between 0°-270°;
NOI - Notch Opening Index;
BIR - Basal Indentation Ratio, L_A/L_T;

APPENDIX B

ZOOARCHAEOLOGY OF THE MT. HOPE HISTORIC SITES

by
Dave N. Schmitt

INTRODUCTION

The analysis of recovered faunal remains has become an integrated aspect of many historic archaeological investigations. Although they often receive less attention than other cultural items, food bones have proved to be very informative when drawing inferences into the dietary and socioeconomic aspects of the people who deposited them (Schultz and Gust 1983:44).

Most of the literature dealing with North American historic faunal remains concerns the analysis of food bones from specialized communities such as large plantations and farmsteads (e.g., Barber 1976; Bowen 1978; Crader 1984) and military camps (e.g., Lyman 1977). The majority of previous research analyzing animal bones from Nevada historic sites has also dealt with specialized communities. These include bone refuse from the State Insane Asylum (Ringkob and Dansie 1979), Pony Express Stations (Hardesty 1979), Lovelock's Chinatown (Dansie 1979), and a historic Shoshone camp (Rosen 1978).

Although in-depth analysis of animal bones suffers from small sample sizes, examination of the faunal remains recovered from the Mt. Hope historic sites offers a unique look at civilian subsistence economies. As stated by Jolley, "the irony is that so little is known about the most prevalent type of historic settlement--the lower-to-middle class residence" (1983:69).

DIETARY PRACTICES AND MEAT TYPES

Domestic mammalian meat consumed by both historic and modern North American households consists primarily of three types: veal and beef (bovine), lamb and mutton (ovine), and hogs and suckling pigs (swine). Although utilized for food less frequently, other mammalian domestics include goat, dog, and horse (Levie 1963:42). Avian meat types commonly consumed include both domestics and game birds such as chicken, turkey, duck, goose, and pheasant. Fish meat consists of native fish (e.g. trout), introduced fish (e.g. bass and catfish), and imported fish (salmon) (Dansie 1979:352). Other imported meats include fresh water and salt water shellfish and other invertebrates.

The exploitation of wild game species can also serve as meat sources. Archaeological evidence of small mammals (e.g. squirrels and rabbits) and/or large mammal such as deer can reflect exploitation of the natural environment. Although the presence of wild game species in a historic faunal assemblage probably represents their exploitation as a food source, many (especially small mammals) may be intrusive or non-cultural in nature. These and other taphonomic processes will be discussed later.

Most of the faunal data from historic sites reflect a dependence on the three major domestic meat types: beef (*Bos* sp.), pork (*Sus scrofa*), and lamb (*Ovis aries*) (Jolley 1983). Their degree of utilization by the consumer can be related to many factors. These include local supply or availability, economic status or financial capabilities, and gustatory preference.

The following is a list of the domestic meat sources available to the Mt. Hope inhabitants (adapted from Dansie 1979:355-356):

1) Local livestock, slaughtered and butchered on or near the site (whole carcass).

2) Fresh dressed meat from a wholesale butcher (partial carcass; head and feet removed).

3) Retail cuts from a local butcher (similar to meat cuts purchased today).

*4) Preserved meats shipped from meat packers.

The two primary methods of preserving meat are smoking and curing. The three techniques of curing meat (dry salt curing, dry cure, and sweet pickle) all utilize salt as the curing agent. In these procedures, salt absorption functions as a preservative by replacing meat juices and subsequently preventing or reducing bacterial action (Ziegler 1958).

Although these preservation techniques would most commonly be employed by a slaughterhouse or wholesale butcher, on-site preservation methods would probably be utilized when slaughtering local livestock, especially in small communities or a localized residence. Perhaps the examination of the saline content of soil from root cellar and outhouse floors may prove to be a useful analytic tool in interpreting historic subsistence.

RESEARCH QUESTIONS

As stated by Jolley (1983:69), historic documents are one of the most valuable tools available to the historic archaeologist. Written records such as inventories and correspondence can help resolve many analytical problems and aid in the maturation of alternative explanations.

Unfortunately, the historic literature documenting the lifeways of the Mt. Hope inhabitants mention nothing about subsistence in relation to meat acquisition or utilization. Because of this, the archaeologically recovered fauna will be empirically examined in order to answer the following questions:

- What species are present at each site?
- Is there any evidence for preference of certain species?
- What cuts of meat (and their frequency) are represented at the sites?
- Were they exploiting the local (wild) fauna?
- Did they have their own domestics?
- Is there any evidence for in-house (primary and/or secondary) butchering?
- Was there a selection for certain age classes of different species?

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* Prior to the 1875 introduction of the refrigerated railroad car in Nevada, preserved meats were the only form of meat shipped long distances (Clemen 1923:222).

- Were cows, pigs, and sheep butchered in the same manner?

- What implements were used for butchering?

- What taphonomic processes might be responsible for skewing the data?

- How do the sites compare?

Whether one is analyzing a prehistoric or historic faunal assemblage, the majority of these questions should be foremost in the analyst's mind. Lack of historic documentation and a small sample size may leave many of these questions open to speculation. It is still important, however, to address these questions in an attempt to extract behavioral, dietary, and economic information.

ANALYTIC METHODS

Faunal remains from the three Mt. Hope historic sites (26Eu787-B, 26Eu787-II, and 26Eu988) were identified using the Nevada State Museum comparative collection. When needed, various texts (Hildebrand 1955, Olsen 1973) were also used to aid in identification.

When possible, the bones and bone fragments were identified to element, side, and species. Because of time constraints, only the more reliable cranial and mandibular elements of rodents were used for species identification. The remaining elements were put into a small mammal size category. Unidentified fragments from larger mammals were also put into size class categories: medium mammal (pig/sheep), large mammal (cow/horse), and medium-large mammal (pig/cow). The last category consists primarily of unidentified bone splinters, cancellous bone, and weathered fragments.

Identified elements displaying butchering (saw and/or cleaver) marks were recorded on bone illustrations compiled by R. Lee Lyman (used by permission) to indicate the butcher element and location (see Figures 1-4). These illustrations prove useful not only in interpreting a particular faunal aggregate, but in analyzing intraspecific and interspecific site variation as well.

The condition of the recovered bone from each site was also recorded. This included any evidence of breakage, burning, weathering, and carnivore attrition. Because of the many natural and cultural processes that can alter bony remains (e.g. Gifford 1981), it is important to note variation in the condition of a faunal assemblage. Stated best by White (1956:402), "It is necessary not only to give a reasonable explanation for the presence of the elements found but also for the absence of those not found."

Because of the small sample size and the fact that food bones probably represent meat cuts from a single element or a butcher unit (e.g. the hindshank), the Mt. Hope faunal remains were quantified by the number of identified specimens per taxon (NISP). The NISP values are listed by site in Table 1.

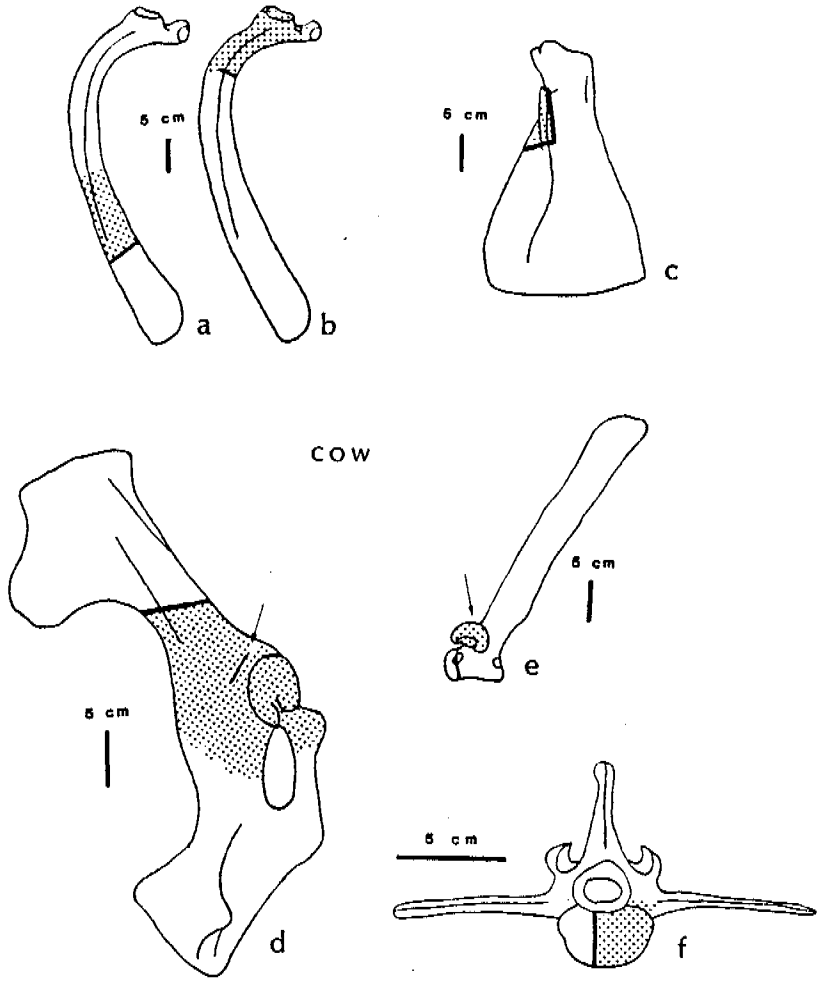

Figure 1: 26EU787FB The stippled area represents the archaeological specimen, heavy lines indicate the saw cut (butcher) location and orientation, arrows locate ax/cleaver chop marks. a - b; rib, posterior view. c; right scapula, medial view. d; right innominate, lateral view. e; thoracic vertebra, left side. f; lumbar vertebra, anterior view.

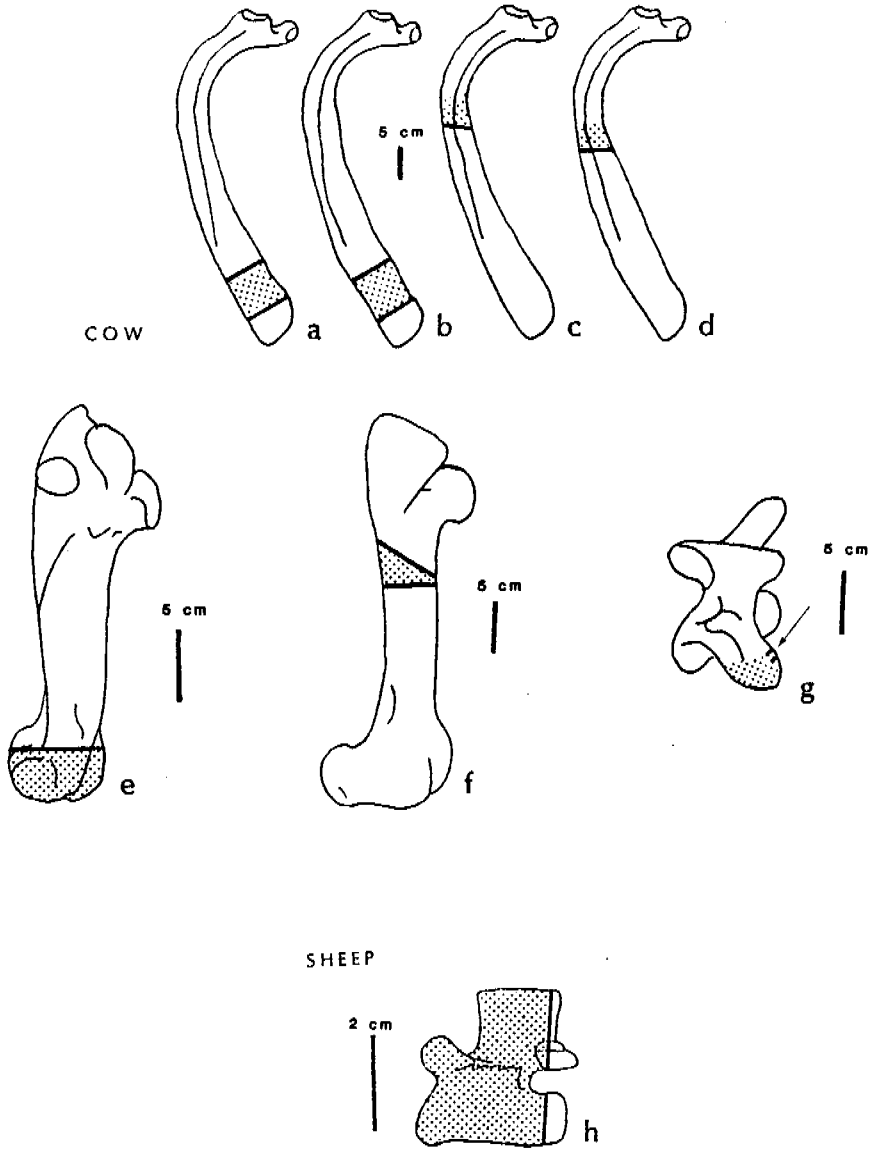

Figure 2: 26EU787FII The stippled area represents the archaeological specimen, heavy lines indicate the saw cut (butcher) location and orientation, arrows locate ax/cleaver chop marks. a - d; rib, posterior view. e; left humerus, lateral view. f; femur, lateral view. g; cervical vertebra, left side. h; lumbar vertebra, left side.

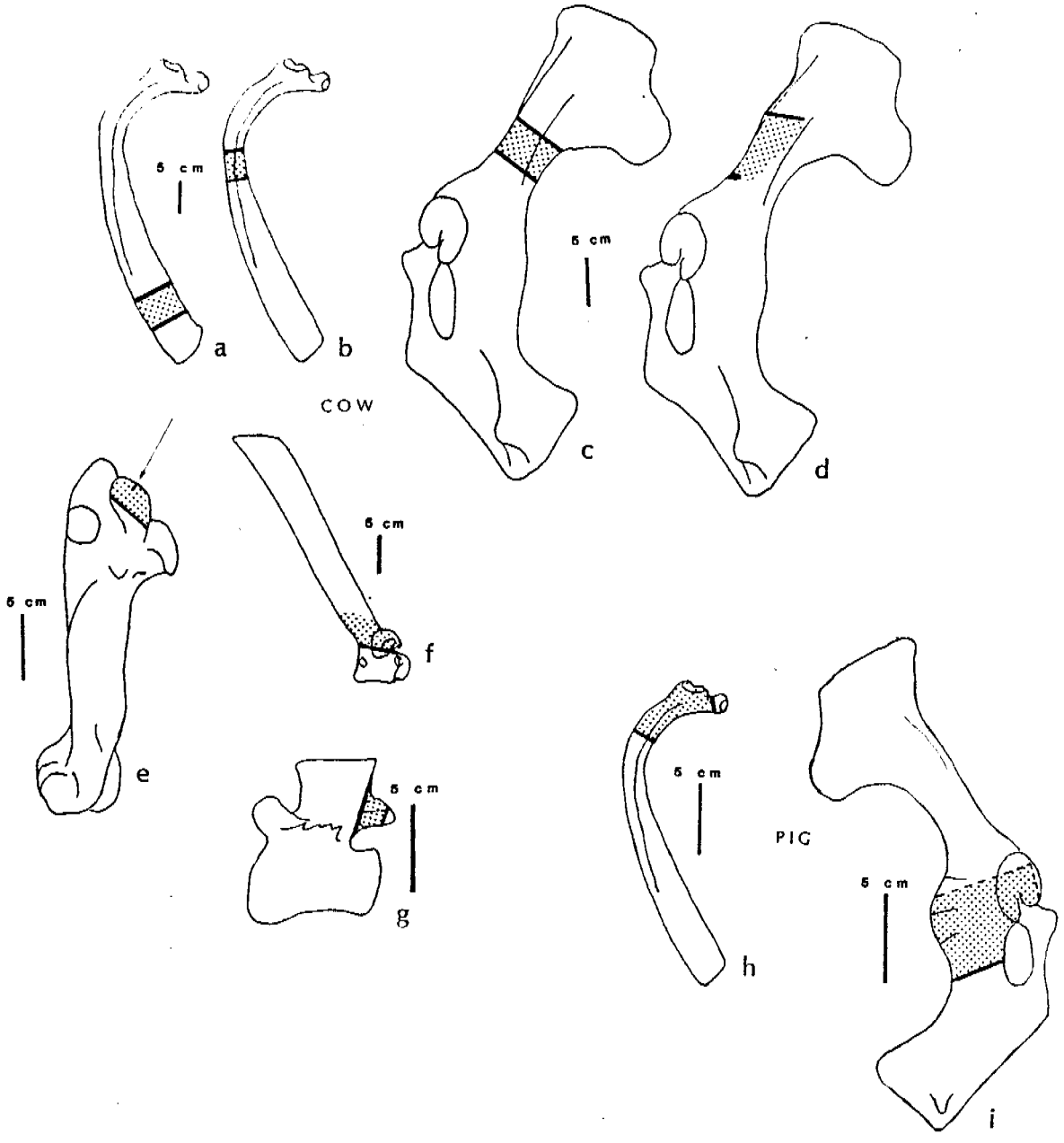

Figure 3: 26EU988 The stippled area represents the archaeological specimen, heavy lines indicate the saw cut (butcher) location and orientation, broken lines indicate a young individual (not yet ossified), arrows locate ax/cleaver chop marks. a - b; rib, posterior view. c - d; left innominate, lateral view. e; left humerus, lateral view. f; thoracic vertebra, right side. g; lumbar vertebra left side. h; rib, posterior view. i; right innominate, lateral view.

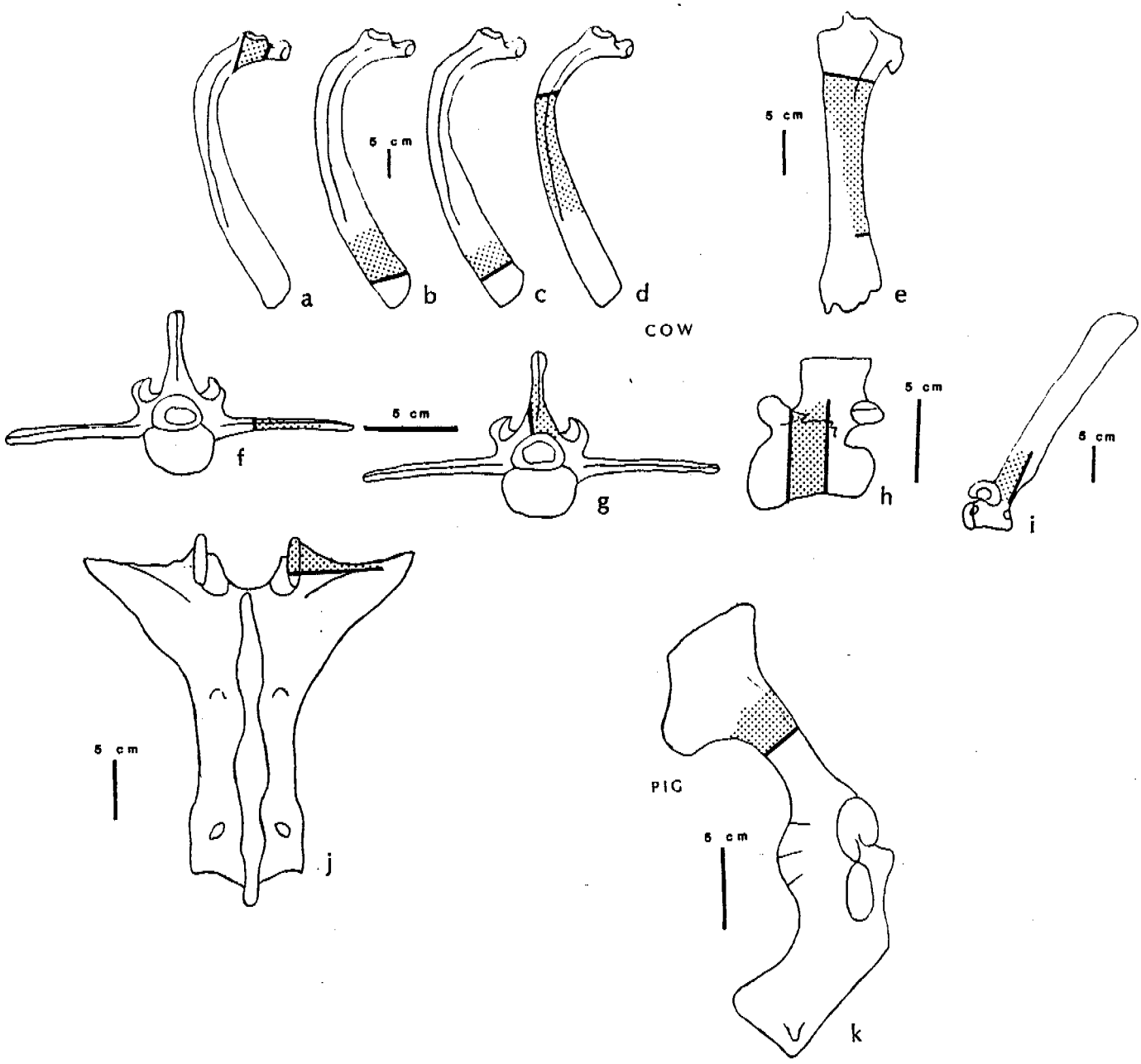

Figure 4: 26EU988 (dump) The stippled area represents the archaeological specimen, heavy lines indicate the saw cut (butcher) location and orientation. a - d; rib, posterior view. e; left tibia, anterior view. f - g; lumbar vertebra, anterior view. h; lumbar vertebra, left side. i; thoracic vertebra, left side. j; sacrum, dorsal view. k; right innominate, lateral view.

Table 1. Faunal Specimen Counts from Mt. Hope Historic Sites.

Species	26Eu787-B NISP	/ %	26EU787-II NISP	/ %	26EU988 NISP	/ %
Spermophilus cf. *townsendii*	1	.2	--	--	--	--
Spermophilus townsendii	2	.5	4	2.1	--	--
Thomomys cf. *talpoides*	2	.5	--	--	--	--
Peromyscus sp.	2	.5	--	--	--	--
Microtus sp.	2	.5	1	.5	4	1.4
Neotoma lepida	1	.2	--	--	--	--
Neotoma cf. *cinerera*	1	.2	--	--	--	--
Sylvilagus sp.	3	.7	9	4.6	--	--
Sylvilagus idahoensis	8	1.8	17	8.7	--	--
Lepus sp.	12	2.8	1	.5	2	0.7
Canis sp.	17	3.9	--	--	--	--
Bos sp.	12	2.8	7	3.6	20	6.8
Ovis aries	1	.2	7	3.6	--	--
Sus scrofa	2	.5	1	.5	5	1.7
Aves (bird)	17	3.9	--	--	--	--
Gallus domesticus	1	.2	2	1.0	--	--
Salmonidae	1	.2	--	--	--	--
Small Mammal	224	52.2	23	11.8	3	1.0
Medium Mammal	46	10.6	56	28.7	44	15.0
Large Mammal	37	8.6	13	6.7	32	10.8
Medium-Large Mammal	40	9.2	53	27.2	185	62.7
Total	432	100.0	195	100.0	295	100.0
# Burned	20		71		98	
% Burned	5		36		33	

THE SITES

A total of 922 bones were recovered from the three Mt. Hope historic sites. Of these, 148 (16%) were identified to at least the genus level (see Table 1). The following is a presentation of the zooarchaeological data recovered from the sites. Each site will be presented individually, followed by a comparative discussion.

26Eu787-B

Of the three sites analyzed, 26Eu787-B has the largest and most diverse faunal assemblage. Thirteen species of mammal, at least two species of bird, and a fish vertebra were recovered from the excavation. The following is a summary of the different species identified and the skeletal elements represented.

CLASS: Mammalia - Mammals

Order Lagomorpha - Rabbits, Hares, and Pikas
Family Leporidae - Rabbits and Hares
Sylvilagus sp. - Rabbits

MATERIAL: One skull fragment, two mandibles, one innominate.

Sylvilagus idahoensis - Pygmy Rabbit

MATERIAL: Three skull fragments, two mandibles, one humerus, one calcaneus, one metapodial.

Lepus sp. - Hares

MATERIAL: Two scapulae, three radii, one ulna, three humeri, one femur, one vertebra, one calcaneum.

Order Rodentia - Rodents
Family Geomyidae - Pocket Gophers
Thomomys cf. *talipoides* - Northern Pocket Gopher

MATERIAL: Two skull fragments.

Family Sciuridae - Squirrels
Spermophilus cf. *townsendii* - Townsend's Ground Squirrel

MATERIAL: One skull fragment.

Spermophilus townsendii - Townsend's Ground Squirrel

MATERIAL: One skull fragment, one mandible.

Family Cricetidae - New World Rats and Mice
Peromyscus sp. - White-Footed Mice

MATERIAL: Two mandibles.

Neotoma lepida - Desert Woodrat

MATERIAL: One mandible.

REMARKS: The similarity between *Neotoma lepida* and *Neotoma cinerea* sometimes creates difficulty in distinguishing between the two species. Because *N. lepida* is smaller than *N. cinerea*, the many cranial and postcranial characteristics which separate the two species may be a function of size.

The alveolar length of the recovered mandibular tooth row was measured in order to extract species identification. The 8.2 mm alveolar length of the specimen falls in the midrange of both modern and archaeologically recovered *N. lepida* mandibles (Grayson 1983:113-114).

Neotoma cf. *cinerea* - Bushy-Tailed Woodrat

MATERIAL: One isolated tooth.

Microtus sp. - Meadow Voles

MATERIAL: Two mandibles

Order Carnivora - Carnivores
Family Canidae - Wolves, Dogs, and Foxes
Canis sp. - Dogs

MATERIAL: Two metacarpals, five sesmoids, nine phalanges, one caudal vertebra.

REMARKS: All of the *Canis* sp. elements were recovered from the same test unit and appear to represent the left front foot of a single individual. Because of the similarity between domestic dogs and coyotes, it is very difficult to distinguish between the two, especially when dealing with postcranial elements (e.g. Lawrence and Bossert 1967). The attempt to identify these elements to species proved inconclusive.

Order Artiodactyla - Artiodactyls
Family Bovidae - Bovids
Ovis aries - Domestic Sheep

MATERIAL: One thoracic vertebra

Bos sp. - Domestic Cow

MATERIAL: One scapula, one innominate, one thoracic vertebra, one lumbar vertebra, six ribs, one carpal (intermediate), one astragalus.

Family Tayassvidae - Pigs
Sus scrofa - Domestic Pig

MATERIAL: One sacrum, one os penis.

CLASS: Aves - Birds
Gallus domesticus - Domestic Chicken

MATERIAL: One tibiotarsus.

CLASS: Osteichthyes - Bony Fishes

MATERIAL: One *Salmonidae* vertebra.

Although the bones are dispersed throughout the site, a large concentration of faunal remains was recovered from around the fireplace on Terrace A. While the fireplace and surrounding area appear to be the main locale for the disposal of bone refuse, it is interesting to note that only a small percentage show evidence of burning (see Table 1).

Aside from evidence of carnivore attrition (punctures) on a chicken tibiotarsus and an unidentified large mammal bone exhibiting evidence of rodent gnawing, the bones from Terrace A are well preserved. The indication of carnivore gnawing, along with the recovery of *Canis* sp. elements, however, warrants some discussion.

Research has shown that carnivores can be active taphonomic agents in the non-cultural modification of bone (e.g., Haynes 1980). Bone exhibiting tooth marks or the complete destruction of bone (Lyon 1970:214) represent only part of a carnivore's taphonomic regime. Carnivores can also be responsible for the dispersal of bones (Kent 1981) and the transport of non-cultural bones to a site.

Small mammal bones comprise over 50% of the bones recovered from 26Eu787-B. Except for a burnt Lepus sp. vertebra from the fireplace, the remaining bones appear to be intrusive. The abundance of small mammal remains could be attributed to carnivore activity or to the fact that the site offered an inviting habitat.

The recovery of a cow carpal and astragalus also warrants discussion. The presence of these elements might suggest on-site slaughtering of local livestock, but could also represent foreshank and hindshank butcher units containing the ankle joints. With the abundance of open rangeland in central Nevada, these elements might also be representative of natural mortality.

Figure 1 shows the butcher element and location of the identified domestic fauna.

26Eu787-II

One hundred ninety-five bones representing eight species of mammal and one species of bird were recovered from 26Eu787-II. The following is a summary of the different species identified and the skeletal elements represented.

CLASS: Mammalia - Mammals

Order Lagomorpha - Rabbits, Hares, and Pikas
Family Leporidae - Rabbits and Hares
Sylvilagus sp.- Rabbits

MATERIAL: Two scapulae, two innominates, one femur, two tibiae, one calcaneum, one metatarsal.

Sylvilagus idahoensis - Pygmy Rabbit

MATERIAL: Five skull fragments, three mandibles, one scapula, two radii, three humeri, one femur, two tibiae.

Lepus sp. - Hares

MATERIAL: One radius.

Order Rodentia - Rodents
Family Sciuridae - Squirrels
Spermophilus townsendii - Townsend's Ground Squirrel

MATERIAL: Four skull fragments.

Family Cricetidae - New World Rats and Mice
Microtus sp. Meadow Voles

MATERIAL: One skull fragment.

Order Artiodactyla - Artiodactyls
Family Bovidae - Bovids
Ovis aries - Domestic Sheep

MATERIAL: One humerus, one innominate, one sacrum, one femur, one thoracic vertebra, two lumbar vertebrae.

Bos sp. - Domestic Cow

MATERIAL: One humerus, one femur, one cervical vertebra, four ribs.

Family Tayassiuidae - Pigs
Sus scrofa - Domestic Pig

MATERIAL: One thoracic vertebra.

CLASS: Aves - Birds
Gallus domesticus - Domestic Chicken

MATERIAL: One scapula, one humerus.

The bones recovered from 26Eu787-II exhibit excellent preservation. One fragment, a sheep (*Ovis aries*) ischium, shows evidence of carnivore gnawing, suggesting the possibility (as previously discussed) of some modification of the assemblage.

Most of the faunal remains from Feature A were concentrated in a small depression which appears to be a refuse dump. Preservation of organics in this depression is especially good when compared to the other cultural material recovered.

Because of its proximity to the railroad and the fact that the site served as an area for loading ore from the Mt. Hope Mine for transport, the recovered food bone could represent meals from both site inhabitants and non-residents.

Identified elements displaying butcher marks are illustrated in Figure 2.

26Eu988

Two hundred and ninety-five bones were recovered from excavations at 26Eu988. Because of the fragmented and weathered condition of the assemblage, only thirty-one bones (10%) were identified. The following is a summary of the different species identified and the skeletal elements represented.

CLASS: Mammalia - Mammals
Order Lagomorpha - Rabbits, Hares, and Pikas
Lepus sp. - Hares

MATERIAL: One innominate, one calcaneum.

Order Rodentia - Rodents
Family Cricetidae - New World Rats and Mice
Microtus sp. - Meadow Voles

MATERIAL: Four skull fragments.

Order Artiodactyla - Artiodactyls
Family Bovidae - Bovids
Bos sp. - Domestic Cow

MATERIAL: One humerus, two innominates, one sacrum, two tibiae, two thoracic vertebrae, six lumbar vertebrae, six ribs.

Family Tayassuidae - Pigs
Sus scrota - Domestic Pig

MATERIAL: Two innominates, one femur, one tibia, one rib.

Fifteen percent of the bones recovered from 26Eu988 (representing almost 50% of the identified elements) are from a refuse dump located in the eastern portion of Feature A. As at 26Eu787-II, bones recovered from the dump show excellent preservation. Faunal remains recovered from other portions of the site, including concentrations in the fireplace and along the southeastern wall of the structure, show both cultural (burning) and natural (carnivore gnawing and weathering) modification. Weathering is especially visible on bones located outside the structure (see bone weathering stages 2-5 in Behrensmeyer 1978:151). This could possibly be attributed to bone being deposited in areas not "covered" from the elements (Hardesty 1979:153).

Three of the five identified pig (Sus scrota) bones were from young individuals. An unfused proximal tibia and distal femur indicate elements from an individual (or individuals) less than 3-1/2 years of age. An unfused ischium indicates an individual less than six years old (Silver 1963).

Recovery of these elements which fall in the same age class and the fact that they represent both the axial and appendicular skeleton suggests the possibility that they represent a single individual raised and slaughtered at the site. Although pigs are easy to raise and feed on practically anything (Bowen 1978:155), other evidence shows that the above is probably not the case. Specifically, all of the elements are from the right side and probably represent a butcher unit (i.e., a ham).

DISCUSSION AND CONCLUSIONS

At each of the three sites analyzed (with the exception of 26Eu787-II where identified cow and sheep elements are equal), NISP values show beef to represent the most frequent meat type. This, along with the paucity of sheep and pig elements exhibiting butcher marks, precludes comparing butchering patterns between species. Table 2 illustrates the secondary beef cuts represented and their frequency at each of the sites. Although 26Eu988 shows a high percentage of quality meat cuts, attritional processes and sampling strategies (as with the other two sites) may have biased the data.

Table 2. Bone Specimen Counts by Beef Cuts Ranked According to Late Nineteenth Century Retail Values

Rank/Beef Cut	26EU787-B	26EU787-II	26EU988
1 Short Loin	1	-	4
2 Rib	2	2	5
2 Sirloin	1	-	3
3 Round	-	1	-
4 Rump	-	-	-
5 Chuck	-	-	-
6 Arm	-	1	1
6 Short Rib/Cross Rib	1	-	2
7 Brisket/Short Plate	-	2	1
8 Neck	-	1	-
9 Foreshank	(1)	-	-
9 Hindshank	(1)	-	1

(after Schultz and Gust 1983) Numbers in parentheses indicate carpal/tarsal bones.

Although no large wild game species were identified from the sites, the possibility exists that they were exploited as meat sources. Empirical evidence shows that if in fact they were exploited, they were economically minimal.

The recovery of burnt Lepus sp. elements from inside the "structures" at 26Eu787-B and 26Eu988 indicate some exploitation of small mammals as food sources. Burnt Sylvilagus idahoensis fragments from 26Eu787-II probably represent food bone but lack the "in-house" context. The remaining unburnt rabbit bones from each of the sites probably represent food bones but could be evidence of non-cultural inclusion.

Archaeological evidence indicates that local domestic fauna were probably not raised and slaughtered at the sites. If domestic livestock were raised at the sites, these species might have provided milk and milk by-products, as well as draft power (Barber 1976:68-69). Although the utilization of these products might be seen in other aspects of the material culture, they are zooarchaeologically invisible.

The recovery of a salmon vertebra from 26Eu787-B represents the only imported food item. The abundance of recovered bird bones (although not identified to species) might also be representative of imported or "exotic" food species.

As previously discussed, the identified bovid remains from 26Eu988 consist primarily of quality meat cuts from the sirloin and ribs (see Table 2 and Figures 3 and 4). In contrast to these quality meat cuts which reflect a "higher" socioeconomic status when compared to the other sites, the recovery of an unidentified large mammal long bone fragment exhibiting impact scars (i.e., marrow extraction) might indicate some economic stress. Because marrow is often used for soup stock, the bone fragment might be representative of dietary preference rather than economic status.

Cut and chop marks on the archaeologically recovered bone, show evidence for at least three different implements used to cut up the carcasses. Smooth cut surfaces from a fine or smooth toothed saw, saw-tooth marks and striae from a coarse-toothed saw, and ax/cleaver chop marks were observed on bones from each of the sites.

All three of the sites also contain elements displaying "random" axe/cleaver chop marks indicating on-site secondary "non-professional butchering" (Ringkob and Dansie 1979:210). One bone fragment (26Eu787-B, 301-15), a transverse process from a cow thoracic vertebra, exhibits three chop marks on the dorsal surface which appear to be the result of an attempt to detach the rib.

As stated by Lyman (1977:69), "an in-depth study of the saw type [or axe/cleaver] used on various species, the skeletal element selected, the cut type and frequency, and the experimental replication with green bone and different saws may prove very enlightening."

In conclusion, the zooarchaeological data recovered from the Mt. Hope historic sites indicates heavy economic dependence on domestic mammalian species. Although beef represents the primary meat source at each site, the inability to identify the many medium sized and medium to large sized mammal bone fragments could be responsible for skewing the data.

Because of the small sample sizes, many of the research questions asked of the Mt. Hope archaeofaunas are left unanswered or to speculation. However, combining zooarchaeological data with other aspects of the material culture can help the archaeologist in investigating and understanding the dietary, behavioral, and economic lifeways of Nevada's lower-to-middle class historic residents.

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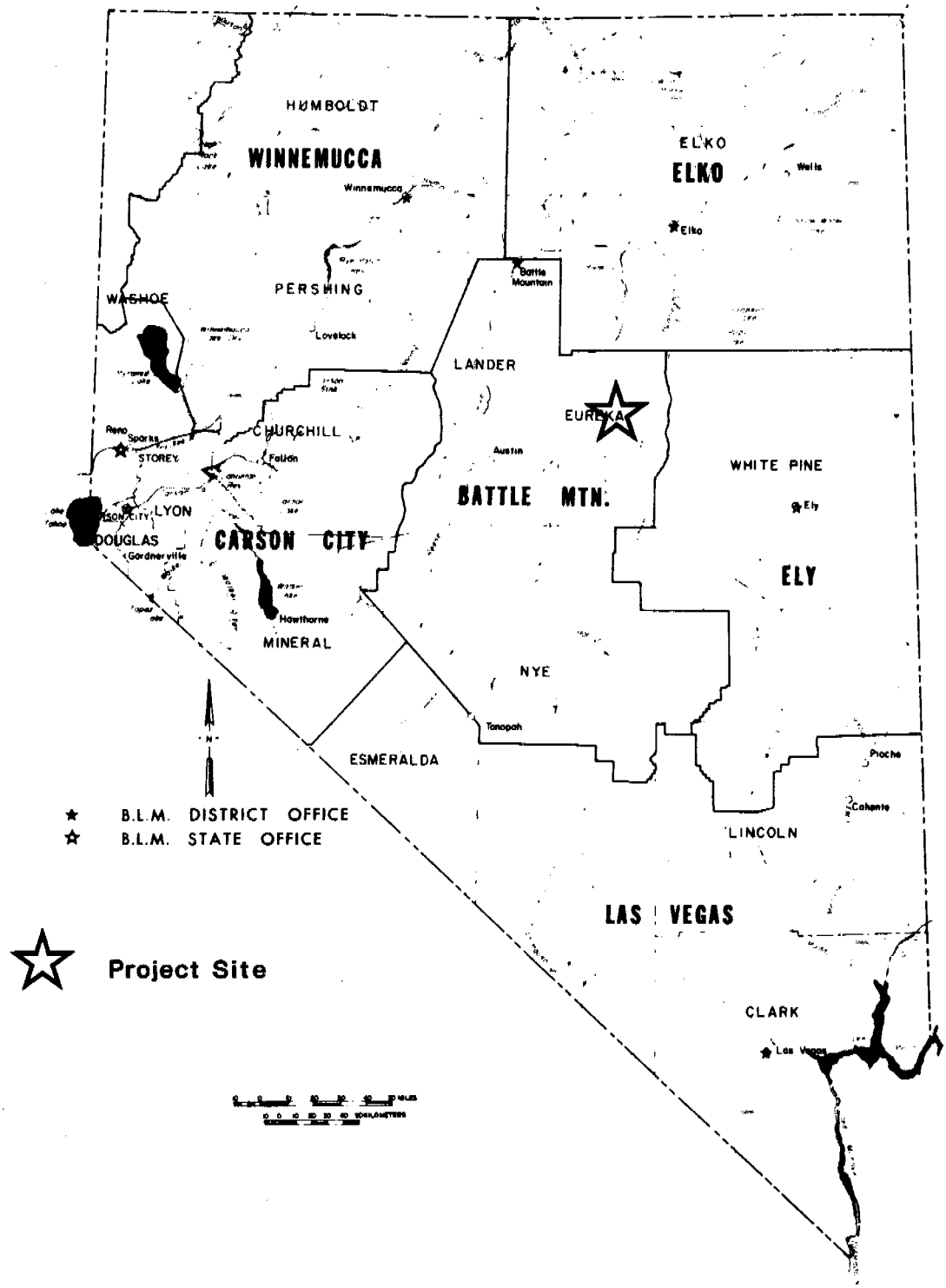
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Reno
Sparks
CHURCHILL
STOREY
Fallon
Austin
WHITE PINE
BATTLE MTN.
Ely
LYON
CARSON CITY
DOUGLAS
Gardnerville
ELY
Hawthorne
MINERAL
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