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With infinite toil: Historical archaeology in the Beveridge Mining District, Inyo County, California

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With Infinite Toil: Historical Archaeology in the Beveridge Mining District, Inyo County, California

A Dissertation submitted in partial satisfaction
of the requirements for the degree of

Doctor of Philosophy

in

Anthropology

by

Karen K. Swope

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ABSTRACT OF THE DISSERTATION

With Infinite Toil: Historical Archaeology

in the Beveridge Mining District, Inyo County, California

by

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Doctor of Philosophy, Graduate Program in Anthropology

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Professor Philip J. Wilke, Chairperson

The Beveridge Mining District is recognized as among the most significant large mining sites to remain in the California deserts. The remoteness of this mining site makes it peculiar among its contemporaries and other regional mining sites. Because it is situated in a particularly inaccessible area of the Inyo Mountains, Beveridge retains a high degree of preservation.

Three research questions were developed: (1) how do humans interact when conditions prevent easy movement between mines, residences, and the outside world?;

(2) what sacrifices are people willing to make in order to transport items they consider necessary into a precipitous area, and what items are people willing to do without while living and working in an area with limited access?; and (3) what modifications are made to standard mining technology in order to make the best possible use of equipment transported to such a site?

Data were gathered through a number of tasks, including archival research into primary source material such as historical photographs, maps, and newspapers. Archaeological fieldwork resulted in the documentation of all archaeological features in Beveridge and Keynot Canyons, and the intervening ridge. Lists of 111 Beveridge district mines and 164 names associated with the district were compiled.

Studies in the Beveridge Mining District provide a case study for the potential of data recovery through the historical and archaeological investigation of historical mining sites. A holistic approach to mining-sites research is urged, one that places mining sites in proper historical and anthropological context. The approach incorporates documentary research and archaeological fieldwork, and addresses the importance of small-scale mining pursuits in the American West. Such an approach is shown to result in a satisfactory anthropological analysis of miners and mining sites.

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HISTORICAL ARCHAEOLOGY AT MINING SITES:
WHAT CAN BE LEARNED BEYOND THE HISTORICAL RECORD?

Many interdisciplinary questions may be answered through the application of archaeological methods and theories to historical mining sites. Often classed with industrial archaeology, mining-sites research has the added potential to yield anthropological data concerning settlement patterns, social organization, demography, ethnicity, labor relations, and nineteenth- and twentieth-century ideologies (cf. Hardesty 1986:54). Questions of a more technical nature can be answered through the archaeological study of the mined ore deposits, and remains of milling machinery and ore-processing activities at such sites, and are particularly related to industrial archaeology, while drawing from the fields of cultural and historical geography (Aschmann 1970; Francaviglia 1988:3), and geology.

The immense potential for data collection and theory building on the basis of mining-sites research is illustrated through the archaeological and historical analysis of Beveridge, a gold- and silver-mining district high in the Inyo Mountains of eastern California (Fig. 1). This site provides an example of human behavior and adaptation in a particularly inaccessible area, described by one contemporary (*Inyo Independent* 30 December 1882oo) as workable only "with infinite toil."

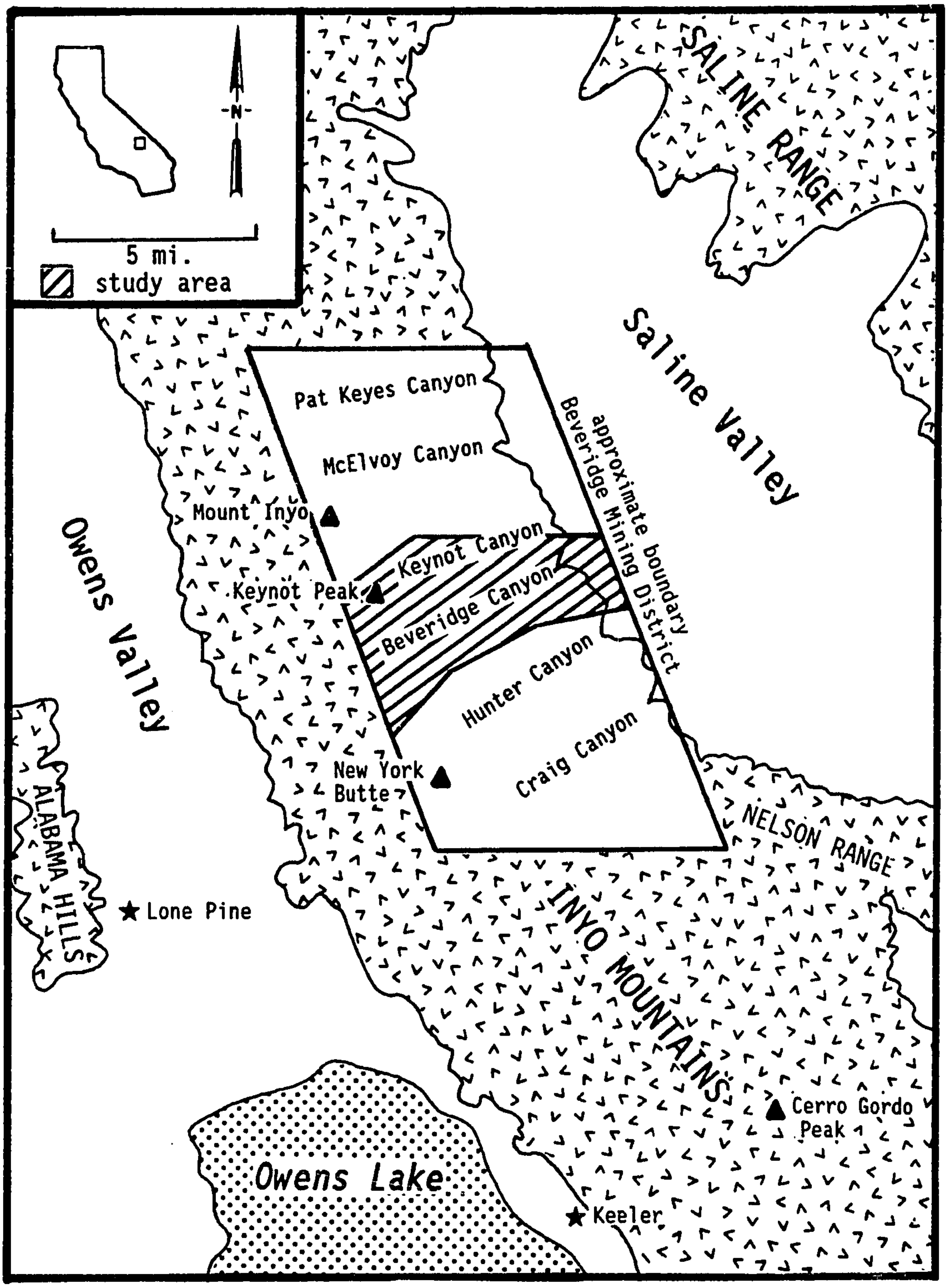

Figure 1. Location map showing approximate configuration of Beveridge Mining District, and study area.

THE HISTORY OF MINING-SITES RESEARCH

The American mining frontier has long been recognized as an historic element worthy of research and interpretation although only recently has it gained the attention of anthropologists. The social history of frontier migrations has received much attention in recent years (Hine 1980; Godoy 1985:211). Mining in the Mother Lode region of California has come to symbolize the frontier experience as a representation of the search for easy wealth in the form of precious metals. Given questionable credence by pulp western novels and low-budget movies, popular sentiment in the first few decades of this century came to emphasize the "thrilling, the vigilantes or the urban amenities" of mining towns (Spude 1990:3).

With continued emphasis on the preservation and interpretation of "typical" western boom camps, the American public learned early to characterize the western mining scenario as a cluster of false-fronted, clapboard saloons and general stores along a wide, dusty street. While mining camps of the placer days may have boasted such amenities, post-Gold Rush mining settlements were as varied as the environments in which they were found. It is this latter phase of lode mining with which this study is concerned. A discussion of the history of research at mining sites will illustrate the need for new directions in the field.

Early Industrial Archaeology

Mining-sites research has borrowed techniques from the field of industrial archaeology, although modern researchers realize that the investigation of mining sites necessarily encompasses a much broader anthropological research base than that offered by industrial archaeology. A brief history of the field is appropriate.

Not surprisingly, industrial archaeology was born in Great Britain, the "mother of the Industrial Revolution" (Schlereth 1980:198). The term "industrial archaeology" was first applied to this field of research in the 1950s (Hudson 1979:1), and came to define that field of research concerned with the study, survey, and recording of the extant physical remains of industry. Early students of industrial archaeology realized the urgent need for preservation of the industrial past (Rix 1967:12, 20-21), as increasingly modern technological developments threatened to erase the remains of historical industry.

As early as 1967, researchers in the field began to recognize the potentially broad applications of industrial archaeology, prompting one researcher (Rix 1967:17) to write that "there is so much more to Industrial Archaeology than just the history of engineering and technology." By the 1970s, industrial archaeology had grown to be concerned with sites in a wider temporal and regional spectrum, until a more multidisciplinary outlook characterized the field (cf. Abrash and Orr 1975:43; Pursell 1985:115). As noted by Huston (1990:17), such an approach is of vast importance in mining-sites research.

> An interdisciplinary approach is almost essential when dealing with mining sites. Too often, surveys of mining areas have concentrated solely on the architecture, particularly in commercial areas, and have ignored the residential areas, archeological remains, or the mining resources. An interdisciplinary team might include a historian, architectural historian, historical archeologist, oral historian, geographer, geologist, engineer, miner, and a few other possibilities.

An early shortcoming of industrial archaeology was that it emphasized more the ''industry,'' and less the ''archaeology,'' at times to the exclusion of solely archaeological remains. As a result, standing structures have most commonly received the attention of industrial archaeologists, with architectural history and the history of technology comprising major portions of the research.

Modern historical archaeologists recognize that, while mining-sites research is inextricably linked to its parent, industrial archaeology, it is at the same time a distinct entity. Mining structures and equipment rarely remain extant at archaeological sites in the American West. It is more common that the archaeologist must infer activities at the site from mine workings, foundations, machinery mounts, ruins, piles of tailings and waste rock, roads, habitation loci, and refuse dumps. In order to correctly interpret the archaeological remains of mining sites, the researcher (or research team) must be competent at a number of tasks including identification of site formation processes and subsequent site demise, identification of mining technology from field remains, material culture analyses and interpretation, and historical documentary research.

While some (e.g., Foley 1968:66) have argued against application of the term ''industrial archaeology'' to ''that phase of New World Archaeology which treats of historical sites of predominantly technological importance,'' it has validity when used with an understanding that the archaeologist is concerned not only with technological remains, but with anthropological questions such as residential patterning, demographics, and social history as well.

New Trends in Mining-Sites Research

While the general field of industrial archaeology expanded, the specific field of mining-sites research suffered prolonged infancy. Few researchers were cognizant of the research potential of mining sites.

In 1967, the first issue of *Historical Archaeology* carried an article by Franklin Fenenga in which he stated (1967:80) that ''mining camps are certainly a minor one of the kinds of historic sites with which we are occasionally concerned.'' Fenenga (1967:81) added that

> the actual character of surface mining, placering and open pit mining is so destructive of the landscape as to negate the possibility of archaeological recovery over very large areas.

Although Fenenga conceded that questions concerning the ''social conditions'' of mining camps were answerable through archaeological pursuits, he held that the ''principal problem'' facing the recovery of data at these sites was the disturbed nature of the mining features themselves. It is surprising that Fenenga held this opinion, since he had been involved in the archaeological investigation of mining sites of undisputed historical significance such as Sutter's Mill in Coloma, California (research which was completed in celebration of the centennial of that site [Heizer et al. 1947]), and the survey of structural remains in the Mother Lode region (Heizer and Fenenga 1948).

This attitude plagued the field into the 1970s, when one researcher (Baker 1978:20-21) wrote this of the ''potentials for archaeological study of the urban mining frontier'':

> Fenenga's conclusion that early mining components are frequently destroyed by [mining] activity seems, in light of this author's experience, to be a fact.

Other researchers emphasized study of mining towns, while failing to address the anthropological significance of the mine workings. It seems incredible that mining features themselves would ever be excluded from an archaeological record or historical interpretation of a mining site. After all, mining settlements owe their very existence to the search for precious metals in their associated mines; yet they usually were ignored or given less-than-adequate attention. This was, until very recently, the unfortunate situation at most well-known mining sites. As Spude (1990:3) put it,

> . . . this architectural bias left the mining-related resources--the mine shaft houses, the stamp mills and smelters, the campsites and ruins--as derelict backdrops. Any interpretation of the mining industry was omitted or given token attention in museum exhibits, in "artifact gardens"--where machinery was dragged in and displayed like so many *objets d'art*--or in a quick underground tour of a short adit.

One example of this unfortunate bias is found in the gold-mining town of Bodie, in eastern California. The town has become well known to tourists since it became a California State Historic Park in 1962 (McDonald 1988:3). The townsite, preserved in a state of arrested decay, is toured by some 231,000 visitors annually, yet the mines are not a part of the park and are not understood by the casual visitor. Because the mines themselves lie outside the park boundaries, they have been threatened by renewed mining activity during the past few years. Proposed modern mining at the site has resulted in a thorough archaeological record of the mine workings (Hardesty et al. 1991; Soper and Clay 1992), yet it is quite possible that this portion of the site soon will be destroyed. Had this scenario happened during an earlier phase of mining-sites research, the mine workings might have been lost without even the benefit of archaeological records.

Another example is provided by the silver-mining camp of Calico, near Barstow, California. This townsite is under the jurisdiction of the San Bernardino County Parks Department. The site is toured by approximately 500,000 visitors annually (Urban Design Group 1992:136), but little attempt is made to interpret the mines, which are in full view from any point in the park. The situation is similar to that at Bodie; the mine workings are outside the park boundaries. The amusement-park-like feeling of the tourist adventure at Calico stems from the days when the park was owned and operated by Knott's Berry Farm. Whatever the cause, this lack of attention to mine workings serves to reiterate traditional stereotypes of western mining settlements. Recently, the San Bernardino County Parks Department initiated a study of archaeological sites within the boundaries of the Calico park (Lerch and Hatheway 1993). As a result of that study, attempts are now being made to interpret associated mine workings for the public, so that a more complete picture of the human experience at Calico will be achieved. These examples illustrate the potential for industrial archaeology studies, when conducted in an anthropological framework.

Recently, mining-sites research has come to the forefront of historical archaeological studies as a result of modern mining activities. New mining technology and a predictably high price of gold allows profitable returns on ores and tailings once considered "low grade" (Olsen and Portillo 1990:68-69; Spude 1990:3-4). Archaeologists working in the American West during the past two decades found themselves faced with recording and interpreting historical mining sites on lands slated for new mining activity. One researcher has stated that archaeologists discovered western American mining sites in the decade of the 1980s (Hardesty 1988:ix). The fact that mining-sites research was then considered a new field inevitably led to the development of techniques considered adequate from a cultural resources management (CRM) perspective; that situation in turn led to the more recent development of sophisticated research strategies for a more anthropologically-minded investigation of historical mining sites beyond the limitations of CRM.

During the past six years, two researchers have done much to promote the scientific study of historical mining sites. The contributions of Richard Francaviglia (1982, 1988, 1991), Donald Hardesty (1985, 1986, 1988, 1990a, 1990b), and a handful of others are now shaping the future of mining-sites research.

An environmental designer and historical geographer with a Ph.D. in geography and architectural history (Francaviglia 1982:267), Francaviglia is uniquely qualified to develop new theories in the field. He served as Deputy State Historic Preservation Officer for the State of Ohio (Francaviglia 1988). His is an historical-geographical approach to viewing mining sites (Francaviglia 1988:3), one in which he emphasizes the mining landscape (Francaviglia 1991).

Francaviglia maintains that the visible impact left on the landscape by mining pursuits has a detailed story to tell about the types of mining activities conducted there. (Note the direct contrast to Fenenga's impression nearly 25 years earlier that the disrupted mining landscape could yield no archaeological data!) First, Francaviglia (1991:4-5) notes that Americans are conditioned to view mining as a veritable blight on the landscape:

> In comparison to greener or less industrialized places, which we like to think show a kind of harmony, mining landscapes are viewed as industrial and exploitative.

According to Francaviglia (1991:9), American culture does not have an aesthetic appreciation for the ''heavily used look'' of the mining landscape. Although one researcher (Kasson 1976:137-180) noted that Americans have a highly-developed aesthetic appreciation for machines, almost to the point of making icons of them, this amicable relationship does not naturally extend to industrial landscapes, according to Francaviglia. Nevertheless, the mining landscape holds great potential for revealing past behaviors.

The mining landscape, to Francaviglia (1988:1), consists of

> a rather complex assortment of man-made topographic features, such as ore dumps and tailings, which result from the processes of ore extraction, separation, milling, and smelting. . . . Although historical archaeologists and historic preservationists often consider the topographic features of mining activity to be veneering, or obliterating, the district's historic and archaeological fabric, such features are appropriately considered to be significant artifacts which reveal much about the human activity in, and context of, the site.

Francaviglia (1988:1, 1991:149) was so enamored of the potential for research based on mining-related landscapes, or topographic features, that he calls them the ''ultimate artifact.'' His assessment is based on characteristics such as a powerful visual signature, large scale, relative permanence, and accuracy as indicators of temporally-diagnostic technological processes. Permanence is a major issue here; Francaviglia (1991:149) noted that these features are likely to remain visible long after associated architectural and engineering features deteriorate.

Within the framework of landscape studies, Francaviglia (1988:126-149) also discussed the factor of change over time at mining sites. It is possible to trace the record of introduced technologies by "reading" the mining landscape, and the historical archaeologist must be prepared to recognize the signature of successive phases of ore extraction and processing at a given site. Sequential development of a mine or mill site may complicate or even obliterate earlier settlements or workings, making it impossible to identify their original locations and morphologies (Alanen 1979:52-53; Francaviglia 1988:16-17; Wilke and Swope 1989:20).

Sequential mining, then, may be viewed as a continuum of human activity at a site. This factor introduces a controversial problem faced by historical archaeologists engaged in mining-sites research. While preservationists attempt to protect historical mining sites, modern mining companies may desire to continue the sequence of mining activity at the site. A compromise must be reached, or preservationists will, in effect, be preventing the archaeological sites of the future while protecting those of the past! (Today some preservationists are calling for allowances given to modern mining, for just this reason [Greene 1990:23].)

Donald Hardesty is an historical archaeologist who has devoted much effort to the scientific observation and interpretation of mining sites. Because the "key human activity in historic mining districts is the production of minerals with an industrial technology," Hardesty (1986:47) stated that industrial archaeology should have research priority. He (1986:47) bemoaned simplistic, CRM-based studies of mining sites limited to surveys and inventories, or such research concerns as settlement patterns or community ethnic constructs.

Based on his observations of the limitations of traditional industrial archaeology, Hardesty (1988:17) urged a modified approach:

> The traditional and most common practice of industrial archaeology is limited mostly to detailed architectural and engineering descriptions of surviving machinery and buildings. . . . Without question, what remains at some mining sites can be approached in this way. . . . Unfortunately, however, surviving technology and buildings are not common at mining sites. Rather, they are rich in trash dumps, residential house foundations, privies, and other remains of the miners themselves. The goals of traditional industrial archaeology do not seem broad enough to take advantage of the information contained in the archaeological record of mining sites.

The approach proposed by Hardesty (1990:40-45) involves research at three concentric geographical scales: the world system, mining district, and locality. The scales provide contextual levels for study. Hardesty's (1988:1) proposed world system research scheme includes three interaction spheres: materials, population, and information. He clearly illustrated how archaeological and documentary data can be used to define the three spheres. Hardesty is fond of conceptualizing by threes; in his scheme, the mining site can be further divided into three types of loci, called "feature systems":

> One group is related to technology and includes such things as mine shafts, adits, machine pads, building foundations, cyanide can dumps, charcoal and s[l]ag scatters, and the like. Another group is related to the domestic life of miners, including such features as house sites, privies, tin can and glass bottle dumps, and stable/corral outbuildings. And yet another group of archaeological features is related to mining landscapes, including rock waste dumps at mines, mill tailings, open pits, slag heaps, and the like [Hardesty 1990:39].

Hardesty's (1990:39) feature system scheme is probably the most useful of his proposed research agendas, and certainly is the most often employed by other researchers (Noble 1989:4). Here, he proposes identification of mining systems in each of the three interactive spheres. Through this holistic approach, says Hardesty, context is provided "by establishing *linkages* in time, place, and theme." The feature system research strategy is a useful one; it is important in that it integrates evidence from history, archaeology, and ethnography.

Hardesty (1988:111-116) has proposed a model of Darwinian evolution as a potential research strategy for use at mining sites. Although his proposal seems plausible with reference to the brief case study provided, few other researchers have applied it as a method. Like Francaviglia (1988:16-17), Hardesty (1988:12, 1990a:49) also emphasized the importance of recognition of the episodic nature of the mining industry;

> . . . the structure of mining sites should be viewed as discontinuous remnants of multiple occupations and activities, not as a continuous accumulation of historic debris [Hardesty 1990:42].

Historical archaeologists would do well to understand this concept so that it may be recognized in the field.

Hardesty (1988:25) emphasizes the importance of recording and analyzing underground mine workings as a part of the whole picture of human activity at a site.

> The archaeological record of underground mining is much like an iceberg in that the vast majority of the site is buried far below the surface. . . . features in underground mines are often closer to being true "time capsules" than anything else encountered by archaeologists. In some instances, tools, machinery, and refuse have been left behind by miners in the underground caverns and can be used both to date and to identify the activity associated with specific features in the mine.

Sometimes, it is the difficulties and dangers inherent to exploration of abandoned mine workings that prevents their complete investigation. The mines at Calico, for example, are not available for archaeological study because they are on private property. In their documentation of the Zenda Mine, Swope and Hallaran (1989:19) limited their investigation of underground workings due to the instability of the rock. During a 1941 geological investigation of the Beveridge Mining District (Flint 1941:67), ''old stopes were not mapped as their condition made them unsafe.''

State and federal regulations do not provide a means by which the underground portions of historical mining sites on public lands may be investigated safely. Implementation of a program allowing safe exploration of underground mine workings would greatly enhance the level of scientific research at these sites. An incomplete understanding of the significance of a site is attained without a record of the underground mine features and an inventory of artifacts located underground. It is a well-known fact that some mines contain abandoned equipment and artifacts that would provide a wealth of data concerning the level of technology, and working atmosphere at those sites. Only when these site components are accessible are these data retrieved. Until standard procedures for mine stabilization prior to investigation are developed, the archaeologist will either continue to explore at risk or avoid recording important portions of mining sites. In any case, the archaeologist must acknowledge that underground workings contain a wealth of data potential, and are legitimate features of mining sites.

As the field of mining-sites research matures, numerous researchers are making contributions of theory and practice. In this branch of historical archaeology, structures seldom are found extant. Consequently, many of our interpretations must be based on archaeological remains. Site formation processes responsible for the archaeological record at mining sites include the mobility of miners, reuse of equipment and goods, and post-abandonment factors (Hardesty 1986:51; Francaviglia 1991:134-135), and may reveal much about the history and human story of a site.

Historical archaeologists now recognize (Barker 1990:45; Reno 1990:56) that mining sites should be studied with an understanding of their original groupings (e.g., the mining district), the method of research employed in Hardesty's three geographical scales. In this way it is possible to reconstruct the meaning and function of site groupings as viewed by their original occupants. The standardization of archaeological site records, while necessary, has created a situation in which the historical archaeologist must create artificial boundaries between site components. For example, the typical mining operation contains some or all of the following: ore extraction loci, an ore reduction locus, an ore processing locus, residential/company loci, and connecting trails or roads. Frequently, the activities performed at each locus require that they be widely separated on the landscape in order to take advantage of ore bodies and water sources, for example. Of necessity, separate archaeological site records are prepared for each widely separated locus, and each locus may become a "site." Further complicating the situation, it is possible that some of the loci are outside the boundaries of the study area, on private land, or destroyed by development or later mining activity, resulting in a situation where only a part of the mining process is recorded. It is imperative, then, that the archaeologist discover, understand, and report the history of a mining operation, the technologies employed, and the interrelationships affecting activities carried out at each locus. Without an appropriate interpretation, the sequence of events at a mining site is lost.

Many researchers now acknowledge the importance of "reading" the mining landscape *a la* Francaviglia (McClelland et al. MS:1-2; Schlereth 1980:198; Noble 1989:2; Rubertone 1989:51). Schlereth (1980:184-185) called this "above-ground archaeology."

One important development in the field is in the realization of the importance of the small-scale mining site. While the technology and living conditions of "spectacularly successful" mines such as those of the Comstock are well documented in the literature, the archaeology of everyday life at small-scale mining sites usually goes unaddressed (Noble 1990:28). These smaller, unrenowned mining districts are now recognized as representative of the type of mining most frequently conducted during the last century and early part of this century (Costello 1992:2). One CRM study (Wilke and Swope 1989:36, 38) stated:

> Perhaps most striking of all observations to emerge from the description of the features at the C & K Mine is that the enterprise was a low-budget operation. In this respect, it was more typical of the hundreds of mines in the California deserts than any of the more famous and well-known mines. The average miners that did not sell out to large financially stable business concerns toiled near danger and financial insecurity. . . . Ironically, while we believe the C & K to be typical in many respects to most historic mining operations in the California deserts, the actual nature of that enterprise, both written and material, often remains unrecorded, not easily recoverable, and largely forgotten.

Following is a discussion of two avenues for research well suited to mining-sites research. The first, the study of material culture, is often attempted, but greater interpretive potential is possible if the artifacts are used to answer more sophisticated questions than generally are addressed through such research. The second emphasizes integration of the archaeological and documentary record, a technique seldom performed adequately.

Archaeological investigations at Beveridge provide an example of the potential for research at one of the little-known and inadequately documented mining sites. Typical (or stereotypical) mining sites receive the attention of the public in general, as well as the attention of most historians and archaeologists. Expansion of our understanding of mining in the American West is possible through the investigation of the human experience at remote sites, difficult of access, such as Beveridge.

STUDIES OF MATERIAL CULTURE

Historically, archaeologists have failed to extract and synthesize human behaviors from artifact assemblages (Schlereth 1985:159). Modern studies of material culture extend beyond elementary reconstructions of foodways and consumer markets based on material culture assemblages. In this way, data from artifacts may reveal information concerning lifestyle, socioeconomic setting, diet, social ideals, and availability of resources. Material culture can be considered "that segment of man's physical environment which is purposely shaped by him according to culturally dictated plans" (Deetz 1977b:10). The now-popular social history benefits from studies of material culture, which support the historiographical data upon which that field has relied (Cohen 1982:291).

Several landmark studies of material culture research have been published. Leland Ferguson (1977:8), writing on "Historical Archaeology and the Importance of Material Things," was among the first to recognize the contribution studies of material culture could make to our understanding of human behavior. In his *Artifacts and the American Past*, Schlereth (1980:2) pointed out that material culture is not culture itself, but the product of culture. Further defined, he stated:

> Material culture study attempts to explain why things were made, why they took the forms they did, and what social, functional, aesthetic, or symbolic needs they serve. Moreover, a basic assumption underlying such teaching and research is that artifacts are cultural statements . . . The historian's primary purpose in using artifacts is always to interpret them in their cultural history context [Schlereth 1980:3].

James Deetz (1977a:25) made two vital observations concerning the proper execution of material culture studies. First, such studies should be concerned with simple artifacts, not just elaborate ones, and second, should have the potential for interpretation of details that usually escape historical mention. He added that material culture "may be the most objective source of information we have concerning America's past" (Deetz 1977a:160-161), since artifacts do not lie. Directly related to this statement is one by Schlereth (1985:157), that social historians and material culture researchers

> expand . . . the traditional boundaries of American historical scholarship and thereby actually . . . *redefine* what constitutes American history [emphasis added].

A less exaggerated, and more accurate statement might be that material culture researchers *refine* the historical record.

Purser's study (1987:212, 245) of material culture in a nineteenth-century community showed that material culture can serve as a marker of wealth, or of spatial and social categories, when the meaning carried by an artifact during its use-life is considered. This type of study is investigated further in Chapter 10.

A type of material culture study more often performed at mining sites is the investigation of mining equipment and related artifacts. This aspect of material culture cannot be ignored if historical industrial technologies are to be understood. When the technological indicators of mining activity in the form of machinery have been removed, obliterated, or have fallen into decay, it usually is possible to analyze the remnants (features and artifacts) of the technology, along with the mining landscape, and put together an accurate picture of the mining activities at the site. Even when the only remnants are ore dumps, road networks, and abandoned prospects and shafts, some degree of understanding of operations at the site should be attainable.

Consumer Behavior

Another topic of study closely related to material culture studies is that of consumer behavior. Hardesty (1990:45) promoted the study of consumer behavior at mining sites, with special attention given to the availability of goods in frontier "colonies." Spencer-Wood's *Consumer Choice in Historical Archaeology* (1987) is a state-of-the-art treatise on this type of research.

One of the most interesting results of studies of consumer choice on the mining frontier has been the discovery that frontier conditions were not "totally spartan" (Teague and Shenk 1977:49). This discovery is perhaps best exemplified by the excavation of the steamboat *Bertrand* in 1969 (Petsche 1974). The steamer sank in the year 1865 on the Missouri River, *en route* to Fort Benton, Montana Territory, from St. Louis, Missouri. Much of the cargo was bound for western gold camps. Archaeological investigations recovered approximately 10,000 cubic feet of cargo which is considered

> . . . material culture "captured in time," precisely dated, and quite representative of the mining technology and frontier economy of mid-19th century North America [Petsche 1974:2].

Among the cargo on its way to "humble" miners were such luxury commodities as candy, brandied cherries, lemon sugar, lemonade concentrate, oysters, pineapple, spices, tamarinds, bolts of silk, braid, lace, ribbons, tassels, indigo dye, and waffle irons. The revelation that such commodities were available despite frontier conditions is an example of the types of anthropological discovery possible through studies of material culture.

ARCHAEOLOGY AS A SUPPLEMENT TO THE HISTORICAL RECORD

As stated by Fagan (1988:28), "both historical and archaeological data are such that gaps always remain in the reconstruction of the past." Some researchers (e.g., Fenenga 1967:81; Baker 1978:20-21) have wrongly assumed that an abundant and adequate documentary record exists for historical mining sites. Certainly, the archaeological investigation of a site must contribute something beyond the documentary record, or there is no ethical reason for performing the inherently destructive techniques of excavation. Cleland and Fitting (1978:244) stressed that "prior knowledge of historic records and documents is as important to the proper excavation of historic sites as the ability to distinguish between trench fill and potholes." Discussing the archaeology of mining sites in the Black Hills of South Dakota (State Historical Preservation Center 1985:2), a proper documentation was described this way:

> . . . in order to properly assess the site, its physical remains must be analyzed in light of the historic record. This means that the evaluation of an individual site cannot be made from looking at the site and reading general Black Hills' history. Rather, the significance of the site is derived from its place within the context of the history of mining and milling technology and within the framework of South Dakota history. Without proper historical research, it is easy to disregard a piece of broken machinery, which may have been part of an important, historical process.

Understanding mining technology in general, in addition to knowing the history of development and operation of a particular mine, allows the researcher to interpret more fully the series of events represented by remains in the archaeological record (Francaviglia 1988:21) and place a site in its proper historical context.

Unfortunately, documentary sources are, as Rohe (1984:99) poetically put it, "as widely scattered and often as elusive as the gold for which the miners searched." While publications of a secondary-source level are numerous on the topic of mining in the American West, primary-source material is crucially scant. The California State Mining Bureau (predecessor of the State Division of Mines) was not formed until 1880, and even records from the early years of that organization are incomplete (Anonymous 1983:95). Local government records, usually stored in the courthouse of the county seat, frequently are missing, misfiled, or otherwise unavailable to researchers.

It is necessary for the historical archaeologist, then, to be trained to search out the occasional shred of documentary evidence from a variety of sources, including local, state, and federal government records, newspapers, invoices and account books, company records, tax assessment records, census records, historical maps, photographs, personal diaries, letters, mementos, and oral histories.

That historical documents act as a supplement to the archaeological record cannot be disputed. In many cases, the "observations of the population majority" (Alanen 1979:57) were never set down on paper. Often, information recorded in written documents (for example, diaries, letters, and newspaper accounts) is incomplete or incorrect, and could be supported or refuted through archaeological research. People often wrote down only what they hoped would be perpetuated, and lacked the foresight to see that their writings might alter the historical record. On the positive side, incorporation of primary documentary evidence allows a rare glimpse into the minds of the miners, merchants, and families associated with a mining settlement.

> By considering the documentary and archaeological records as two independent data sets, discrepancies between the expected and actual archaeological pattern can be used to generate a more complete organizational model of cultural behavior than is possible from either the documentary record or the archaeological record alone [Spencer-Wood 1987:5].

Schuyler (1988:38-40) warned the historical archaeologist to treat the archaeological and documentary evidence equally, taking care not to allow theoretical bias to structure one's interpretations.

DISCUSSION

Current proponents of mining-sites research continue to remind us that a holistic approach to historical archaeology is best, integrating archaeology, documentary research, studies of material culture, ethnographic observation, and oral history (Deetz 1977a:6-13; South 1979:213; Hardesty 1986:48, 1990:43; Francaviglia 1988:23, 1991:130). The field of mining-sites research has an exciting future. When the holistic approach outlined above is employed by researchers well equipped to interpret the mining landscape as outlined by Francaviglia and Hardesty, the resultant picture of past mining will be as complete as possible.

Research pertaining to Beveridge has provided a case study for the implementation of the holistic approach outlined above. This study helps to dispel the frontier mining-camp stereotype, while providing an illustration of the potential for the anthropological study of mining sites. Studies of material culture, the mining landscape, and archival sources were integrated to provide as complete a picture as possible of the Beveridge Mining District. Beveridge was particularly well-suited to this type of study, because of the extreme conditions under which the miners worked and lived, and because of its high degree of preservation.

Chapter II

QUESTIONS GUIDING THE RESEARCH

The human experience in the Beveridge Mining District can only be understood within the context of the remote and difficult nature of the setting. Presentation of a number of historical reports will provide a background for analysis of the various strategies developed by Beveridge miners in order to contend with the oppressive natural obstacles that stood between them and the gold they hoped to extract from the Inyo Mountains.

In 1880, the following description of the district was carried by the *Inyo Independent* (3 July 1880d):

> As a rule the mountain faces on all sides rise above the bottoms of the cañons from 1,000 to 2,000 feet, and so nearly vertical in most places as to be inaccessible to anything without wings.

The following serves to illustrate the rugged contours of the land:

> At this camp [McEvoy Mill] they only have about ONE HOUR'S SUNSHINE During the Winter days. At Juarez City the sun does not shine for four months. At Chris Crohn's there are places the sunshine never reaches [original emphasis] [*Inyo Independent* 25 September 1880f].

Another item described the district:

> Altogether, Beveridge District is too ''grand, gloomy and--*gorgeous*'' to be described in words. It must be seen and traveled over to be appreciated [original italics] [*Inyo Independent* 20 May 1882q].

And, recently, "it is wild, rugged, dry, country, accessible only by foot, then as now a challenge to men's ingenuity and stamina" (Walker 1968:3). With one exception, no wagon roads ever accessed the Beveridge Mining District. A road follows the Inyo crest from Cerro Gordo, and runs north as far as the Burgess Mine (the southernmost mine in the district [Fig. 2]).

Because of its exaggeratedly precipitous location, Beveridge is considered an extreme case. As expressed by Binford (1979:255), understanding an extreme case "often facilitates comparison with other 'extreme' conditions, and promotes appreciation of variability 'between the extremes' better than does an understanding of a 'modal' case." Ore deposits are rarely located in easily accessed terrain. Particularly in the California deserts, the typical nineteenth-century mining strike was made in a marginal setting, devoid of natural resources other than mineral wealth. As expressed by Watkins (1971:195),

> In whatever form they appeared, gold and silver had the disconcerting and inconvenient habit of locating themselves in country that would have challenged the climbing expertise of a mountain ram.

Consequently, mines and mining camps were, of necessity, located in remote, isolated areas. The distribution of ores has a direct impact on the configuration and rate of settlement in a given area (cf. McLaughlin 1956:852). According to Hardesty (1988:101-102), mining settlements may take one of three possible forms: (1) a single large town associated with a large body of ore, (2) several smaller settlement nuclei associated with smaller ore bodies distributed over a larger area, and (3) lack of nucleated settlements, with dispersed households in an area of widespread, low-grade ore

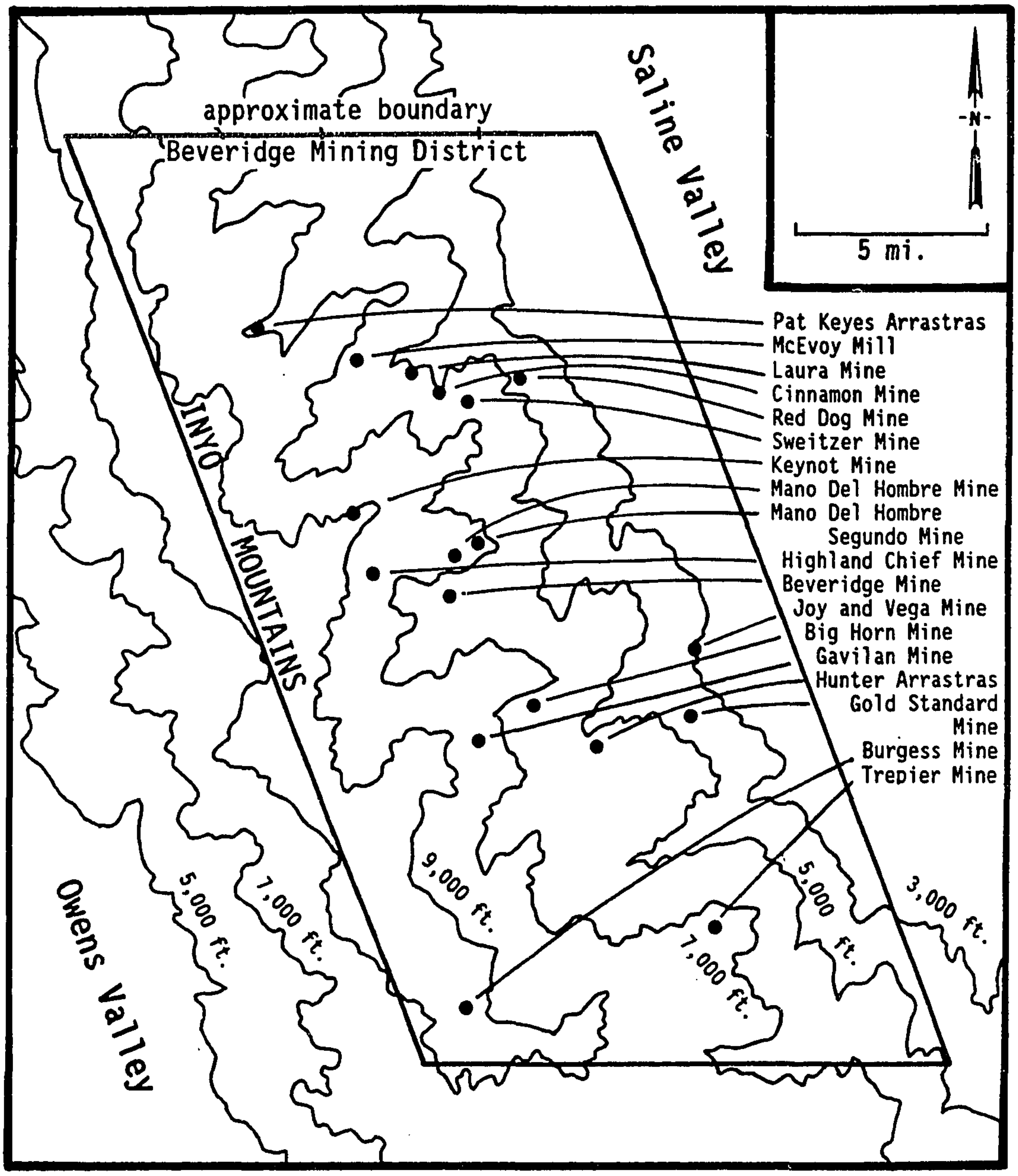

Figure 2. Locations of identified mines in the Beveridge Mining District.

deposits. During the boom period of Beveridge history, Hardesty's second form of settlement is applicable, with camps around the Keynot and Big Horn mines, for example. During the later period of decline at Beveridge, the third settlement type was prominent, with scattered, autonomous mine workings and associated individual camps on a smaller scale.

ENVIRONMENTAL DETERMINISM AND CULTURAL ECOLOGY

Stresses inherent to the remoteness and difficulty of the Beveridge Mining District were expected to have a visible impact on human behavior. At the outset of research, it was hoped that through observations of the archaeological remains and a review of the historical documents pertinent to this site, a situation that differed from contemporaneous mining sites would be revealed. The theories of environmental determinism, possibilism, and cultural ecology were explored to determine whether predictions concerning human behavior in similar situations could be made.

Describing coal mining settlements, Jackson (1968:147) stated,

> . . . mining settlements more than any other have their terms of reference clearly laid down by Nature. . . . Any locational advantage is an ephemeral phenomenon and industry and the settlements connected with industry are, by fits and starts, continually moving to tap the benefits of such factors.

Models of environmental determinism maintain that environment plays an active role in determining human behavior, which is passive to the influences of nature (Fagan 1988:78). Deterministic arguments are most applicable when the *location* of mining sites is considered; mines *must* be located where an ore deposit occurs. The arguments are less applicable, however, when more holistic questions concerning the anthropology of mining sites are contemplated.

Theories of possibilism attempt to soften deterministic arguments, maintaining that environment plays a limiting or selective role (Geertz 1963:2; Hardesty 1977:4-7). As Hardesty (1977:4) put it, possibilist arguments state that environment plays a role in explaining "why some features of culture did *not* occur but not in explaining why they *did* occur" [original italics]. In his book, *The Meaning of Human History*, Cohen (1947:170) wrote this possibilistic discourse:

> The first step that needs to be taken in the refinement of [environmentally deterministic] theories is to recognize that elements of the physical environment are necessary but not sufficient conditions of any particular course of human development. They set outer limits upon the economic activities, the habitat, and the population density of a given people, but within those limits we must have recourse to the social institutions, habits, technology, knowledge, ideas and aspirations of a people to understand the extent to which they will, at one time or another, exploit the possibilities that brute nature holds before them. Only as we have recourse to these human factors can we understand the different responses that a given people makes in different eras to relatively stable and constant environmental factors.

Anthropologists now accept man-environmental models that assign a noncausal role to environment, or that recognize complex mutual interaction in favor of stringent environmentally-deterministic arguments (Hardesty 1977:3). Nevertheless, anthropologists recognize that the dynamics of human behavior are tied to the dynamics of the natural environment (cf. Fagan 1988:444). This idea of complex mutual interaction, as outlined by Hardesty, is an important one. Neither humans nor the environment exist as separate spheres, rather, each actively influences the other in a complex interrelationship. This idea is known as cultural ecology (Geertz 1963:6; Hardesty 1977:8-10).

> Cultural ecologists see human cultures as subsystems interacting with other subsystems, all forming part of a total ecosystem with three major subsystems: human culture, the biotic community, and the physical environment.

> Thus the key to cultural process lies in understanding the interactive relationships among the various subsystems. . . . the human response to diverse environments will be different and distinctive. Although the possibilities for human adaptation to an environment are almost unlimited, the number of probable adaptations to a specific environment is limited. . . . Some environments are inherently less productive than others, a factor that can limit population growth as well as other cultural responses [Fagan 1988:524].

Acknowledging that environment is a persuasive factor in site development, McClelland et al. (MS:2) argued that people modify the natural environment consciously and unconsciously through their traditions, tastes, technologies, and activities. The situation at Beveridge, however, was one in which modification of the natural environment was a particularly difficult, strenuous, and expensive task. Lewis (1979:26) made the following observation:

> In earlier, simpler times, with less money, less sophisticated tools, and less information, "conquering geography" was even more expensive, and people avoided such extravagance whenever they could.

Lewis (1982:177) reinforced this observation by stating that "people will not change [the] landscape unless they are under very heavy pressure to do so." An approach that particularly applies to the situation at Beveridge is one in which culture elements are said to be adapted to the environmental setting (Evans 1978:10).

Schlereth (1980:188), however, warned that deterministic interpretations not be pushed too far. American history, according to Schlereth, has not been determined by geographical factors, but these factors have "played a significant role up through the nation's nineteenth- and early-twentieth-century regional and urban development."

At Beveridge, the precipitous terrain and meager resources such as wood and water constrained potential cultural activity. Consequently, interaction between participants, available material culture, and the type of mining technology employed were partially determined by environmental factors.

The matter of individual choice as a factor in cultural behavior must be considered with regard to the situation at Beveridge. The Beveridge miners were forced to comply with some limiting environmental factors. It will be shown, however, that the miners forced certain activities and technologies on the environment. It was expected that the rugged environment of the district had an immense, visible impact on the interaction of miners, merchants, and their families, on contact with the outside world, and on potential mining technologies employed.

A set of hypotheses and expected behaviors was developed for occupants of the Beveridge Mining District. Actual behaviors at Beveridge were found to match expected behaviors with reference to some of the research questions, but not in every instance. Incidence of conformity and variation are discussed in following chapters.

A major research objective was to reconstruct a picture of the lives of persons working and residing at Beveridge. Through a study of the technological and domestic remains at the site, a better understanding of how humans reacted to the type of adversity encountered at Beveridge was achieved.

RESEARCH QUESTIONS

Three research questions were developed that were expected to be informative concerning the degree to which people conformed to expected patterns of mining camp life, and the way they used space within a geographically restrictive environment. By addressing the three research questions, it was hoped that data applicable to a more general or comparative framework of mining sites would be gained. That is, observations of the situation at Beveridge were expected to assist in the interpretation of other mining sites that are located in the Great Basin, are contemporaneous with Beveridge, or are similar to Beveridge in terms of terrain or commodity.

Chapter III

RESEARCH METHODS

The Beveridge Mining District is recognized as among the most significant large mining sites to remain in the California deserts. The remoteness of this mining site makes it peculiar among its contemporaries. Because it is situated in a particularly inaccessible area of the Inyo Mountains, Beveridge retains a high degree of preservation. For this reason, and because vandalism and looting of the site are known to have accelerated during the past two decades, an archaeological study of the site was an indispensable necessity. Natural decay, looting of artifacts by unauthorized parties, and modern mining pursuits all continue to remove or disguise portions of the complex story of human activity in the district. A sense of great urgency, therefore, prompted the fieldwork.

PURPOSE OF THE RESEARCH

Several purposes guided this research. First, archival sources pertaining to the site were expected to provide a history of the site, as well as a basis for interpreting archaeological remains. Second, it was hoped that a thorough record of the human behaviors and mining technologies peculiar to this site would be gained through archaeological investigations, before the historical and anthropological significance of the site was lost. Third, observations of the material culture present at the site were expected to assist in identifying and dating various site loci, as well as providing information toward a development of the social history of the site. Fourth, the site would be compared to better-known, contemporaneous mining sites in order to make meaningful comparisons and contrasts. Additionally, three specific research questions were addressed, as detailed in Chapters IX, X, and XI. Briefly, the research questions were (1) how do humans interact when conditions prevent easy movement between mines, residences, and the outside world?; (2) what sacrifices are people willing to make in order to transport items they consider necessary into a precipitous area, and what items are people willing to do without while living and working in an area with limited access?; and (3) what modifications are made to standard mining technology in order to make the best possible use of equipment transported to a site?

APPROACH TO THE RESEARCH

Because of the sketchy and ephemeral nature of much of the written documentation concerning western mining sites, a multi-faceted approach to research was necessary. The approach combined research in the fields of ethnohistory, ethnography, history, and archaeology.

General Background Research

First, it was imperative that a general understanding of historical archaeology, industrial archaeology, mining technologies, and social history in terms of frontier societies be achieved. Pertinent data from each of these fields are outlined in Chapter I.

Next, it was necessary to reach an understanding of mining technologies used in the American West during the nineteenth and twentieth centuries. This was accomplished through (1) intensive study of technical mining books, including such works as Scheidel (1894), Bosqui (1899), Louis (1899), Ihlseng (1904), Wallis-Tayler (1911), MacFarren (1912), Peele (1918, 1941), von Bernewitz (1926), Idriess (1932), Rickard (1932), Richards and Locke (1940), Lewis (1941), and Thrush (1968). Additional attention was given to recent anthropological and sociological works on miners and mining communities (e.g., Bulmer 1975; Alanen 1979; and Godoy 1985). Historical frontier studies found to be useful included Paul (1963), Lewis (1973), Hine (1980), and Green (1985). Particular attention was given to treatises on the current methods of archaeological research conducted at mining sites, such as Hardesty (1980, 1986, 1988, 1990a), State Historical Preservation Center (1985), Francaviglia (1988, 1991), Noble (1989, 1990), and Barker and Huston (1990). Works concerning the lifeways of miners also were consulted (including Todd 1967; Shinn 1970; Rowe 1974; Young 1976; Brown 1979; Currie 1980; and Ewart 1989).

Specific Area Research

Standard mining publications also were reviewed. An index to pre-1922 articles in the *Mining and Scientific Press* was found to contain many references to mines in the Beveridge Mining District. It was found that these articles merely recounted news previously published in the *Inyo Independent* and other local newspapers, and rarely provided new information.

Geology of the Inyo region was researched with the help of works by Knopf (1918), Flint (1941), and Sharp (1972), among other works cited in Chapter IV. Questions of material culture studies and consumer choice were addressed with reference to Schlereth (1980, 1985), Purser (1987), and Spencer-Wood (1987).

Accounts of the history and development of Inyo County and the California deserts provided the basis for research in this realm; these references are addressed in detail in Chapter V. The bulk of general, reliable references to the history of the region, however, were found in published government reports such as those of the State Mining Bureau (later the Division of Mines). Annual Reports of the State Mineralogist yielded invaluable data concerning the contemporary status of mines in the district. These reports contain locational information (and occasionally maps) which were of help in identifying the various mines. Limitations inherent to the use of such government records were outlined in Chapter I. Reference was made to recent reports by the U.S. Bureau of Mines (Close 1985) and the California Division of Mines and Geology (Taylor and Joseph 1988). While such references are important in the formation of an accurate district chronology and in an understanding of trends in local mining development, they ignore the human side of the story, as well as the story of the smaller mining pursuits. In addition, records of mine production often are questionable; as one observer put it, official records contain

> only the figures of a reporting agency and [do] not consider hidden metal secreted in leather pokes to later be weighed on gold scales as payment for provisions, drinks over the bar, gambling debts or hidden from the stockholders [Inyo County Board of Supervisors 1966:31].

Archival Research

Piecing together a picture of the day-to-day lives of the Beveridge miners required an in-depth investigation of primary archival materials. Although this type of research is extremely tedious, time-consuming, and often yields negative results, the bulk of data used to compile a history of Beveridge and a picture of the lifeways of Beveridge miners was found in archival sources.

Concentrated attempts were made to recover archival sources directly pertinent to Beveridge. The disposition of Inyo County records was found to be a complicating factor in the availability of local records. Inyo County was served by a circuit court during its early days, with the result that records might be stored at the Inyo County Courthouse in Independence, or sent to the state capitol. In 1872, the county courthouse was destroyed by earthquake, and in 1886, the replacement structure was destroyed by fire. Consequently, records from the formative and boom years of the Beveridge Mining District were lost. Records that may be on file in state repositories are not indexed, and so are virtually unavailable.

Historical photograph collections were consulted in an attempt to illustrate the historical appearance of Beveridge. Photographic collections of the Regional History Center at the University of Southern California, the Huntington Library at San Marino, the California State Library at Sacramento, and the Bancroft Library at the University of California, Berkeley failed to yield photographs of the site. The Seaver Center for Western History Research, Los Angeles County Museum of Natural History, contains a collection of photographs taken by Owens Valley photographer Andrew Forbes, from ca. 1890 to 1915, but this collection yielded no photographs of Beveridge. Only the collections of the Eastern California Museum, Independence, contained historical photographs of the site.

A number of historical maps of the region were located, but most were of limited assistance in identifying and plotting particular mines. Maps were found in the collections of the Inyo County Registrar's Office, the files of the Bureau of Land Management, and the California State Library. Partially successful attempts were made to reconcile the location of mines on historical maps with the location of extant archaeological features. The results of these efforts appear in Figure 2.

Limited demographic statistics were obtained through the Great Register of Voters, on file at the Inyo County Registrar's Office. Financial and time constraints prevented further research in the tax assessment records and mining claim location notices filed at the Eastern California Museum and the Inyo County Courthouse, respectively. This type of research is the most time-consuming, and is not guaranteed to yield positive results. Additional demographic and biographical data were located in the Death Index at the California State Library. It was possible to compile a list of names of a good number of Beveridge miners and others associated with the district through newspaper articles, a period directory of Inyo County (Anonymous 1885), and government mining reports.

A number of useful sources were obtained from the local history files of the Inyo County Free Library, Independence. Among the "Bancroft Scraps" collection of the Bancroft Library are books labelled "Mining Clippings." These were found to contain newspaper clippings relevant to the research. The Eastern California Museum curates a small collection of artifacts from the Beveridge Mining District which have been donated to the museum over the years by visitors to the site. A fair amount of data concerning Beveridge previously had been compiled in the files of the Bureau of Land Management.

Master Survey Plats of the General Land Office records were reviewed with negative results; no Beveridge district claims have been patented. Unfortunately, unpatented claims are not officially mapped and usually their boundaries remain unsurveyed; consequently, they cannot be plotted with great accuracy (cf. Anonymous 1983:95). Even attempts to ascertain the boundaries of the Beveridge Mining District were unsuccessful; according to a BLM Locatable Minerals Specialist (Rob Waiwood, personal communication 1992), mining district boundaries lost their importance as county governments gained power, resulting in a situation of flexible district boundaries (see also Anonymous 1983:95).

Other sources discovered in the files of the BLM include aerial photographs, reports of archaeological reconnaissance in the district (Moore 1981), and other unpublished reports. The BLM also maintains a case file concerning the recent Keynot Mine controversy.

The files of the Eastern Information Center of the California Archaeological Inventory contain site records for previously recorded archaeological sites in the research area. Upon consultation, these records were found to provide data concerning location of a few of the mining sites in the area, but few attempts had been made to identify the mines themselves. In most cases, fieldwork and site records were completed by prehistoric archaeologists with little or no training in the identification and interpretation of historical mining sites. Consequently, previously completed site records were found to be of little use beyond determining the amount of attrition at various sites.

Without exception, most of the data used to compile the history of the Beveridge Mining District and a picture of life at the site were gleaned from contemporary, local newspaper articles. The *Inyo Independent* (Independence) was read exhaustively for the years pertaining to mining in the district (1865-1920); spot checks were made for years after the last known reference. Additional newspapers yielding data specific to this research include the *Bishop Creek Times*, *Daily Alta California* (San Francisco), *Daily Bodie Standard*, *Daily Evening Bulletin* (San Francisco), *Daily Independent* (Ridgecrest), and the *Inyo Register* (Bishop). At the beginning of research, it was believed that newspaper references to the Beveridge Mining District were sparse, but an exhaustive (though time-consuming) search was rewarded by the compilation of about 280 articles directly pertinent to the research!

While historical newspapers provide information not available in company and other official records, these accounts must be used with caution. Mining camp newspapers had a three-part purpose: to furnish news of the outside world to an information-starved population, to promote local mining interests through reports of new strikes and current production (cf. Rohrbough 1986:30), and to entertain the local populace. According to Lewis (1986:xiv),

> . . . they filled their columns with all sorts of items designed to produce a chuckle: humorous anecdotes, hoaxes, satire, brief sketches poking good-

> natured fun at local events or customs, or holding up to none-too-mild ridicule the foibles of their fellow townsmen.

Mining-town journalism has been described as an "unending quest for copy," concerned with "numerous small happenings that would have been considered too commonplace to be given space in papers published in more populous centers" (Lewis 1986:84). It is through these anecdotal items, however, that the lifeways of local residents are understood. Because the nineteenth-century towns of Owens Valley did not exist solely as supply centers for the mines of the region, newspapers that served the area are to be considered on a somewhat higher level than the standard mining camp rag sheet. It was not their express purpose to further mining interests; consequently, less exaggeration is evident in their treatment of the mines.

Articles in the *Inyo Independent* were used most extensively during research. For decades, this four-page weekly newspaper carried items of local interest on its third page, while local advertisements and public notices appeared on page four. Most of the references to the Beveridge district were found on the third page.

Oral Interviews

At the inception of research on the Beveridge Mining District, it was hoped that a number of oral interviews with Beveridge miners or descendants of those who worked the district mines would be possible. Unfortunately, the whereabouts of potential ethnohistorical informants were not discovered. A man named Beveridge Nilson (alternate spellings of the last name are possible) reportedly was born while his parents lived in the district (Don Becker, personal communication 1990). The man reportedly lived in Yucaipa, California, as late as the 1980s. Armed only with the information that he was a Seventh-Day Adventist, the author attempted repeatedly to locate him, but all attempts proved unsuccessful.

Local resident and part-time miner Alan Akin provided invaluable assistance throughout the research. He shared his immense knowledge of the region, as well as his acute understanding of the historical mining operations of the district. He guided the archaeological team on the first and part of the second phase of fieldwork. Long hours spent discussing the history of the site resulted in a better understanding of the site than would otherwise have been possible. A brief interview was conducted with Roy Hunter, grandson of W. L. Hunter (instrumental in forming the Beveridge Mining District), and further discussions with this informant are planned. Many conversations were held with individuals who had at some time in the past visited the site; no pertinent information was recovered from these interchanges.

Comparative Studies

Research included several years of field and archival research at a variety of mining sites in the California deserts. First-hand experience at various sites provided the author with a basis for interpreting extant remains at the site.

Sites contemporaneous with Beveridge (e.g., Bodie, Calico, Randsburg) and sites in the local region (e.g., Bodie, Masonic) were studied; also studied were easily accessed sites (e.g., the C & K Mine, and Randsburg), and sites in an exaggerated setting of difficult access (e.g., the Yukon). Comparative research was conducted regarding mining of a variety of commodities.

No amount of archival and documentary research, however complete, will reveal as much information as an effort that combines documentary and archival research with archaeological field research. The limitations of the oral and written record were discussed in Chapter I, as was the potentially unbiased research available through material culture studies. Much of the background research outlined above was accomplished prior to fieldwork, some of it necessarily followed fieldwork.

Fieldwork

Fieldwork was conducted by the author and small crews of assistants in three trips to the site, and concentrated on Beveridge and Keynot canyons, including the ridge between the two (Fig. 3). A visual reconnaissance was made by helicopter in the summer of 1990. The first field trip took place in August 1991, and consisted of a five-day orientation to archaeological sites located in the study area. Additionally, sites between Frenchy's cabin and the Beveridge Canyon fork (Loci 26-36) were thoroughly recorded during this trip. The second trip was of fifteen days duration in September/October 1991, and entailed a thorough descriptive, photographic, and archaeological recording of all sites encountered in the major study area. The third tour of fieldwork took place for four days during April/May 1992, and resulted in a thorough record of outlying sites not addressed during previous trips (Loci 47-51).

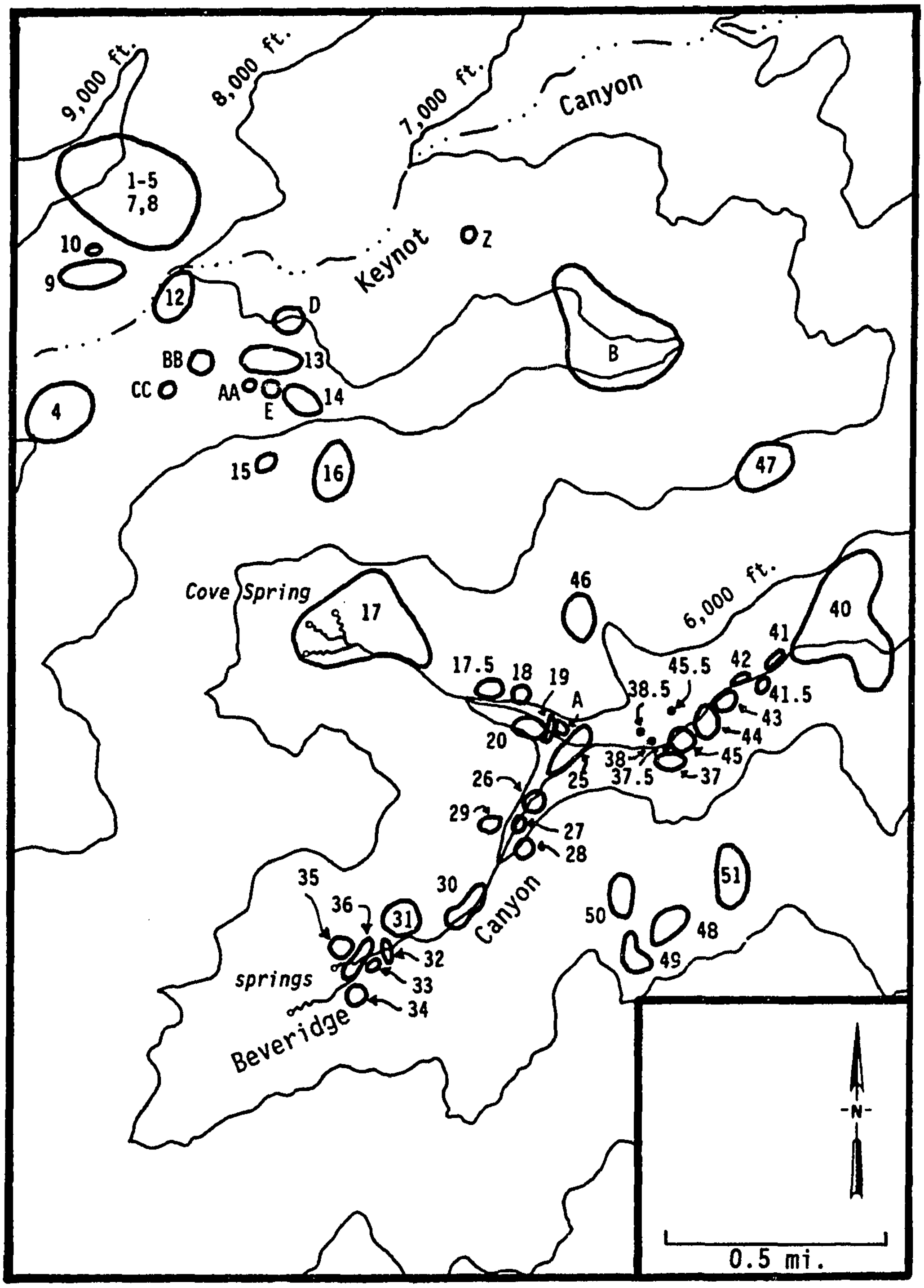

Figure 3. Area addressed during the present study. Archaeological loci are numbered for reference.

An intuitive survey of the area shown in Figure 1 was conducted. As each archaeological locus was encountered, a record was made of site components on audio tape. Site recording included drawing site sketch maps, photographing and measuring features, and preparing lists of extant artifacts and site components. Each locus was assigned a locus number, and was plotted on a master map of the surveyed area.

The research methods outlined above resulted in a body of previously unknown data concerning the Beveridge Mining District. Data that previously had not been compiled were gathered so that the history and development of the district could better be understood. The multi-faceted research approach proved successful; research addressed the purposes set forth at the inception of the study, and provided data to answer the three research questions developed at the outset.

Chapter IV

NATURAL ENVIRONMENT OF THE BEVERIDGE MINING DISTRICT AND ADJACENT REGIONS

The Beveridge Mining District is located in a particularly inaccessible area of the eastern slopes of the Inyo Mountains, in eastern California (Fig. 1). In Beveridge Canyon alone, mining features are spread over a distance of 1.5 mi. (2.4 km.), with an elevation range from 5,260 to 6,400 ft. (1,603 to 1,951 m.). (Beveridge Canyon once was known as Hahn's Canyon, named for C. F. R. Hahn, whose ill-fated service as a guide for an army survey party in 1871 ended in his disappearance somewhere on the eastern slopes of the Inyo Mountains [Leadabrand 1969:24-27].) Surrounding canyons (including McElvoy, Keynot, and Hunter) and mountainsides contain additional remains of mines that were a part of the Beveridge Mining District.

The Inyo Mountains are within the Great Basin subprovince of the Basin and Range geomorphic province (Sharp 1972:52-53; Taylor and Joseph 1988:27). The Basin Ranges are characterized by seven long, narrow, mountain ranges that trend north-south and are of great topographic relief, with intervening alluvial valleys and playas. The Basin Ranges are generally known to be rich in metallic and nonmetallic natural resources (Sharp 1972:55-56).

Northern portions of the Inyo range merge with the White Mountains, with the result that the two ranges sometimes are collectively termed the "White-Inyo Range." According to Wheelock (1985:24),

> The Inyos and the Whites are essentially the same range. Spurr, in 1903, used the name, White, for the entire ridge, while Knopf in 1918 referred to the entire range as the Inyos. Present practice tends to use the name of White for that part north of Westgard [sic] Pass and to call the mountains to the south the Inyos.

The natural history of the White-Inyo Range is detailed in Hall (1991). A brief discussion of the geology, climate, flora, and fauna of the region provides physical context for the study of mining pursuits in the area. As stated by Inyo chronicler Chalfant (1933:11), "no other equal area in North America approaches Inyo County in diversified topography," considering that the county contains both the highest and lowest points in the continental United States within a distance of only 80 miles (Belden 1966:n.p.).

GEOLOGY OF THE INYO MOUNTAINS

The Inyo Mountains contain some of the most striking topography in the United States, and several in-depth studies are available concerning the geology of the area (Carstarphen 1917; Kirk 1918; Knopf 1918; Waring and Huguenin 1919; Flint 1941; Taylor and Joseph 1988).

Carstarphen (1917:711) described the appearance of the Inyo Mountains:

> The topography of Inyo County owes its extreme boldness to the simple nature of the faulting, which is responsible for the Sierra Nevada and Inyo Mountains. When the great blocks of the earth's crust were thrust

upward they assumed a tilt toward the west, so that the slopes on that side are gradual; the east fault plane [in which the Beveridge Mining District is found] has been carved into bold escarpments of exceeding grandeur.

Flint (1941:2) wrote of the area:

> The Inyo Mountains are of extremely high relief, perhaps as high as any region of comparable size in the United States. On the west side, the mountains rise from Owens Valley, 3700 feet above sea level, to an average height of about 10,500 feet in a horizontal distance of about four miles. East of the crest, the altitude declines into Saline Valley, 1100 feet above sea level, in a distance of six or seven miles. . . The eastern slope is cut by great canyons 2000 to 2500 feet deep, which are transverse to the range. In the upper reaches the canyons are broad and open valleys, but they become narrow, impassable gorges as they cross the steep fault scarp along the eastern edge of the range. The resulting topography is on a grand scale, comparable to that of the eastern Sierra Nevada or the south wall of the Grand Canyon.

The Inyo Mountains are largely granitic in content. Their geologic formation was described by Waring and Huguenin (1919:45-55):

> East of Owens Valley, old Paleozoic metamorphic sediments, consisting of limestones, quartzites and schists make up most of the mountain ranges. These are badly folded and faulted, due principally to granitic intrusions.
>
> Overlying the Paleozoic metamorphics of the Inyo Mountains, in places, are an unconformable series of Mesozoic metamorphic rocks, consisting of crystalline limestone, and slates which in places are fossiliferous.
>
> The post-Jurassic (middle Mesozoic) uplift in this region was accompanied by . . . mountain-making to the eastward, at which time, or following, the Inyo-White [range was] formed more or less parallel to the fault line.

The Beveridge Mining District lies in the midst of this rugged, difficult terrain (Fig. 4). "The east slope of the Inyo Range is an eroded fault scarp, steep, devoid of soil, and prone to landsliding" (Taylor and Joseph 1988:27). According to Flint (1941:3),

Figure 4. Representative photograph of terrain and vegetation in the Beveridge Mining District. View east toward Saline Valley.

The typical steep slopes are usually on the order of 30° but often attain 35° or 36°. This results in a rubble cover which makes traverse difficult and largely obscures the geology of the bedrock.

Nature of the Ore Deposits

The extremes of the Inyo Mountains serve to create a unique setting for economic geology in the Beveridge Mining District. These mountains and canyons provide the backdrop against which all human activity in the Beveridge Mining District was forced to take place. Location of ore bodies determined layout of the mines, and topography was a limiting factor in the location of support facilities and residences. Cohen

(1947:160) noted that mineral deposits are a determinant of the course of history to the degree that social habits, institutions, and techniques give them economic significance.

The earliest known newspaper reference to the Beveridge mines contains the following:

> On the north slope of Big Horn [later Hunter] Cañon, extending down the side of one of the numerous "hog-backs" running from the summit of the range to Saline Valley, lies the mineralized zone. The mineral belt--so far as known at present--extends from east to west about two miles, and from north to south about one mile. On the north slope of Big Horn Cañon the formation containing the mineral zone is made up of gneiss, granite, amphibotyte, syenite and diabase-porphyry, the mass of the mountain being composed of a mica-hornblendic granite. Cutting east and west through this mineral zone are several belts of mica hornblende-schist -- apparently pseudo-morphous after granite--from 30 to 200 feet thick, in the middle of which are contained the auriferous quartz veins, from one foot to eight feet thick; striking east and west and dipping north 40 to 50°. . . .
>
> The gold occurs in the quartz in wires, scales and plates, and are [sic] throughout associated with auriferous ochre, pyrites, chalcopyrites and galena, the pyrites largely exceeding in quantity all others. The enclosing schist is soft, and easily removed in mining, thereby easily showing up large bodies of ore with comparatively little labor.
>
> In considering the ancient geological formation of the mineral zone, the regularity and strength of the grand system of parallel auriferous quartz veins, the extensive ore chimneys exposed on the surface, the presence of so many eruptive dykes through an eruptive rock, we are confident that these mines will continue to an indefinite distance in depth, and also that gold will continue to increase in quantity as depth is attained [*Inyo Independent* 18 May 1878a].

It is tempting to assume that the writings of contemporary journalists are factual and wise, based on their first-hand knowledge of the topic. Since numerous contemporary sources were used in this research, it is well to consider the words of Mark Twain (1959:part II:18), speaking of the days he spent working as a reporter on the Comstock:

> They did not care a fig what you said about the property so you said something. Consequently we generally said a word or two to the effect that

> the "indications" were good, or that the ledge was "six feet wide," or that the rock "resembled the Comstock" . . . If the rock was moderately promising, we . . . used strong adjectives and frothed at the mouth as if a very marvel in silver discoveries had transpired. If the mine was a "developed" one, and had no pay-ore to show . . ., we praised the tunnel . . .--but never said a word about the rock. We would squander half a column of adulation on a shaft, or a new wire rope, or a dressed-pine windlass, or a fascinating force-pump, and close with a burst of admiration of the "gentlemanly and efficient superintendent" of the mine--but never utter a whisper about the rock.

Twain went on to relate instances where mining-camp journalists occasionally touted "some old abandoned claim," with the result that "somebody would seize it and sell it on the fleeting notoriety thus conferred upon it" (Twain 1959:part II:18). Although Twain is known for his tongue-in-cheek writing style, these comments indicate a certain amount of journalistic exaggeration. Obviously, the integrity of many contemporary newspaper articles is dubious at best, a fact which should be considered when using these references as historical sources.

A 1918 study (Knopf 1918:106) of ore deposits of the Inyo Mountains stated that

> the gold deposits seem closely linked to the granite, occurring chiefly in the marginal zone of the granite masses or in the immediately adjacent country rock.

Ore deposits in the Beveridge Mining District have been summarized thus:

> The veins strike north . . . The ore contains some free gold, but much of the value is in sulfides, which are abundant in places. Some copper, lead, silver, and zinc have been produced in the district [Clark 1963:147].

Beveridge District veins are known to have been up to 8.5 ft. (2.6 m.) thick (Close 1985:60), and 4,200 ft. (1,280 m.) long (Taylor and Joseph 1988:59). The Beveridge District still is believed to contain significant stores of untapped gold and silver resources

(Taylor and Joseph 1988:2-3). Most of the gold produced in Inyo County was extracted from lode deposits in the Argus and Inyo Mountains (Pemberton 1983:18), and the Beveridge Mining District was the most important gold producer of the Inyos (Knopf 1918:118).

CLIMATE OF THE INYO MOUNTAINS

The climate of Inyo County is as varied as is its topography. The Inyo Mountains lie between extreme temperature gradients between the Sierras to the west and Death Valley to the east. The mountains are characterized by minimal annual precipitation (Flint 1941:5; Bureau of Land Management 1981:6; Taylor and Joseph 1988:28), with the majority of annual precipitation between December and May (Close 1985:14). Summer temperatures may exceed 100° F., and winters usually bring snow and sub-zero temperatures. Snowstorms are a frequent occurrence from October to April (Carstarphen 1917:727).

HYDROLOGY OF THE BEVERIDGE MINING DISTRICT

The only water available in the Beveridge Mining District is found in the form of small perennial streams in the bottoms of Pat Keyes, McElvoy, Beveridge, Hunter, and Craig Canyons, with the largest contained in McElvoy Canyon. The streams are fed by springs occurring at elevations ranging from 5,200 to 7,300 ft. A well was dug near the Keynot Mine in Keynot Canyon sometime during the historic period.

FLORA AND FAUNA OF THE INYO MOUNTAINS

The Beveridge Mining District is situated in an area of Pinyon-Juniper Woodland. Pinyon Pines (*Pinus monophylla*) grow widely scattered throughout the district, and Utah Juniper (*Juniperus osteosperma*) are sparsely present. Limber Pine (*Pinus flexilis*) and Bristlecone Pine (*Pinus longaeva*) occur on the highest elevations of the region. Water Birch (*Betula occidentalis*) are located in Pat Keyes and McElvoy canyons (Alan Akin, personal communication 1993). Mountain Mahogany (*Cercocarpus ledifolius*) is prominent on the ridge between Keynot and Beveridge Canyons. Rabbitbrush (*Chrysothamnus nauseosus*) is dominant in the wider canyons of the district. Gooseberries (Locus 27) and nettles (*Urtica holosericea*) are present in canyon bottoms. Riparian species such as willows and wild rose choke some canyon bottoms, and other water-loving plants such as mint (*Mentha* sp.) scouring rushes (*Equisetum laevigatum*), and orchids are present. Introduced plant species have been identified in canyon floors in the district, and include walnut trees and iris (Locus 36), and watercress (Alan Akin, personal communication 1991).

Only a few live mammals were observed during fieldwork. Bats were encountered frequently in mine workings, and were seen hunting insects near the canyon bottoms every evening. A number of species of bats are known to occur in the region (Hall 1991:438). Mice occupied abandoned cabins, often in great numbers. Woodrat (*Neotoma* sp.) nests were observed in various parts of Beveridge canyon.

A desert bighorn sheep (*Ovis canadensis*) carcass was found in the dense brush in the bottom of Beveridge Canyon. Bighorn sheep would have been plentiful in the Inyo

Mountains during the historical period; one observer recalled the abundance of this animal in the Beveridge Mining District as late as the 1940s (Delos Flint, personal communication 1992).

Animals known to occupy the area, but not observed during fieldwork, include bobcat (*Lynx rufus*), coyote (*Canis latrans*), mountain lion (*Felis concolor*), and ringtail (*Bassariscus astutus*). Ringtail scat was noted in abundance on rocky outcrops and cliffs near the canyon bottoms. It is interesting to note that historically, ringtails were kept in mine workings to curb rodent populations (Wernert 1982:58). Numerous reptile species were observed, including rattlesnakes (*Crotalus* sp.), Chuckwalla (*Sauromalus obesus*), and other lizards.

The difficulty of performing fieldwork in the region was further complicated by the presence in great numbers of an annoying, biting gnat that was encountered with equal frequency in the wet canyon bottoms and upper slopes. The gnat was present during fieldwork encompassing three seasons of the year (no fieldwork was conducted during winter). The bites inflicted by this gnat caused extreme itching and swelling in some crew members. This experience served to illustrate one negative aspect of life in the Beveridge Mining District in historical times. The following is from the *Inyo Independent* of 1882 (20 May 1882q).

> The small black gnat does business in the vicinity [Saline Valley] the year through, sometimes on quite an extensive scale, at other times not so much so, but is not a comfort at any time.

DISCUSSION

The geology of the region under consideration is responsible for the presence of the Beveridge Mining District. Without auriferous ore, the district would never have been located here. The sometimes harsh climate, together with meager plant and animal resources for food, fuel, and building materials, created an unusually difficult situation for Beveridge miners. The effects of this environment on mining in the region, as well as innovative measures taken to deal with the environment, are discussed in following chapters.

Chapter V

HISTORY OF THE SEARCH FOR PRECIOUS METALS IN THE AMERICAN WEST

The search for precious metals in the American West is a repetitious story of high hopes followed by riches for a few and disillusionment for many. Although millions of dollars worth of precious metals were recovered (and continue to be recovered) from the placers and lode ores of this region, great profits were rarely seen by the individual prospector or miner of the nineteenth century. Nevertheless, the experience was an eventful one, as shown in the number of lively personal journals and diaries kept by these "argonauts."

In addition, the story of mining in the West is found in government records, company records, newspapers, store ledgers, and the archaeological record. As has been shown, a complete understanding of this important chapter of American history is gained only through a holistic study, incorporating data from a number of these types of resources. Following is a commentary on mining in the American West, in eastern California, and in the Beveridge Mining District in particular.

HISTORY OF MINING IN THE AMERICAN WEST

The history of mining in the American West is a series of successive attempts to wrest precious metals from the earth. Early aboriginal mining is largely undocumented, as is mining during the mission period, although both undoubtedly occurred, leaving their impacts on the landscape. Following Mexico's independence from Spain in 1821, colonists entering what was to become California, New Mexico, and Arizona are known to have conducted a fair amount of prospecting and mining (Wolle 1953:4), employing Old World methods of mining familiar to them.

The 1848 discovery of placer gold at Sutter's mill in California launched what was to become the largest transcontinental migration in United States history. This event opened an era of frenzied placer mining in the west. In California alone, over 500 placer camps sprang up during the rush (Robinson 1948:138), with placer miners working independently or in partnerships on small claims.

The placers, however, were not to last forever. In general terms, gold deposits occur naturally in veins or lodes underground. In places where veins outcrop, they are known as "exposures." As exposures erode,

> the heavy and not easily decomposed minerals in the parent rock are freed as the rock is broken down and are transported, sorted and collected into workable deposits by the action of water [Lewis 1941:224].

Placer gold is recovered relatively easily from these deposits in the form of nuggets or flakes.

Many deposits quickly became depleted, and it did not take long for miners to realize that greater stores of wealth would be found at the source of this free gold. Lode gold is inherently more difficult to recover, because extensive excavation usually is required, as well as processing to extract the metal from the parent rock, or from other metals with which it may have combined. Gradually, the emphasis of mining shifted from one in which most miners worked placer deposits, to one in which miners either worked as prospectors, searching for new placer and lode deposits, or as "hard rock" miners, engaged in the extraction of underground ore. United States placer production had outweighed lode production enormously from 1848 to 1880. By 1881, lode production exceeded that of placers, a situation that has never since been reversed (Hill 1929:2-5).

Paul's (1988:11) observation that the mining West should be viewed as a series of frontiers is a good one. Following the initial rush to California, miners spread into the intermountain and desert West. The mining history of the American West is punctuated with numerous rich gold and silver strikes that prompted gold rushes to the site of the new placer or lode discovery. A number of rushes followed that of 1849, and continuing for some five decades. The list includes rushes to Oregon in 1851, to Arizona in 1858, to both Pike's Peak, Colorado, and the Nevada Comstock in 1859, Idaho in 1860, Montana in 1864, Leadville, Colorado in 1877, Aspen, Colorado in 1879, and the Klondike in 1898 (Wolle 1953:6; Paul 1963:39, 56-57, 138, 1988:24-25; Rohrbough 1987:13-15; Fetherling 1988:201).

Elliott (1966:vii-viii) stated:

> A great deal of attention has been paid the Comstock period by historians as well as other writers. Much of the history of the later rushes, on the other hand, has been neglected, although in many respects these later booms surpass in importance those of the earlier period.

Although Elliott's primary concern was with Nevada, his statement is true also of that portion of the California deserts included in the Great Basin--the later rushes frequently are not addressed by historians.

Each of these rushes was followed by a predictable boom-to-bust sequence typical of ''uncertain enterprises'' (Hardesty 1991:31). The first prospectors in the area formed compact, haphazard camps near their claims. As with earlier placer workings, these miners worked alone or in small partnerships. They rarely enjoyed the benefits of financial backing; at best, a prospector might be grubstaked by a local merchant. If the deposit was determined likely to be a producer, a makeshift town sprang up that was only somewhat more ordered than the original camp. With the inevitable influx of speculators, capital, commercial business, and families, some towns developed into well-built, planned communities. Other, less successful settlements never progressed past the camp stage when the deposit failed to produce.

Miners were notoriously fickle in their quest for riches, and rumors of a new strike in parts unknown often were enough to make a ghost town out of a thriving settlement in the space of a few weeks. In satirical illustration of this point, novelist Mulford (1925:1-20) wrote of an alcoholic prospector who made a rich strike. Sworn to secrecy by his partner, he entered a nearby mining camp for supplies and immediately became unconscious with drink. The miners, deducing that a new discovery had been made, packed up to find the source of his strike. The confused prospector awoke a few short hours later to find empty foundations where the town had been.

The transition from placer to hard rock mining had a vast technological and social impact on the western frontier. New techniques were required both to mine and mill lode ores, and the fabulous Comstock mines revolutionized the mining industry during the 1860s and 1870s (cf. Hardesty 1988:ix). Use on the Comstock of electricity, power rock drills, dynamite, and timbering techniques, along with the inception of labor unions constituted a turning point in western mining (Paul 1988:252-253).

By the 1870s, most profitable western mining was conducted by corporate industries operating with the benefit of heavy financial backing. Individual operators and small partnerships could not compete in terms of production records, and yet these small operations far outnumbered mining companies. After about 1890, mining technologies continued to progress in both scale and impact on the landscape (Francaviglia 1991:127-129).

Mining continued on this advanced scale through the 1920s (Francaviglia 1991:158). During World War I, mining of base metals was emphasized in the war effort, at the expense of precious metals mines. The Great Depression reduced company mining during the 1930s, but individual pursuits (especially placering) enjoyed renewed activity (Merrill et al. 1937) as a direct result of economic pressures. Producers of precious metals were shut down in 1942 with the War Production Board's issuance of Limitation Order L-208, stating that marginal gold producers would be required to cease operations to free miners for work in mines that were considered more essential to the war effort (cf. Vredenburgh et al. 1981:280), or for military service and strategic factory jobs. In their treatise on mining in the California deserts, Vredenburgh et al. (1981:281) stated:

> Many of the mines closed by this drastic action on the part of the federal government suffered great damage through forced neglect and could not be opened after the war. Mineral values still present in these mines became inaccessable [sic] due to flooding and the rotting of the mine timber. Only those gold mines lucky enough to receive special permission to keep a small crew on the site for maintenance and upkeep were able to survive the war years. . . . The inflationary post World War II years drove labor costs up, adding to the cost of dewatering and retimbering the mines. Gold mining in the California desert has never really recovered from the effects of L-208 . . .

Today, mining is an increasingly mechanized field, requiring ever fewer laborers. Small operators develop mines with the same hope and blind faith possessed by their predecessors, and gain a meager profit, or fail from excessive expenditures, while major companies continue to conduct large-scale projects.

IMPACT OF MINING IN THE AMERICAN WEST

The search for precious metals played a vital role in the opening, settlement, and development of the American West. Mining was responsible for the creation of transportation networks, commercial supply points, and agricultural and other industrial pursuits. In the earlier phases of western mining, these entities sprang up as support services for mining camps and towns. Later, the presence of support services allowed profitable mining in areas that formerly were unworkable due to their remoteness from supply centers.

Gold undoubtedly was the first precious metal to gain attention in what was to become the United States; its existence in southern Appalachia was known to Spaniards as early as the 1500s (Ridgway 1929:14). Gold recovery is known from the Carolinas in the 1700s, and from Virginia as early as 1782 (Ridgway 1929:14). By 1829, Georgia was a significant producer of gold (Ridgway 1929:14). Of course, other precious metals were sought, but the emphasis was on gold, with the result that more complete records are available for that metal.

The famed discovery of gold in Sutter's millrace in 1848 made "California" a household word in nearly every country of the world, and fortune-seekers flooded to the new-found golden shore from every part of the world. The California Gold Rush changed forever the outlook of Americans. As expressed by Rohrbough (1986:9):

> The dream of agricultural independ[en]ce was real, but it involved unending labor in all seasons by all members of the family. From year to year, . . . farmers in the long-settled areas of rural America saw little cash. They lived in a world of hard work and limited economic expectations. . . .
>
> Gold in California changed the dimensions of this world in a dramatic way. At a time when agricultural laborers earned $1 a day for twelve hours of backbreaking labor, farm laborers-turned-prospectors panned $20 a day in gold from California's streams; those with skill and luck in the right proportions could pan $100 a day. The most fumbling of these argonauts was likely to see more money in a month than the average family saw in a year. The expectation of the frontier experience had been transformed. Gold and silver dramatically enlarged the concept of wealth for nineteenth-century Americans.

The American scenario that followed the Gold Rush was a fast-paced, transitional one. From 1851 to 1855, nearly 45% of the world's gold production was from the United States, with the bulk of production from the western states and territories (Ridgway 1929:14). The decades between the California Gold Rush and the turn of the century saw vast changes in the western American landscape and population, as well as vast changes in mining technology and engineering.

Market price has long been a determinant of the value of precious metal (Aschmann 1970:174), so that the history of mining is reflective of the state of the market. The price of gold was set at $20.67 per ounce from 1834 to 1934, $35 per ounce from 1934 to 1968, and has been uncontrolled from 1968 to the present (Clark 1980:128).

REGIONAL HISTORICAL CONTEXT FOR THE BEVERIDGE MINING DISTRICT

In order to place the Beveridge Mining District in proper historical context, a general discussion of the history of Inyo County, Owens Valley, and portions of Mono County is necessary, accompanied by a discussion of the history of mining in that portion of the California deserts included in the Great Basin.

Early Settlement and Prospecting

Historically, the area that was to become Inyo County was populated with Paiute and Shoshone bands. During fieldwork, evidence of aboriginal activity in various portions of the area that was to become the Beveridge Mining District was found in the form of one obsidian and two chert biface fragments, and one obsidian drill. A scatter of flaked stone (CA-INY-4548) was discovered on a flat immediately upcanyon from

Locus 36. Portable metates or grinding slicks were found at four loci, but may be indicative of Mexican miners in the region, rather than aboriginal occupation.

Early Anglo history of the region is peppered with reports of serendipitous gold discovery, although early travellers concentrated on other pursuits. The Old Spanish Trail crossed the southeastern portion of Inyo County (Chalfant 1933:93), but it is not likely that early Anglos penetrated Owens Valley from that route. Some (Chalfant 1933:93-94; Belden 1966:n.p.) credit Jedediah Smith with being the first white to enter Owens Valley, during a trapping journey sometime during the 1820s. Other evidence (Smith 1978:175; Fletcher 1987:9-11), however, suggests that he crossed the Sierra north of the area considered here. Some accounts (Chalfant 1933:95, 1947:30) report that Smith identified placer gold in Mono Lake, predating the discovery at Sutter's mill by some two decades! Joseph Walker led several parties into the area, probably visiting Owens Valley first in 1834, and again in 1843 and 1845 (Wilke and Lawton 1976:9).

The 1849 Gold Rush brought ill-fated pioneering parties through the Inyo area via Death Valley (Chalfant 1933:101-118). One reported silver discovery (Murbarger 1964:2-3; Vredenburgh et al. 1981:222-223) continues to excite interest in the area, and has reached legendary proportions in local lore. An emigrant party, having encountered severe difficulties crossing Death Valley, discovered a rich outcrop of silver while searching for water. The find came to be known as the Lost Gunsight Mine, after a gunsight was fashioned from a sample of the ore. Repeated attempts to relocate the silver strike were unsuccessful, and the Lost Gunsight remains one of the most popular treasure stories of the California deserts.

The decade of the 1850s saw minor gold excitements in Owens Valley (Kersten 1964:493; Belden 1966:n.p.), attracting miners to cross the Sierras from gold camps to the west. However, as stated by Smith (1978:188), "while rumors of ledges and nuggets kept the air filled with excitement, it was farming and ranching that brought stability to Owens Valley." In this way, the settlement of Owens Valley is distinct from other mineral-rich areas, where the usual sequence of events is characterized by discovery of precious metal, followed by settlement of the area as a supply center to serve the mines. The settlement of Owens Valley differed in that ranching and cattle enterprises (and accompanying supply centers) were well established prior to major discovery of precious metals.

In 1855 and 1856, Owens Valley was surveyed by United States government survey parties (Wilke and Lawton 1976:9). Capt. J. W. Davidson explored the area between Ft. Tejon (in the mountains south of the San Joaquin Valley) and Owens Valley in 1859 (Wilke and Lawton 1976:9); reportedly, livestock was already raised in Owens Valley at that time (Chalfant 1933:140-145; Kersten 1964:500; Smith 1978:177). Agricultural pursuits had begun in the valley by 1865 (Inyo County Board of Supervisors 1966:65). Kersten (1964:500) described a cyclical development in the area; agricultural and ranching settlements made mining endeavors possible, and mining provided a market for local goods in a mutually supportive situation. The towns of Bishop, Independence (originally called Putnam's), and Lone Pine were established in 1861 (Belden 1966:n.p.; Hoover et al. 1966:116), and were speedily equipped with stores, saloons, post offices, and a pony express station. These towns proved to have more longevity than their ephemeral local counterparts, including Owensville, San Carlos, Kearsarge, Lake City, and Chrysopolis (Murbarger 1964:5-6, 15).

Early Mining

Discoveries in 1858 and 1859 led to the settlements of Dogtown and Monoville (Chalfant 1933:126-127, 1947:30-33; Kersten 1964:493-495; Fletcher 1987:30-34). Although temporarily exciting, these strikes were overshadowed by the nearby discovery of gold at Bodie in 1859.

Bodie has come to epitomize the raw western mining town populated by lawless men and women. Violence and crime ran rampant, and few criminals came to justice (Wolle 1953:133). For a time, development of the town progressed slowly, then boomed, with an estimated population of over 5,000 in 1880 (Fletcher 1987:52). The Bodie mines merged early and operated a largely consolidated enterprise (Wolle 1953:131). By 1882, with the mines in decline, the town quickly was becoming deserted. When Bodie mining stocks failed in 1883, the decline accelerated. Bodie made at least two contributions to the world of mining; the first long-distance electrical conduction was accomplished there, and the cyanide gold recovery process was perfected there (Hudson 1979:53).

The Comstock Lode of Nevada was discovered in 1853, but a number of factors contributed to a mining slump by 1865. The main vein, known as the "Big Bonanza," was discovered in 1873, and the town of Virginia City experienced a second boom. It was not to last, however, and after 1877, ores became exhausted (Wolle 1953:328-333).

Miners in Owens Valley certainly were aware of the fabulous riches won from the Comstock lode in Nevada. Many local residents probably had visited the Comstock mines, and some are known to have worked there (Alan Akin, personal communication 1993). During the 1860s, miners began looking to the hills and mountains of eastern California in search of a new Comstock or Mother Lode (Wolle 1953:130; Kersten 1964:503; Vredenburgh et al. 1981:223, 273). According to Kersten (1964:503), "all mountain ranges within 100 miles or more [of Aurora] must have been closely examined and inevitably the discoveries came."

The following was written of the prospector of the western deserts:

> He . . . will endure any amount of hardship in his endless search for "rich leads." There is no desert too barren, no climate too rigorous for his researches. From the rugged canyon of the Toiyabe he roams to the arid base of the Great Basin. Hunger, thirst, chilling snows, and scorching sands seem to give him new life and inspiration [Lewis 1986:153].

Prospecting in the Inyo-Mono region resulted in formation of the Coso and Russ mining districts in 1860 (Waring and Huguenin 1917:55; Knopf 1918:105; Murbarger 1964:4; Vredenburgh et al. 1981:223-224, 273), and the Esmeralda District was formed across the Nevada border from Bodie (Kersten 1964:495). The town of Aurora, largest in the Esmeralda District, grew to a population of 5,000 in 1863 (Kersten 1964:497). According to Kersten (1964:498), Aurora was

> a town of great importance, second only to Virginia City among the settlements in the arid country of Nevada and eastern California lying east of the Sierra.

The boom of Aurora was short-lived, however, and by 1865 the town had begun its decline (Kersten 1964:502).

The Coso District experienced temporary success, but due to conflicts with local Indians, was abandoned. In 1868, the district was reorganized by Mexican miners (Chalfant 1933:138). The Russ District, located on the western slope of the Inyo Mountains east of Independence yielded respectable returns after more reliable discoveries in 1878 (Clark 1963:151). The White Mountains supported brief rushes into the Big Springs District in 1861 and the Montgomery District in 1863 (Kersten 1964:503).

Conflicts between white settlers and local Indians in Owens Valley began in 1861 upon settlement of Lone Pine, Independence, and Bishop, and continued into 1862, complicating attempts at mining development. The federal government sent troops to quell the hostilities, and Camp Independence was established about two miles north of Independence (Hoover et al. 1966:117). The camp was abandoned in 1877 (Anonymous 1979:33) (details of the various conflicts are given elsewhere [Chalfant 1933:147-200]).

Mining Reaches a Climax

The year 1865 marked a silver discovery that figured prominently in the history of the Inyo area, and probably had the most impact on development of the Beveridge Mining District. Pablo Flores and other prospectors from the Coso area discovered a rich silver deposit on a ''fat hill'', Cerro Gordo, in the southern, hilly end of the Inyo Mountains. Hundreds of claims were filed by 1869, and most were worked on a small scale by Mexican miners (Likes and Day 1975:9; Vredenburgh et al. 1981:225-226). By 1868, a rush had begun to the site, and one Mortimer Belshaw began developing the hill in earnest. A toll road was constructed up the western face of the Inyos, a smelting furnace was erected, and soon Cerro Gordo ore was freighted to San Francisco and Los Angeles. Excess bullion was shipped to refineries in distant Swansea, Wales (Nadeau 1965:189).

Upon erection of a second, rival furnace in 1870 and the inception of stage service to Independence (with connections to Nevada, San Francisco, and Los Angeles), the town truly boomed (Chalfant 1933:278-179; Vredenburgh et al. 1981:227). Most of the claims were consolidated into two rival mines, each with smelters (Mitchell 1969:13).

For a few short years, the district's annual production was about $1,000,000 in silver and lead, and a population of 500-600 (Vredenburgh et al. 1981:228, 231) was maintained. The smelters turned out ingots at a rate of nine tons per day (Mitchell 1969:13).

A third Cerro Gordo smelter was built at Swansea near Keeler, on the shore of Owens Lake (Likes and Day 1975:17). Steamers transported Cerro Gordo bullion out across the lake, and supplies into the camp, shortening the trip to Los Angeles (Chalfant 1933:311). Cerro Gordo is credited with supporting the rapid growth of the city of Los Angeles as a supply town for the mines. Remi Nadeau, great, great-grandson of a teamster with the same name (Likes and Day 1975:17) who freighted bullion and supplies between Cerro Gordo and Los Angeles, stated (Nadeau 1965:191):

> Though a lawless and remote camp, Cerro Gordo nevertheless cut a wide swath in California commerce. Nevada's Comstock Lode, pouring hundreds of millions into the wealth of San Francisco, was then towering over other Western mining districts. But Cerro Gordo was the Comstock for another California city--Los Angeles. The coming of the bullion teams to

> Southern California in 1868 had happily coincided with a new influx of farmers. They found a ready-made market for their products--wine, corn and other items for Owens Valley miners, hay and barley for the freight mules. By 1870 all the surplus barley grown in Los Angeles County was consumed by Remi Nadeau's bullion teams.

During 1874, "Los Angeles sent practically half as much tonnage to Owens Valley as it exported through San Pedro--and nearly one-third of the latter volume was Cerro Gordo bullion" (Nadeau MS:51).

Exorbitant smelting prices created a situation of indebtedness, forcing the closure of many Cerro Gordo mines during 1872-1874. A few years later, Belshaw's furnace closed. By 1877, only 60 employees were supported by the workings (Vredenburgh et al. 1981:231). Later that year, some of Belshaw's mine works burned (Nadeau MS:52). Because of low wages (Vredenburgh et al. 1981:232) and the exhaustion of high-grade ores (Knopf 1918:110), half of the remaining miners left during 1878. In 1879, the Union Mine was abandoned, and the second Cerro Gordo furnace was closed (Chalfant 1933:282; Vredenburgh et al. 1981:232). Cerro Gordo's production record was estimated by Chalfant (1933:277) at $17,000,000, a figure that probably is somewhat exaggerated (cf. Inyo County Board of Supervisors 1966:29). Writing in 1918, Knopf (1918:109) stated that "estimates given in contemporary or nearly contemporary reports range from $6,500,000 to $15,000,000." In any case, Cerro Gordo ranks in undisputed first place among silver producers in the region.

Inyo County was formed in 1866, taking its name from an Indian word presumed to mean "dwelling place of a great spirit" (Chalfant 1933:140), and the town of Independence served as county seat.

Mining in a number of local districts slowed during the late 1860s due to threat of Indian attack (Vredenburgh et al. 1981:274). One uncredited resident is quoted as saying, "We cannot prospect and watch Indians at the same time and we cannot prospect with a rifle" (Inyo County Board of Supervisors 1966:29). By the 1870s, hostilities had come to an end and prospectors again spread into the desert. A major earthquake shook the region in 1872, destroying many structures and roads, and changing the course of the Owens River (Chalfant 1933:259-264; Farquhar 1965:142).

In 1873, another rich silver strike made headlines and created a rush, this time to Panamint. The history of this silver camp appears in the book *Silver Stampede* (Wilson 1937), although according to Nadeau (MS:52), the book is characterized by "frank excursions into the unhistoric."

Panamint was touted as the second Comstock (Wilson 1937:48), and potential investors were reminded that, after all, this new discovery was only two mountain ranges away from the fabulous Cerro Gordo strike (Wilson 1937:46-48)! One contemporary source (*Daily Alta California* 25 January 1875) reported in 1875 that "it promises to be one of the liveliest mining camps on the Pacific Coast, and within two years it will be only second to the Washoe [Comstock] Mining District." The town supported a maximum population of approximately 1,500 (Chalfant 1933:287). A concise description of Panamint was given thus:

> Suffice to say it harbored desperados in numbers, saw big money exchanged, recorded sizeable production figures with some of the mine's output processed in England, lent itself to the colorful history in which two senators were much involved and was to mark its demise with the shutting down of its main mill in May 1877 [Inyo County Board of Supervisors 1966:31].

Other descriptions of Panamint are found in Chalfant (1933:285-292), Wolle (1953:130-134), Nadeau (1965:197-202), and Vredenburgh et al. (1981:233-238).

The bank panic of 1873 had a distinct impact on mining in the California deserts, as elsewhere. The ensuing depression was felt for several years (cf. Vredenburgh et al. 1981:274-275).

In the Coso Range south of Owens Lake, yet another silver-lead strike was made, in 1874. Miners from Cerro Gordo, Panamint, and outlying districts flocked to the new camp called Darwin (Nadeau 1965:194-195), until 1,000 occupied the camp by 1876. In an enthusiastic effort, six smelters were built to process Darwin ore, but the camp was in decline within two short years. By 1878, the camp was virtually extinct (Vredenburgh et al. 1981:240).

Prospecting in Inyo County was an active pursuit throughout the 1870s and 1880s, as indicated by strikes at Waucoba on the east side of the Inyos by 1872 (a strike so promising that the county's courthouse and first railroad were optimistically predicted to be located there), Pigeon Springs, Log Springs, and Sylvania in 1873, Lucky Jim and Ubehebe in 1875, Beveridge in 1877, Poleta in 1881, and Greenwater in 1884 (Chalfant 1933:293-295).

The Beveridge Mining District was organized in 1877, and prospered through the 1880s and into the 1890s. These were decades of intense activity in the Inyo region. Brief historical notes have been provided for the various mining towns and districts in the area. Undoubtedly, miners were transient as new mining strikes were located. Beveridge enjoyed its heyday as a number of regional mining interests declined (Cerro

Gordo, the Comstock, Darwin, and Panamint around 1877, and Bodie in 1882-1883). It is known that at least a few Beveridge miners had worked in other mines in the region. By the 1900s, only a few Beveridge mines were in operation. Chapters VI, VII, and VIII provide details of the history of the Beveridge Mining District.

The Coming of the Railroad

Mining in Inyo County had, to this time, been stunted by the remoteness of the area. One source (Anonymous 1885:345) stated in 1885 that without a railroad, Inyo County was isolated and shut off from centers of capital. As early as 1865, entrepreneurs had proposed a railroad into Owens Valley (Chalfant 1933:309). It was not until 1880, however, that the Carson & Colorado Railroad built a narrow gauge line southward from Mound House, Nevada (a point 10 miles east of Carson City). According to Myrick (1962:172), original plans were for the line to continue "southeasterly through Nevada to the Silver Peak, Lida and Gold Mountain districts," but in 1881, the company decided to extend the road to Owens Valley and the Cerro Gordo Mines, the latter already in serious decline. The local newspaper boasted in 1882 of the wealth and variety of Inyo County minerals that would find new markets when the rail line was built, hopefully that year (*Inyo Independent* 27 May 1882s). In 1883, the line finally was completed to Keeler (then known as Hawley.)

The Carson & Colorado was a division of the Virginia & Truckee Railroad, which served the Comstock mines (Inyo County Board of Supervisors 1966:57). The company hoped that access to boom towns of Inyo County would outweigh the recently discouraging decrease in production of Comstock area mines. Locally, it was hoped that rail access would revive production at Cerro Gordo (Knopf 1918:110).

Retrospectively, it seems that the railroad company had misinterpreted what was nothing more that a mild, local mining boom (Myrick 1962:176). Unfortunately for the company, the railroad came in at the end of this small boom, and because of the lack of development in the area, plans to extend the line to the Panamint, Darwin, and Coso mining districts were abandoned (Myrick 1962:174). One railroad official remarked that the line had been built either 300 miles too long, or 300 years too soon (Myrick 1962:174). In 1917 it was stated that the railroad "stimulated the industry somewhat, but the low price of silver did not encourage the industry" (Waring and Huguenin 1917:55-56).

A look at the train schedules is indicative of low level usage on the line. In 1888, it was reported (Goodyear 1888:224) that "this railroad now runs only three passenger trains each way per week." A newspaper advertisement of 1899 (*Inyo Independent* 9 June 1899f) indicates that trains arrived in Keeler at 7:00 p.m. on Mondays, Wednesdays, and Fridays, and departed from Keeler at 6:00 a.m. on Tuesdays, Thursdays, and Saturdays.

Local agriculturists were disappointed that the route chosen was down the eastern side of the Owens Valley "to service the mines" (Myrick 1962:174), rather than down the center or western side of the valley where it would have been more convenient for their needs. Originally, plans had been to extend the line from Keeler south to Mojave, but the Carson & Colorado never accomplished this end. Consequently, Owens Valley residents effectively lived in a "transportation cul-de-sac".

> Their only means of ingress or egress [by railroad] lay 300 miles to the north. Of necessity, business deals were consummated in San Francisco some 500 route miles distant, whereas completion of the unfinished portion of the line would bring Los Angeles within a 250-mile trip and furnish valuable connections with the Santa Fe at Mojave . . . [Myrick 1962:177].

Locals continued to rally for completion of the rail connection, and the local newspaper occasionally carried reports of the hoped-for completion of the line (e.g., *Inyo Independent* 2 June 1893c).

Finally, in 1900, the Carson & Colorado was purchased by the Southern Pacific, and, encouraged by ongoing construction of the Los Angeles Aqueduct, a standard gauge extension was built to Mojave in 1910 (Myrick 1962:179, 205). Local sentiment ran high, compelling the following reports from two contemporaries:

> With the completion of the new railroad from Mojave, . . . and the installation of a through main trunk line, opening a new southern market, and access to an ocean port with direct foreign, as well as coast-wise trade, there awaits Inyo in general and Owens valley in particular a transition so great, with such marked results to follow, that recital here would prompt some wiseacre to cry wild exaggeration [Dixon 1907:n.p.].

> The isolation of Inyo, the enormous cost of transportation before the advent of the railroad, and the poor facilities then procurable, made mining here too expensive, so that mining as a business did not develop as did other enterprises more feasible.
>
> Now all these conditions have changed. The railroad is here. Transportation is reasonable and prompt, machinery and tools easily procurable, and the hills of Inyo are calling for the modern prospector, miner and capitalist to come and freely take of its stored riches. This mineralized empire of Inyo holds within her bosom all the minerals of civilization, from gold to iron; from asbestos to salt, and is willing to give them up to anybody brave enough to undertake their ravishing. An army may come and camp within her borders, with wealth and health for all, and

> while the battle for the quest of gold or silver rages, Inyo will supply the commissariat in profusion, with the daintiest edibles of mother earth. It is not on inaccessible heights, in far frozen zones, nor in deep death dealing valleys alone, where nature keeps her treasure vaults; sometimes they are strung along by the ways of pleasant places, where man may drink of the glories of existence, and revel in the chase of fortune.
>
> Such is Inyo [Stovall 1907:n.p.].

Unfortunately, mining in Inyo County was in a state of decided transition. The railroad was not to bring the predicted rebirth of mining interests. Berg and Crowley (1979:n.p.) noted that the railroad through Owens Valley did not succeed in stimulating mining growth because it did not overcome the ''formidable mountain barrier'' between the lines of transportation and the mines.

Later Days

By the 1880s, few new mining strikes were being made in Inyo County. One short-lived rush brought miners into Saline Valley and the Ubehebe Mountains, prompting a certainly exaggerated report of 2,000 miners camped in Saline Valley (Carstarphen 1917:711).

For the most part, new desert strikes during the last two decades of the nineteenth century were made outside Inyo County. The town of Calico grew up around a rich silver strike in the Calico Mountains of San Bernardino County in 1881. Ballarat brought renewed but fleeting excitement to the Panamint Range in the 1890s. A rich gold discovery in Kern County in 1895 prompted settlement of the town of Randsburg, and its associated supply town, Johannesburg (Clark and Clark 1978:24-26; Reynolds et al. 1987:21).

Contemporary newspaper items repeatedly relate the movements of prospectors and miners to the site of new strikes. Miners and other laborers known to have worked in the Beveridge Mining District were reported on prospecting or reconnaissance trips, or worked mines near Coso (*Inyo Independent* 6 May 1882k), in the Union Mining District on the west side of the Inyos (*Inyo Independent* 28 April 1883g), at Ballarat (*Inyo Independent* 7 April 1899a), Ubehebe (*Inyo Independent* 27 October 1899s), Saline Valley (*Inyo Independent* 26 February 1881c, 13 October 1899r, 24 November 1899u), Cerro Gordo (*Inyo Independent* 5 January 1900a), Randsburg (*Inyo Independent* 4 December 1896t), Boise, Idaho (*Inyo Independent* 9 August 1884i), Chihuahua, Mexico (*Inyo Independent* 23 July 1881j) and other mining areas (*Inyo Independent* 26 April 1901a; Waring and Huguenin 1917:71) during this period.

In an attempt to encourage local miners to stay and work local mines, the *Inyo Independent* (28 April 1883g) stated,

> Miners in this section have had too little confidence in their claims. They sink a pot-hole five feet deep, and if they don't find six feet of solid ore assaying $100 a ton, they cry "oh, there's nothing here!" and they go off to Calico, New Mexico, or Alaska, and leave better mines at home than they find elsewhere. There has been too much of this in Inyo. If the mining claims in the Inyo range, showing such fine prospects as they do, had been located in some new and distant country, every one of them would have a hole one hundred feet deep on it in a short time, and a number of valuable mines proved up.

According to Kersten (1964:490):

> The early mining period did not end until about 1890, when the rich deposits had been exhausted and those remaining had become too costly to mine by the methods of the day. The mining towns then died, leaving farming and ranching as the only important economic activities until recent decades during which tourism has become significant.

Kersten (1964:504) described the type of mining in this portion of the Great Basin at the turn of the century.

> The new mines that arose on the heels of new discoveries after 1900 were different. The companies were better organized and financed, and operations were more efficient. Now one group of men labored underground, another group supervised them, and a third group, usually in distant financial centers, provided the operating capital and gained the profits.

The days of reaping large profits through single ownership or small partnerships were past.

Until the coming of the Los Angeles Aqueduct between 1908 and 1913 (Bean and Rawls 1988:297) robbed Owens Valley of water for irrigation, the region continued as a productive agricultural, stock-raising, and dairying center (Belden 1966:n.p.). An 1885 report (Anonymous 1885:345) stated:

> In [Owens] valley there are about twelve thousand acres of land in cultivation. Wheat, barley, oats, and corn are the principal productions; also fruits, apples, peaches, pears, and grapes, of which the last two are abundant. The productions meet with ready sale, and at prices that would be considered princely by the farmers in the valleys west of the Sierras.

This source (Anonymous 1885:345) went on to state that "the chief interests of the county, however, are the mines." This statement is to be interpreted as an attempt to promote renewed mining activity, rather than a status report of current production. Another source (Dixon 1907:n.p.) alluded to the far-reaching impact of regional agriculture, and reported "the farm products from the lands of Owens valley, must furnish in a large measure the mining region of western Nevada and southeastern California."

In addition to agricultural pursuits by Anglos, at least three contemporary sources described agricultural pursuits by Indians in Inyo County during this period. Interesting notes are found therein concerning the interaction between miners and Indians.

> The Indians at the settlement in Saline valley have some very fine fig trees; they also have apple, peach and pear trees that bear very fine fruit. They raise vegetables every month in the year and bring considerable quantities across the mountains to sell at Cerro Gordo, Keeler and other places. No doubt is entertained but that orange trees would do well in Saline valley [*Inyo Independent* 5 January 1889a].

> . . . the Indians all live at one place on the west side of the valley, at the base of the Inyo mountains and near the border of the salt-bed which covers the sink of the valley. A small stream of water flows out of Hunter's cañon, in the Inyo mountains, about a mile from the Indian village, and furnishes them with water for irrigating purposes.
>
> They have about one hundred acres of land enclosed, and some of it planted in alfalfa, and they are increasing their acreage of this crop the present season. They also grow melons, squashes, corn, beans, barley, and wheat.
>
> The alfalfa, barley, and wheat raised they sell readily to the Borax Company, whose borax works are located less than a mile from the Indian village. . . .
>
> Some of them find continuous employment, at fair wages, at the borax works [Nelson 1891:371-372].

Nelson (1891:372) also stated that Indians living in the Panamint Mountains "are very fair workers and find employment at times about the mining camps of Panamint, Darwin, and elsewhere."

A source dated 1892 (Coville 1892:352) described another kind of interaction between miners and local Indians.

> At the mouth of Hall cañon, near Hot springs, at the west foot of the Panamint mountains, and in Johnson cañon, on the eastern or Death valley slope of the same range, the Indians have under crude irrigation and cultivation two or three acres of ground. The crops commonly raised are corn, potatoes, squashes, and watermelons. . . .

> The cultivation of plants, however, furnishes them neither a sure nor an adequate food supply. They occasionally purchase from miners and prospectors bacon and flour.

As mining returns dwindled, Inyo County residents never allowed their hopes to flag. Contemporary sources are full of flowery sales pitches with regard to the potential future of mining in the region. Yet, even the most hopeful discussion of the mineral potential of Inyo is tainted with that ever-present transportation and access problem.

> Nowhere in the state is there existing a greater degree of contentment and prosperity than in this county, or a greater faith in its future, . . . it is now receiving a greater degree of attention from experienced mining men, than at any time heretofore.
>
> Taking the present outlook of Inyo, it is safe to predict a future prosperity second to no other locality [Anonymous 1885:345].

> Nearly all the common minerals and metals and some that are rare are found in the county. The desert portion is a veritable treasure house of minerals, now beginning to be known and appreciated by capital, while the ranges bordering Owens Valley show many valuable properties being developed--many new, others until recently lying dormant because of lack of available transportation. Text-books credit Inyo with having a larger variety of minerals than any other California county, nearly 150 such being known, and others probable [Anonymous 1907:n.p.].

At the turn of the century, the miners of Inyo County looked for profits from resources other than precious metals. Soda and other salts were exploited successfully from Owens Lake and Saline Valley (Nelson 1891:372; Chalfant 1933:300-301). Other exploited resources include marble, copper, tungsten, and zinc (Knopf 1918:106; Chalfant 1933:299-300; Likes and Day 1975:59-72; Vredenburgh et al. 1981:277).

World War I brought a spurt of renewed mining productivity to Inyo County, bringing with it a marked increase in population (Waring and Huguenin 1917:29). New prospects were developed, and old mines were reopened (Waring and Huguenin

1917:56). In typical war-time overstatement, the Report of the State Mineralogist (Waring and Huguenin 1917:56) for 1917 stated that the mining industry of Inyo County was never "in a more prosperous condition than at present." That report (Waring and Huguenin 1917:43) called for the upkeep of roads to the mines, since mining was the "sole industrial hope of all the region east of Owens Valley."

By 1921, the pendulum had again swung to the other side, and mining in Inyo County was at an all-time low. The State Mineralogist's report for that year (Tucker 1921:278) indicated that there was "practically no activity in gold mining in Inyo County," citing rising costs of material, labor, and supplies as prohibitive to profitable operation.

The effects of the Depression and World War II on mining interests in the California Deserts were outlined above. Recently, interest has been expressed in the large-scale mining of a variety of minerals in the Inyo region. Although small-scale prospecting and mining continues to some degree, large-scale, company operations are the wave of the future.

Kersten (1964:507) noted that

> . . . nearby mining centers exerted profound influences upon western Great Basin settlement and transport patterns, and that in part these patterns remain upon the present landscape.

Mining in Inyo County, and throughout the Great Basin, has had a great impact on the settlement and economic development of the region (Kersten 1964:490). Nevertheless, small-scale mining pursuits rarely receive the attention they deserve with regard to the role they played in the formation of the area. In their study of a small mill site in

Imperial County, California, Sampson et al. (1990:n.p.) remarked that sites such as that one, while not intrinsic to the progress of U.S. history, created "the unique American frontier experience" when viewed *in toto* with the continuum of other working communities of the American West. Researchers should be urged to recognize the importance of such small-scale mining sites.

Chapter VI

EARLY HISTORY OF THE BEVERIDGE MINING DISTRICT

Compiling an accurate history of the Beveridge Mining District was found to be a challenging task. The difficulty was due largely to the fact that few published references to the site were known, and no attempts had been made previously to compile the various primary sources. In addition, it was necessary to dispel a certain amount of mythology and misconception that had developed around the "townsite" of Beveridge. As recently as 1988, one source (Taylor and Joseph 1988:53) made the erroneous statement that the "town of Beveridge was settled in 1878 and occupied until the early 1900's with around 35 gold and silver mines operating intermittently during this period." It will be shown that Beveridge was never a town proper, that its various settlements were not collectively occupied from 1878 to the early 1900s, and that at least 111 mines operated in the district during that period.

In order to compile as complete a history of the district as possible, a collection was made of references to the district in general, along with specific reports of the various mines. The following history of the Beveridge Mining District was assembled from primary sources including contemporary newspaper references, reports of the state mineralogist, unpublished documents, historical and modern published references, historical photographs, and archaeological evidence.

Usually, the sequence of events in a mining district may be characterized by three steps. First, prospecting results in initial discovery, in turn followed by increased prospecting as miners search for the richest areas to excavate. Second, small-scale developments arise, wherein single miners or small partnerships work a discovery. During this phase, capital investment may be sought to expand the work at a mine. The third step may be taken in either of two directions. It is possible that the mine will fail. Perhaps it was only a pocket of ore, perhaps the vein pinched out at some point below the surface, perhaps the vein is disrupted by a fault, and its continuation cannot be traced. (Thrush [1968:822] defines ''pinching out'' as the narrowing and disappearance of a vein.) It also is possible that the mine will remain productive. In this case, the small operation may be purchased by a corporate enterprise or financed by a private investor. Development at the mine then would prosper, as long as the mine continued to produce ore in profitable quantity or quality.

This sequence of events was simplified by Aschmann (1970:172-173), who outlined the important steps as an inevitable course of discovery, development, exploitation of resources, depletion of resources, and abandonment. Francaviglia (1991:134-135) outlined a similar sequence of events he called the ''life cycle'' of a mining district. Some researchers have wisely cautioned, however, against the oversimplification of a boom-to-bust economy (Francaviglia 1991:150). Elliott (1966:153) stated that the full exploitation of an ore body is not reached until the costs of mining, including extraction and transportation, make the mining of low-grade ores profitable. Events at Beveridge do not fit neatly into a boom-to-bust model. Early prospecting led to a boom phase, followed by a lengthy decline. The sequence of events that characterized the history of mining in the Beveridge Mining District is outlined below.

EARLY EFFORTS BY MEXICAN MINERS

Western American mining is indebted in large part to Mexican prospectors and miners. A number of important ore discoveries and technical developments were made by Mexicans in the American West and Southwest. These miners had intimate familiarity with the type of gold and silver ores encountered in the region, and brought with them centuries-old standards of Mexican mining law and milling techniques (cf. McWilliams 1968:10).

The 1865 discovery of silver at Cerro Gordo (just south of the Beveridge Mining District), is attributed to Mexican prospector Pablo Flores, and many of the early claims following that strike were held by Mexicans (Delavan 1867:382; Likes and Day 1975:9; Vredenburgh et al. 1981:225-226). Ambitious Mexican prospectors combed the entire Inyo range about this time, and probably had familiarity with gold in the Beveridge area. Knopf (1918:118) reported that "many of the deposits [in the Inyo Mountains] were discovered in the [eighteen] sixties by Mexicans, who for many years worked them by means of arrastres." (The simple grinding mills known as arrastras are further described in Chapter XI. Two spellings, "arrastre" and "arrastra", are accepted [Thrush 1968:53], although the latter is more commonly used today.)

Early Mexican mining efforts in what was to become the Beveridge Mining District were small-scale prospects and excavations, with ore processed in primitive mills known as arrastras. Many arrastra ruins and the ruins of early crude structures and temporally-diagnostic artifacts attest to the presence of these early miners (e.g., Locus 4). One residential site associated with an arrastra (Locus 28) contains a metate, and another (Locus 41) contains grinding slicks. Although it is known that later Anglo miners continued to use arrastras for milling, the presence of metates and grinding slicks as site components may indicate the presence of earlier Mexican occupants.

The earliest mining claim in what was to become the Beveridge Mining District was a lode claim filed in 1866 for a property in Beveridge Canyon. Unfortunately,

> early mining claim records for the Beveridge District were not recorded with the county, and the total number of claims located in the district can not be determined [Close 1985:20].

Early efforts concentrated only on high-grade ores which would yield a profitable return from arrastra processing. An 1879 item in a Bodie newspaper reported the operation of five arrastras in the Beveridge District,

> . . . mostly if not entirely owned and run by Mexicans. The product, in the shape of pure gold balls varying in size from a bullet to a hen's egg, aggregates in the average from $1,000 to $1,200 per week [*Daily Bodie Standard* 2 December 1879].

Only some four decades after the beginning of mining in the area, the following statement was made:

> Years and years ago, how many, nobody around here seems to remember, gold, silver and other metals were mined all over Inyo. The miners were Mexicans, and their methods were of the crudest and simplest. To what extent this mining was done the abandoned workings and dumps still evidence. When the white man came the Mexicans quit; what the white man accomplished history tells [Stovall 1907:n.p.].

Creation of the Beveridge Mining District in 1877 does not mark the beginning of mining in the area, but rather is indicative of the first Anglo interest in the deposits located there. The statement "when the white man came the Mexicans quit" most likely is a gross understatement of the unfortunate treatment of Mexican miners by whites. By the 1870s, anti-Mexican sentiment already was well-established among California miners. Refusal to honor Mexican miners' rights to mining claims was typical from the earliest discovery of gold in California, which followed immediately after the Mexican War (Robinson 1948:136). It is a well-known fact that Anglos took over mines that had been claimed by Mexicans prior to the war. Evidence for this behavior in Inyo County is provided by Wilson (1937:229):

> Jack Wilson, nee Curran, one of the originals at Panamint [the rush to Panamint began in 1873], threw on his horse a thirteen-shot Henry rifle, a Murcott hammerless shotgun, and a Winchester forty-four-forty; put in his belt a couple of the largest-size breakdown-actioned products of Messrs. Smith & Wesson of Springfield, Massachusetts; and was off before his old camp knew he had breakfasted. He rode in on one Mexican who was admiring his own new claim, told him urgently that he didn't own it, and for law referred to the arsenal on his packmule. He named this seized mine the Defiance.

A report dated 1885 (Unknown 1885:n.p.) stated that the Beveridge mines "are principally owned by Mexicans and worked only when the necessities of the owners demand. The developments are never in advance of immediate requirements." This statement indicates that small-scale extraction and arrastra work was conducted at many of the Beveridge mines, but is in contrast to evidence regarding the operation of other mines in the district on a larger scale at that date. Individual mine histories are given in Chapter VII.

Only about 25 years after initial gold discoveries in the Beveridge area, the Report of the State Mineralogist (Crawford 1894:138-139) stated that north of McElvoy Canyon "are a number of old mines which have not been worked for several years." It is unknown what was meant by "several years," but the reported old mines were said to be situated north of the Laura and McEvoy Mines, among the northernmost of the Beveridge District. It is possible that these "old mines" represent early efforts in the area by Mexican miners. (Modern USGS maps reflect the spelling "McElvoy" Canyon. The original spelling, however, as reflected in period references, is "McEvoy," after Charley McEvoy who operated in partnership the McEvoy Mill. As in nineteenth-century references, this document retains the original spelling, "McEvoy," for the man and the mill, and uses the currently accepted spelling of "McElvoy" for the canyon.)

BOOM PERIOD

What may be called the Boom Period in Beveridge history begins with the formation of the Beveridge Mining District, and continues until just after the turn of the century. The Beveridge Mining District was the largest in Inyo County (Fig. 5), and carried the additional distinction of being the most important gold district in the county. Formation of the Beveridge Mining District was described by DeDecker (1987:49-50).

> The organization meeting was held December 7, 1877, at Big Horn Spring in Hunter Canyon [formerly Big Horn Canyon]. . . . W. L. Hunter, discoveror [sic] of the first claim, was elected chairman of the new district. He proposed that it be called "Beveridge" in honor of John Beveridge, . . .
>
> According to the record of that meeting at Big Horn Spring, boundaries of the Beveridge District were described as:

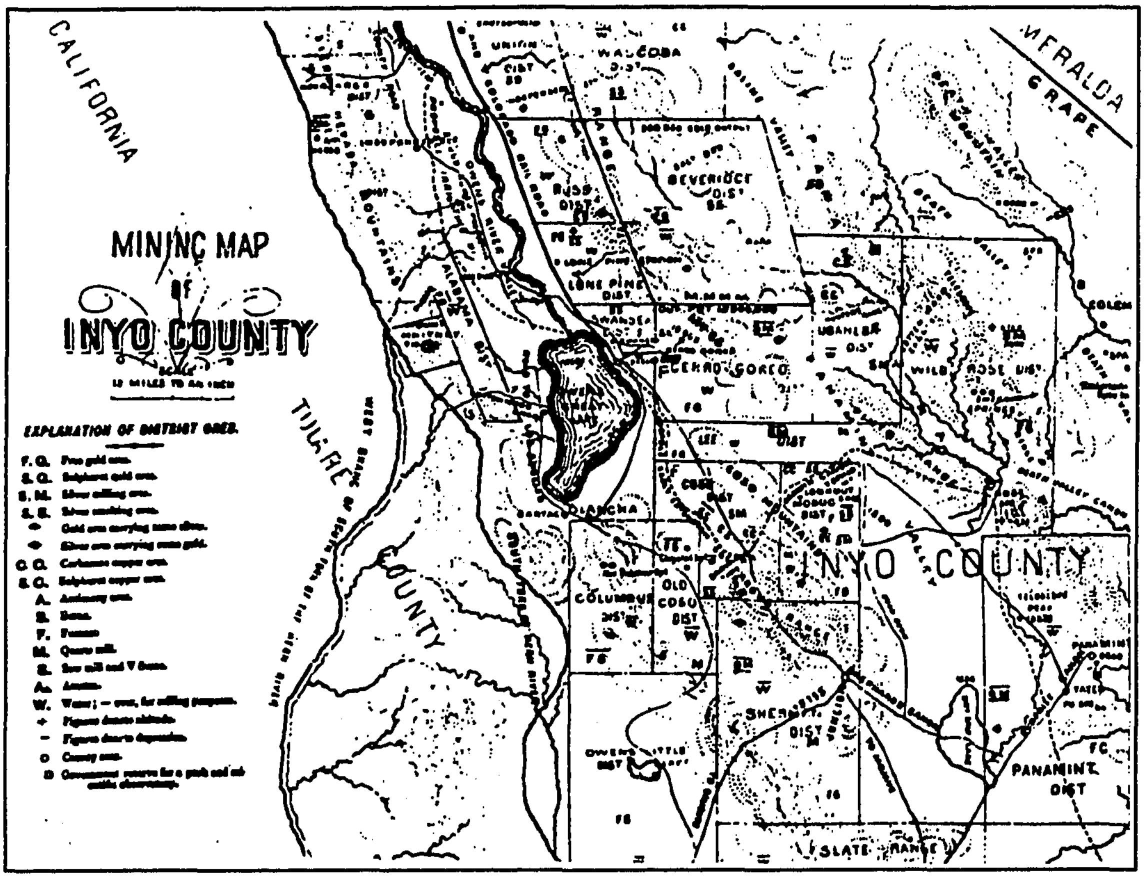

Figure 5. Historical map of mining districts in Inyo County [Keeler 1883]. Beveridge District is located northeast of Owens Lake.

> Commencing at a point in Saline Valley, at the NorthEast corner of Cerro Gordo Mining District, thence North fifteen miles, thence West to the summit of the Inyo Range of mountains, thence Southerly along the summit of said Inyo Range to a point where the Northern boundary line of Cerro Gordo Mining District crosses said summit, thence East along the Northern boundary of Cerro Gordo Mining District to the North-East corner of the same and place of beginning.

The district incorporation notes and by-laws were on file at the Inyo County Recorder's Office when DeDecker conducted her research there during the 1950s (Mary DeDecker, personal communication 1993). Unfortunately, these manuscripts are no longer available at that office, and their disposition is unknown. (One source [Tucker and Sampson 1938:397] makes erroneous reference to the "Beveridge-Ubehebe District." The Beveridge Mining District is not linked with the Ubehebe District in any other sources.)

W. L. Hunter and John Beveridge both were men of local importance. Before coming to California in 1868, Hunter (Fig. 6) had served in the Confederate Army during the Civil War (*Inyo Independent* 14 March 1902a). In California, he ran a pack train of up to 200 mules, and worked mines in Cerro Gordo (Reed 1967:27). He served as Inyo County Clerk, Auditor, and Recorder from 1884 to 1886 (*Inyo Independent* 14 March 1902a).

Hunter and John Beveridge had worked as partners in the Cerro Gordo mines (Chalfant 1933:279). In 1864, Beveridge was named Justice of the Peace in Bend City, a settlement located just northeast of Independence on the eastern side of the Owens River. In 1869, he was elected Inyo County District Attorney, but failed to qualify for that office. Beveridge died in October, 1874. Hunter and Beveridge had a strong partnership as well as a friendship. Beveridge appointed Hunter executor of his will (Inyo County Book of Wills, 1871-1914, Vol. A, page 18), and Hunter named his son Beveridge Hunter, as well as naming the new mining district after his recently deceased friend.

Local newspaper reports failed to acknowledge the efforts of Mexican miners in the Inyo Mountains prior to Anglo-created mining districts. Only after the formal creation of mining districts were the mines given real attention. Soon after the creation

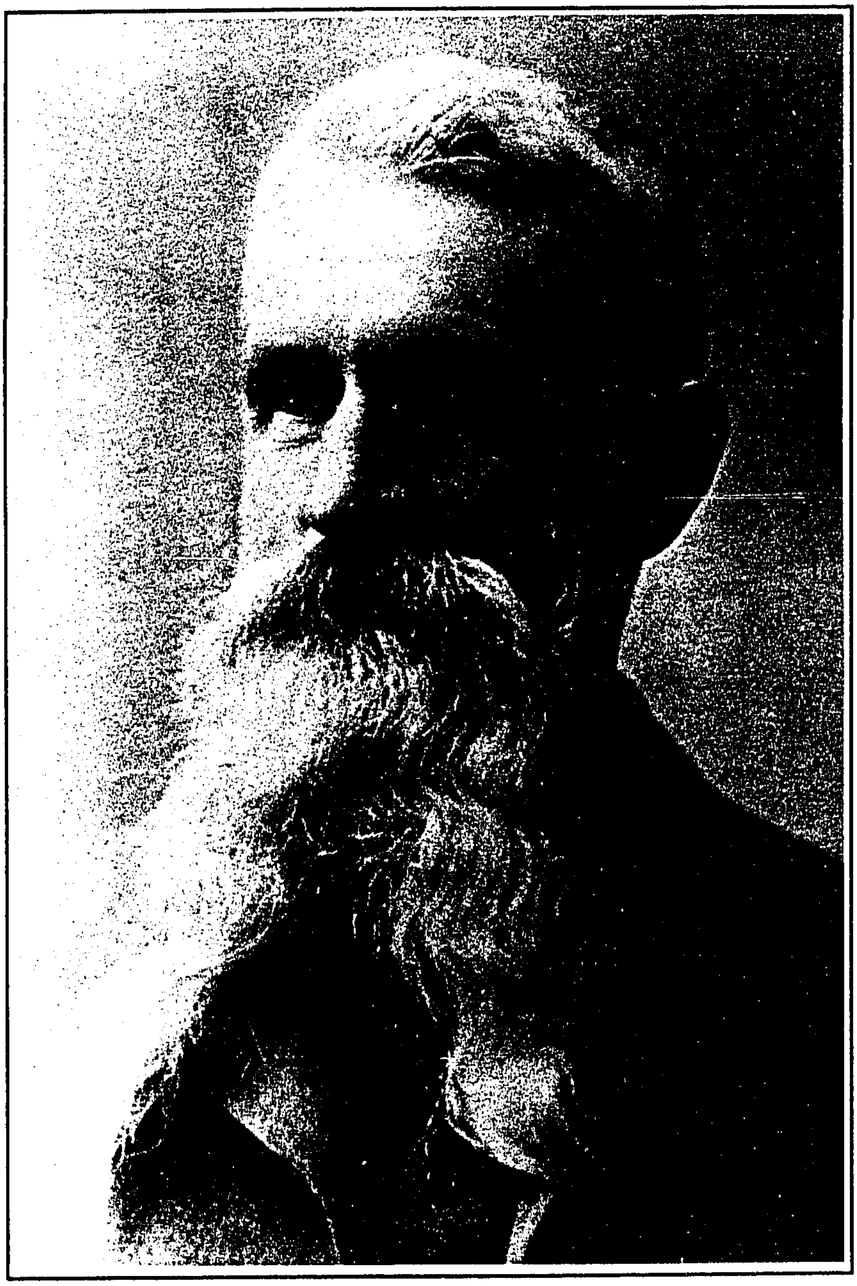

Figure 6. Historical photograph of W. L. Hunter.

of the Beveridge Mining District, the local newspaper described the Beveridge mines as a "recent discovery," a "new El Dorado" (*Inyo Independent* 18 May 1878a), thereby ignoring earlier efforts that had operated in the district for at least 10 years!

The first known newspaper report of the Beveridge Mining District stated:

> . . . we are confident that these mines will continue to an indefinite distance in depth, and also that gold will continue to increase in quantity as depth is attained [*Inyo Independent* 18 May 1878a].

Later, a similar statement was made:

> If future operations shall trace these gold veins to the mountain's heart, giving them scope and permanency, this district will become one of the most wonderful gold-producing regions ever known [*Inyo Independent* 30 December 1882oo].

A common belief was held among nineteenth-century miners that gold deposits were richest at great depth and became more scattered as they approached the surface.

Figure 7(a-d) illustrates the known duration of operations at the various mines in the Beveridge District. Clearly, most of the mines operated between the late 1870s and the 1890s. A few endured past the turn of the century; however, references to most of the mines do not exist beyond the 1890s. Some Beveridge mines began production or were reopened during the 1910s, but had ceased operations before 1921. Virtually no work is recorded in the district during the 1920s, and from the 1930s to the present, less than 10 mines were in operation.

Development history of the district was dictated by a variety of constraints, including availability of financial backing, means of transportation, and ore crushing and processing equipment. In 1880, mining on the eastern slope of the Inyo Mountains was

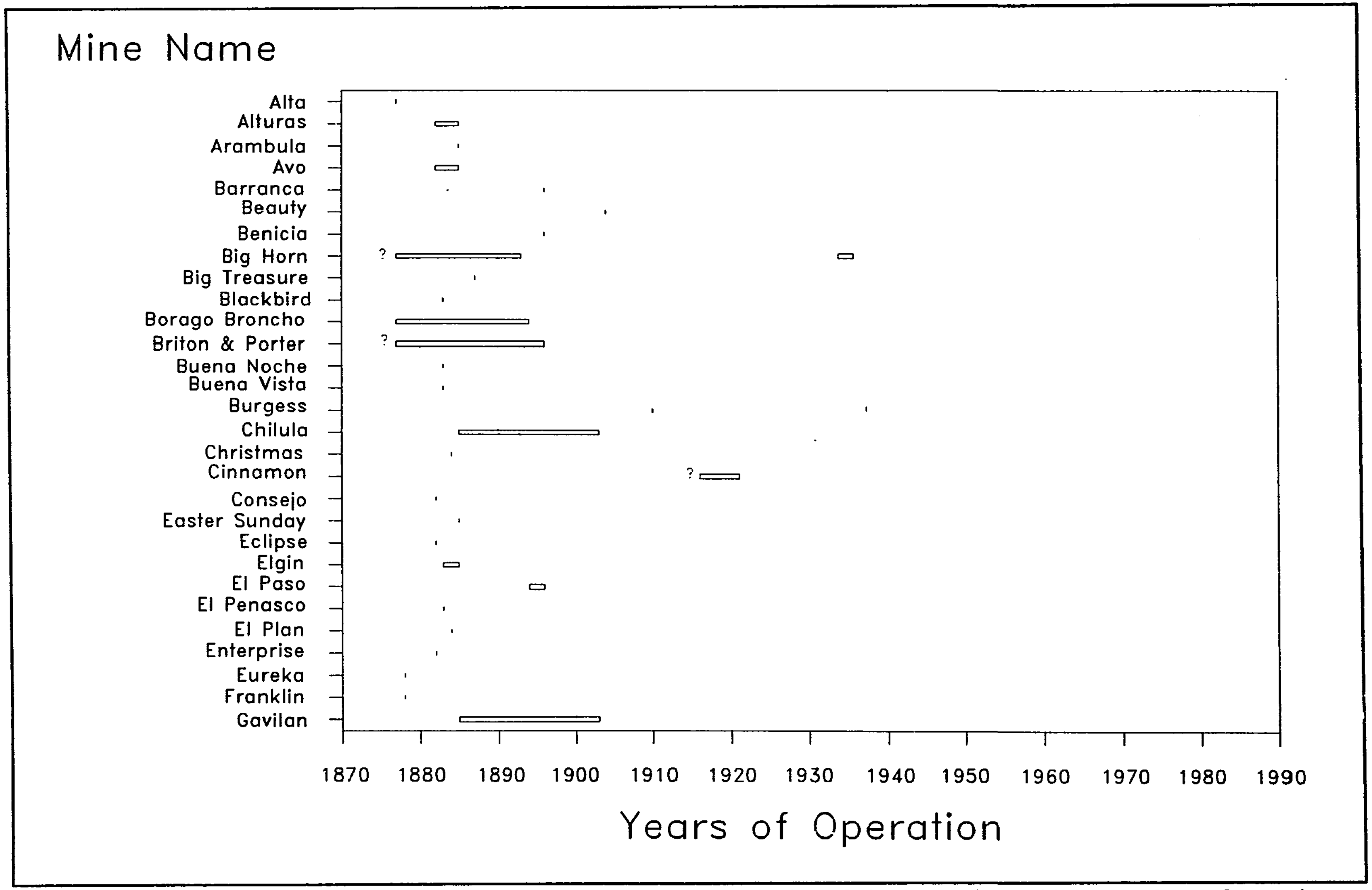

Figure 7a. Chronological timetable of mines in the Beveridge Mining District. Only those mines with known dates of operation are shown.

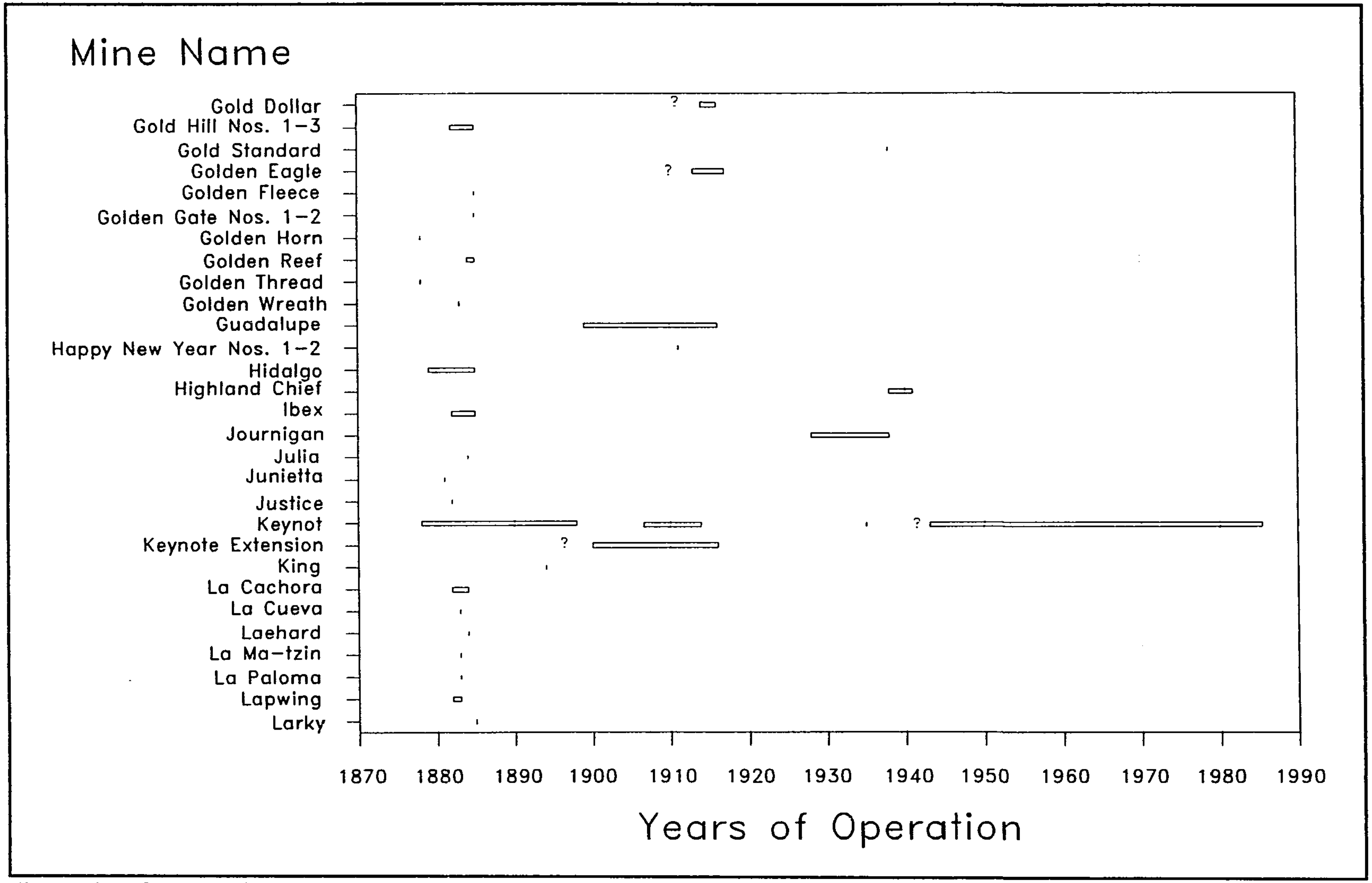

Figure 7b. Chronological timetable of mines in the Beveridge Mining District. Only those mines with known dates of operation are shown.

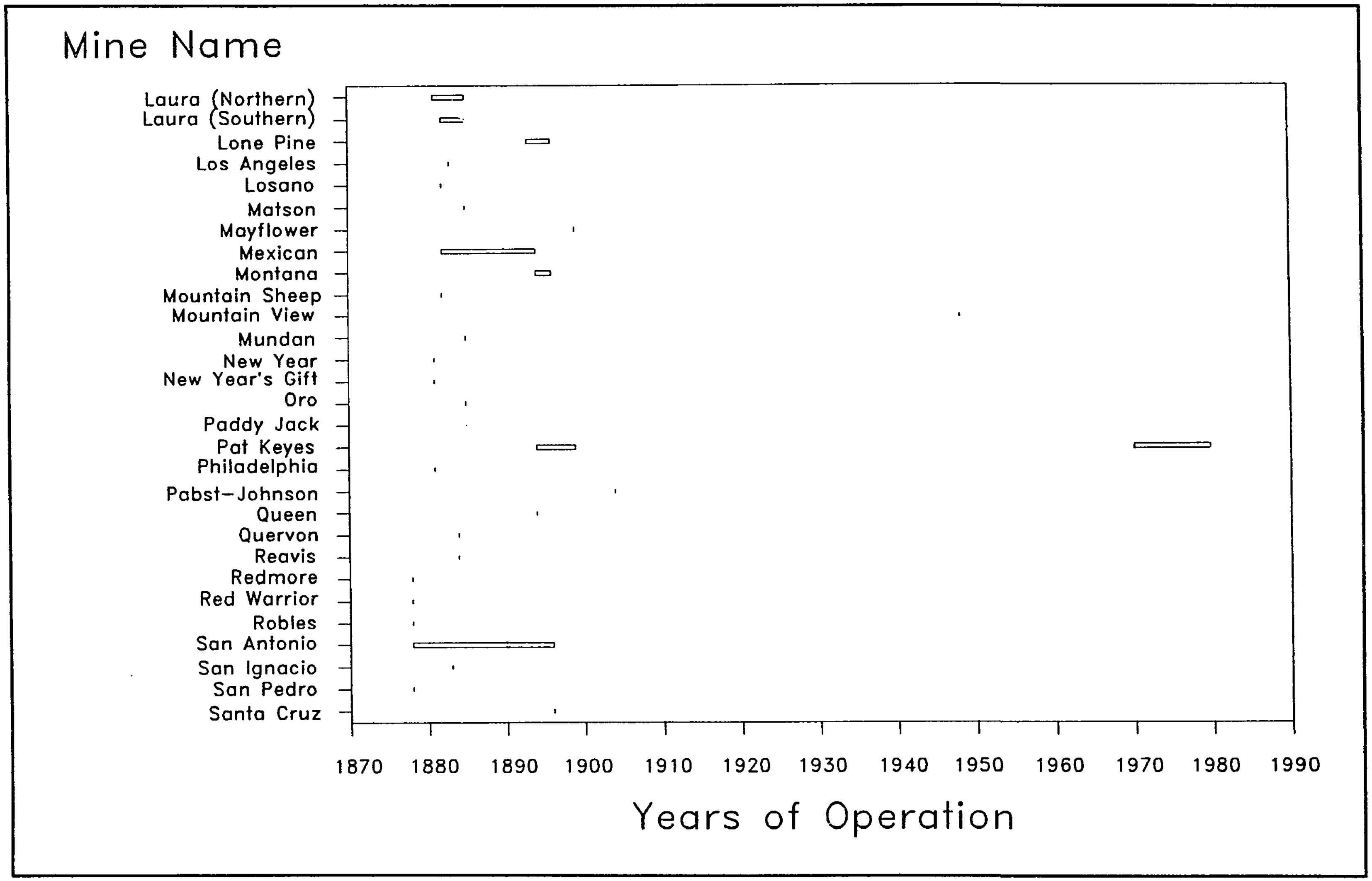

Figure 7c. Chronological timetable of mines in the Beveridge Mining District. Only those mines with known dates of operation are shown.

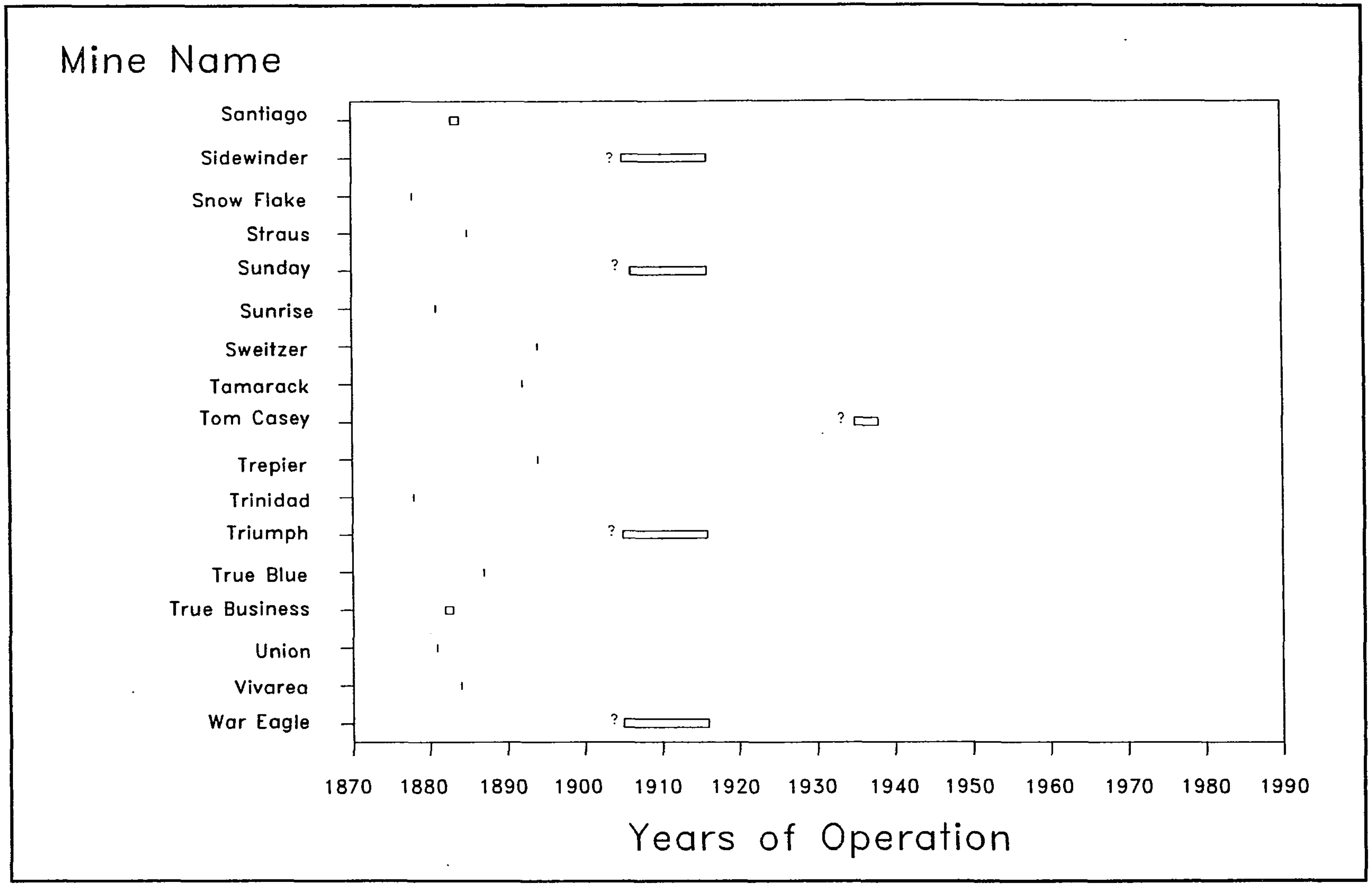

Figure 7d. Chronological timetable of mines in the Beveridge Mining District. Only those mines with known dates of operation are shown.

still in elementary stages, and mines there were said to be characterized by rich gold ledges and large deposits of low-grade silver, worked at that time "mostly by arastras [sic] and other rude machinery" (*Daily Evening Bulletin* 17 May 1880a).

By July 1880, only three years after formation of the Beveridge Mining District, about 40 mines reportedly had been worked in four mining locales of the District, using the arrastra process for milling (*Inyo Independent* 3 July 1880d). In September 1880, one report indicated that "somewhat extensive operations" were underway in the three major mining areas in the district (Hunter, Beveridge, and Keynot canyons) (*Daily Evening Bulletin* 14 September 1880c). The "Mexican camp" (Keynot Mine) ran eleven arrastras in 1881 (*Inyo Independent* 26 February 1881b). One report predicted that "as the mines are opened and improvements made in reduction facilities, the aggregate yield will soon be worth reporting on" (*Daily Evening Bulletin* 14 September 1880c).

One source (Unknown 1885:n.p.) indicated that early Beveridge arrastras, operated by Mexican miners, were driven by horsepower and ran "constantly." Arrastra mills provided the only means of crushing Beveridge ores until the advent of stamp mills in the district in 1880. Stamp mills could profitably crush lower grade ores, and eventually displaced arrastras in the district. As long as high-grade ore was readily available, however, arrastras continued to crush ore at an acceptable rate of efficiency.

Equipped with a number of mills, the Beveridge Mining District continued intensive ore extraction throughout the 1880s and 1890s. In addition to specific mine data (detailed in Chapter VII), the following bits of information provide a picture of the status of the district during these decades.

A table of 1880 mine production noted that the Beveridge District had produced 354 tons of ore, assaying an estimated sixty-five dollars in gold and another estimated sixty-five dollars in gold and silver. That year, 1,113.1 ounces of gold valued at $23,010 were produced, with an average yield of 50 dollars per ton (Hanks 1882:177).

During the early years of its operation, the Beveridge Mining District attracted national attention in various forms. In 1880, the district was considered an entity worthy of inspection, and a United States Census Bureau enumerator visited the site, providing notes to the local newspaper (*Inyo Independent* 3 July 1880d). Beveridge attracted further attention when two mining experts examined the district that year. The two reportedly were "highly pleased" with the outlook for the mines (*Inyo Independent* 10 July 1880e). The district gained brief national notoriety when a Philadelphia mining journal published an article regarding Beveridge; unfortunately, the district name was misspelled "Beavertide" and "Beaveride" in the item (*Inyo Independent* 18 June 1881ii). A United States Deputy Mineral Surveyor performed an inspection of mines in the district during 1881 (*Inyo Independent* 24 September 1881k).

Throughout its history, miners in the Beveridge District worked against the odds of isolation and ruggedness. In 1881, Beveridge was described as an "isolated but stirring little camp" (*Inyo Independent* 5 February 1881a). The search for investment by outside capital proved a perpetual difficulty for Beveridge miners. In 1881, the local news stated that capitalists were timid to come to this rugged country, but hope was maintained that impressive shipments of bullion would draw attention to the camp, which would then rival nearby Bodie (*Inyo Independent* 5 February 1881a). Gold-bearing ledges of the district were said to have the potential of yielding thousands of dollars each month, if only capital was available (*Inyo Independent* 14 May 1881g). News reports contain frequent references to the search for capital investment (e.g., *Inyo Independent* 21 January 1882a). The roughness of the area retarded development, and without capital, extensive operations were an impossibility (*Inyo Independent* 30 December 1882oo).

Prospecting continued during 1881 (*Inyo Independent* 26 February 1881b), and the camp was expected to become rich and prosperous in spite of its inaccessibility. In May of that year, Beveridge reportedly was ''fast coming to the front as a rich gold producing district'' (*Inyo Independent* 14 May 1881g). During this period, profits from the Keynot Mine (and possibly others) were handled by Harris & Rhine, Independence bankers (Unknown 1885:n.p.), and Beveridge bullion shipments left Independence via Wells, Fargo and Company (*Inyo Independent* 11 June 1881h).

Growth of the Beveridge Mining District warranted government support. A post office is listed for Beveridge between late October 1881 and June 1882, with mail delivery from Lone Pine (Frickstad 1955:50). One source (Anonymous 1885:345), however, lists the Beveridge post office in operation as late as 1884.

Increased bullion output was predicted during 1882 (*Inyo Independent* 22 April 1882j) and 1883 (*Inyo Independent* 24 February 1883b). Work in the district during the latter year was described as ''small forces of men . . . at work in quite a number of mines'' (*Inyo Independent* 3 March 1883c), and ''a large num[b]er of men . . . at work on the different mines'' (*Inyo Independent* 7 April 1883e).

Some of the fabulous predictions made for the mines of the Inyo region during the 1880s and 1890s may be accounted to attempts to garner outside investment. For example:

> NEW LIFE.--At every camp in the Inyos are evidences of new life and activity. The ability to sell ores has excited many of our miners to fresh endeavors, and from many places long dormant ores are being extracted for shipment. The late favorable returns from ore shipments have greatly encouraged "the boys." Persistent search and patient labor will in the near future bring about an era of great prosperity [*Inyo Independent* 18 August 1883r].

And again,

> Nowhere in the State is there existing a greater degree of contentment and prosperity than in this county, or a greater faith in its future. . . . it is now receiving a greater degree of attention from experienced mining men, than at any time heretofore.
>
> Taking the present outlook of Inyo, it is safe to predict a future prosperity second to no other locality [Anonymous 1885:345].

Approximately 40 men were reported at work in various parts of the Beveridge District in early 1884 (*Inyo Independent* 15 March 1884b). Enough residents occupied the district that a Keynot voting precinct was established that year. The precinct had one delegate in local elections, and polls were held at McDonough's house and store in Arastra (Beveridge) Canyon (*Inyo Independent* 13 September 1884k, 13 October 1888d). Five votes were reported from this precinct in 1886 (*Inyo Independent* 17 July 1886h). The precinct was effective during the 1888 election; however, no votes from this precinct were reported in the election returns (*Inyo Independent* 13 October 1888d). The 1890, 1892, 1894, 1896, and 1898 elections reported no Keynot precinct (*Inyo Independent* 14

November 1890a, 18 November 1892b, 9 November 1894f, 9 October 1896q, 2 December 1898e).

During 1884, an enormous number of claims were filed, enough "to make an owning for half the district" (*Inyo Independent* 29 November 1884r). The resulting problem was described in the local news. The unfortunate situation was one in which only a few prospectors filed location notices on an inordinate number of claims throughout the region.

> A miner from the eastern side of the Inyo Mountains says in one day he counted over thirty location notices posted by one prospector and not a stroke of work had ever been done on any of them, nor was it likely the prospector ever would work one of them. . . . Such stupidly selfish policy is a serious hindrance to the development of the country [*Inyo Independent* 28 November 1885y].

District output remained high during the 1880s; in April 1885, $13,400 in gold was shipped from Lone Pine, most of it having come from the Beveridge District (*Inyo Independent* 9 May 1885o). About 60 miners worked the Beveridge mines during 1885 (*Inyo Independent* 8 August 1885w).

Historical research generally reveals interesting and amusing anecdotes. Such details serve to flesh out an otherwise dry historical narrative. A number of anecdotes pertaining to the boom period of Beveridge history were uncovered. One pertains to the Keynot election precinct. While bringing the election returns over the Inyo Mountains from Keynot to Independence, Thomas McDonough was thrown from his mule and severely bruised (*Inyo Independent* 13 November 1886m), providing a disheartening example of the difficulty of entering and exiting the Beveridge area.

Another dramatic item is best related through the original newspaper article:

> About 9 o'clock last Tuesday night an exhausted young man put in an appearance at McEvoy's mill in Beveridge District. He gave his name as Joseph Foster, of Fresno county, and stated that he was fleeing from pursuit, having shot a man over in Fresno. Sheriff Donahue of Fresno has a warrant for his arrest for assault to murder, but when Sheriff Gregg came to find it all out the man had skipped for Los Angeles. He gave an account of how his wife had been assaulted by a tramp and that he had followed him up and shot him. He belongs to a prominent family over there, and Charley McEvoy gave him some money and advised him to go home and face the music [*Inyo Independent* 16 June 1883k].

An 1884 article reports the discovery near Coyote Holes of the body of a miner missing from the Keynot Mine (*Inyo Independent* 20 September 1884m). The man probably had been on a prospecting trip.

A humorous error concerns a sample of auriferous quartz from the Keynot Mine, which was shown at the Inyo County Fair in October, 1887 (*Inyo Independent* 22 October 1887e, 22 October 1887f). A prize of $15.00 for best display of gold ores was awarded to the Keynot display, entered by mine owner Lasky. Due to a judging error, however, the prize money was mistakenly given to a man named Eibeshutz, owner of another entry in the mineral display.

> On the matter being explained the Board of Directors ordered the mistake corrected, and Mr. Eibeshutz promptly returned the premium, which was then paid to Mr. Lasky. Mr. Eibeshutz had no knowledge that any mistake had been made till informed of the fact by the Secretary of the Association [*Inyo Independent* 19 November 1887g].

Anecdotes such as these remind the researcher that the history of the Beveridge Mining District, or in fact, any historical archaeological site, is actually a study of human activity with all its drudgery, trials, sorrows, and joys.

Although promising new prospects were reported in the district during 1887 (*Inyo Independent* 28 May 1887b), references to the mines become less frequent after 1885. No Beveridge mines are described in the reports of the State Mineralogist for 1888 (Goodyear 1888) or 1890 (DeGroot 1890). A silver strike in the district was reported in 1889 (*Inyo Independent* 11 May 1889e). Only the Keynot Mine continued to produce in measurable quantities (*Inyo Independent* 17 July 1891a). Delinquent 1893 taxes on a steam arrastra and two millsites in the Beveridge District may indicate financially hard times due to lack of profitable mining (*Inyo Independent* 2 June 1893b).

The paucity of specific written references to Beveridge during the 1890s is indicative of general district decline; nevertheless, a few hopeful (albeit general) remarks were made:

> . . . quite a party will soon go into the Beveridge country, where some excellent prospects have recently been opened up [*Inyo Independent* 28 July 1893e].
>
> Small nuggets of gold are brought into Lone Pine frequently from the Beveridge country [*Inyo Independent* 1 September 1893f].
>
> There is every indication of a revival of mining interests in Inyo County. There are more men prospecting and new finds will surely be made [*Inyo Independent* 5 January 1894a].
>
> Victor Trepier, owner of a gold quartz pocket ledge in Hunter's Canyon, is in Lone Pine for the purpose of getting a supply of water and provisions. "Vic" says he found a pocket last week containing three ounces of gold and for a month's work he shows fourteen ounces of gold [*Inyo Independent* 22 June 1894e].
>
> O. G. Fuentes is going to open up one or two mines near Beveridge soon [*Inyo Independent* 21 February 1896d].

> Some rich gold strikes are reported at Beveridge district [*Inyo Independent* 15 May 1896m].

Beveridge mill records drop out of local newspaper reports by the 1890s, and the few available records indicate that mining in the Beveridge District had passed its boom period. Small-scale, low-budget enterprises run by individuals or small partnerships characterized later Beveridge mining pursuits, a phenomenon that continued throughout the period of decline in Beveridge history (detailed further in Chapter VIII). Still, the district was attractive enough that outside capital was sought, claims were located, and mines were bought (*Inyo Independent* 7 February 1896b, 14 February 1896c, 18 December 1896u, 2 April 1897d, 3 September 1897p). By 1898, a report on mines of the Inyo area failed to mention Beveridge, although many surrounding mining locales were given attention (*Inyo Independent* 17 June 1898b).

At the end of its boom period, the Beveridge District was said to have produced approximately $2,000,000 (Hall 1903:n.p.). It is impossible to substantiate this figure, however, since boom period production records for Beveridge mines other than the Keynot are unavailable (cf. Kirk 1918:118). In 1903, the Chilula, Gavilan, Keynot, and Hunter Canyon mines were said to be actively producing (Hall 1903:n.p.), although their output must certainly have been on a small scale.

Trends in the history of the Beveridge District are demonstrated effectively through the histories and chronologies of the various Beveridge mines, detailed in Chapter VII, and Figure 7(a-d) illustrates the boom and decline cycle of Beveridge history.

There are no complete production records for the Beveridge Mining District; for the most part, written records of the mines were prepared only during boom times. Most gold mining conducted at Beveridge was completed between 1878 and 1906, with small cyanide recovery operations between about 1906 and 1930. Unfortunately, no detailed records were kept during either of these periods (Close 1985:18-19). During the 1930s, the district produced less than $4,000 in gold, silver, copper, lead, and zinc (Close 1985:19).

According to Close (1985:19),

> precious metals were probably produced from 33 mines in addition to the Keynote and Bighorn. It is estimated that the 35 mines yielded at least 38,000 oz of gold and 39,000 oz of silver . . . Some copper, lead, and zinc were also recovered, but their total value was small. . . . According to production records, the price paid for the gold bullion produced prior to 1884 averaged $14/oz; the price averaged about $20/oz from 1884 to 1933.

The present research resulted in a list of Beveridge mines greater than that known by Close. Following is a never-before-compiled list of 111 mines which operated in the district; probably most of these never proceeded beyond the stage of prospects, and therefore never became producers.

Chapter VII

HISTORIES OF IDENTIFIED BEVERIDGE MINES

Following are the histories of 111 named mines in the Beveridge District (arranged in alphabetical order) for which written references were available. Appendix A provides a comprehensive list of all known published references to named Beveridge mines. Where possible, the mines are plotted on Figure 2, but precise locations were not discovered for the majority of these mines. Alternate spellings, found in various sources, are provided with the standard mine name.

ALTA MINE

The Alta Mine (Spanish for "high" or "elevated") was among the first to operate after organization of the Beveridge Mining District. The only known references to the mine are two 1878 newspaper reports. The first known reference to the District stated that the Alta contained "one or more ore chimneys of $100 rock" (*Inyo Independent* 18 May 1878a), although this may have been an attempt to garner interest and, perhaps, investment in the mine. Eudey, reporting for the *Inyo Independent* (8 June 1878b), wrote:

> I must do justice to the San Pedro, . . . and the Trinidad, San Antonia and Alta, four separate locations running parallel with the Champion lode aforesaid. The mines are situated about 400 feet up the hill and north. . . . The San Antonia and the Alta I failed to visit, it being late in the evening.

Eudey's decision to forego his visit to the Alta was a practical one at the time, considering the uncertain footing afforded by even the most well-developed trails in the district. It is unfortunate, however, that impending darkness prevented a more complete historical record of the mine. The Champion lode is located in "Big Horn Cañon" (now known as Hunter Canyon), but the exact location of the Alta Mine was not discovered. Probably it did not prove to be a producer, or was incorporated under another mine.

ALTURAS MINE

Two contemporary sources mention the Alturas Mine (Spanish for "heights" or "loftiness"), located on one of the veins of the Keynot group (Unknown 1885:n.p.). The *Inyo Independent* (1 April 1882f) carried the following announcement:

> MINING TRANSFER.--Yesterday there was placed upon the County records a deed from Antonio Moreno to Nieves Moralis, "to her heirs, assigns, etc., forever," 150 feet in each of the following well-known Beveridge District mines: The Keynot, True Business, Tamarack, Ibex, Alturas, Avo, Mexican, Eclipse, Justice, and the Hidalgo. Consideration, in the deed, $3,000.

This short notice contains a wealth of data concerning the Alturas and the other named mines. First, it is the only known nineteenth-century reference to a woman holding an interest in Beveridge District mines. Second, the reference confirms the operation of Beveridge mines by Mexicans after formation of the Beveridge Mining District. The mention of four Spanish mine names in the list suggests that at least those mines may have been founded by Mexicans. Only five years after the formation of the district, the Alturas was claimed to be one of the ''well-known Beveridge District mines''; apparently, the mine had been a good producer or had been well-advertised.

In 1885, the Alturas was among a number of mines of the Keynot group said to ''have been but little developed, but so far as worked have proven valuable'' (Unknown 1885:n.p.). The Alturas does not appear in any references beyond 1885, and may have been usurped by later Keynot Mine workings.

ARAMBULA EXTENSION

Only one known reference was made to the Arambula Extension of the ''Straus and Cohen [probably Crohn] ledge.'' It reads:

> The Arambula extension . . . is now getting so rich in silver, that a different process of working the ore has become necessary from what served when it was worked for gold alone. The two claims on this ledge show an immense amount of ore [*Inyo Independent* 8 August 1885w].

This mine probably was named for Hilario Arambula, a miner in the Beveridge District whose name is associated with the Chilula Mine.

AVO MINE

The Avo Mine (Spanish for ''twelfth'') was one of the claims of the Keynot group (Unknown 1885:n.p.). The article cited above (*Inyo Independent* 1 April 1882f) announcing a deed transfer of mining properties names the Avo in the list of deeded mines. Names involved in the transfer indicate that the Avo was operated by Mexicans. That the Avo was claimed to be one of the ''well-known Beveridge District mines'' indicates that the Avo enjoyed some notoriety (or, at least, advertisement) early in the existence of the district.

BARRANCA (BARANCA) MINE

The Barranca Mine (Spanish for "ravine" or "precipice") is mentioned in two reports of the state mineralogist.

> This mine is situated on the ridge south of Craig's Cañon, on the eastern slope of the Inyo range; the altitude is 7,000 ft. A number of veins occur on this claim, all of which have been more or less worked. The greatest development is a 250 ft. tunnel. Adjoining this mine are two other claims, on which some work has been done [Crawford 1894:136].

> It lies in Hunter's Cañon, . . . at 7,000′ elevation, and embraces, among others, the *Briton & Porter* and *Barranca* mines [original emphasis], all being on the same vein. In the Barranca ground there is a 325′ tunnel along the vein; . . . The country rock is granite. The vein averages 6′ wide, and consists of a crushed mass of granite and quartz dipping 20° N. Five tons of ore is ground daily in three arrastras driven by a 12 H.P. engine. Hunter & Spears [Spear], of Lone Pine, owners [Crawford 1896:179].

These reports indicate considerable development of the Barranca Mine; however, it was not found referenced again in newspaper articles or additional reports of the state mineralogist.

BEAUTY MINE

The Beauty Mine was one of the Keynot Group of mines listed in an 1894 report (Crawford 1894:138). One J. Laskey [Lasky] of San Francisco reportedly owned the mines during that year. A more thorough discussion of the Keynot Mine is given below.

BENICIA MINE

The only known reference to this mine dates to 1896 (Crawford 1896:179). The mine was said to be located in Robles Canyon, and owned by one John Black and others of Bishop. According to DeDecker (1987:51), Robles Canyon is a small canyon "not named on modern maps," which runs northerly from Hunter Canyon near the Big Horn Mine. Although the mine is not mentioned in other sources, it had considerable development by 1896, including a 3 1/2-ft. vertical vein, developed by a 350-ft. tunnel and an 80-ft. shaft.

BEVERIDGE MINE

The earliest known reference to the Beveridge Mine (Fig. 2) is dated 1885 (Unknown 1885:n.p.), stating that the mine had "a shaft 30 feet deep, with a vein from 2 to 5 feet of good ore." A 1917 report (Newcomb 1917:3) stated that during that year, the mine operated with a crew of about 10 men. The report further stated that the mine "is an old property and there has been quite a considerable amount of high grade ore taken from it." In 1985, a "Beveridge Mine" was reported as a potential resource for both gold and silver (Close 1985:22). (It should be noted that Close [1985] tested samples of ore from various mines in the district; the fact that a variety of mineral resources was found at a particular locality is not conclusive proof that those commodities were ever mined there.) This probably is not the same mine as the historical one of the same name (Alan Akin, personal communication 1991).

The mine now known as the Beveridge Mine has had an estimated production record of "1,000 tons of ore containing at least 300 oz of gold and 1,000 oz of silver," with much unrecorded work conducted prior to the location of two claims in the 1970s (Close 1985:34). The vein reportedly is as thick as eight feet.

> Workings consist of three open adits, six caved ones, two shafts, one incline shaft, three prospect pits, four benches, a wireline tram, and a partially dismantled mill. The underground workings total an estimated 700 ft and the benches 400 ft. The mill contains two Huntington grinding mills (each driven by a gasoline engine), a concentrating table, and two cyanide vats [Close 1985:34].

In conflict with this account is a statement later in the same report, "along the vein are 11 underground workings . . . [and] several small pits" (Close 1985:72; Taylor and Joseph 1988:A9). The 1985 Bureau of Mines report included a sketch map of the Beveridge Mine.

The following features were recorded at the site of the Beveridge Mine (Locus 40): six adits, three shafts, nine prospects, ore car track, one ore chute, an aerial tram, two ore bins, two Huntington mills, two arrastras, two working platforms, two redwood cyanide tanks, a machinery scatter, two stone structures, and one frame tent cabin. The system of ore transport, milling, and gold recovery employed at the Beveridge Mine is discussed fully in Chapter XI.

BEVERIDGE CANYON MINES

The Beveridge Canyon Mines are believed to be approximately 12 unidentified mines owned and operated by Taylor and McEvoy (*Inyo Independent* 25 September

1880f). Later, these mines were termed the Beveridge Canyon Mines. The first known reference to the mines under this name is dated 1935 (*Inyo Register* 16 May 1935), when the mines were said to have had an approximate production record of $10,000.

In 1988, the Bureau of Mines study of the Inyo Mountains Wilderness Study Area (WSA) (Close 1985:72) reported three prospects and one mine carrying the name "Beveridge Canyon Prospect" or "Beveridge Canyon Mine". A total of 11 adits totalling 850 feet, five prospect pits, an aerial tram and milling facilities were reported. Taylor and Joseph (1988:A6-A7, A9) described the veins and exposures of the Beveridge Canyon Mines as reported in that year.

BIG HORN MINE

Gold discoveries at what was to become the Big Horn Mine, Hunter Canyon (Fig. 2), were made by William L. Hunter during the late 1870s. This mine was among the first developed after the Beveridge Mining District was formed, and was found to contain gold, silver, lead, and copper ores (Norman and Stewart 1951:145; Goodwin 1957:454; Close 1985:22; Taylor and Joseph 1988:119). The mine is considered one of the six principal mines of the district (Clark 1980:134).

In 1877, the year of district formation, the Big Horn Mine consisted of eight claims and one millsite (Vredenburgh et al. 1981:246). By 1878, Hunter and his partners Hughes and Britton operated three steam-powered arrastras in Hunter Canyon (*Inyo Independent* 25 September 1880f), approximately 1.5 mi. south of the mine workings and near Hunter (Big Horn) Spring (Fig. 2) (Taylor and Joseph 1988:A3-A4). Today, Hunter's arrastras reportedly are partially dismantled (Taylor and Joseph 1988:A3); the mine and millsite were not visited during fieldwork for this research.

The following discussion of the mine is from the *Inyo Independent* (25 September 1880f), written by an unidentified person named "Oswald." This account of a trip to the Beveridge District reveals much about the Big Horn Mine, its projected worth, and one of the partners.

> Started from Lone Pine in the morning; crossed the Inyos through Slate Cañon, via Hunter's trail; got as far as Hunter, Hughes & Britton's camp; the last named gentleman insisted on our staying over night with him, he being the only one of the proprietors there; did so; he was very kind in showing us the mine, which we visited next day.
>
> The mine varies from two to four or five feet in width, and crops out for a distance of over two thousand feet in length. They have sunk shafts and ran drifts in a number of places, but only took out such ores as would pay to work in their steam arastras [sic]. One shaft is down 170 feet; in the bottom of this shaft there is an abundance of ore that will go from $25 to $40 per ton; it is so difficult to work they have lost from $10 to $15 a ton. They have saved the tailings, which will be worked over after concentration.
>
> Mr. Britton, being left in charge by his partners, thinks of trying
>
> A NEW PROCESS
>
> Which he learned in Colorado from Prof. Hill. It is very simple, and some account of it may interest others who have base gold ores. As described by Mr. Britton, small pits in the ground are partly filled with wood, which is in turn covered with the ore, precisely as in burning charcoal. The heat is not strong enough to melt the lead, but still enough so to drive away the arsenic and other volatile minerals which prevent successful amalgamation. The wood is reduced to charcoal, the same as in a regular pit, so that the expense for wood is nothing as compared to ordinary roasting processes. Mr. Britton informs me that after working the ores prepared in this way and concentrating the tailings, the latter would not assay $5 a ton. Geo. Gregory and Herman Isenduphs [Issendorf] were at the camp, assisting Mr. Britton.

It is not known if the new roasting process described by Oswald was employed; it is not again mentioned in newspaper accounts or production records. Since archaeological investigations in the Beveridge Mining District did not include a reconnaissance of Hunter Canyon, it was not possible to check for evidence of the roasting pits in the form of depressions, charcoal scatters, or slag. These features should remain extant at the site, however, if the process was employed; future archaeological investigations are planned and will concentrate on this potential resource.

In 1882, Hunter is reported working with one Manly Conkrite, recovering ore for processing in his steam arrastras (*Inyo Independent* 2 September 1882ii). Hunter was again reported running his arrastras in 1883 (*Inyo Independent* 29 September 1883u), to rework old tailings and some new ore. Hunter continued to operate the Big Horn Mine and arrastras until 1893 (Tucker and Sampson 1934:310). Production at the mine during Hunter's operation was between $8,000 and $10,000 (Tucker and Sampson 1938:384).

A new boiler was packed into Hunter Canyon in 1885 (*Inyo Independent* 2 May 1885k) and put in place by one Spear; presumably, this equipment was employed at Hunter's arrastras. The mine reportedly was purchased in 1900 by Frederic and Sam Spear (Tucker and Sampson 1934:310), although one report (*Inyo Independent* 14 March 1902a) stated that Hunter worked his mines until his death in 1902.

In 1926, the Big Horn Mine, comprising five claims, was owned by Sam Spear of Lone Pine, but reportedly was idle (Tucker 1926:465). At that date, mine development included one 300-foot adit, one 200-foot adit, and one 380-foot inclined shaft. In 1933, Spear resumed development work at the mine, and shipped high-grade ore to a smelter in Midvale, Utah (Tucker and Sampson 1934:310).

In 1934, the workings were described as a 380-foot inclined shaft with drifts at 100, 200, and 300 feet, and two adits. Five men were employed, and 24 tons of high-grade ore had been mined, sorted, sacked, and packed by mule team to the Mt. Whitney station of the Southern Pacific Railroad (Tucker and Sampson 1934:311). The gross value of these ores reportedly was $3,728.40. The reported production record as of 1926 was $40,000 (Tucker 1926:466), but in 1935 was said to be only $20,000 (*Inyo Register* 16 May 1935).

The state mineralogist's report for 1938 (Tucker and Sampson 1938:383, 469) stated that the Big Horn, comprising 165 acres, was owned by Spear and M. A. Wilson. The Bronco-Hunter vein was said to include the principal development, although the mine was idle at the time of the report. The inclined shaft reported in 1934 had received no further development; Tunnel No. 1 was 200 feet deep, and Tunnel No. 2 was 650 feet deep. Another inclined shaft had been excavated and connected with the adits. The underground workings of the Big Horn Mine were sketched in the 1938 report. Big Horn ores had most recently been

> sorted and packed on mules by trail from the mine to Long John Canyon, a distance of 8 miles, then hauled by truck, a distance of 8 miles to Owenyo for shipment to smelters at Salt Lake City [Tucker and Sampson 1938:384].

The mine does not appear in published references again until 1951, when the state mineralogists report (Norman and Stewart 1951:145) stated that the mine was owned by Mrs. Kate E. Gillmore of Santa Monica.

In 1980, 42 claims "were located over the mine area" (Close 1985:29). A Bureau of Mines report dated 1985 (Close 1985:29) stated that the mine is characterized by three nearly parallel veins, the Porter, Jewel, and Key, and an unnamed crosscut vein. A total of

> fifteen underground workings, eight benches, and at least 14 prospect pits and cuts are in an area 2,000 ft wide and 6,000 ft long. The underground workings total 3,000 ft, and the benches 2,000 ft. . . . About 4,000 tons of ore containing at least 1,600 oz of gold and 9,600 oz of silver are estimated to have been mined [Close 1985:29, 73].

The Big Horn and Keynot Mines are the only two mines in the district with notable vertical development (Taylor and Joseph 1988:59).

BIG TREASURE MINE

Only one reference is known to the Big Treasure Claim. The local newspaper carried an item concerning "some very good mining prospects . . . being opened in new ground in the Beveridge district (*Inyo Independent* 28 May 1887b)." The Big Treasure claim was owned by C. Maysan "and others," of Lone Pine.

> This is located not far from the White Hill mine but on the other side of the ridge [near the northern boundary of the Beveridge District]. A sample of thirteen tons of this ore was shipped recently; it goes $26[.]50 per ton in silver and 69 per cent. lead. The vein is large and easily mined. This claim gives strong evidence of developing a very large ore body.

BLACKBIRD OR BLACKBOARD MINE

Only one reference is known to the Blackbird Mine. On 15 December, 1883(y), the *Inyo Independent* provided a report of ores crushed at the Lasky Mill between March and the end of November, when the mill closed for the winter. Among the mines-listed is the Blackbird Mine, with a reported 145,042 pounds of ore processed, yielding 16 ounces of gold at a value of $1,904.

A publication dated 1885 (Unknown 1885:n.p.) recounts the same Lasky Mill report, adding that "the following results have been taken from the record kept at the mill; therefore they are correct, as all rock is carefully weighed before it is crushed." The report failed to mention, however, that the data were two years old! The list of mines having ore crushed at the Lasky Mill is similar to that in the article that appeared in the *Inyo Independent*. Although the names appear in approximately the same order in the two sources, several variations in spelling are present. Where the newspaper listed the "Blackbird" mine, the 1885 report listed the "Blackboard" mine. The two names almost certainly represent the same mine, but it is difficult at this date to ascertain which is the correct mine name.

BORAGO BRONCHO (BORAGO BRONCO, BORAGA BRONCO) MINE

The Borago Broncho (probably a mutation of the Spanish "borrego bronco" for "wild sheep") was a location on the Champion lode in Hunter Canyon (*Inyo Independent* 8 June 1878b). The few known references to this mine yield a surprisingly detailed picture.

The first known written reference to the Beveridge District (*Inyo Independent* 18 May 1878a) described the Borago Broncho as one of the "richest claims in the district," with 150 tons of ore having been extracted, that was hoped to yield over $200 per ton. The mine was said to include three ore chimneys between 75 and 100 feet in length.

The superintendent of the Taylor, McEvoy & Co. Mill (the mill later was known simply as the McEvoy Mill, as it will be referred to herein) reported in 1882 (*Inyo Independent* 2 September 1882ii) that the mill had

> just completed some small lots of chlorider's ore from the Boraga mine. Seven tons yielded 30 ounces of gold, and some four or five tons turned out about $40 gold per ton.

The mine reportedly was owned by Hunter and Hughes in 1885 (Unknown 1885:n.p.), and was a promising and steady producer.

In 1894 (Crawford 1894:136) the Bronco Mine was reported thus:

> Farther west on the same vein, and owned by the same parties, is the Bronco Mine, where a shaft has been sunk to a depth of 110 ft. The dip is 70°. The quartz carries free gold, and a little silver in galena, copper and iron sulphurets. The vein as a whole is one of the largest and most regular in the district. If the developments are favorable it is the intention to erect a 10-stamp mill at the junction of Robles and Hunter's cañons, where there is nearly 20 in. of water. The ore can be sent to the mill on a tramway.

Hunter apparently had sold out to an investor, for at this date, he was listed as mine superintendent, under owner J. J. Haley of San Francisco (Crawford 1894:136).

BRITON & PORTER [BRITTAN] MINE

The Briton & Porter Mine was a part of the Barranca Mine in Hunter Canyon, described above (Crawford 1896:179). The mine was one of the oldest in the district (Crawford 1894:136), but was out of operation for some time prior to 1894. In that year it was reported:

> Work is now in progress upon a large vein of sugary quartz. The old incline, which followed the vein in, is 170 ft. long, and will be extended several hundred feet, if the indications are favorable. The vein is 2 to 7 ft. wide . . .[Crawford 1894:136].

Work continued until at least 1896, when the following was reported:

> . . . in the Briton & Porter ground an incline, 218′ deep, has been sunk, with a 110′ drift on the 100′ level, and one 60′ long on the 200′ level. The country rock is granite. The vein averages 6′ wide, and consists of a crushed mass of granite and quartz . . .[Crawford 1896:179].

Ore from the mine apparently was processed in Hunter's steam-powered arrastras, at the rate of 5 tons per day. The mine was owned by Hunter and Spear of Lone Pine.

References dated 1883 and 1885 list ores from the "Britton" or "Brittan" Mine crushed at the Lasky Mill (*Inyo Independent* 15 December 1883y; Unknown 1885:n.p.). Since the Briton & Porter Mine is reputed to be one of the oldest in the district, these probably are references to that mine, although it is possible that the references identify an earlier mine operated by Briton, who later may have formed a partnership in a new mine with Porter. Both references state that 42,330 pounds of ore were crushed, at a value of $280.

BUENA NOCHE MINE

The McEvoy Mill reported having crushed 40 tons of ore from the Buena Noche (Good Night) Mine "resulting in $2,000" (*Inyo Independent* 8 September 1883t). This is the only known reference to this mine.

BUENA VISTA MINE

A mill report (*Inyo Independent* 15 December 1883y) from the Lasky Mill stated that Buena Vista (Good View) Mine ore, in the amount of 18,028 pounds, was crushed during 1883, at a yield of $210. No other references to this mine are known.

BURGESS (IRON SIDES, IRONSIDES) MINE

The Burgess Mine is the southernmost mine of the Beveridge Mining District (Fig. 2), and probably, the only mine in the district that was accessible by wagon road (Knopf 1918:122). Gold, silver, lead, and zinc occur at the mine (Close 1985:39; Taylor and Joseph 1988:119). Research failed to disclose the date of first operations at the mine; however, it is known that the mine shipped ''46 tons of ore containing 22 oz of gold and 11 oz of silver'' in 1910 (Close 1985:74). In both 1912 and 1917, the mine was reported idle (Waring and Huguenin 1917:75; Knopf 1918:123), although one source stated that ''the owners intend to reopen it'' (Knopf 1914:119).

A 1914 report on the mineral resources of the Inyo and White Mountains (Knopf 1914:119) indicated that the mine was situated at the 9,200-foot level, and had yielded high-grade ores. At that date, developments consisted of two ''shallow inclines, the principal one of which was operated by a gasoline hoist.''

The 1921 report of the state mineralogist (Tucker 1921:280) described the Iron Sides Mine at the 8,000-foot level.

> Developments consist of [a] shaft 156 feet, and tunnel 700 feet, about 2000 feet of drifts. Ore milled, stated to carry $20 to $40 per ton. Equipment.

> Gasoline hoist, compressor and arrastra. Idle. Mrs. Kate Wells of Big Pine, owner.

The 1926 report (Tucker 1926:469) provides essentially the same information. The production of the Burgess Mine was reported to be approximately $30,000 by 1935 (*Inyo Register* 16 May 1935).

The Burgess and Iron Sides Mines are first described together in the 1938 report of the state mineralogist. That report indicated that the mines were situated at 9,200 feet elevation, were owned by Kate Wells, and under lease to A. B. Gould, of Lone Pine (Tucker and Sampson 1938:388). Two men were employed at the mine, and the following description of the workings as of that date was provided:

> . . . developed by an incline shaft 200 ft. in depth. West of this shaft are two vertical shafts sunk to a depth of 60 ft. On the east slope of the ridge there is a crosscut tunnel 700 ft. in length. The ore is a milky-white quartz, carrying gold associated with galena. Equipment consists of gasoline hoist and compressor [Tucker and Sampson 1938:388].

The main shaft was equipped with a wooden headframe (Mitchell 1969:17).

In 1985, workings consisted of "64 pits, 12 trenches, and 28 underground workings totaling about 4,000 ft." in an area measuring 6,400 by 6,200 feet (Close 1985:74). As late as 1987, several buildings remained extant at the mine (DeDecker 1987:51).

CHAMPION LODE

The Champion Lode in Hunter Canyon was among the first discoveries in the Beveridge Mining District. References to this resource occur as early as May and June, 1878 (*Inyo Independent* 18 May 1878a, 8 June 1878b). Claims on the Champion Lode were owned and operated by Porter, Hughes, Hunter, and Brittain (Britton). According to the first report, the Champion Lode was visible as an outcrop for a distance of 7,500 feet, and comprised the "most extensive mining property" developed in Inyo county to that date (*Inyo Independent* 18 May 1878a). The lode supported claims known as the Alta, Borago Broncho, Eureka, Franklin, Golden Horn, Golden Thread, Red Warrior, Robles, San Antonio, and Snow Flake, although at least one source stated that some of these claims were located on separate veins which ran parallel to the Champion Lode (*Inyo Independent* 8 June 1878b). The various claims are described separately herein. Some doubts were raised due to the fact that the Champion Lode was situated in granite. The second report stated that after inspection of the various claims on the Champion Lode,

> I am glad to state that this vein or lode from its size, regularity, remarkably well defined walls, with a clay seam (or, using a miner's term, "gouge on the hanging wall"), and last but not least, the many rich specimens of gold-bearing quartz it produces, is enough to say that the owners have mines of no small moment, and by no means should be slighted on account of the formation in which they are imbedded. In fact, I pronounce it a well known certainty that the mines of California, and even elsewhere, situated in granite have produced from the surface down to a depth of four or five hundred feet more gold and heavier deposits than almost any other formation. Therefore some of our Inyoites should not cry about granite, while it is in a state, with the component parts of vein matter, capable of producing auriferous ore of high grade--unless they would rather have a million dollars taken out of the ground at a heavier expense one thousand feet deep than they would at a depth of five hundred feet. . . . Therefore with this and much larger quantities of ore from excavations on the line of the Champion, all of which, as might be expected in a granite formation, is free milling ore. I think your many readers will agree with me that the prospects for a great success are really encouraging [*Inyo Independent* 8 June 1878b].

CHILULA (CHALULA, CHILULU) MINE

> Joining this claim [the Gavilan] is the Chilula, worked by Hilario Arambula. A tunnel is now in forty feet and a shaft sunk twenty feet. In the bottom of the shaft the ledge is four feet wide, of free milling gold ore. A lot of this ore worked in an arastra [sic] gave one hundred dollars per ton; about ten tons of the same kind are now on the dump and six men are at work getting out more. This is a very promising claim. In the same claim there is a large body of good galena ore that has not yet been worked [*Inyo Independent* 23 May 1885p].

The Chilula was part of a group of mines including the Gavilan, Montano, and San Antonio, near the head of Robles Canyon. The Mexican owner/operator of the Chilula Mine sold out to a San Francisco investor named Preston in late 1885 or early 1886 (*Inyo Independent* 9 January 1886a), and by the end of January 1886, "a few men" had been put to work under the new owner (*Inyo Independent* 23 January 1886b).

In 1894, the following description of the Chilula was given:

> The Chilula lies partly in limestone and partly in granite. The limestone is found on the western end of the claim, and it is here that silver ore is found. On the eastern end of the claim a tunnel has been run 400 ft. in granite. A rich shoot of ore was followed down from the surface to this tunnel. As the ledge passes from the granite to the limestone, the most of the gold content disappears and silver-bearing galena takes its place [Crawford 1894:137].

In 1896, Charles Green et al., of Lone Pine, were listed as owners of the Chilula Mine (Crawford 1896:180). An article (Hall 1903:n.p.) in the *Los Angeles Mining Review*, dated 1903, listed the "Chalula" as one of the mines in the Beveridge Mining District which was then producing, and reportedly had been producing for "many years."

CHRISTMAS MINE

The Christmas Mine is listed on a "statement of ores crushed at the Lasky Mill" for one month during summer, 1884 (*Inyo Independent* 21 June 1884c). A total of 44,079 pounds of ore from the Christmas were crushed, at a value of $390.

CINNAMON (TEDDY BEAR) MINE

Research did not reveal the initial date of work at the mine that operated as both the Cinnamon and the Teddy Bear. This 20-acre mine (Tucker and Sampson 1938:470) was located between Keynot and McElvoy Canyons in the northern portion of the Beveridge District (Fig. 2), and reportedly contained gold, silver, and copper resources (Close 1985:23, 74).

Although the Cinnamon was reported idle in 1921, mine workings as of that date included tunnels 150 and 350 feet deep. Cinnamon ore was reported to assay $30 to the ton (Tucker 1921:279). A 2-stamp mill had been erected, and F. M. and A. W. Hess of Lone Pine were the reported owners. Reports for 1926 (Tucker 1926:467) and 1938 (Tucker and Sampson 1938:392) contained no new information; the Cinnamon was again reported idle.

In 1985, the Bureau of Mines estimated that "60 tons of ore containing at least 16 oz of gold and 50 oz of silver were mined" (Close 1985:74). The mine has been described as one of the six principal mines in the Beveridge Mining District (Close 1980:134).

CONSEJO MINE

The only known reference to the Consejo Mine (Spanish for "advice" or "counsel") states that "Antonio Moreno has put a force of men at work on the Consejo mine, getting out ore" to be crushed at the McEvoy Mill (*Inyo Independent* 2 September 1882ii). The reference indicates that the mine was operated by a Mexican miner.

EASTER SUNDAY MINE

The *Inyo Independent* (11 April 1885i) carried the following item about a well-known Beveridge miner:

> Pat Keyes has discovered a new ledge across the gulch from the White Hill mine [near the northern boundary of the Beveridge district]. Right on the surface this ledge is two feet wide, and samples brought to town are as fine as any yet seen in that district. Pat names his claim the "Easter Sunday".

The fact that the Easter Sunday never again appears in newspapers or official records indicates that the claim failed to produce.

ECLIPSE MINE

The article of mining transfer (*Inyo Independent* 1 April 1882f) cited for the Alturas Mine, above, refers to an interest in the Eclipse Mine, transferred from Moreno to Moralis. The article describes the Eclipse as one of the "well-known" Beveridge District mines. This is the only known reference to the mine.

ELGIN MINE

The local newspaper carried a few items about the Elgin Mine. One stated that an experimental arrastra run yielded a good showing, and indicated that the mine would "supply all the ore they want indefinitely" (*Inyo Independent* 30 June 1883o). Another item discussed development work at the mine:

> Messrs. Baker, Keys and Barnes, of the Elgin mine, Beveridge District, last week cleaned up a short run of their arastra [sic]. Eight tons of ore yielded forty ounces of gold worth at the mint $16.75 per ounce. Having thus tested the ore, and in the meanwhile developed the mine sufficiently to justify it, they will on Monday next begin the construction of a trail to the McEvoy mill--about seven miles of "uphill work", and propose thereafter to keep that institution running on $70 free gold ore [*Inyo Independent* 6 October 1883v].

In 1884, the Elgin was reported (*Inyo Independent* 5 July 1884d) to continue in "paying quantities." The mine reportedly had a 60-foot shaft with a three-inch vein of high-grade ore (Unknown 1885:n.p.).

EL PASO MINE

The El Paso (Spanish for "the pass") was one of the Keynot Mines (Crawford 1894:138, 1896:181). No detailed description of the workings was found.

EL PEÑASCO (EL PEMASCO) MINE

The only known references to the El Peñasco Mine are in reports of the Lasky Mill. In May, 1883 (*Inyo Independent* 26 May 1883i) the mill reported nine tons of ore crushed, yielding $620.00 worth of gold averaging $68 per ton. In December, 1883, 17,742 pounds of ore had been crushed, yielding $562.90 in gold (*Inyo Independent* 15 December 1883y; Unknown 1885:n.p.).

EL PLAN MINE

The only available record of the El Plan Mine (Spanish for "the plan") is in two Lasky Mill reports. A total of 30,497 pounds of ore were crushed for a yield of $802.50 in gold (*Inyo Independent* 21 June 1884c), and 22,175 pounds yielded $340.62 (*Inyo Independent* 1 November 1884p).

ENTERPRISE MINE

A mining transfer record appeared in the local newspaper:

> Daniel Probst [Pobst] and Jos. Hanger to E. H. Edwards, 750 feet in Mountain Sheep, Enterprise and other mines situated in Beveridge District, for $500 [*Inyo Independent* 25 November 1882mm].

Evidently, the Enterprise Mine never became a producer; no other record of it is known.

EUREKA MINE

This mine is one of the Champion lode claims (*Inyo Independent* 18 May 1878a). As of 1878, the Eureka Mine was described as "not yet developed to any considerable depth, but prospecting well on the surface" (*Inyo Independent* 18 May 1878a). A 1917 report (Waring and Huguenin 1917:77) stated that the mine was idle. No other references to the mine are known.

FRANKLIN MINE

The Franklin Mine is one of the Champion claims located in Hunter Canyon. The only known references to the Franklin Mine are in the two earliest newspaper references discussing the Beveridge Mining District. Together with the Borago Broncho, the Franklin is described as one of the ''richest claims in the district'' (*Inyo Independent* 18 May 1878a). It was reported that 150 tons of ore which was hoped to yield over $200 per ton had been extracted from these claims.

One month later (*Inyo Independent* 8 June 1878b), the following was written about the Franklin:

> On the dump . . . is to be seen several tons of ore that will undoubtedly yield in the neighborhood of $100 per ton, with a fair prospect in the shaft it came from for a continuation of the ore still deeper.

Either the Franklin failed to continue as a producer, or it was taken over by a mine of another name, for it does not again appear in written documents.

GAVILAN (GAVILON, GAVALAN) MINE

The Gavilan Mine (Spanish for sparrow-hawk) was one of a group in Robles Canyon (Fig. 2), and among the first discoveries of the Beveridge Mining District. It reportedly was one of the few vertical veins in the district, and was located in a particularly precipitous part of the canyon (Crawford 1894:137).

In 1885, the Gavilan Mine had just finished crushing a profitable run of ore.

> A crushing of eighteen tons of ore from the Gavilan mine was made some days ago at the arastra [sic] at Hunter's Canyon. This is the ledge belonging to Cohn [Crohn] & Straus that was discovered last fall. The ore

> yielded $43 per ton. . . . The ledge is four and a half to five feet wide, and stands up on the side of a deep canyon, exposing a large amount of ore [*Inyo Independent* 9 May 1885n].

Later that month, it was reported that Straus was running fifteen mules constantly, packing ore from the Gavilan mine to the arrastras in Hunter Canyon (*Inyo Independent* 23 May 1885p).

> The large [Gavilan] ledge is improving as it is developed. A cleanup was made last week from eighty tons of the ore worked in arastras [sic] in Hunter's Canyon, and the result was sixty dollars per ton. The immense amount of ore in sight makes the claim peculiarly valuable. From an extension of the same vein on the southwest [possibly the Chilula] Hilario Arambula took out a lot of ore that Tom McDonough says went over one hundred dollars per ton [*Inyo Independent* 30 May 1885q].

The Gavilan apparently operated steam-powered arrastras in addition to having ore crushed in Hunter's arrastras; in June, 1885, it was reported that a new boiler was being shipped from San Francisco, and would increase milling capacity at the Gavilan (*Inyo Independent* 6 June 1885s). This expenditure was warranted by the "abundance of ore in sight," and the fact that the "prospect continued very good" (*Inyo Independent* 6 June 1885t).

The Gavilan Mine proved so promising that Crohn and Straus bought out Francisco Orona's interest in the mine (*Inyo Independent* 15 August 1885x). Though no records indicate what changes took place during the next four years, a new owner and new milling arrangements were in use by 1889. Pack trains were then reported transporting Gavilan ore (owned by one W. K. Miller) to the Lasky stamp mill (*Inyo Independent* 11 May 1889d).

The Gavilan outcrop was "exposed vertically for a distance of 100 ft., and it was only necessary to blast it from the wall of the cañon. It averages 5 ft. in width, and has been worked at least 200 ft. in depth" (Crawford 1894:137).

In 1896, the Gavilan was owned by Charles Green et al., of Lone Pine (Crawford 1896:180). In 1903, the mine reportedly had been a producer for many years, and was continuing in production (Hall 1903:n.p.).

The Gavilan Mine eventually included seven small pits and three adits with a total depth of 150 feet, scattered over a distance of 1,700 feet along the mineralized zone (Close 1985:36, 76). The estimated production record for the mine is approximately 8,300 tons of ore containing at least 3,400 ounces of gold (Close 1985:36). A 1985 Bureau of Mines report (Close 1985:37) included a sketch map of the Gavilan Mine area.

GOLD DOLLAR MINE

The Gold Dollar was one of the Keynot claims (Huguenin 1916:n.p.). The mine was reported idle in 1916 (Huguenin 1916:n.p.). Unfortunately, descriptive references and production records are not available for this particular claim.

GOLD HILL MINE, NOS. 1, 2, AND 3

The three Gold Hill Mines were reported to contain veins "similar in character to those of the Keynote [Keynot], but not so rich" (Unknown 1885:n.p.). Gold in the Keynot veins had been described as stringers or feeders of extraordinary richness.

In 1882, it was reported that a good body of ore had been developed in the Gold Hill Mine (*Inyo Independent* 2 September 1882ii). Presumably, the Gold Hill Mine pinched out or contained very low-grade ore, because no further reference to the mine was found.

GOLD STANDARD (VEGA) MINE

The Gold Standard Mine property extended "from Little Hunter Canyon on the north to and across Craig Canyon on the south" (Fig. 2) (Tucker and Sampson 1938:397). In 1938, the 600-acre Gold Standard property comprised 34 claims owned by the Gold Standard Mining Company. Colonel A. E. Monteith of Olancha was president and manager (Tucker and Sampson 1938:397, 472), and six men worked the mine. The Gold Standard vein, by that time, had been worked by open cut and four tunnels, one of which reached 150 feet.

A 1985 report (Close 1985:76) stated that the vein averages 1.7 feet thick, 2,500 feet long, and that

> along the vein system are several small pits and open cuts, two benches totaling 150 ft, and four adits totaling 500 ft. It is estimated that 200 tons of ore were mined containing at least 600 oz of gold, 12,000 oz of silver, and 4,000 lb copper.

Ore shipments to smelters in Salt Lake City, Utah, are said to have assayed three ounces of gold, 58 ounces of silver, and 11% copper (Tucker and Sampson 1938:398). One source links the names "Gold Standard Mine" and "Vega Mine" (Norman and Stewart 1951:164).

GOLDEN EAGLE GROUP

The Golden Eagle Group may be a later name for the group of mines that included the Chilula, Gavilan, Montano, and San Antonio, near the head of Robles Canyon. Although the Golden Eagle Group was reported idle in 1917, development consisted of one 200-foot winze and one 60-foot winze (Waring and Huguenin 1917:78). The mine was again reported idle in 1938 (Tucker and Sampson 1938:398). According to Waring and Huguenin (1917:78), "100 tons of [Golden Eagle] ore hand-sorted and treated at the Keynote [Lasky] mill are said to have averaged $100.00 per ton." The mine was owned by one John C. Anton of Lone Pine.

In 1938, the Golden Eagle was under the same ownership. The mine was not reported idle during that year; however, mine development was not detailed (Tucker 1926:469). The mine appears on a list of the six principal mines of the Beveridge District (Clark 1980:134).

GOLDEN FLEECE MINE

A brief mention of the Golden Fleece Mine occurs in an 1885 report (Unknown 1885:n.p.); the reference stated only that the mine contained a vein similar to, but less rich than that of the Keynot.

GOLDEN GATE MINE NOS. 1 AND 2

The Golden Gate Mines also were mentioned in an 1885 reference (Unknown 1885:n.p.), which stated that the mine contained a vein similar to the Keynot vein, and of lower grade ore.

GOLDEN HORN MINE

The Golden Horn was one of the claims on the Champion Lode in Hunter Canyon. It contained "one or more chimneys of $100 rock" (*Inyo Independent* 18 May 1878a). Because it was located on the Champion Lode, the mine was considered promising (*Inyo Independent* 8 June 1878a).

GOLDEN REEF MINE

An article in the local newspaper carried the announcement of a new strike in the Beveridge District:

> During the past week a good prospect has been struck in the Golden Reef mine, Beveridge district. This is the property lately bought by Mr. Nixon. About twelve inches in width of the ledge where now exposed is quite rich, and the chances are that this will greatly increase in size when opened further. Mr. Nixon brought in the first shipment of gold bullion a few days ago. It is confidently expected that the next shipment will be quite large [*Inyo Independent* 13 September 1884j].

An 1885 report (Unknown 1885:n.p.) stated that the Golden Reef Mine contained a vein similar to that of the Keynot, but less rich. Since the Golden Reef does not appear in later references, it may be assumed that its presumed value did not materialize. The location of the Golden Reef Mine was not discovered.

GOLDEN THREAD MINE

The Golden Thread was another claim on the Champion Lode. The only known references to the Golden Thread Claim appear in the earliest known newspaper articles regarding the Beveridge Mining District.

> Adjoining the Red Warrior on the east lies the Golden Thread claim, so-called because of the fine specimens of nature's filagree [sic] handiwork found here, consisting of wire and . . . leaf gold, intermixed with the quartz. Average samples from several tons of ore on the dump gave $150 per ton [*Inyo Independent* 18 May 1878a].

No further information concerning the Golden Thread is known; the name does not again appear in written documentation.

GOLDEN WREATH MINE

In September, 1883, the McEvoy Mill had just finished a "1,200 clean-up" from the Golden Wreath Mine (*Inyo Independent* 8 September 1883t). Although the location of the mine is plotted on a 1938 report (Tucker and Sampson 1938:plate III), no further descriptive data were located.

GUADALUPE (GUADALOUPE) MINE

The Guadalupe Mine was one of the Keynot claims (Huguenin 1916:n.p.). Five men, employed by Dave Holland, were at work on the Guadalupe in April 1899 (*Inyo Independent* 7 April 1899a), but by 1916, the mine was reported idle (Huguenin 1916:n.p.). No further information regarding operations at the mine are known; perhaps the claim pinched out or eventually became part of the Keynot Mine proper.

HAPPY NEW YEAR MINE NOS. 1 AND 2

Only one reference is known to the Happy New Year Mine Nos. 1 and 2. A 1916 field report of the State Mining Bureau (Huguenin 1916:n.p.) listed the mines as Keynot claims.

HIDALGO GROUP

A correspondent named Oswald submitted to the *Inyo Independent* the following report of his trip to the Beveridge mines.

> . . . started in the morning for "JUAREZ CITY," Or the Mexican Camp; . . . Met several old acquaintances here; among others, the Morano brothers, with whom I stayed that night, and Frank Miranda. They own several promising mines in partnership, Frank superintending at the mines, the Mirandas running the arastras [sic], boarding house, saloon and stable. They have bonded several mines to Mr. Oliver, the Hidalgo among the number. It is about four feet wide, and would alone furnish ore to keep five stamps running [*Inyo Independent* 25 September 1880f].

This mine was given the ambitious distinction of a name meaning, in Spanish, "noble" or "exalted." The Hidalgo was one of the "well-known Beveridge District mines" included in the mining deed transfer from owner Moreno (one of the "Morano" brothers named above) to Nievas Moralis (probably a misspelling of Nieves Morales) (*Inyo Independent* 1 April 1882f). Another deed notice (*Inyo Independent* 2 September 1882jj) reports the transfer of interests in 233 1/2 feet in the Hidalgo Mine from Francisco [Frank] Miranda to Lorenzo Miranda, and then to J. E. Strauss.

The Lasky Mill reported (*Inyo Independent* 26 May 1883i) 37 tons of ore worked from the Hidalgo Mine, yielding $930, at an average of $25.13 per ton in gold. Another mill statement (*Inyo Independent* 15 December 1883y) reported 119,951 pounds of ore from the Hidalgo crushed, at a value of $1,323.

In 1885, it was reported (Unknown 1885:n.p.) that the Hidalgo Group

> is a series of small and parallel veins, worked by Mexicans on tribute, who . . . sort the ore very closely and work in arrastras. This ore, when . . . sorted, yields about $420 per ton, while when in place is worth from $60 to $120 per ton.

HIGHLAND CHIEF MINE

The first printed reference to the 40-acre Highland Chief Mine was dated 1938 (Tucker and Sampson 1938:399, 473), and states that it was made up of two claims on the trail to the Keynot Mine (Fig. 2). The owner of record was Thomas Hancock of Lone Pine. Mine development as of 1985 was said to include two adits totaling 120 feet, and one "pit" (Close 1985:76).

The Highland Chief Mine was equipped with a jaw crusher, a Gibson gyratory crusher, a 1-stamp mill, assay equipment, and a small cyanide plant. A statement by Close (1985:78) that the mill was constructed in 1938 and relocated under the name "Keystone" in 1941, is seemingly erroneous. (Details of this milling and ore recovery operation are presented in Chapter XI.)

During fieldwork, the following features were recorded at the Highland Chief Mine (Locus 17): one adit with associated low-grade ore dump, the jaw crusher with supporting platform, the gyratory crusher, the 1-stamp mill, a redwood cyanide tank, one stone structure, two working platforms, an enclosed storage niche, and an assay location.

IBEX MINE

The Ibex Mine was one of the Keynot Group (Unknown 1885:n.p.). It was among the "well-known" Beveridge mines named in the deed transfer dated 1 April 1882 (*Inyo Independent* 1 April 1882f). The Lasky Mill reported crushing some 6,700 pounds of ore from the Ibex Mine, at a value of $50.68 (*Inyo Independent* 1 November 1884p). Since the Ibex is not mentioned in printed references after 1885, it probably played out, or was taken over by more serious Keynot interests.

JOURNIGAN (JOURNAGAN) MINE GROUP

A 1938 report (Tucker and Sampson 1938:401-402, 474) stated that the Journigan Group was made up of five claims, totalling 100 acres, and adjoining the Big Horn Mine on the west. (Then owner, Roy Journigan of Trona, also operated a custom mill at Emigrant Springs in the Panamint Mountains, although it is unlikely that ore from the Journigan Mine was packed there for crushing.)

The mine was idle at the time of the report, and apparently no further development was ever done at the mine. Mine development described in 1938 was the same as that described in a 1951 report: "150-ft. adit driven W developed a 3-ft. wide orebody, 30 ft. in length and stoped 30 ft. above adit level" (Norman and Stewart 1951:153).

JOY AND VEGA MINE

The Joy and Vega Mine (or prospect), differs from the Vega Mine mentioned together with the Gold Standard Mine, above. According to DeDecker (1987:51),

> The camp for the Vega operation is located just south of the mouth of Hunter Canyon, overlooking the salt lake of Saline Valley [Fig. 2]. A good dirt road branches from the main Saline Valley road and climbs the alluvial fan to the camp, . . . Springs in the green canyon above furnish a good supply of water which flows through a small pool and is channeled about the place.

The Joy and Vega Mine produced gold, silver, and copper (Taylor and Joseph 1988:120). Workings consisted of "two adits totaling 55 ft, and a number of pits and trenches . . . in a 1.5-acre area. About 2,000 ft north is a dismantled mill" (Close 1985:77).

JULIA MINE

Only one reference to the Julia Mine is known. A report of the Lasky Mill (*Inyo Independent* 1 November 1884p) stated that 14,934 pounds of ore from the Julia Mine had been crushed, at a value of $231.

JUNIETTA MINE

Correspondent Stephen Decker reported on his trip to McElvoy (formerly Freeborn) Canyon. He described the Junietta Mine, located on the south side of the canyon.

> . . . we have run an incline into the ledge twenty-five feet and have taken out some good ore, some of it showing gold. The ledge is a foot wide and crops out for two hundred feet [*Inyo Independent* 5 February 1881a].

The Junietta probably failed to produce, as the name was not again found in contemporary references.

JUSTICE MINE

Only one reference is known to the Justice Mine. In 1882, it was described as one of the "well-known" Beveridge mines for which a transfer of deed was filed (*Inyo Independent* 1 April 1882f). The fame of this mine was short-lived, since no additional references are available.

KEYNOT MINE

Over the years of its history, numerous claims were part of the Keynot Mine (Fig. 2), including the Gold Dollar, Guadalupe, Happy New Year Nos. 1 and 2, Keynot, Keynot Extension, King, Lone Pine, Mexican, Mundan, Oro, Queen, Sidewinder, Sunday, Triumph, True Business, Vivarea, and War Eagle. Contemporary newspaper accounts and reports of the state mineralogist described each mine by name; the history of each of these mines is described under its individual name. An historical discussion based on references to the Keynot Mine itself follows.

During fieldwork, an archaeological reconnaissance in the area of the Keynot Mine resulted in the recording of seven distinct loci associated with the various Keynot mines. None of the named Keynot claims could be definitively attached to any of the mines. Recorded were six adits, a low-grade ore dump, two frame structures, seven stone masonry structures, and three refuse dumps (Loci 1, 2, 3, 5, 6, 7, and 8).

Early descriptions refer to the mine as the "Keynote," but before long, both Keynote and Keynot were accepted spellings. The "Keynot" spelling was adopted for use during this study because it was most frequently used in period newspapers, and remains in common usage today. That this spelling has become common probably is the result of the spelling chosen for use on United States Geological Survey (USGS) maps (cf. Wheelock 1985:27). One report (Flint 1941:6-7) stated that the mine was at one time officially called the Keystone. The mine also has erroneously been called the Key West (Goodyear 1888:233).

Flint (1941:6-7) provided details of the early days of the Keynot Mine. His historical discussion is repeated here because it contains many details not available elsewhere. He probably was given this information verbally in 1941, by the owner of the Keynot at that time, who led him on a geological reconnaissance of the Beveridge Mining District (Delos Flint, personal communication 1992).

> The human history of the [Beveridge] region is almost entirely that of the mining operations of the Keystone [sic] Mine. Here ore was discovered on May 13, 1878, by Americans who hired Mexicans as mine laborers. . . . The Mexicans "high graded" the mine, taking the rich ore for themselves, so the mine lost money. They then induced the Americans to sell it to their employees; who worked the mine on a cooperative basis for several years. Operations were very primitive, the ore being hand picked and packed by mules to arrastras for milling. At this time a small town, boasting at least ten stone houses, a grocery store, a saloon, and other buildings, sprang up in Beveridge Canyon. In 1883 J. Lasky, the local grocer, who had advanced loans to the Mexicans at high rates of interest, took over the property.
>
> Lasky operated the mine intermittently and in 1906 sold out to the Keynote Mining and Milling Company. This company built a five stamp mill in Beveridge Canyon and continued operations for several years. When the property was shut down by this company, all activity in the region ceased for a few years [Flint 1941:6-7].

At least one other report (*Inyo Independent* 24 January 1885b) states that L. Lasky owned and operated the Keynot Mine; it is possible that the two relatives held a joint ownership. L. Lasky appears as a Lone Pine grocer in an advertisement in the *Inyo Independent* (6 May 1882m).

In the early 1880s, the Keynot operation was sometimes referred to as the "Mexican Camp," (*Inyo Independent* 14 May 1881g) and the following reports are descriptive of the early days at the Keynot Mine.

> The latest news from the Mexican camp, is, in effect, that they have struck two hundred dollar ore in one of their mines; all the arastras [sic] are running and everyone is busy there [*Inyo Independent* 5 February 1881a].
>
> Things are lively in the Mexican camp. Eleven arastras [sic] are running on selected ore, that pays $150 per ton. Quite a number of men are in the camp prospecting, and several fine veins of gold quartz have been found. Moreno & Fuentes, who own the largest mine, allow outside parties to go on their claim and take 25 foot sections, stripping the top of the vein to a depth of some six feet; one-third of the ore taken out is claimed by the owners of the mine; the parties taking it out can have their two-thirds worked in the arastras [sic], or take it elsewhere, as they please [*Inyo Independent* 26 February 1881b].

It is known that surface veins at the Keynot Mine are naturally leached, and therefore would have been more easily worked than those at greater depth, a fact that accounts for the stripping process described above. Most of the Keynot surface veins were mined and subsequently backfilled (Taylor and Joseph 1988:A8).

The earliest known newspaper reference calling the mine by name is dated 7 May 1881(d). The *Inyo Independent* stated that the "Mexican owners, comprising the Keynote Company" had just completed arrangements to crush Keynot ore at the McEvoy stamp mill, located in McElvoy Canyon north of Keynot Canyon. The mill had a daily capacity of 10 tons of ore, and it was reported that the Keynot Mine would "produce about fifteen tons of ore per day, on the average of ore going from $60 to $90 per ton."

W. L. Hunter contracted to pack ore from the mine to the mill, a distance of approximately two very rugged miles. (This distance would only be correct if measured as air miles. On the ground, the distance would be over five miles!) The Keynot operation would continue to use its arrastras for years to come, however (*Inyo Independent* 11 June 1881h, 21 April 1883f, 12 January 1884a).

Fame of the Keynot Mine was widespread enough to prompt an inspection by L. A. Scowden, a U.S. Deputy Mineral Surveyor, and a local mine superintendent in September 1881. The men spoke of the Keynot "in the highest terms" (*Inyo Independent* 24 September 1881k). Later that year, noted mining experts W. H. Smith and H. Donnelly visited the Beveridge District. The Keynot was "presumed to be the object of their attentions" (*Inyo Independent* 31 December 1881p).

Locals were proud of the success of the Keynot Mine, and hoped that outside investment would cause it and other local mines to burgeon. A newspaper report of October 1881 (*Inyo Independent* 8 October 1881m) noted that the " 'sand' of one man at Lone Pine" had enabled development of the Keynot; apparently this is a reference to the investments of Lasky.

The Keynot was producing ore as fast as the McEvoy Mill could process it. Gold bullion valued at $13,000 was shipped to Lone Pine in October 1881 (*Bishop Creek Times* 31 October 1881). A breakdown in the mill equipment that month, however, forced Keynot managers to discharge some miners because there was no room available to store ore awaiting milling (*Inyo Independent* 8 October 1881n). This interruption, as well as the ensuing winter conditions, meant that the mine would produce little until February of the following year.

Another Keynot visit, this time by a potential investor, resulted in this article and editorial comment:

> Superintendents O. G. Fuentes and Peter Taylor, of the Keynot mine and the Taylor & McEvoy mill, respectively, are now in Beveridge District taking a new look at things generally. They are accompanied this time by H. H. Scott, a prominent San Francisco stock-broker. It would rather look as though the Keynot owners have already lost too much valuable time in truckling to possible San Francisco purchasers of their rich mine. At least two-thirds of the money they ask for it could have been taken out in the meanwhile [*Inyo Independent* 21 January 1882a].

Fuentes accompanied the stock broker back to San Francisco, but the meeting apparently had a disappointing outcome. Upon his return, the newspaper stated,

> [Fuentes] thinks that if the whole of Inyo county, mines and land, was to be sold for a cent, San Francisco "capitalists" couldn't raise enough money to buy one sage brush [*Inyo Independent* 28 January 1882b].

The Keynot owners were vindicated, however, for one month later the following was printed:

> It appears that the San Francisco experts -- the doubting Thomases, who have been inspecting the property so frequently of late--had discovered a mare's nest, so to speak; they saw, or pretended to, that the ore breast at the end of the lower tunnel, 130 feet in, was in ore, but that said ore was not rich as that mined out before. Some of the owners were apparantly [sic] of the same mind, rendering it somewhat difficult for the Superintendent to induce them either to go ahead with the work or abandon the plan of selling the mine. The work of opening out the ledge, however, has progressed some fifteen feet further, and the result has been the opening up of an ore chute or body three feet wide which averages from *five hundred to one thousand dollars per ton*! [original emphasis] It is a case calling for a renewed examination by these so-called San Francisco "squirts" [*Inyo Independent* 25 February 1882c].

Report of the newly discovered high-grade ore prompted an immediate reinspection of the mine (*Inyo Independent* 4 March 1882d).

The Keynot definitely was experiencing its heyday. About 150 tons of high-grade ore were extracted in March, and a 60-mule pack train was sent to ''keep up supplies and transport the rock'' to the McEvoy mill (*Inyo Independent* 11 March 1882e). Soon it was said that enough ore lay ready for milling to pay the amount recently asked for the mine (*Inyo Independent* 8 April 1882g). The new mine superintendent, Miranda, employed the services of 28-30 men as miners, packers, surface men, and in other profitable work (*Inyo Independent* 8 April 1882g, 20 May 1882q).

Mine workings as of that date were described thus:

> About 350 feet of the face of the ledge has been opened for taking out ore or tunneling. Stoping is going on in a four-foot body of fine ore. The winze in the lower level is all in rich ore [*Inyo Independent* 8 April 1882g].

It was rumored that an unidentified outside party (perhaps Lasky) wished to erect a mill for the Keynot Company (*Inyo Independent* 8 April 1882h), so that ore would no longer have to be crushed on a custom basis at the McEvoy Mill. On the same day, the newspaper carried a report from the McEvoy Mill, stating that 192 tons of Keynot ore had been crushed over a period of 20 days, yielding nearly $11,000 (*Inyo Independent* 8 April 1882i). In May, the mill was running Keynot ore ''with the usual good results'' (*Inyo Independent* 13 May 1882p).

Its phenomenal success made the Keynot Mine legendary on a local scale, prompting the christening of a new Lone Pine bar the ''Key-Not Saloon'' (*Inyo*

Independent 20 May 1882r). The newspaper carried reports of Keynot mine interests transferred between local parties (*Inyo Independent* 1 April 1882f, 2 September 1882jj).

By June 1882, the McEvoy Mill had crushed so much Keynot ore that one newspaper report referred to it as the "Key-not Mill" (*Inyo Independent* 3 June 1882t). The production of Keynot ore, however, had temporarily slowed, and the work was characterized by episodic "dead work" in the mine followed by ore removal. (Dead work would involve removing a body of low-grade ore or non-auriferous rock to provide access to auriferous rock.) Work at the mill was correspondingly cyclical (*Inyo Independent* 17 June 1882w).

Mill reports remained profitable, however, with $14,500 in gold produced during June and July (*Inyo Independent* 17 June 1882w, 8 July 1882bb). The maintenance of the Keynot enterprise required regular pack trains between the Beveridge District and towns in the Owens Valley (*Inyo Independent* 15 July 1882cc).

Three weeks after the rumored discovery of another rich strike at the Keynot Mine, two interested capitalists arrived, but no purchase was made (*Inyo Independent* 5 August 1882gg, 26 August 1882hh).

Keynot ore was transported by three pack trains to the mill, which reported a recovery of $8,000 from 120 tons of ore (*Inyo Independent* 21 October 1882kk).

The Lasky Mill was in place and commenced crushing Keynot ore in March, 1883 (*Inyo Independent* 17 March 1883d), but the Keynot continued also to have ore crushed at the McEvoy Mill (*Inyo Independent* 7 April 1883e).

Even the steady work of the McEvoy and Lasky Mills, along with a large arrastra, could not keep up with the output of Keynot ore (*Inyo Independent* 21 April 1883f). The first official Lasky Mill report stated 173 tons of Keynot ore worked at an average of $42.56 in gold per ton, for a yield of $7,362.50 (*Inyo Independent* 26 May 1883i).

Yet another rich strike of high-grade ore was reported from the Keynot Mine in May, and the two mills were expected to work continuously all summer on Keynot ore (*Inyo Independent* 26 May 1883j). Nine tons of ore from the 550-foot level of the lower Keynot tunnel yielded $83 per ton when milled without sorting (*Inyo Independent* 30 June 1883p).

The Keynot operators were good advertisers; in June a few ore specimens from the mine were sent for display to a Mineral Exposition. A news item advertised that the specimens could be inspected at the newspaper office ''by all interested in such matters--and who is not, in this county?'' (*Inyo Independent* 30 June 1883n).

Mill reports from later in 1883 were favorable (*Inyo Independent* 25 August 1883s), with the McEvoy Mill reducing 43 tons of Keynot ore yielding $3,500 (*Inyo Independent* 8 September 1883t), and the Lasky Mill reporting crushing a total of 975,612 pounds of ore for the year, at a yield of $18,999.82 (*Inyo Independent* 15 December 1883y). While the mills closed for the winter of 1883-1884, a crew of six men were kept at work in the mine. A new tunnel was driven that winter, to access a known ore body (*Inyo Independent* 1 December 1883w). Keynot arrastras continued to crush ore over the winter, with snows three to four feet deep as late as March (*Inyo Independent* 12 January 1884a, 15 March 1884b).

After September 1883, few reports were found of Keynot ores crushed at the McEvoy Mill. By May 1884, the Lasky Mill was in full operation, and by June had crushed 144,792 pounds of ore from the Keynot Mine at a value of $3,561.67 (*Inyo Independent* 21 June 1884c).

A report of July 1884 stated that the poorest ore ever taken from the Keynot Mine yielded $58 per ton, with much yielding over $200 per ton (*Inyo Independent* 19 July 1884e). The report also stated that the mine now was owned by Lasky and Morena.

The Lasky Mill continued to run steadily 12 hours a day throughout the summer of 1884, yielding $4,996.02 from Keynot ores (*Inyo Independent* 13 September 1884j, 1 November 1884p). In November, it was reported that "recent developments . . . at Keynot, are making quite a stir in [the] Beveridge district" (*Inyo Independent* 29 November 1884r), although particulars were not given. The Lasky Mill worked into December 1884 (*Inyo Independent* 6 December 1884s), later into the winter than it had the previous year.

Lasky began the new year of 1885 advertising for new miners and pushing for renewed development of his property:

> The proprietor of the Keynot Mine, . . . Mr. L. L. Lasky of Lone Pine, says he wants to push the development of that property with all possible vigor. On the entire claim there are now nine separate openings or mines, and in these Mr. Lasky says forty-one men are now at work on the [tri]bute system. He says further a large number of miners could all be put to work on the claim with assurance of making good wages, and he will furnish food, tools and all necessary supplies to good miners, they to pay for the goods out of the proceeds of their labor in the mines. There is a good mill on the claim where ores are worked as fast as mined. A new prospect mill was also completed last week, that will work samples of fifty pounds weight and upward. A road [trail] was opened to the mine last week, and

> Mr. Lasky says he sent over it three and a half tons of groceries and provisions. Tom Bastian and his brother and three other partners are running an air tunnel to an ore chute out of which several hundred tons of ore have been taken that averaged about one hundred dollars per ton. The quantity of ore still in this chute is known to be very large, and when the air tunnel shall be finished, and about one hundred feet remains to be completed, this ore body will yield large returns to tributers and proprietors. All these statements are made by Mr. Lasky himself, and so far as propositions to miners are concerned, he says he is ready at any time to carry out all that is promised [*Inyo Independent* 24 January 1885b].

The mine continued to be a producer. In March 1885, another rich strike was located at the Keynot (*Inyo Independent* 28 March 1885g). A Lasky Mill report from April indicated crushing of 6.5 tons of ore yielding 21 ounces of gold (*Inyo Independent* 11 April 1885h), and a report from May stated that 261,128 pounds of ore were crushed at a value of $4,633.85 (*Inyo Independent* 2 May 1885m).

That summer, 1.5 miles of water pipe were laid in Arastra [Beveridge] Canyon to serve the Lasky Mill (*Inyo Independent* 6 June 1885v). This wire-wrapped, wooden water pipe (Fig. 8) remains in place today.

An 1885 report (Unknown 1885:n.p.) described the Keynot workings as of that date:

> The lowest or adit level is 750 feet in length and its face in high-grade ore. From the end of this drift, at a point 500 feet from its face, a winze was sunk to a depth of 80 feet vertical, and ore extracted that milled $80 per ton. From this level to the surface the ore has been extracted and milled. The vein varies in size, from 18 inches to 5 feet. The numerous stringers or feeders that fall into the vein are of extraordinary richness, and followed by the miner until they are exhausted or pinch out.
>
> The other veins of the group have been but little developed, but so far as worked have proven valuable.

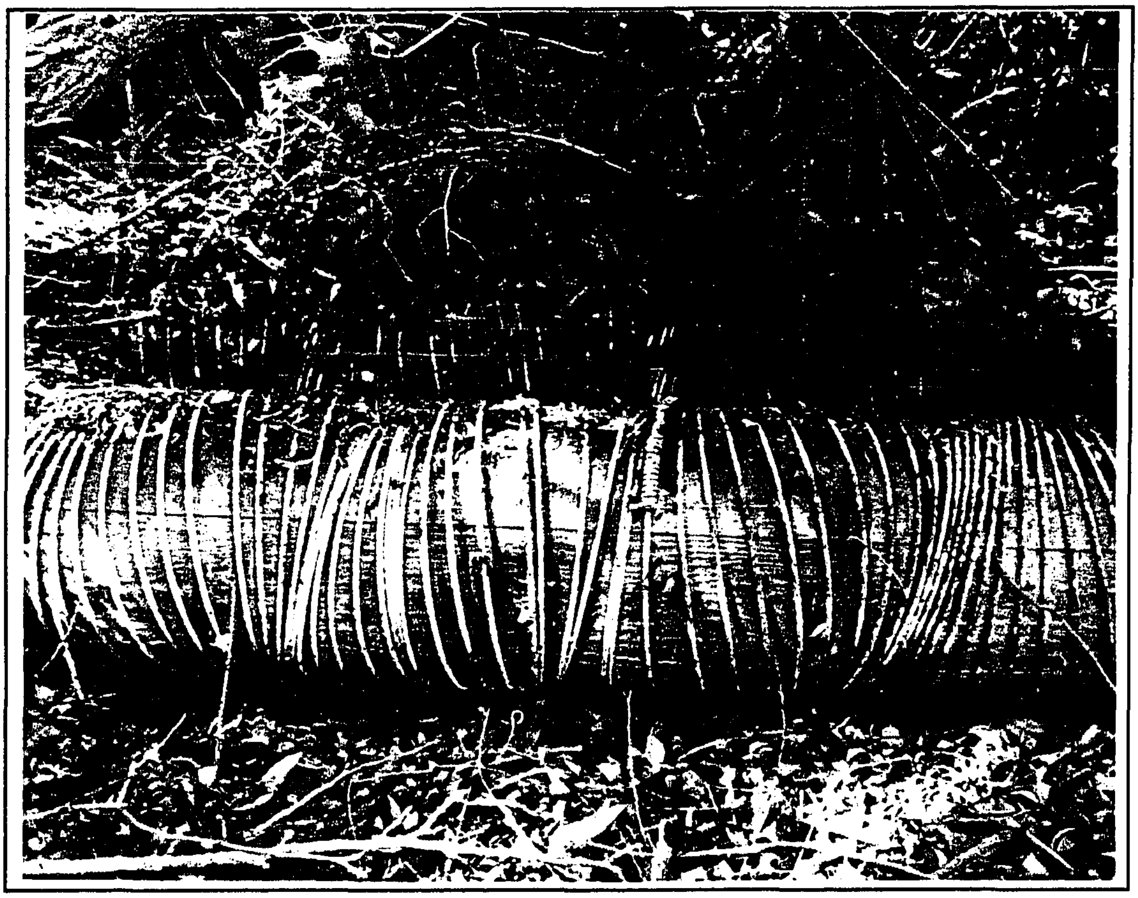

Figure 8. Wire-wrapped wooden water pipe in Beveridge Canyon, Locus 44.

Owner Lasky employed ten men at the Keynot Mine from January to April 1886 (*Inyo Independent* 23 January 1886d, 24 April 1886f). In September, a miner from Beveridge brought to Independence a sample of ore reputed to be worth over four hundred dollars a ton (*Inyo Independent* 11 September 1886i). The ore was sent to Selby & Co., of San Francisco. Although the report does not state which mine yielded the high-grade ore, a mining expert "making an examination in the interest of parties in San Francisco" appeared at the Keynot five days later (*Inyo Independent* 26 September 1886j).

The Lasky Mill suspended work for the winter in November 1886, although a crew of eight men were employed through the off season. A final mill report stated that 106 tons of ore yielded $3,958.50 at an average of $37.34 per ton (*Inyo Independent* 20 November 1886n). At this date, the Keynot was reported to be "looking better than at any other time since it was opened," yet references to the mine do not again appear in the paper until September of 1887. The Keynot Mine had reached a turning point in its success.

The *Inyo Independent* carried the headline "Keynot Shut Down" on 10 September 1887(c).

> Work on the Keynot mine, Beveridge district, has been entirely suspended; all the men employed at the mine came in to Lone Pine several days ago. The cause of the suspension is said to be a lawsuit that is now impending.

In December, arrangements were made between the parties involved in the pending lawsuit as to title to a portion of the mine; Lasky resumed work at the mine with a skeleton crew of six men (*Inyo Independent* 24 December 1887h). In January 1888, two men were added to the crew (*Inyo Independent* 14 January 1888a), and in June, Lasky recruited more men from Lone Pine for work at the mine (*Inyo Independent* 9 June 1888b). Although work at the Keynot was reported later in 1888 (*Inyo Independent* 29 September 1888c), no mill reports are available from this period.

Presumably, work at the Keynot slowed during 1889. Only one reference to the mine was found dating to that year, and it smacks of propaganda meant to induce investment:

> The mill at Beveridge has been started up on a run of ore from the Keynot mine. The old Keynot never fails to respond with a lot of good ore when touched with the pick of the miner. There is a great deal of virgin ground in the mine that could be reached by a moderate outlay of money. Near the mouth of the tunnel is an almost sheer precipice of about four hundred feet; a tunnel run from this would tap the ledge and beyond doubt would open up a large body of ore. Here is a good opportunity for an enterprising miner with some money. The Keynot never has been worked for all that was in it; when the parties who control it want a few thousand dollars they go and take out a little dab of ore, mill it and get their money. If opened up properly the mine would develop into a valuable property [*Inyo Independent* 20 April 1889c].

Information concerning the mine does not appear in the local newspaper for the years 1890 or 1891. The mine was next heard of in November 1892, when it was reported that a miner named McLaughlin was in Independence after having mined at the Keynot all summer (*Inyo Independent* 11 November 1892a).

The annual reports of the state mineralogist for 1894 and 1896 indicate that some work was done at the mine during those years. The 1894 report is reproduced here:

> The vein runs N. and S. and dips 40° W. It varies from a mere stringer up to 4 ft. in thickness, and carries free gold, a little galena containing silver, and copper and iron sulphurets. This is the deepest mine in the district, being opened 700 ft. on the incline. There are four tunnels, the longest of which is 700 ft.; the longest upraise is 290 ft. In the lowest tunnel a good body of ore was being worked in 1894; the ore was packed 3 miles to the Laskey [sic] mill in Hans [Beveridge] Cañon. . . . J. Laskey, of 1706 Geary Street, San Francisco, owner [Crawford 1894:138].

One 1895 reference (*Inyo Independent* 24 May 1895a) noted that Hunter was to make a pack run of ore at the Keynot Mine . The 1896 report stated that "some stoping is being done in the lowest tunnel" (Crawford 1896:121).

In February 1897, a second lawsuit regarding the Keynot Mine was reported. The full story will best be understood by the wording of the original news item.

What promises to be a hard-fought mining suit was filed in the Superior Court last Tuesday, the title of the case being L. Lasky vs. Ruperto Carrasco et als [sic]. Some time ago D. Holland and others located an extension of the noted Keynot mine at Beveridge which has yielded upwards of a million dollars in gold. They began work on their claim and have opened up an ore body which promises to equal in value the product taken from the Keynot. A number of years ago the Keynot owners had their mine surveyed as a basis for a patent but no further steps were ever taken and therein lies the grounds of dispute, which will probably cost a large sum of money before the matter is finally settled. When the Keynot was originally located the usual boundary monuments were erected; the ground claimed by Holland lies outside of these monuments. When the Keynot was surveyed for patent, however, it was found that the 1,500 feet claimed extended beyond the original monuments and includes the ground claimed by Carrasco and Holland. The suit grows out of this difference, and is the strongest kind of an argument in favor of patenting mining ground. On Tuesday Lasky filed his complaint and secured an injunction against Carrasco et als. which UnderSheriff Willis served on Wednesday. This will result in bringing the matter into Court for trial and also serve to tie up for an indefinite time what would otherwise be a valuable producing property [*Inyo Independent* 19 February 1897b].

The case came up for trial in July, and drew a large number of witnesses and interested persons to Independence (*Inyo Independent* 23 July 1897h, 23 July 1897i). As the trial dragged on, a local journalist quipped that "from the way the Keynot case holds out lawyers and litigants will not have time to sail up the Yukon this season" (*Inyo Independent* 6 August 1897m). The trial continued for five weeks, making it the longest trial of record in Inyo County to that date (*Inyo Independent* 30 July 1897j, 6 August 1897k, 13 August 1897n, 27 August 1897o). The judge's decision was reported thus:

This morning Judge Lamar rendered his decision in the mining suit of L. Lasky, Plaintiff, vs. Ruperto Carrasce [sic], D. Holland, Jesus Montano, Jesus Molino and Ramon Salazar, Defendants. The action was dismissed as to defendant Salazar, for the reason that he is a minor.

The plaintiff recovers judgment against the remaining four defendants for $50 damages, costs of suit, probably amounting to $500, and a decree perpetually enjoining them from entering upon the Key Not mine. . . .[*Inyo Independent* 10 September 1897q].

The plaintiffs apparently felt they still had a case against Lasky. Following the judge's decision, a 30-day stay of execution was granted (*Inyo Independent* 1 October 1897u), and the plaintiffs filed for a retrial (*Inyo Independent* 12 November 1897v, 26 November 1897x). No further notice of the case appears in the newspaper, and presumably it was dropped before retrial. Despite the restraining order, a working relationship developed between the plaintiffs and defendants; in 1899, Holland and Carrasco had a run of custom ore crushed at the Lasky Mill (*Inyo Independent* 30 June 1899j).

Even with the court case out of the way, news items regarding the Keynot were no more frequent, suggesting that the mine was in decline. The Keynot yielded 158 ounces of gold bullion worth about $2,000 in November 1897, and plans were to operate the mine throughout that winter (*Inyo Independent* 12 November 1897w). Sixty tons of ore were ready for milling in August 1898 (*Inyo Independent* 5 August 1898c).

After this date, the Keynot is discussed only in intermittent and often unreliable reports. By 1918, for example, the writer of a discussion of gold ores (Knopf 1918:118) in the Inyo and White Mountains was unaware of any mine workings in the region exceeding 300 feet (at that date, the Keynot had a 750-foot tunnel [Keynote Mining & Milling Company 1906:n.p.]). In less than 20 years, the Keynot had fallen from a position of local legendry to an item of historical obscurity.

In 1904, Morris Jacoby purchased a number of Beveridge claims including the Keynot, and planned to erect a new mill to work ore from the Keynot and Pabst-Johnson Mines (*Inyo Independent* 24 June 1904).

In 1906, the Keynote Mining and Milling Company (Keynote Mining and Milling Company 1906), former owner of the Keynot mine, prepared a report detailing the nature of the Keynot veins, and the history, development, and production record of the mine. A map of underground workings was included in the report. The report was prepared as part of a plan to rework low-grade ore on the Keynot dump. One source (Flint 1941:7) indicated that this company erected a 5-stamp mill in Beveridge Canyon at this date.

According to this report, the mine workings in 1906 consisted of seven 600- x 1,500-ft. claims, a water appropriation in Beveridge Canyon as well as other springs, a mill site, and a timber permit. Work at the mine prior to 1906 was described as follows.

> . . . the development of the mine and the extraction of the ores therefrom was of a greater or less spasmodic nature. But notwithstanding the waste of time and labor, the crude machinery in service, and the missapplied efforts of the operators, this same mine has produced over one million dollars in gold bullion [Keynote Mining and Milling Company 1906:n.p.].

Failing to mention the work of the McEvoy or Lasky Mills, the report intimates that the immense richness of the Keynot Mine can be understood when it is considered that this production record was achieved through use of arrastra technology. According to the report, only ores yielding $30 per ton or better were previously worked at the mine, the lower-grade ores being placed in low-grade ore dumps at the site.

The method of mining at the Keynot was described:

> There are two main veins similar in size, formation and values. These are parallel, about 600 feet apart, six or seven thousand feet long . . .
> The method of developing the property is by tunnel, and all work to date has been a system of tunnels run in on both veins, beginning at the canyon level, the tunnels varying in length from 20 to 750 feet, being some nine or ten in all. . . . there being all told some 2500 feet of work . . . By the tunnel system, all shafting and hoisting is done away with, and in stoping the ore falls by gravity [Keynote Mining & Milling Company 1906:n.p.].

The State Mining Bureau prepared a field report on the Keynot Mine in 1916 (Huguenin 1916). O. S. Williams of Los Angeles was listed as owner at that date, and continued to be so until at least 1926 (Tucker 1926:470). According to the Mining Bureau report, only assessment work had been conducted at the mine since 1907. An additional report was prepared by the State Mining Bureau in 1918, on the Keynot Ore Reduction and Concentrating Plant (Huguenin 1918). This report is extremely sketchy and brief, and provides no additional information except that the plant was idle.

The 1917 report of the state mineralogist made the erroneous and ridiculous claim that water was piped from Beveridge Canyon to the Keynot Mine (Waring and Huguenin 1917:81). Water was carried by pipe *in* Beveridge Canyon to the Lasky Mill, and this undoubtedly was the cause of the error.

Writing on mining activity in Inyo and Mono Counties in July, 1931, the state mineralogist noted that the Keynot Mine was to be reopened by "Los Angeles interests" (Tucker 1931:543).

In 1934, the *Inyo Independent* (2 February) ran the headline "Parties Interested in Buying Keynot Mines," and reported that a Los Angeles group was negotiating a purchase of the mine. The purchase, however, was never made, since three of the owners as of that date are still listed in conjunction with the mine in 1938 (Tucker and Sampson 1938:404).

According to Flint (1941:7), the mine was reopened in 1937 under the name "Golden Princess Mine," and

> development work was undertaken under an R.F.C. [Redevelopment Finance Corporation] loan for a seven months period. The camp was built, and a compressor was installed. After seven months, the loan had been used up, and only development work had been done; the property was therefore again shut down.

The report of the state mineralogist for 1938 (Tucker and Sampson 1938:404-405, 474) lists the Golden Princess Mining Company as owner of the 140-acre Keynot Mine. Production record for the mine is given as $500,000, a figure significantly under the $1,000,000 reported by the *Inyo Independent* in 1897(b) and the Keynote Mining & Milling Company in 1906. The mill was idle during 1938.

In 1941, Flint conducted a geological reconnaissance of the Beveridge Mining District. Much of his report concentrated on the Keynot Mine area; his brief history of the mine has already been outlined. Flint provided a map of the mine. A photograph in Flint's thesis (Flint 1941:Fig. 14) shows a view of the Keynot Mine from across the canyon to the south; shown are six houses and a compressor house. This photograph substantiates the fact that the frame structures today in ruin at the site are historical, as they were standing 51 years ago. (An undated Bureau of Land Management report [BLM 1981:2] stated that the "metal sheds" at the Keynot Mine are "recent intrusions.")

Close (1985:26) reported that two Keynot claims were relocated in the 1940s and were held at least until 1984. Renewed interest in the Keynot Mine began in the 1979, when Far West Exploration purchased the mine (Close 1985:26). Plans were made to rework the low-grade ore dump at the Keynot Mine, build an 8.5-mile access road along the crest of the Inyo Mountains from the Burgess Mine to the Keynot Mine, and install milling equipment (Bureau of Land Management 1981:2). According to a 1906 report (Keynote Mining and Milling Company 1906:n.p.),

> In the early days all ore that went below $30.00 per ton was thrown away, also all concentrating ore, and there remains today a large dump of ore running about 700 feet long, 150 feet wide, and in the center about 40 feet deep containing many thousands of tons of fine, first class free milling ore, of a plate value averaging about $8.00 per ton.

Proposed work was to center on this low-grade ore dump, which reportedly covered 1.6 acres and measured an estimated 20,000 to 80,000 cubic yards (Bureau of Land Management 1981:2). The proposed work met with much opposition, because of expected adverse impacts to natural and archaeological resources, and because the mine is within the Inyo Mountains Wilderness Study Area. In 1983, a 250-ton per day cyanide gold recovery plant was flown into the site by helicopter (Close 1985:26). Ore processing began, but work was suspended the same year.

Further information regarding this most recent phase of activity at the Keynot Mine may be found in the following sources: Bureau of Land Management 1981; Certini 1981a, 1981b, 1981c, 1981d; *Daily Independent* 14 July 1981a, 14 July 1981b, 6 August 1981c, 19 August 1981d; Certini 1982; *Inyo Register* 19 August 1984, 23 January 1985; and Close 1985:26-27.

Today, approximately thirty underground workings at the Keynot Mine total about 10,000 feet, with one working consisting of 8,000 feet of levels, sublevels, and raises. Numerous other excavations also are present (Close 1985:27; Taylor and Joseph 1988:A8).

In 1984, 61 lode claims were held on Keynot properties (Close 1985:20). Recent attempts have been made to definitively assess the amount of gold produced by the Keynot Mine over the years. According to Close (1985:19), "about $420,000 in gold (29,000 oz) is reported to have been produced from the Keynote (Keynot) and nearby mines [presumably Keynot claims] prior to 1906."

KEYNOTE EXTENSION

The Keynote Extension is among the Keynot Mine claims listed as idle in a brief 1916 Mining Bureau Field Report (Huguenin 1916:n.p.). It is not known what work was performed on the claim before or after this date.

KEYSTONE

Records of the Beveridge Mining District create some confusion concerning use of the name "Keystone." Flint (1941:6-7) indicated that this was the original name of the Keynot Mine, although the present research did not disclose evidence in support of this claim. Close (1985:78) cited this as the name of the millsite for the Highland Chief Mine. As recently as 1985, the name "Keystone" was erroneously used to indicate the Keynot Mine (Clark 1985:182).

KEY WEST MINE

The name "Key West Mine" was inaccurately used in 1888 in the report of the state mineralogist (Goodyear 1888:233), and apparently was a reference to the Keynot Mine. The writer admitted that he had not visited the Beveridge District, and had only been informed of work at a mine called the Key West.

KING MINE

The King Mine was one of the claims of the Keynot Mine Group (Crawford 1894:138); however, no detailed information concerning this mine is known.

LA CACHORA (?) (CACHORA) MINE

The Lasky Mill reported crushing 25,534 pounds of ore from the La Cachora Mine, at a value of $143.20 (*Inyo Independent* 15 December 1883y). A later mill statement (*Inyo Independent* 1 November 1884p) reported crushing 10,460 pounds of ore from the "Cacho-a" Mine, at a value of $1-9.00 [the original document is unclear as to the mine name and dollar amount]. The Spanish word "cachorra" can mean any of three things: an animal cub, a lizard, and a pocket pistol. It is not difficult to imagine that the mine was named "La Cachora" with any one of these three things in mind. No further reference to the mine is known.

LA CUEVA MINE

The Lasky Mill report dated December 1883 noted crushing 25,534 pounds of ore from the La Cueva Mine, at a value of $143.20 (Inyo Independent 15 December 1883y). The most common meaning for the Spanish "la cueva" is a cave, but the word may also mean a nest of thieves, or a den of wild beasts. Any one of these three meanings may represent what the original miners had in mind when they named this mine. No other references to the La Cueva Mine are known.

LAEHARD MINE

The Laehard Mine is listed in a property transfer during 1884 (*Inyo Independent* 18 October 1884o). No other mention of the mine was located.

LA MA-TZIN MINE

A Lasky Mill report (*Inyo Independent* 15 December 1883y) stated that 18,823 pounds of ore from this mine was crushed, at a value of $576. No other references to the mine were available; the third letter of the mine name was indistinct in the newspaper report, and has not been identified.

LA PALOMA MINE

The La Paloma Mine (Spanish for "pigeon" or "dove") crushed 14,-18 pounds of ore [the number is unclear in the original document] at the Lasky Mill in 1883 (*Inyo*

Independent 4 15 December 1883y). The run returned a value of only $8.73. It is not difficult to understand why no further references to this mine were found.

LAPWING MINE

Little is known concerning the Lapwing Mine, except that all known reports of the mine appear in 1882. Apparently, the Lapwing also was known as the Boston Boy Mine (*Inyo Independent* 5 August 1882ff).

In July 1882, the McEvoy Mill intended to "work a lot from the Lapwing mine" (*Inyo Independent* 8 July 1882bb). One week later it was reported that some pack train loads were taken by one Jack Welch, "to supply workers on the Lapwing property" (*Inyo Independent* 15 July 1882cc). In August, extra workers were added to the crew at the Lapwing, employed in taking out ore for a run at the Laura Mill (*Inyo Independent* 5 August 1882ff).

In December of 1882, the *Inyo Independent* (16 December 1882nn) related that the McEvoy Mill "will reduce a lot of ore from the Lapwing mine, and then resume work on the Keynot output." September 1883 saw the mill again crushing Lapwing ore; this time, 24 tons of ore "yielded 134 ounces of 'dust' worth $16 per ounce" (*Inyo Independent* 8 September 1883t). No additional references to the Lapwing Mine were located.

LARKY MINE

In a discussion about ore crushed at the McEvoy Mill (Unknown 1885:n.p.), it was said that "the Larky mine, adjacent to the mill, has a vein from 2 to 6 feet wide, and its ores yield $40 per ton." This is the only known reference to this mine. It is possible that "Larky" was confused with "Lasky." However, the report seems to indicate that the Larky Mine was located near the McEvoy Mill, rather than the Lasky Mill. Historical records failed to clarify this confusing item.

LAURA MINE

Two mines bore the name Laura in historic times. One was located between McElvoy and Keynot canyons, two miles north of the Keynot Mine (Fig. 2), "but cut off by a deep canyon" (*Inyo Independent* 20 May 1882q). The other was located in the mouth of Little Hunter Canyon, near the Saline Valley floor. Because these mines operated simultaneously, it is difficult to assign historical records to one or the other. A modern-day miner familiar with both mines sorted the references as follows (Alan Akin, personal communication 1993).

The first contemporary notation of the northern Laura Mine described it as a gold and silver producer, and stated that a mine superintendent, accompanied by a U. S. Deputy Mineral Surveyor, had recently visited the Beveridge Mining District. The men examined the Keynot and Laura Mines, and spoke of them in "the highest terms" (*Inyo Independent* 24 September 1881k).

The Laura Mine received some local attention with the following unusually informative announcement in the local newspaper:

> Charley Hollenbeck has presented the Independence Assay Office with a fine specimen of gold quartz from the Laura mine, Beveridge District. The piece is about nine inches long by five inches wide, and three thick. The entire surface on one side is covered with a rough mass of small crystals of quartz, colored reddish brown by iron oxide. Over this is thickly besprinkled beautiful spangles and grains of bright yellow gold--the whole making a fine cabinet specimen. The Laura is showing up some very rich ore. Ten men are now employed on the mine, and two openings or tunnels are being made on the vein. About 75 tons of ore have been taken out, which will probably average $150 per ton [*Inyo Independent* 22 October 1881o].

That ten men were employed at the mine is indicative of active mine development. The mine reportedly operated a 5-stamp mill (Alan Akin, personal communication 1993).

In May, 1882, the Laura was stated to be "likely to yield as fully as well, perhaps better than the Keynot" (*Inyo Independent* 20 May 1882q), a statement which, considering the phenomenal success of the Keynot Mine by 1882, was no small compliment.

The northern Laura Mine probably was not worked again after 1885; today, workings include two adits totaling 40 feet, three benches totaling 160 feet, and one pit (Taylor and Joseph 1988:A14). Approximately "300 tons of ore containing at least 30 oz of gold were mined" (Close 1985:79).

The southern Laura Mine was first mentioned in a report dated June 1882 (*Inyo Independent* 3 June 1882v). The 4-stamp mill for the mine was ready for operation, with one slight technical snag:

> This new four-stamp mill . . . is reported complete and ready for operations, save that a section of the water-pipe designed to conduct water on the turbine

> had "come up missing" in the invoice of machinery with which it should [have] arrived several days ago. Steps have been taken to replace the "missing link" in the most expeditious manner possible. Upon the start the only appliance for amalgamating the gold will be an ample expanse of silvered-copper plates of the very best quality obtainable; but as soon as they can be obtained and put in place a concentrator and pan will be added so that silver ores may be worked, and also to make the reduction of the gold ores as perfect as it can be done anywhere.

The new mill was expected to bring new capital to Inyo County (*Inyo Independent* 3 June 1882t, 24 June 1882y).

> Judge Conklin and O. I. Mairs returned last week from a trip to the new Laura mill at Saline. They report that the machinery works to a charm, and that the only preliminaries necessary to starting it up is putting in an amalga[ma]ting plate, which was to arrive at Bishop last night, and the building of a few feet of trail around a rocky point. The county can congratulate itself upon having gained a new gold producer, in the Laura mine and mill [*Inyo Independent* 24 June 1882y].

In June 1882, Conklin was made superintendent and general manager of the Laura Mine and Mill. Conklin was busy securing the services of a pack train to transport ore from the mine to the mill (*Inyo Independent* 1 July 1882aa), and hiring three miners for "permanent work" (*Inyo Independent* 1 July 1882z). Preliminaries finally were completed in August, and the Laura Mill began crushing.

> . . . every portion of it works to a charm. It will run . . . steadily night and day, and will crush about five tons of rock every twenty-four hours. . . . The trail leading from the mine to the mill is completed, and a pack train of thirty-two animals is engaged in transporting the ore to the mill. The capacity of the train is something over five tons per day. At the mine, which is distant from the mill six and a half miles, several men are at work extracting and sorting ore . . . About sixty tons of high-grade ore lie [on] the dump awaiting transportation. Mr. Conklin thinks it will mill $100 a ton. Some little difficulty was experienced for a time by the Indians [engaged in farming in Saline Valley] turning off the water supply, but the matter has been amicably adjusted, and no further trouble from that cause is anticipated. A clean-up at the mill will be made in about thirty days, when, it is hoped,

the projectors of this enterprise will be well rewarded for their pluck [*Inyo Independent* 5 August 1882gg].

In 1885, the southern Laura Mine had a 100-foot shaft with a 4-foot ledge, and ores crushed at the Laura Mill averaged about $40 per ton (Unknown 1885:n.p.), considerably less than the $100 figure hoped for in 1882. Probably this disappointing return was the cause of idle years at the Laura Mine. In 1894, the mine had "not been worked for years" (Crawford 1894:138). A. F. Mairs of Independence was the owner of record in 1896 (Crawford 1896:182).

LONE PINE CLAIM

Another Keynot claim was known as the Lone Pine. The mine was listed as a Keynot claim in 1894 and 1896 (Crawford 1894:138, 1896:181), but no details concerning this mine are known.

LOS ANGELES MINE

Eight tons of ore from the Los Angeles Mine were crushed at the Lasky Mill in 1883, at an average of $17.50 per ton in gold, for a yield of $139.50 (*Inyo Independent* 26 May 1883i). A later run at the Lasky Mill yielded a value of $126 from 15,659 pounds of Los Angeles ore (*Inyo Independent* 15 December 1883y).

To avoid confusion, it should here be noted that a separate mine, known as the Los Angeles Placer Group, was located just outside the Beveridge District boundaries near the salt deposit in Saline Valley (Tucker and Sampson 1938:475).

LOSANO MINE

In 1882, it was reported that the McEvoy Mill would crush a "lot of about 100 tons from the Losano mine, which is situated about one mile south of the Keynot" (*Inyo Independent* 8 April 1882i). One hundred tons of ore is a considerable amount of ore from an otherwise unknown mine; one must wonder if the correct figure was 100 pounds. In any case, the run of ore must not have been profitable, for the Losano Mine is not again mentioned in written references.

MALLARD DUCK MINE

One source references the Mallard Duck Mine. As a result of his geological reconnaissance of the Beveridge Mining District, Flint (1941:67) wrote the following:

> About 660 feet west of the Keynote vein, at the Mallard Duck mine, the Garson vein feathers out into two major veins and disappears up the hillside. The Mallard Duck vein is supposed to be roughly parallel to the Keynote-War Eagle veins but is vary [sic] small and is not economically important. Actually the Mallard Duck Mine is located in the forking of the Garson vein and no well defined cross vein is exposed in the workings. Some mineralization occurred here, with the values restricted to the gouge, but there has been no production.

MANO DEL HOMBRE MINE

Literally, this mine name is Spanish for "hand of the man," but the phrase is also used to express "industry" or "workmanship." The mine is located on the modern trail into Beveridge from Saline Valley (Fig. 2). According to Close (1985:79), workings at the mine include one 90-foot bench, one 40-foot adit, and one pit. The estimated production record for the mine is 100 tons of ore yielding at least 30 ounces of gold. Dates of production are unknown.

During fieldwork, a partial recording of the Mano Del Hombre Mine (Locus 47) identified the following features: four adits, one inclined shaft, one prospect, one stone structure, and one refuse dump. A number of other, contiguous mine workings with a network of intervening trails was observed on lower slopes. It was necessary to omit these from the present research so that the crew could keep its appointment with its arranged transportation at the end of fieldwork. Further fieldwork is planned, and will accomplish a thorough recording of the Mano Del Hombre Mine.

MANO DEL HOMBRE SEGUNDO MINE

The "Second Hand of the Man" Mine is located adjacent to the original mine of that name (Fig. 2). Mine workings include "two pits, a 125-ft bench, and three adits totaling 380 ft . . . scattered over 400 ft along the vein" (Close 1985:80). The estimated production of this mine is 350 tons of ore containing "at least 20 oz of gold and 200 oz of silver" (Close 1985:80).

MATSON MINE

The Lasky Mill reported crushing 18,823 pounds of ore from the Matson Mine at a value of $576 (Unknown 1885:n.p.). No further reference to the mine is known.

MAYFLOWER MINE

A real estate transfer appeared in the local newspaper, recording the transfer of a half interest in the Mayflower Mine from Harry Lockett to E. T. Anderson, for the sum of five dollars (*Inyo Independent* 2 June 1899d). Although its exact location remains unknown, the 80-acre ''Mayflower Group'' was owned by M. A. Willson of Lone Pine in 1938 (Tucker and Sampson 1938:476).

MEXICAN MINE

The Mexican Mine was among the Keynot claims (Crawford 1894:138), and was listed as one of the ''well-known'' Beveridge mines in a notice of mining transfer dated April 1882 (*Inyo Independent* 1 April 1882f). No other information concerning this mine is known; presumably it either played out or was taken in by the larger Keynot Mine.

Numerous references (*Inyo Independent* 3 July 1880d, 25 September 1880f, 5 February 1881a, 26 February 1881b, 14 May 1881g) mention a ''Mexican camp,'' but this is believed to be a reference to the ethnicity of miners at the Keynot Mine, and is not believed to be associated with the Mexican Mine.

MONTANA (MONTANO) MINE

The intent of the miners who named the Montana Mine is unclear. The Spanish ''montaña'' refers to steep, brushy or forested slopes, and can also mean ''a mountain''. ''Montano'' means ''of the forest or mountain''. Either of these words would describe the setting of this mine.

The Montana Mine was located near the head of Robles Canyon, and was part of a group of mines including the Chilula, Gavilan, and San Antonio (Crawford 1894:137). In 1894, development was described thus:

> The Montano is a bunchy vein near by, which has been opened to about 50 ft. in depth. North of the cañon is another of this group of mines, where a vein has been opened by inclines and considerable stoping done. It is 5 ft. wide in places and dips N., and is quite similar to and lies a little above the Bronco Mine [Crawford 1894:137].

Wilson and Montano of Lone Pine owned the mine during 1894; probably the mine was named for owner Montano, but this Spanish word, meaning ''mountainous'' is fitting nonetheless. By 1896, the entire group was reported idle, and was owned by Charles et al. of Lone Pine (Crawford 1896:180).

MOUNTAIN SHEEP MINE

Mountain sheep are common to the Inyo Mountains; as late as 1941, they were abundant in the Beveridge area (Delos Flint, personal communication 1992), and probably provided the impetus for this mine's name. In November 1882, a mining deed transfer was reported from ''Daniel Probst [Pobst] and Jos. Hanger to E. H. Edwards, 750 feet in Mountain Sheep, Enterprise and other mines situated in Beveridge District, for $500'' (*Inyo Independent* 25 November 1882mm). No other reference to this mine is known. It is, however, possible that references to the Mountain Sheep Mine simply refer to the Borago Broncho Mine in English.

MOUNTAIN VIEW MINE

The Mountain View adjoined the Keynot Mine (Huguenin 1916:n.p.). Mine owners in 1913 were said to be "Broachman & Haws, Gibbons" (Goodwin 1957:494). A 1917 report is descriptive:

> The ore body consists of a well defined quartz vein 3 feet in width, carrying rusty gold and chalcopyrite. Assays of some hand samples showed 4 ozs. gold per ton and 18% to 30% copper. Tunnel driven on vein 165 feet. No production. Company now being organized to develop property, to be known as North American Metal Mines Company. S. R. Brough, I. W. Hellman Bldg., Los Angeles, trustee [Waring and Huguenin 1917:82].

As of 1926, no changes were reported in the mine development (Tucker 1926:471). In 1935, the Mountain View was said to have had "some production" (*Inyo Register* 16 May 1935). The mine was reported idle in 1938 (Tucker and Sampson 1938:413). In 1948, Pritchett and Slater of Independence owned the Mountain View (Goodwin 1957:494). A small shipment of ore made in that year yielded "32% lead, and 1.0 ounce of silver per ton" (Goodwin 1957:494). No further references to the mine were located.

MUNDAN MINE

This mine name may be a misspelling of the Spanish "mundano" or "mundana," meaning worldly. All that is known of the Mundan Mine is that it was one of the Keynot claims (Unknown 1885:n.d). No further information concerning the mine is available.

NEW YEAR MINE

The New Year Mine was owned and operated by Taylor, McEvoy & Co., and was located only a few hundred yards from that company's mill (*Inyo Independent* 5 February 1881a). Stephen Decker & Co., reporting for the *Inyo Independent* (5 February 1881a), wrote of a trip to the mine.

> We went down the incline and through the drifts and stopes, and saw a sight both pleasing and dazzling to the eye; on every side could be seen white honey-combed ore, spangled with gold. This mine is a bonanza of itself, and if the other [Taylor, McEvoy & Co.] mines prove as good as this one their bullion shipments will be of importance in the near future.

NEW YEAR'S GIFT MINE

The New Year's Gift Mine was located a little over one mile downcanyon from the New Year Mine (*Inyo Independent* 5 February 1881a). The mine was operated by Stephen Decker & Co., who wrote the following plea for capital investment:

> We have stripped this ledge forty feet and have about twenty tons of ore on the dump. The ledge averages three feet in width and crops out the entire length of the claim; some of the ore shows gold and it is the largest and heaviest gold we have seen in the cañon. We consider this our best mine. A company with a ten-stamp mill and a tramway to the mine could work all the rock and make it pay well [*Inyo Independent* 5 February 1881a].

It is unclear if an 1885 reference to the "New Year's Mine" refers to the New Year or the New Year's Gift. The note states only that the mine contained a vein similar to that of the Keynot, but less rich (Unknown 1885:n.p.).

ORO MINE

Oro is Spanish for gold, but the word may also be used to indicate money, wealth, or riches. The Oro Mine was one of the Keynot group of claims (Unknown 1885:n.p.), but nothing further is known about it.

PADDY JACK MINE

The Paddy Jack Mine was located in McElvoy Canyon. In 1885 (Unknown 1885:n.p.), the mine was said to be a "small vein of high-grade ore, . . . regularly worked, and a bullion producer." No further reference to the mine was discovered.

PABST-JOHNSON MINE

The Pabst-Johnson Mine was a relative latecomer to the Beveridge District. A news report dated 1904 indicated that the mine would soon become a great producer, since a modern mill was planned (*Inyo Independent* 24 June 1904). The original mine name may have been "Pobst-Johnson," after David Pobst, a miner known to have worked in the Beveridge District (*Inyo Independent* 25 September 1880f, 2 June 1893b).

PAT KEYES (KEYS, KEYS') MINE

The Pat Keyes Mine frequently was called simply, the Keys Mine (cf. Crawford 1894:138, 1896:181). A miner by the name of Keys was known in the Beveridge District as early as 1883 (*Inyo Independent* 6 October 1883v). A gold discovery by Pat Keyes in 1887 may mark the beginning of the Pat Keyes Mine.

> Very rich gold ores were shown by Pat. Keyes from beveridge district. It is remarkable that these ores were found in connection with lead and silver [*Inyo Independent* 15 October 1887d].

The 1894 report of the state mineralogist (Crawford 1894:138) states that the vein was 12 to 20 inches wide. Ore from the mine was worked in an arrastra in a canyon south of the mine. Development included two inclined shafts, with drifts. In 1895, Pat Keyes was reported to be "making a very successful run of ore" (*Inyo Independent* 12 July 1895b), and, a few months later, was expected to "crush about twenty tons of ore" (*Inyo Independent* 25 October 1895d).

Pat Keyes milled some of his ores at the McEvoy Mill, and was reported to have brought to Independence 37 ounces of gold bullion from mill run in November, 1895 (*Inyo Independent* 15 November 1895e). An even more profitable run was described the next month:

> Pat Keys completed another run of ore last week from his mine at Beveridge and as a result he brought in one hundred and thirteen ounces of bullion, worth about fifteen hundred dollars. Only ten tons of ore were worked to produce this result. He has upwards of thirty tons of ore on the dump which cannot be worked till spring. There is no question but that Pat has a valuable property, and with proper mill facilities could be made to yield large returns [*Inyo Independent* 6 December 1895f].

As predicted, the Pat Keyes Mine commenced milling again in the spring. In April 1896, it was reported that Pat Keyes and Tim Madden came to Independence to arrange a pack train "to move the ore from the mine down to the mill" (*Inyo Independent* 10 April 1896h), and by April 24th, the mill was ready to run (*Inyo Independent* 24 April 1896i).

Operations at the mine were in full swing, and Pat Keyes made trips to Independence nearly every three weeks for supplies and to bring bullion down from the mine (*Inyo Independent* 15 November 1895e, 20 December 1895g, 27 March 1896g, 10 April 1896h, 8 May 1896k, 31 July 1896p, 30 June 1899k).

By July 1896, the following report characterized the status of work at the Pat Keyes Mine.

> Pat. Keyes came in from Beveridge last Friday bringing with him about $3000 worth of bullion-the result of his last clean-up. Mr. Keyes reports the mine is looking first-class. He will soon erect a mill within two miles of the mine, when he will be able to work the vast quantity of second-class ore he has on the dump at a handsome profit. Wood is plentiful and near at hand, and there is a sufficiency of water for milling purposes. Mr. Keyes' mine is destined to become one of the greatest gold bullion producers in the county [*Inyo Independent* 31 July 1896p].

The year 1896 was a particularly productive one for the Pat Keyes Mine, prompting the following report of the state mineralogist:

> quartz is being stoped from the drifts as fast as they can be extended, and milled in a steam-power arrastra, 8 miles [actually only two miles] S. of the mine. The vein [is] in granite, and averages 14″ in width [Crawford 1896:181-182].

Another ore discovery in 1896 was reported.

> Pat Keyes has five men now employed in taking out ore at his mine in the Beveridge District. He has recently struck a large deposit of very rich ore, which promises to rival the output of the Keynot in its palmiest days [*Inyo Independent* 23 October 1896s].

About five months later, the mine was said to be "looking well," and four men were employed (*Inyo Independent* 26 March 1897c). In April 1897, a 6-horsepower gasoline engine was installed at the Pat Keyes Mine, to power two arrastras which were to be built (*Inyo Independent* 23 April 1897e, 30 April 1897f). The engine was expected to save packing expenses, and allow profitable milling of lower-grade ores. Enough ore was said to be on the dump to supply the mill for at least a year, and ore was steadily being removed from the mine. In September, the operation moved an arrastra closer to the water source, with satisfactory results (*Inyo Independent* 10 September 1897s).

Fifty tons of ore from the Pat Keyes Mine were ready for sacking and packing to the mill in June 1899 (*Inyo Independent* 30 June 1899k). In July, one Lester Laird went to Beveridge to ''pack ore for Pat Keyes,'' while George Thorpe was to run the arrastra (*Inyo Independent* 14 July 1899m). One month later, Thorpe was in Independence getting gearing for the arrastra at the mine (*Inyo Independent* 18 August 1899o). By September, ore had been packed from the mine, and it was reported that more ore was to be excavated (*Inyo Independent* 29 September 1899q). In 1901, Pat Keyes was reported still working in the Beveridge District, although the report is unclear as to what mine he was operating (*Inyo Independent* 29 June 1901b).

Workings were described thus:

> Along the vein are 11 underground workings totaling 800 ft, three benches totaling 450 ft, and a number of small pits and open cuts. A small cyanide mill was located near an adit portal. The principal mill (Pat Keyes arrastras) is 1.5 miles south. It is estimated that 5,000 tons of ore containing at least 1,200 oz of gold and 3,000 oz of silver were mined [Close 1985:78].

Close was describing the contents of a modern sample of ore; although the Pat Keyes Mine contained both gold and silver (Close 1985:24), it is doubtful that silver resources were exploited.

One of the Pat Keyes arrastras was burro-powered, and one was steam-powered. The location of these arrastras is shown on Figure 2. They operated in the 1890s and again in the 1930s (Close 1985:81). Close (1985:81) reported that a small portion of tailings from the Pat Keyes Mine was reworked during the 1970s.

PHILADELPHIA MINE

The Philadelphia Mine was operated by Dominico Calsagia & Co. (*Inyo Independent* 5 February 1881a). Reportedly, the owners had a large stone residence in Beveridge Canyon. The mine was said to be "about a quarter of a mile from water and . . . on the leading lode of the cañon" (*Inyo Independent* 5 February 1881a). In 1886, Calsagia brought to Keeler a lot of 2,200 pounds of ore valued at over $400 per ton (*Inyo Independent* 11 September 1886i). The ore, sent to Selby & Co., San Francisco, may have been from the Philadelphia or Union Mine, also operated by Calsagia.

QUEEN MINE

The Queen was one of the Keynot Group of mines (Crawford 1894:138) for which no further information is available.

QUERVON MINE

Only one reference is known to the Quervon Mine. A Lasky Mill report (*Inyo Independent* 1 November 1884p) indicated that 11,480 pounds of Quervon Mine ore was crushed at the mill, yielding a value of $185.50.

REAVIS MINE

All that is known of the Reavis Mine appears in a report dated 1885 (Unknown 1885:n.p.). This notation states that the Reavis Mine contains a vein similar to, but less rich than, the Keynot vein.

REDMORE MINE

One of the mines on the Champion Lode, the Redmore Mine was mentioned but not described in a news report of 1878 (*Inyo Independent* 8 June 1878b), and does not appear again in written references.

RED DOG MINE

This mine (Fig. 2) received its name in recent years; its historical name is unknown (Alan Akin, personal communication 1993). A 1985 Bureau of Mines report (Close 1985:84) described the workings and production of the Red Dog Mine thus:

> Scattered for 1,500 ft along the vein are six underground workings totaling 500 ft, three benches totaling 150 ft, and a number of small pits and open cuts. It is estimated that 600 tons of ore containing at least 50 oz of gold were mined.

RED WARRIOR MINE

Located on the Champion Lode in Hunter Canyon, the Red Warrior Mine was described in an early newspaper report (*Inyo Independent* 18 May 1878a).

> In ascending the trail from Big Horn spring to the mines, the first claim encountered is the Red Warrior, situated near the middle of the

> Champion lode. The discovery shaft, sunk on the dip of the vein to the depth of ten feet below the so-called water level, exhibits in the bottom a fine body of high grade ore, averaging $160 per ton. At other places on the croppings of this claim fine free gold specimens have been obtained.

Later accounts of workings in Hunter Canyon do not mention the Red Warrior.

ROBLES MINE

Like the Red Warrior, mention of the Robles Mine was made early in the history of the Beveridge Mining District, and not during the latter period. The mine was part of the Champion Lode, and may have been situated in Robles Canyon (see discussion of Chilula Mine, above). Spanish for "oak trees," the word robles also may be used as a metaphor for anything strong or hard. As of May 1878, the Robles Mine was "not yet developed to any considerable depth, but [was] prospecting well on the surface" (*Inyo Independent* 18 May 1878a).

SAN ANTONIO (SAN ANTONIA) MINE

The San Antonio Mine was among those located on the Champion Lode near the head of Robles Canyon. It was said that the mine carried "one or more ore chimneys of $100 rock" (*Inyo Independent* 18 May 1878a). As with the Alta Mine, little is known of the early years of the San Antonio Mine due to the fact that a correspondent chose not to visit the mine since it was late in the day (*Inyo Independent* 8 June 1878b).

In November 1884, 16,415 pounds of ore from the San Antonio Mine were crushed at the Lasky Mill, at a value of $115.50 (*Inyo Independent* 1 November 1884p).

In 1894, the San Antonio Mine is listed in a group of mines including the Chilula, Gavilan, and Montano (Crawford 1894:137). In 1896, the mine was owned by Charles Green, et al. of Lone Pine, but was reported idle (Crawford 1896:180).

SAN IGNACIO (SAN YGNACIO) MINE

The only known reference to a Beveridge District mine named the San Ignacio is a Lasky Mill report for 1883 stating that 58,491 pounds of ore from the San Ygnacio Mine were crushed at a value of $679 (*Inyo Independent* 15 December 1883y). To avoid confusion, it should be noted that a separate mine also named the San Ygnacio was located in the Cerro Gordo Mining District, south of the Beveridge District.

SAN PEDRO MINE

The San Pedro Mine was located in Hunter Canyon on a vein that ran parallel to the Champion Lode (*Inyo Independent* 8 June 1878b). In 1878, the mine reportedly was owned by an ''old Mexican'' (*Inyo Independent* 8 June 1878b). At this date, the San Pedro was said to produce ''specimens containing heavy particles of gold, and, like the mines on the Champion lode, [the vein] is regular in its course and pitch, with an average width of about three feet'' (*Inyo Independent* 8 June 1878b). No later references to the mine are known.

SANTA CRUZ MINE

This mine was located in Robles Canyon. In 1896, the vein was said to range from a "mere seam" to five feet in width (Crawford 1896:183). Development at that time consisted of one 60-foot tunnel and one 300-foot tunnel, connected by a 100-foot winze. John Black of Bishop owned the mine. No later references to the Santa Cruz Mine were located.

SANTIAGO MINE

In 1883, the Lasky Mill reported crushing 20,172 pounds of ore from the Santiago Mine at a value of $168 (*Inyo Independent* 15 December 1883y). The crushing of 5,135 pounds of ore in 1884 yielded $31.40 (*Inyo Independent* 1 November 1884p). No other information concerning this mine is known.

SIDEWINDER MINE

The Sidewinder Mine was one of the Keynot claims. The only known reference to this mine reports it idle in 1916 (Huguenin 1916:n.p.).

SNOW FLAKE MINE

This mine was one of those located on the Champion Lode in Hunter Canyon, and was reported to contain at least one ore chimney of $100 rock (*Inyo Independent* 18 May 1878a). Later references to the mine are unknown.

STRAUS MINE

In January 1885, the local newspaper carried the following article about a "big mining strike."

> What gives every indication of being a very important mining strike has lately been made in Beveridge district by Straus and Cohn [Crohn] of Lone Pine. A vast mass of quartz that raises above a canyon has been examined by them, and found to be very rich in gold. The quartz can be quarried from the mass in any quanity [sic], and there is plenty of wood and water near by. Last Monday men were set to work making roads and trails supplies will be sent to the camp as soon as possible, and miners and woodchoppers begin work at once. The nearest mill is about six miles distant from the mine, there is an arastra [sic] about two miles away, and at both of these the ore will be worked for some time, to test its value fully. Messrs. Straus and Cohn have no doubt whatever as to the great value of their mine, and are already satisfied that it will pay well to build a mill close to it. The surroundings offer excellent facilities [f]or a mill site [*Inyo Independent* 3 January 1885a].

Six weeks later, the following notice appeared:

> Reports from Straus mine in Beveridge are very favorable. The ledge is strong four [feet] wide, and opening up in a most encouraging way. The ore continues to be fully as rich as where first struck, is all free milling gold bearing, and beyond question will pay [*Inyo Independent* 14 March 1885f].

And another month later:

> Mining men say the claim of Straus, in Beveridge, is a valuable property. The ledge stands vertical, is four and a . . . half to five feet wide, and is sure to go at least forty dollars per ton in free gold. A boiler has lately been bought and the mill will soon be in readiness for work. Since the ledge was first found ore has been worked in arastras [sic] near by, right along, so that its value is now well known [*Inyo Independent* 11 April 1885j].

The mine may have been operated by the "J. E. Strauss" mentioned in an 1882 deed transfer of Keynot mining properties (*Inyo Independent* 2 September 1882jj).

Partner "Cohn" may be the same as "Chris Crohn" mentioned with reference to the Beveridge District in 1880 (*Inyo Independent* 25 September 1880f).

These three newspaper reports comprise the entire known history of the Straus Mine. Since it never appeared in such sources as reports of the state mineralogist, it may be assumed that the mine failed to produce before much time had passed.

SUNDAY MINE

All that is known concerning the Sunday Mine is found in a report dated 1916 (Huguenin 1916:n.p.). It was among the Keynot claims, and was idle by the time the report was prepared.

SUNRISE MINE

Only one reference is known to the Sunrise Mine, located on the north side of McElvoy Canyon somewhat over one mile downcanyon from the McEvoy Mill (*Inyo Independent* 5 February 1881a). In 1881, the mine was operated by Stephen Decker & Co., who reported:

> We are working on it at present; have stripped it fifty feet and have ore all the way. We have started a tunnel and expect to take out sufficient ore to make a good run at Taylor, McEvoy & Co.'s mill in the Spring. This ledge is about a foot wide and crops out in places for six hundred feet [*Inyo Independent* 5 February 1881a].

SWEITZER MINE

The Sweitzer Mine, a silver producer, was located between Keynot and McElvoy Canyons (Fig. 2), and was owned by James Starborough of Lone Pine in 1894 (Crawford 1894:374; Taylor and Joseph 1988:120). During that year, it was reported that

> The vein is small but very rich, and is inclosed in granite. It . . . stands nearly vertical. It is developed by a tunnel 130 ft. long and by surface work. The ore is shipped without any sorting. There is a little galena, but the richest ore is stromeyerite--a sulphide of silver and copper [Crawford 1894:374].

In 1988, the California Division of Mines reported (Taylor and Joseph 1988:A12) that workings at the Sweitzer Mine consisted of a 450-foot adit with a daylighted stope, and "several small pits and open cuts." The estimated production of the mine was 100 tons of ore containing at least 800 ounces of silver.

TAMARACK MINE

The Tamarack Mine appears in a list of mines involved in a deed transfer between Antonio Moreno and Nieves Moralis in 1882 (*Inyo Independent* 1 April 1882f). Although a discussion of the mine is not included, it is described as one of the "well-known" Beveridge District mines. The mine must have proven worthless, as its name does not again appear in written documentation.

TOM CASEY (CASEY) MINE

The Tom Casey Mine is among the later operations in the Beveridge Mining District. The date of initial development of the mine is unknown, but the mine tailings were purchased for reworking by the P.D.Q. Cyanide Company in 1899 (*Inyo Independent* 9 June 1899i). The mine appeared in the *Inyo Register* (16 May 1935) in a list of district mines that "have had some production."

A 1938 report (Tucker and Sampson 1938:423, 479) indicated that the 120-acre mine, owned by Thomas Casey of Lone Pine, was located at the head of Craig Canyon. At that date, mine development included three tunnels, the longest of which was 400 feet deep, and two men were actively employed. In 1951, Tom Casey was still listed as the mine owner, but no details of the mine at this date are available (Norman and Stewart 1951:163).

A 1980 report lists the Tom Casey Mine among the six principal mines of the Beveridge District (Clark 1980:134). This mine should not be confused with the Casey Mine of the Cerro Gordo District, also owned by Thomas Casey.

TREPIER (TRAPIER) MINE

A newspaper article dated June, 1894, stated the following:

> Victor Trepier, . . . is in Lone Pine for the purpose of getting a supply of water and provisions. "Vic" says he found a pocket last week containing three ounces of gold and for a month's work he shows fourteen ounces of gold [*Inyo Independent* 22 June 1894e].

Victor Trepier held a number of claims; the Trepier Mine was located on the south side of Craig Canyon.

In 1985, workings at the Trepier Mine (Fig. 2) reportedly included a glory hole, and three adits totaling 200 feet. It was estimated that "about 200 tons containing, at best, 500 oz of gold, 3,000 oz of silver, and 5 tons of lead'' had been mined (Close 1985:86). Reportedly, mining at the Trepier concentrated mostly on high-grade material (Taylor and Joseph 1988:A2).

The current archaeological investigations did not include a reconnaissance of the Trepier Mine; however, two Bureau of Land Management volunteers reported on their 1992 trip to the mine (Webb and Budlong 1992). Several adits and prospects or collapsed adits were located, as well as a number of stone structures.

TRINIDAD MINE

Spanish for ''Trinity,'' this mine was located in Hunter Canyon, on a vein that ran parallel to the Champion Lode (*Inyo Independent* 8 June 1878b). In 1878, the Trinidad was ''producing milling ore,'' and a road was being built in anticipation of a proposed mill construction by Porter, Hunter & Co. No later references to the mine were found, indicating that it did not produce ore for any length of time.

TRIUMPH MINE

The Triumph Mine was one of the Keynot claims. It appeared in only one contemporary report, and was listed as idle in 1916 (Huguenin 1916:n.p.).

TRUE BLUE MINE

Only one reference is known to the True Blue Mine:

> Some very good mining prospects are being opened in new ground in the Beveridge district . . . In one of these claims, the True Blue, owned by C. Maysan and others, of Lone Pine, the ore carries $296 per ton in silver. A shipment of the ore was made a few days ago [*Inyo Independent* 28 May 1887b].

TRUE BUSINESS MINE

The True Business Mine was among the Keynot claims, described as one of the well-known Beveridge mines in 1882 (*Inyo Independent* 1 April 1882f). A report of the Lasky Mill in 1883 indicated the crushing of 18 tons of ore from the True Business, yielding $914.50 at an average of $50.81 per ton in gold (*Inyo Independent* 26 May 1883i). Later that year, the mill reported crushing over 103,210 pounds of True Business ore yielding a value of $2,844.41 (*Inyo Independent* 15 December 1883y). No other references to the True Business are known.

UNION MINE

The Union Mine was located in McElvoy Canyon, about one mile downcanyon from the McEvoy Mill (*Inyo Independent* 5 February 1881a). The mine reportedly was about 1/4 mi. from water on the ''leading lode of the cañon.'' In 1881, the mine was described as a very promising one operated by Dominico, Calsagia & Co.:

> They have run a tunnel in the Union about forty feet, have some very good ore on the dump, and ore on both sides of the tunnel its entire length [*Inyo Independent* 5 February 1881a].

That no further reference to the Union Mine was found is indicative of low returns.

VIVAREA (VIVORA) MINE

"Vivarea" probably is a transmutation of the Spanish word "víbora," meaning viper, or in the California Spanish dialect, rattlesnake. Two contemporary news reports mention the mine, which was one of the Keynot claims. In July 1884, owners Lasky and Morena were said to have "found a vein in the Vivarea claim that is fifteen inches wide, and contains over $200 per ton" (*Inyo Independent* 19 July 1884e). Twenty-one tons of ore from the claim were on the dump, awaiting milling.

Mention of 18,170 pounds of ore from the "Vivora" Mine (*Inyo Independent* 1 November 1884p) probably represents milling of a portion of these 21 tons of ore. The report states that 18,170 pounds of ore were milled, yielding a value of $342.50. No other references to the Vivarea Mine are known.

WAR EAGLE MINE

The War Eagle vein is located in Keynot Canyon, and a mine by that name was one of the Keynot claims reported idle in 1916 (Huguenin 1916:n.p.). The War Eagle vein is described in detail by Flint (1941:66-70).

WHITE HILL MINE

Early reports of the White Hill Mine indicate that it was located in the Beveridge Mining District. In actuality, however, this mine was located just outside the northern district boundary. It is possible that the Beveridge District boundaries were unclear, or perhaps miners simply "stretched" the boundary to include this new discovery, for the benefit of protection by mining law. Rob Waiwood, Bureau of Land Management Locatable Minerals Specialist, stated (personal communication 1992) that nineteenth-century miners often stretched district boundaries when it was to their advantage to do so. Eventually, the White Hill Mining District was formed, and later reports of the mine correctly place it in that district. It is mentioned here only to avoid possible confusion arising from misinterpretation of the early reports.

Chapter VIII

LATE HISTORY OF THE BEVERIDGE MINING DISTRICT

Just after the turn of the century, mining in the Beveridge District experienced marked decline. Although production was greatly reduced, new mining efforts were begun, so that twentieth-century Beveridge cannot accurately be said to have suffered a ''bust'' period. During the 1890s, mining had begun to be characterized by small-scale efforts carried out with little capital backing. Miners sought methods by which they could cut costs while working lower-grade ores ignored by miners during the boom period. Berg and Crowley (1979:n.p.) correctly surmised that Beveridge was worked by small-scale, local ore processors during the period of its decline. Research indicates, however, that the period of decline began about 1905, earlier than hypothesized by Berg and Crowley. Although several mines continued in production as late as about 1920 (Fig. 7[a-d]), these were small efforts yielding low profits.

MINING EFFORTS TO CONTEMPORARY TIMES

Francaviglia (1991:165) remarked that

> . . . the end of mining in a district occurs in several agonizing stages, including the leasing of mines to smaller operators who can function more efficiently by circumventing labor costs or using less expensive machinery.

One report, dating to the late period of Beveridge history, indicates that two miners were to erect a horse-powered arrastra that would work their ore at little expense (*Inyo Independent* 12 February 1897a).

While hopeful miners still maintained that a "great camp" would yet develop at Beveridge (*Inyo Register* 23 November 1905a), decline had come. In a recent report by the Division of Mines and Geology, Taylor and Joseph (1988:59) put it this way:

> . . . the fact that the mines in the Beveridge District failed to sustain production after 1906 was not because of an overall shortage of ore, but because it was not possible to sustain production of ore that could average over 6 ounces per ton gold in order to be transported by stock to small amalgamation mills. Between 1906 and 1940 several small cyanide mills were erected near water sources within the area; however, all failed due to high costs associated with small size of the milling operations.

According to Flint (1941:7), these later mills in the district were never used. It seems more likely, however, that the mills were put into operation at least long enough to determine their productivity.

Another approach to renewed activity was attempted; many miners planned to overcome the problematic ore transport over pack trails by building a wagon or truck road into the district. In the years after the turn of the century, such a road was proposed many times (*Inyo Independent* 24 June 1904; *Inyo Register* 16 May 1935).

The Beveridge Mining District was not discussed in the Inyo County section of the State Mineralogist's reports for 1924 or 1940 (Tucker 1924:185-191; Tucker and Sampson 1940:10). One miner made a rich strike at Beveridge during 1929, and was said to be "among those who retain their faith" in the district (*Inyo Register* 1 August 1929).

Ironically, the declining Beveridge Mining District experienced two types of work during the period of decline. In addition to small-scale enterprises, a few mining companies attempted larger-scale work, all with limited success. In 1905, the following item appeared in the *Inyo Register* (30 November 1905b):

> The Nevada-Inyo Mining Company, mostly Reno people, are advancing extensive operations in Beveridge District. . . . This company has 750 feet of drifts, stopes, winzes and shafts, and the vertical depth below the apex of the lode is 150 feet. In the lowest workings the vein between walls is three feet wide. Last Saturday a shoot of ore two feet wide was disclosed, carrying values of $200 per ton gold. This ore of course pans phenomenally rich--great strings of gold showing all around the ore in the horn spoon. This is the richest seam of ore yet encountered in Beveridge District. With some alterations the company's mill will be ready for work at once, and it is proposed to add a concentrator and cyanide plant in order to successfully work the sulphide ores.

As Figure 7(a-d) shows, most of the mines in operation after 1900 were idle before 1920. Only a few mines were worked to any degree after this date. The Big Horn, Burgess, Gold Standard, Highland Chief, Keynot, Mountain View, Pat Keyes, and Tom Casey mines are among the few with notable production into the twentieth century.

Detailed histories of these mines were provided in Chapter VII, and are only summarized here. The Big Horn Mine was worked during 1933 and 1934 (Tucker and Sampson 1934:310, 311). The Burgess Mine was in operation during 1910, was idle by 1912 (Waring and Huguenin 1917:75; Knopf 1918:123; Close 1985:74), and was worked again during 1938 (Tucker and Sampson 1938:388). The Gold Standard Mine was worked during 1938 (Tucker and Sampson 1938:397, 472). References to the Highland Chief Mine indicate that a 1-stamp spring mill was constructed there in 1938 (Close 1985:78). The Keynot Mine received the most twentieth-century attention. After legal difficulties during the 1890s, the Keynot Mine never again achieved the same level of success it had enjoyed prior to the court case. Only assessment work was conducted at the mine from 1907 to about 1920 (Tucker 1926:470). Investors were interested in purchasing the property two or three times during the 1930s (Tucker 1931:543; *Inyo Independent* 2 February 1934). The mine was reopened as the Golden Princess Mine for a short time during 1937 (Flint 1941:7), but was again idle in 1938 (Tucker and Sampson 1938:404-405, 474). The 1940s saw only assessment work (Close 1985:26). During the 1980s, a portion of the low-grade ore dump at the Keynot Mine was reworked (Close 1985:26). The Mountain View Mine was worked sometime prior to 1917 (Waring and Huguenin 1917:82), and a small shipment of ore was made during 1948 (Goodwin 1957:494). Sources indicate that arrastras at the Pat Keyes Mine were worked during the 1930s (Close 1985:81). A portion of tailings from that mine were reworked in the 1970s (Close 1985:81). The Tom Casey Mine was in operation during 1938 (Tucker and Sampson 1938:423, 479).

Numerous modern claim location notices were discovered during archaeological reconnaissance of portions of the Beveridge Mining District. Today, active prospecting and assessment work continues. Francaviglia (1991:183) noted that miners of the 1980s and 1990s have found themselves unwelcome in the very places that were created by miners and catered to them a century ago. In part, this dichotomy comes from the fact that mining is an inherently destructive activity; modern mining often destroys the traces of historical human activity. Archaeologists working in historical mining districts must be aware of and sensitive to the actions of modern miners. Because they often work in remote places on a shoestring budget, prospectors and miners are notorious for scavenging "old junk" (historical artifacts) for reuse elsewhere. The first reaction of the archaeologist is to reject such behavior and lobby for its discontinuance. The competent archaeologist will realize, however, that modern mining provides the continuum of human activity and behaviors that are of interest to the anthropologist.

Evidence of modern reuse of historical items is commonly found at Beveridge. Machinery parts from Locus 45 are located at Frenchy's cabin (Locus 36). A galvanized, lidded can from the cookhouse at Locus 45 is now located in the cabin at Locus 40.

When responsible historical archaeology is performed in a mining district, it often is possible to "read" the signature of the modern miner as well as the historical one. Observation of the behavior of modern miners can reveal much about the actions of their nineteenth-century counterparts. Touring a mining district with a miner is an effective way to learn how to interpret the mining landscape.

This is not to say that all modern mining pursuits are desirable in an historical district. An example is provided by the Loretto Mine in the foothills of the Inyo Mountains (outside the Beveridge Mining District). Originally worked from 1907 to 1915, this mine was reactivated as an open pit mine (a particularly destructive mining method) in 1975 (Taylor and Joseph 1988:53, 67-68). While this type of destructive mining would not be profitable in the Beveridge District (where lack of widespread low-grade ores would render it unprofitable), other damaging methods might be employed.

ABANDONMENT AND DEMISE

Stevenson (1982) used historical mining camps as case studies in his treatise on site abandonment behavior. His observations are directly applicable to the situation found at Beveridge.

> Generally, once a decision has been made to abandon a site in a planned manner, it is expected that refuse would begin to accumulate in areas usually kept free of such debris as the need to redeposit it elsewhere would be dramatically reduced. . . . While this behavior is anticipated to result in significantly greater amounts of refuse being discarded, it is also expected to produce more clustered arrangements of refuse in spaces not normally utilized during daily activities [Stevenson 1982:246].

During fieldwork, many viable items (tools and glass jars, for example), were observed near dwellings. Abandonment of tools is interpreted as a decision not to transport heavy items that could be replaced or would not be useful when a miner took up a new occupation elsewhere. A corollary arose during fieldwork, and is a modern manifestation of the behavior of the Beveridge miners upon abandonment of the site. Crew members jettisoned certain objects determined unnecessary for the trip out of the Inyo Mountains, considering the burden of heavy backpacks. Since the items might still prove useful to future investigators or campers, they were cached in the cabin at Locus 14. Other variables, such as means of transportation (foot or pack animal), or season of abandonment would play a role in which items were chosen for transport (cf. Stevenson 1982:238).

Rather than transport equipment out of the site, much equipment at Beveridge was left to rot or rust in the elements. Some of the equipment was exhausted, and would not have proved useable if transported from the site. Accordingly, Stevenson (1982:241) stated that "few artifacts and features will be found in processes of manufacture, use, or maintenance on sites abandoned under normal or planned conditions." The numerous examples of careless abandonment of viable objects, however, indicates that the miners involved did not intend to return to the site, and therefore were not concerned with the preservation of items left behind. Probably many of the Beveridge miners were forced to abandon their mines when rich ore pinched out, or when funding ran low or operating and supply costs rose. This behavior could also explain the undesirable but necessary abandonment of viable equipment when finances did not allow payment of the necessary pack trains to remove the items. In contrast to this behavior, fieldwork revealed several indications that the Beveridge miners intended to reopen various mines. Extra milled timbers and a water pump were found stored in adits at Locus 46. Four adits were sealed with doors (Loci 1, 13, and 46), and a boulder was dropped across another adit portal (Locus 14), presumably to prevent access by unauthorized parties. The ore buckets at the upper terminus of the aerial tram (Locus 46) were laid off the line upon abandonment, possibly to prevent them from slipping down the cable and causing undue tension on the line between tram supports.

When the 1980s work at the Keynot Mine was discontinued, a surprising amount of equipment and supplies were left behind. This recent abandonment provides a case study applicable to older operations. Milling equipment was left in place, just as it appeared when it last was operating. Other supplies (plastic sheeting, barrels of chemicals, timbers) were stored in a nearby adit to prevent exposure to sun and moisture. Smaller supplies were stored in one of the cabins destroyed by rockslide (discussed below). The amount of supplies and equipment left behind is surprising, considering that helicopter transport was available (Alan Akin, personal communication 1991).

Following abandonment of the Beveridge mines, natural attrition and general lack of maintenance claimed many mine workings and associated historical features. Sedimentation, weathering (erosion), and revegetation are part of the natural reclamation process (cf. Francaviglia 1991:143-144). Although mining features have great longevity in deserts, the process of degradation is inevitable even in those climatic zones. These processes have taken their toll on the archaeological resources of the Beveridge District.

Many mine workings have collapsed (Loci 1, 4, 8, 13, 14, 17, 46, 47, 49, 51, B) as a result of rotting timbers or unsupported excavations (Fig. 9). A large-scale rockslide in Keynot Canyon (Locus 1) caused the collapse of one historical structure and partial collapse of another. A smaller slide carried a large boulder through the wall of the Beveridge Ridge Cabin (Locus 14).

The bottom of Beveridge Canyon is choked with willows and wild rose. Although an aesthetically pleasing asset, the wild rose proves a painful and, in places, nearly impenetrable nuisance to those attempting to traverse the canyon bottom. Certainly historical miners kept this area clear for access and comfort. Where sturdy wild rose stalks grow in and around wooden structures, revegetation is a destructive force. In addition, dense revegetation has created a potentially hazardous fire situation.

Of course a certain amount of natural decay of structures and machinery must be expected at archaeological sites. Examples of rotting wood, sagging roofs, slackened cables, and rusting machinery are legion at Beveridge. These are the result of natural

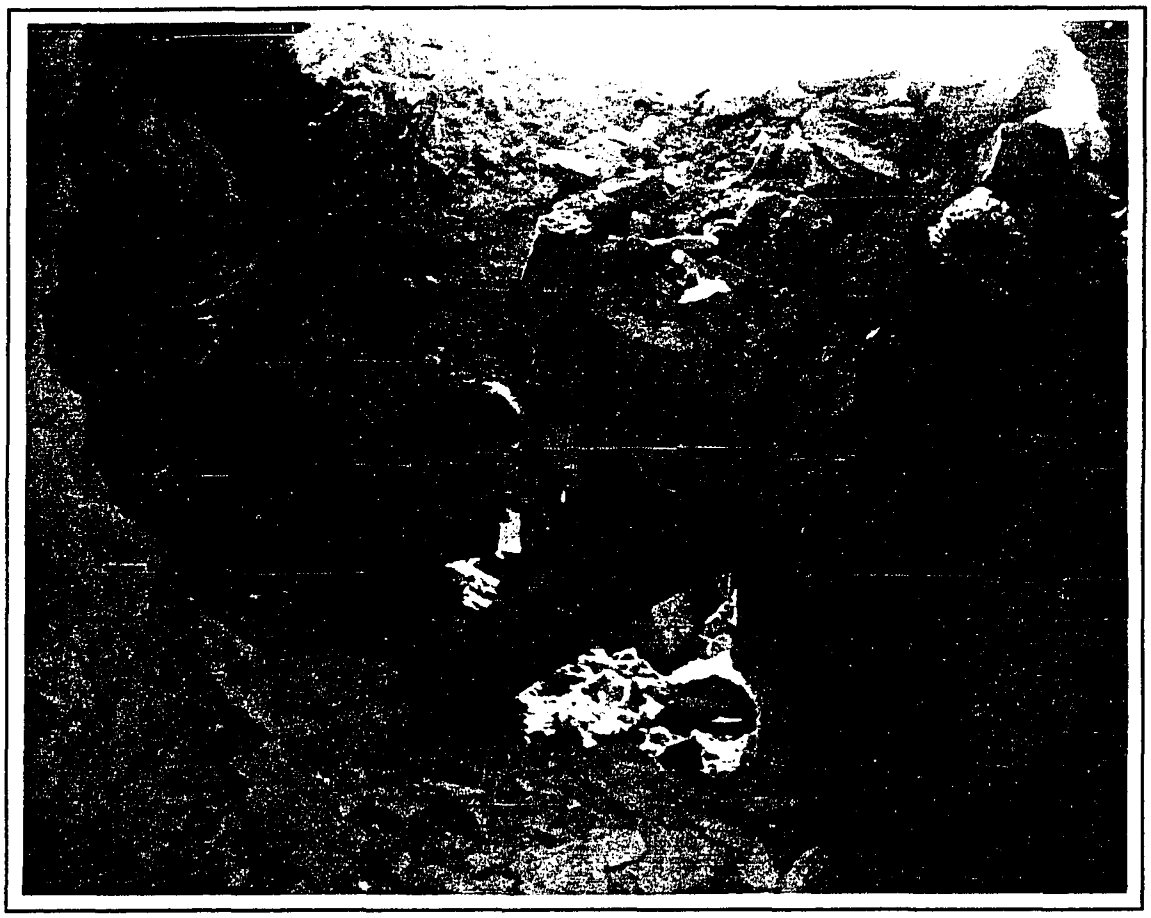

Figure 9. Collapsed timbers in adit at Locus B.

forces and simply cannot be avoided without costly, often impractical and only partially effective stabilization and restoration projects.

The remoteness of this site has prevented much of the vandalism encountered in more easily accessed sites. If the wooden structures located at Beveridge were near a modern highway, for example, they probably would have been destroyed by arson or carted off as scrap or novelties. If roads entered the district, more of the machinery would have been removed. It is this fact that protected metal artifacts at Beveridge from reclamation during the scrap drives of two World Wars, a well-intentioned program that, unfortunately, robbed us of much of our industrial heritage.

The difficult terrain at Beveridge undoubtedly slowed the efforts of looters. The ghost town of Bodie suffered serious looting before it became protected as a California State Park. The following quote, written by a Bodie resident, is illustrative of the lengths to which looters have gone in their efforts to collect from abandoned mining sites.

> After the mines ceased operations, Bodie became famous as a so-called "ghost town" and was often visited by tourists and sightseers. Many of these people were tempted by the furniture, artifacts and equipment that had been left in so many of the unoccupied buildings. These things had been left behind by people departing Bodie to seek employment elsewhere, not because they wished to abandon their property, but simply because of the high cost of transporting goods out of this remote place. Many visitors to the "ghost town" seemed to think that this material did not belong to anyone and could be taken with impunity; they did not hesitate to break into buildings for this purpose. . . . Windows and doors were deliberately broken, even though in many cases they had been left unlocked for easy entry [Billeb 1968:207].

The brick structures of Aurora, Nevada, were literally torn down and removed during the 1930s and 1940s, and recycled as used brick in southern California cities (McGrath 1984:8-9; Pavlik 1991:12).

Vandalism at Beveridge seems to have begun in earnest during the 1960s, and has taken its toll on the site. According to Berg and Crowley (1979:n.p.), a helicopter pilot reported lifting parties into the site during the 1960s and 1970s to "collect historical artifacts." One source (Leadabrand 1976b:49) reported that Boy Scout outings were held at Beveridge every spring. While it is not verified fact that Boy Scout groups collected artifacts from Beveridge, they are known to have performed unprovenienced artifact collections at another historical archaeological site in California (Sutton and Swope 1989:11). Roger Mitchell of the Sierra Club noted (Leadabrand 1976c:36) in 1976 that

> [Beveridge] has changed a lot in recent years as word of mouth publicity has caused more and more people to go in there. It seems everyone takes one or more souvenirs.

The most blatant and discouraging report of vandalism at Beveridge was published in *Treasure* magazine in 1977 (Grant 1977:88-14, 57). In an article about Bob Wolfe, a "treasure hunter" who calls his looting "research," the following account was given about a looting trip to Beveridge. Although the site was not mentioned by name, three photographs clearly show the vandals at the site.

> When his research turns up a potentially good treasure location, Bob utilizes whatever means necessary to reach the area. In one instance a helicopter was the only practical means of retrieving relics from an old ghost town in an extremely inaccessible area of California.
>
> "I had heard a lot about this particular area, and extensive research showed the site to be an excellent treasure location," says Wolf. "We first made a trek in on foot, but the terrain was so rugged we couldn't pack anything out. In fact, we were lucky to get out without serious injury." . . . the excitement of having been able to get into such a well-preserved ghost town, still intact with buildings, stoves, cooking utensils, and all kinds of tools and equipment, made the trip worthwhile . . .
>
> "We spent three days there and came out with a number of good items including tools, old coins and excellent bottles and relics," says Bob. "My real prize, however, was a very, very nice cast-iron stove."

This stove had been brought from Beveridge proper to Frenchy's cabin sometime during the last two decades by an individual who planned to winter there. He set the stove in cement, with an inscribed message pleading that it not be taken. Removing the stove from the site required that it be broken from its cement footing.

Much evidence exists of items that have disappeared from Beveridge during the last 25 years. Visits to the site by BLM personnel as recently as 1972 and 1974 reported tables with dishes *in situ* (Berg and Crowley 1979:n.p.). These items were not found during a 1976 visit by the BLM. One of the team of looters that visited the site with Bob Wolfe in the 1970s was photographed standing at Locus 45 with a portable grinding wheel (Grant 1977:10). The wheel is no longer at the site and presumably was taken at the time of the photograph.

Photographs taken of Beveridge over the last two decades are on file at the Eastern California Museum. When compared to the current state of the site, the photographs depict the wholesale removal of artifacts that has taken place during the last 20 years. One photograph (Fig. 10), probably taken during the 1960s, shows an oil heater at the Beveridge assay office (Locus 45). A photograph (Fig. 11) taken at about the same time, of the interior of the assay office, demonstrates the amount of artifacts and furnishings that have been removed in just two short decades. Only a few small artifact fragments remain in the structure today. Another photograph at the museum probably dates from the 1970s, and proves that a hopper once was attached to the 1-stamp mill at Locus 17. This portion of the mill is now gone. One photo shows that a shipping trunk once was stored in Frenchy's cabin. A Pelton Wheel pictured in a 1981 article (Lewis 1981) was situated at Locus 45, but no longer remains extant.

During archaeological investigations, it was noted that a metal manufacturer's plate had been removed from an ore bucket at Locus 44; other evidence of this behavior has been reported (Alan Akin, personal communication 1991). One individual with first-hand

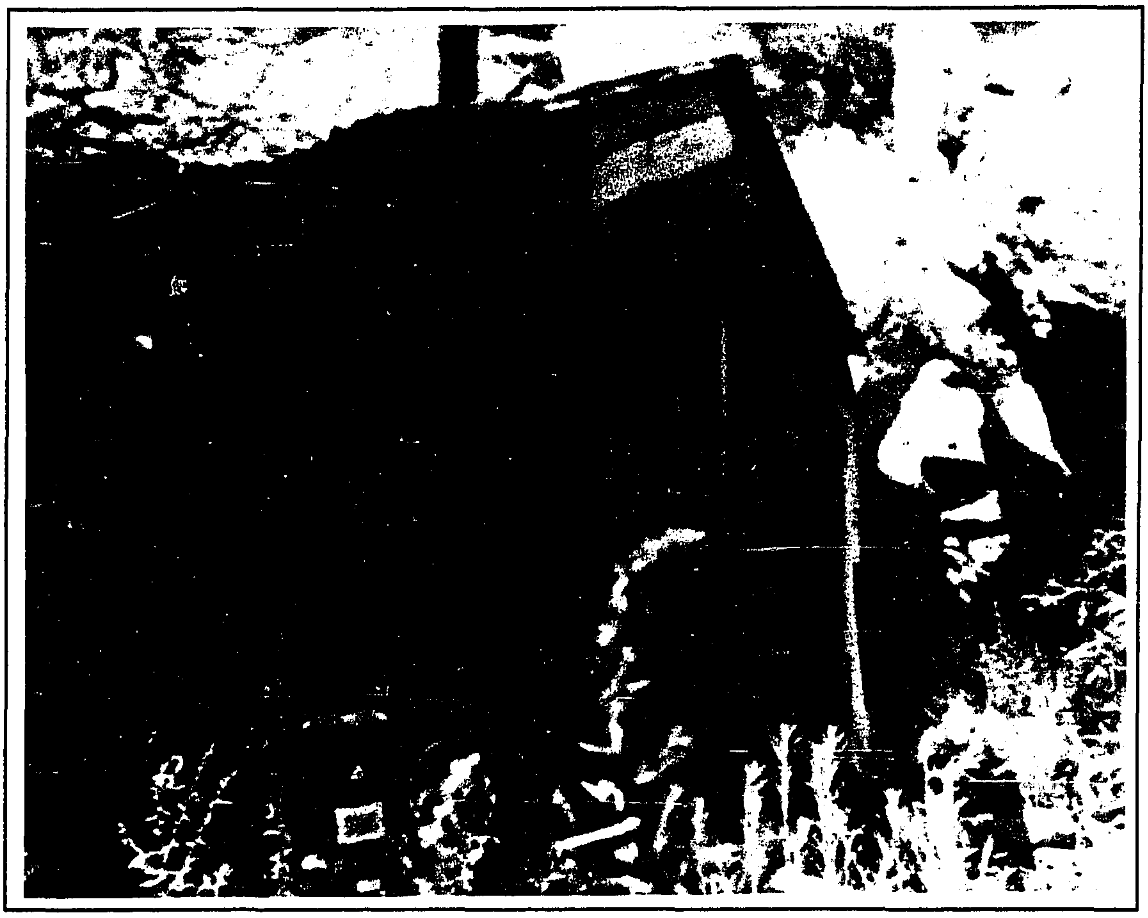

Figure 10. Historical photograph of assay office, Locus 45, ca. 1960s.

knowledge of the Inyo Mountains observed accelerated, systematic stripping of the site after about 1989 (Alan Akin, personal communication 1990).

In a few cases, removal of artifacts has served to protect them from decay or looting, and preserve them for research. A few artifacts removed from Beveridge have been donated to the Eastern California Museum in Independence. Three leather-bound Shakespearean plays were found in the rafters of an unidentified cabin at Beveridge, and are on display at a branch museum. A letter concerning a balance scale, dated 1919, and a catalogue of Victor Records from Beveridge were donated to the museum in 1964

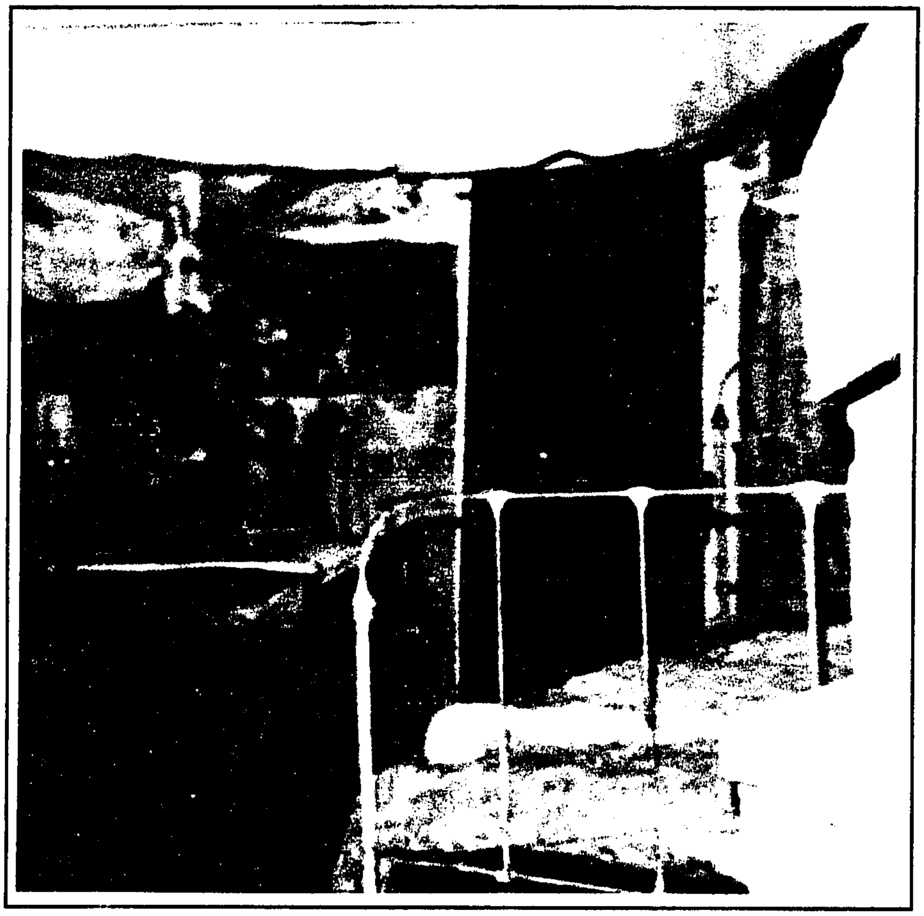

Figure 11. Historical photograph of assay office interior, Locus 45, ca. 1960s.

(Cragen 1964), but these items reportedly were not available for research when the museum was visited. Most artifacts removed from the site, however, are in private collections and will remain unknown, unidentified, and unanalyzed.

Evidence of excavations by looters was observed at Loci 45 and 48. Obviously, the nonscientific excavation methods employed by looters result in damage to the site, not to mention illegal removal of artifacts and loss of data for scientific research.

In addition to looting of artifacts from the site, numerous examples of vandalism were recorded during fieldwork. The boiler chimney and outhouse at Locus 45 have been used for target practice. Backpackers have inscribed their names and the dates of their visits in at least two structures (Loci 9 and 14).

The most thoroughly documented case of successive vandalism at Beveridge is the Beveridge assay office, which serves as a case study for the remainder of the site. When Beveridge was first visited by local resident Alan Akin during the 1960s, the floorboards of the Beveridge assay office were relatively intact, and it was discovered that historical newspapers were located in the crawlspace beneath. These were left *in situ*, but within ten years, the floorboards had been ripped from their places and the newspapers removed.

Fieldwork for the present research was undertaken in August, September, and October 1991, and April and May 1992. The Beveridge assay office (Fig. 12) was among the structures thoroughly recorded during September 1991. When the site was again visited in April 1992, it was discovered that the assay office had been savagely vandalized (Fig. 13). Although the corrugated metal roof of the building previously had fallen into the structure, the four walls were intact and relatively stable at the time of recordation. The vandals had forced the walls of the structure outward by repeated blows of a rock hammer or other sharp instrument, as indicated by recent, vertical scars on the interior walls. In this case, it was fortunate that the vandalism did not occur seven months earlier, before an archaeological and photographic record was made of the site.

Figure 12. Assay office, Locus 45.

Modern trash is visible at a number of locations in the district. Recent food wrappers were found intermingled with historical refuse in the cabin at Locus 9. The terrace above the mill at Locus 45 is littered with modern cans and bottles. In spite of such discouraging occurrences, it is recognized that many visitors to the site treat it with respect, and try not to disturb the archaeological remains. For example, obvious attempts have been made to burn and bury the trash on the Beveridge terrace.

A sheet metal stove in the collapsed cabin at Locus 9 remains standing on its original platform. It was rotated, however, following collapse of the enclosing wall, so

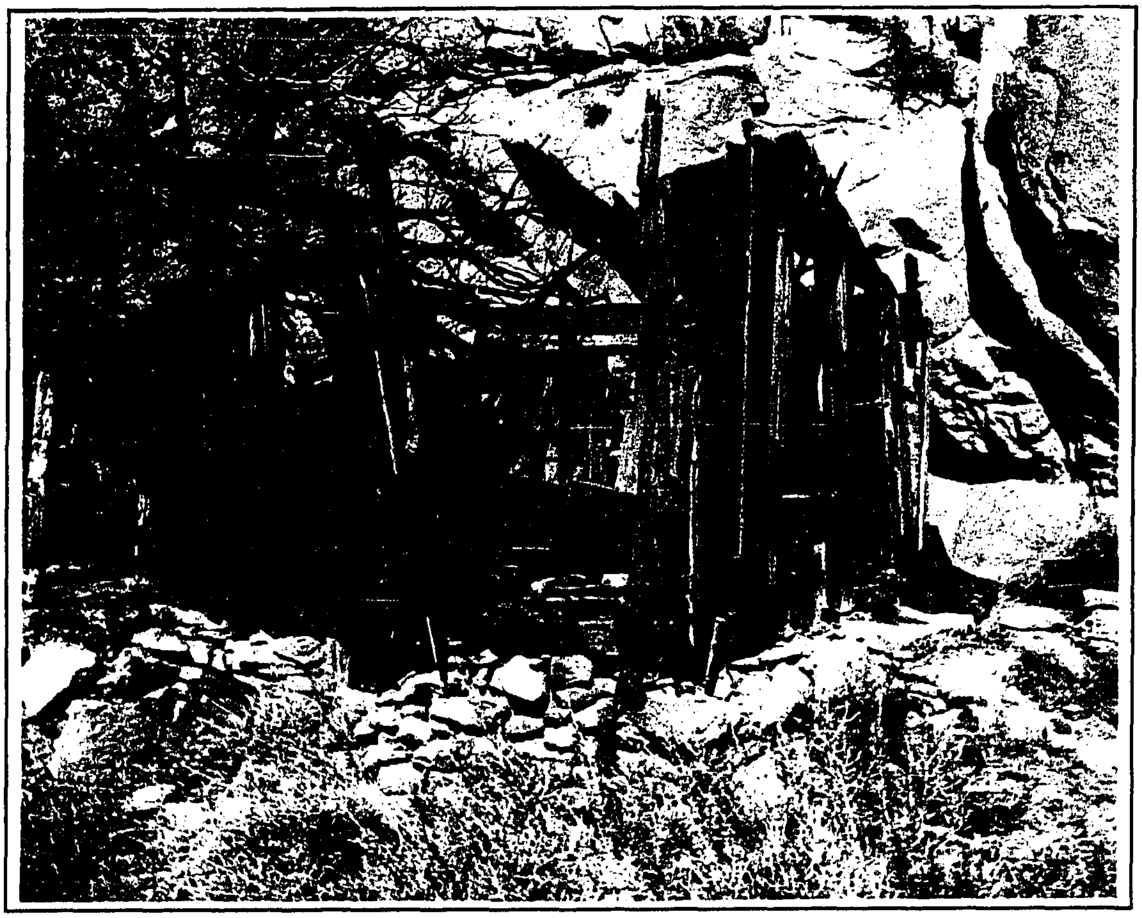

Figure 13. Assay office, Locus 45, after 1992 vandalism.

that it could be used from outside the structure. Modern campfires are evident in a number of places (Loci 14, 17, 40, 45). While most of the fires were built in responsibly safe places, evidence of burning was noted on the base of the mill and a tree at Locus 45, wood in a stone house niche (Locus 42), limbs of willow trees in Beveridge Canyon, the cyanide vat at Locus 17, and a beam in a stone cabin (Locus B).

As described above, prospectors and miners continued to work the site intermittently after the boom period of Beveridge history. A number of documented cases exist for prospectors moving artifacts and machinery about for reuse elsewhere. Certainly, this activity constitutes a part of the comprehensive history of mining at the site.

Modern campers, however, also transport items from one locus to another in the district. Four metal beds and a wooden table and bench have been carried to the terrace above the mill at Locus 45; presumably these once were located in the structures below. This terrace is used extensively by visitors to the site, and the beds, still comfortable, undoubtedly were seen as an opportunistic discovery. In May 1992, a piece of wire-wrapped wooden water pipe from the canyon bottom was found inside the cook shed at Beveridge. This artifact had not been there during fieldwork the previous fall, and presumably was carried there by the same individual(s) who ransacked the assay office. Caches of collected artifacts from the dump at Locus 14 were found stored inside the structure. It appeared as though campers had attempted to collect sherds of individual bottles for potential reassembly. Some bottle parts in the cabin were actually found to have been glued together! Other artifacts stored in the cabin indicate attempts to retrieve the more unusual artifacts. For example, a horseshoe with hoof attached, several Log Cabin Syrup cans, and the more complete bottle parts from the associated dump were found in the cabin. Bottle parts have been collected in graniteware vessels and stored in the cabin. Since the campers did not transport the items home with them, it may be assumed that the collections were made out of interest, or to preserve the unusual items in the dump. Unfortunately, even such well-intentioned efforts destroy sensitive data such as provenience, frequency, and association of the artifacts.

Over the past two decades, meager measures have been taken to mitigate somewhat the adverse impacts of vandalism and looting in the Beveridge Mining District. A few of the many archaeological sites in the district have been recorded. The BLM conducted archaeological reconnaissance and site inventory at selected Beveridge sites during the California Desert Project in 1970s. The BLM compiled information on mines and prospects in the area during the 1970s as part of the unpublished Geology-Energy-Minerals (GEM) inventory. The Bureau of Mines sampled mines in the district as part of a study entitled, *Mineral Resources of the Inyo Mountains Wilderness Study Area, Inyo County, California* (Close 1985). An anonymous source stated that several artifacts disappeared and some machinery was destroyed to clear a helipad at the time fieldwork was conducted by the Bureau of Mines. Recent efforts by the BLM have resulted in the rehabilitation of trails into the district. A frame cabin at Locus 14 (Guinn 1992:A1-A2) was renovated in an attempt to provide emergency shelter for backpackers (Fig. 14). Unfortunately, this work was undertaken before a thorough archaeological and architectural record of the structure and trails was made.

Some may oppose the publication of details concerning the location and content of the Beveridge Mining District, in fear of attracting additional traffic, looting, and vandalism to the site. Unfortunately, descriptions of the site and its pristine condition continue to be published in such magazines as *Treasure* and *Four Wheeler*; such publications often attract those intent on unauthorized artifact collection. The site has become well-known; since commencement of this project, this researcher has encountered scores of persons who profess to have visited the site. Between 1990 and 1992, the

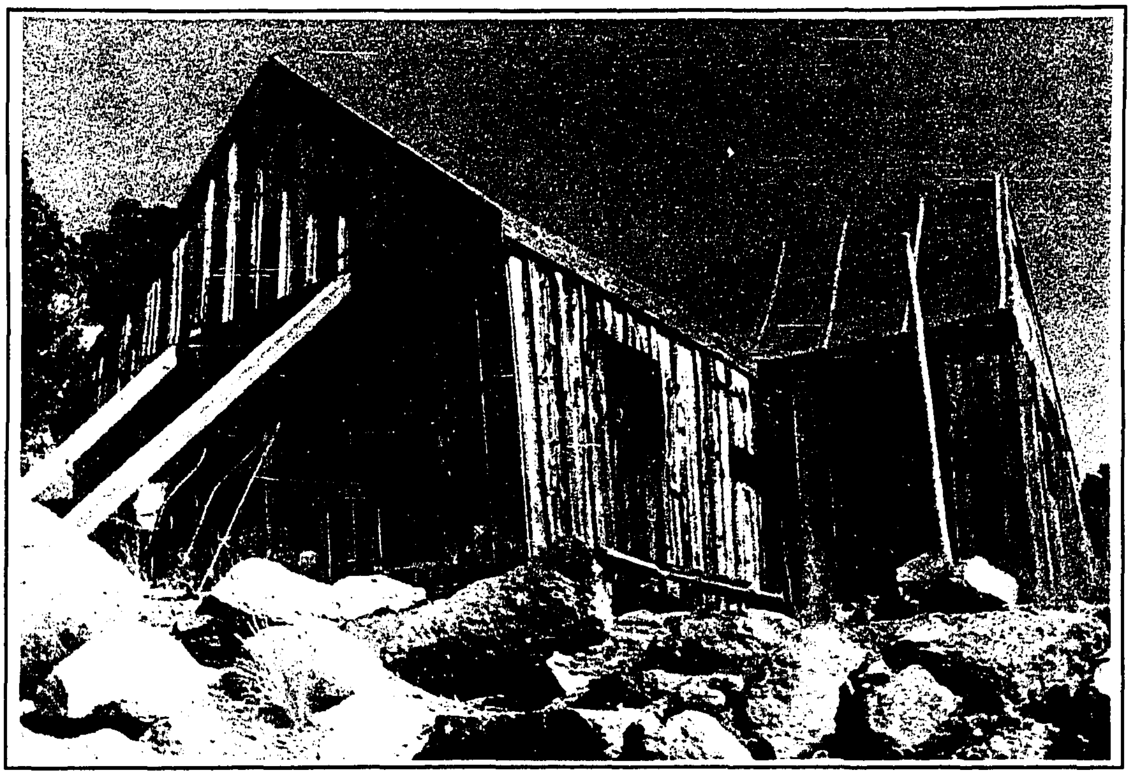

Figure 14. Frame cabin at Locus 14, following reconstruction.

number of requests for the Beveridge file at the Eastern California Museum have prompted the staff of that facility to organize the Beveridge photograph collection (Bill Michael, personal communication 1992). The site is on public land and will continue to be visited by the public with increasing frequency; it is to be expected that looting will increase as well. Modern mining eventually will encroach upon more of the original workings and built features. An archaeological record is necessary if data concerning the Beveridge Mining District are to be preserved for future researchers.

Chapter IX

RESEARCH QUESTION I

How do humans interact when conditions prevent easy interaction between mines, residences and other support structures, and the outside world? On what terms was social interaction conducted in the district? What evidence would there be for interaction between specific living/working units? What specific interactive difficulties were overcome, and by what means? Did the people of Beveridge dispense with social interactions because of the difficulties inherent in physical separation? Were wives and families present, or was the camp occupied only by male miners? Was Beveridge unique in terms of ethnic and gender composition, or did it resemble other camps in these factors? Were social activities considered a luxury one could do without in light of the difficult logistics of such activity? Or did the residents of Beveridge overcome these difficulties and pursue active social lives in spite of very real physical barriers?

In short, what was the nature of social interaction in the district, and between those in the district and the outside world? What was the composition of participants in the Beveridge Mining District?

Historical documents record considerable interaction between contemporaneous mining camps such as Bodie and Virginia City. Railroads, toll roads, and stage lines connected mining and supply towns, and miners commonly ventured from camp to camp in search of greater wealth. Was a remote camp such as Beveridge included in similar lines of communication and travel? A portion of the fieldwork and archival research concentrated on finding an answer to this multi-faceted question.

EXPECTATIONS

Physical separation was expected to have a direct effect on the actions of and interaction between miners and their families. It was expected that typical mining-camp life was altered in direct correlation with the separation of dwellings and workplaces by precipitous gorges and ridges. When one's nearest neighbor could only be reached by a strenuous, time-consuming trek, it seems unlikely that one would expend the effort to socialize following a hard day's work.

Interaction between and among groups typically is visible in the archaeological record in the form of shared commodities, trails between site loci, and communal dwellings and facilities. Company stores, bunkhouses, and mess halls with associated bulk-sized food storage and preparation artifacts, when present at an archaeological site, are indicative of corporate or cooperative ventures (cf. Hallaran et al. 1989:17-44). Mining by individual enterprise, and provisioned by individual trade, results in a community structure consisting of discrete concentrations of activity.

Further, it was expected that the terrain played a modifying role in the composition of mining-camp demographics at Beveridge. Beveridge was not expected to be demonstrative of the stereotypical western mining town, with women as either wives or prostitutes, or with children. Lack of on-site amenities and costly transport was expected to have resulted in the omission of this portion of humanity from the Beveridge populace.

RESULTS

Answers to the first research question were compiled as a result of archaeological field observations and data gleaned from archival sources. Interaction between Beveridge miners, and between Beveridge miners and the outside world, is revealed through a variety of physical manifestations and historical records.

Transportation Networks

A discussion of transportation routes within the Beveridge Mining District, between Beveridge and the Owens Valley, and between Owens Valley and the outside world is revealing.

Transportation Within the Beveridge District

Travel within the district was incredibly difficult. The local newspaper carried numerous articles relating the struggles involved in constructing and traversing trails.

> [James Hanger and D. Pobst] . . . will have to build about two miles and a half of trail before they can do any work on their mines. . . .
>
> [Chris Crohn], before he could do any work on his mines, had to build a quarter of a mile of trail along a cañon so rough as to require solid stone walls, ten and twenty or more feet at a time, in many places, to hold the trail, and in other places, blast it out of the solid granite. The cliffs project over the trail, below which at different points there is a sheer precipice from one hundred to a thousand feet perpendicular. The trail is a splendid piece of work--wide and substantial, but I did not care to ride over it. Its cost was about $1,800, being more that he had spent to get to his mines than others expend to develop equally as promising mines where there are no trails to build [*Inyo Independent* 25 September 1880f].

> No part of the district is penetrated by wagon roads. Rocky trails alone, clinging in places to the face of tremendous cliffs, and overhanging giddy

depths barely wide enough to receive the feet of the patient mule and burro, lead into this mountain fastness [*Inyo Independent* 30 December 1882oo].

Despite the difficulty of building and traversing trails, the district is riddled with a complex network of well-built trails for pack animals and foot traffic. Trails were found to exist between residential structures and mine workings, and between sets of mine workings. All domestic structures and mining support structures recorded during fieldwork were found to be within sight of either a mine or a trail leading directly to a mine. Trails in the district frequently were reinforced with substantial rockwork. The observation was made that trails from domiciles to prospects and adits were narrow and rocky. Larger trails between major mining loci, or around major mines that would have employed animal labor, are wider, and were cleared of obstructing rocks, even to the point of blasting outcrops away. Miners were not willing to expend extra energy on comfort for themselves in this opposing environment. In places (Loci 2, 48), good-sized trees were found growing in trails, indicative of disuse for many decades.

Transportation Between Beveridge and Owens Valley

Information concerning interaction at Beveridge was observed in the context of the available contemporary supply and transportation networks. A few access routes were available for miners to enter and exit the Beveridge Mining District. During the early days, soon after the demise of the Cerro Gordo mines to the south, the majority of miners entered the district from the south via a trail which ran along the crest of the Inyo Mountains northward to the area of the Burgess Mine (*Inyo Independent* 18 May 1878a;

Mitchell 1969:13-17). At least one early report stated that aboriginal trails existed in the area and were used by miners (*Inyo Independent* 25 September 1880f).

Today, backpackers frequently enter the district on a trail which runs roughly east/west, along the ridge between Beveridge and Keynot canyons, to Saline Valley (sheer bedrock waterfalls render it impossible to walk between Saline Valley and Beveridge in the floor of Beveridge Canyon). Prior to development of a salt-recovery plant in Saline Valley at the turn of the century (Nelson 1891:372; Chalfant 1933:300-301), there was little in that valley to attract a miner eastward. It is unlikely, therefore, that this trail was used during the early days of mining in the district. However, Indians known to have grown crops in the valley during the 1880s and 1890s peddled vegetables to and were employed by surrounding mines, and possibly climbed this rugged path to the Beveridge Mining District (*Inyo Independent* 5 January 1889a; Nelson 1891:371-372).

In 1890, a "short and practical route" between Independence and Saline Valley was under investigation (Anonymous 1890:130). By about 1900, a wagon road had been graded from Owens Valley to Saline Valley. This trip around the southern end of the Inyo Mountains took two days, and it is unlikely that even then miners would have chosen the rugged trail from Saline Valley up the eastern slopes of the Inyo Mountains into Beveridge. Prospectors in Saline Valley during 1893 were reported crossing the Inyo Mountains from Owens Valley, rather than using the more circuitous route around the southern end of the range (*Inyo Independent* 16 June 1893d).

The *Inyo Independent* frequently carried items about miners and suppliers traversing trails on the west side of the Inyo Mountains between Lone Pine or Independence and the Beveridge Mining District. Items in the newspaper commonly mentioned that Beveridge miners were in town arranging pack trains to transport supplies into the site, and ore out (e.g., *Inyo Independent* 21 April 1883f). Trains of pack mules were the only feasible answer to the supply crisis, though they were not without their own problems. The following item appeared in the *Inyo Independent* (21 February 1885d):

> Pat Keyes had hard luck over in Beveridge during the snow storm; his pack animals were caught by the storm in the mountains, and all perished of cold and hunger. Pat came up from Darwin last Sunday and bears no trace of suffering in his own person, he is as good looking as ever.

It is interesting to note the capabilities of mules carrying loads in mountainous terrain; a 1926 prospector's guide (von Bernewitz 1929:12) stated:

> The mule is about the most useful animal under almost any condition. They have great endurance, and will carry from 200 to 400 pounds and travel from 15 to 25 miles a day with such loads. The average is 250 pounds and 10 to 15 miles over hilly country.

This calculation makes the trip between Beveridge and Owens Valley possible in one day's time. In 1916, a packing team of four mules was arranged for a three-day trip (presumably to Beveridge) at a cost of $30.00 (Anonymous 1916:3).

In 1939, a California Division of Mines report (Gardner 1939:326) stated that mules could carry heavier loads and cover greater daily distances than burros, although the cost of feeding a mule is greater than that of a burro.

> The size of the load that an animal can carry and the distance that can be covered per trip depend upon the steepness and roughness of the trails. . . .
>
> Strong mules can carry up to 420 pounds each for 3 or 4 miles. Usually, however, the load per mile is not over 300 pounds, except for very short distances. Average mules are loaded with 200 to 250 pounds for trips of 5 or 6 miles, with lighter loads for longer distances. Usually they carry about 175 pounds on all-day trips. Round trips loaded one way usually are 10 to 14 miles each way; one-way trips, loaded, are 14 to 20 miles. By unloading and resting the animals enroute, 200 pounds may be carried 20 or 25 miles each day.
>
> Mules seldom are loaded with more than 200 pounds each when used for packing supplies, and longer distances are traveled in a day than when ore is being packed [Gardner 1939:326].

This source went on to describe the methods of packing ore on mules:

> In packing crude ore two boxes, one on each side, generally are fitted to the pack saddle on each animal. The boxes can be dumped without being removed from the animal. They may be loaded while on the animal or filled on the ground and then raised into place. . . .
>
> Concentrate generally and ore occasionally is sacked for animal transportation [Gardner 1939:327].

Periodic newspaper articles indicate that winter snows and poor trail conditions commonly prevented travel between the district and the outside world. "The snow on the summit is about four feet deep, making it difficult to get in or out just now" (*Inyo Independent* 15 March 1884b); "parties who came in from Beveridge . . . report from three to five feet of snow on the Inyo Mountains" (*Inyo Independent* 6 March 1886e).

> There was a big landslide of rocks and snow in Beveridge district one day last week. Hundreds of tons slid off the sides and top of the mountain, completely covering up the trail for several hundred feet [*Inyo Independent* 6 March 1896f].

Transportation Between Owens Valley and the Outside World

> Despite their remoteness, mining operations in the American West were connected to the urban centers of America and Europe by means of a vast transportation and communications network. Indeed, most mines can be considered ''colonies'' in the sense that they were financed, staffed, and supplied by these centers [Hardesty 1990a:45].

By the time the Beveridge Mining District was formed, a freighting supply route between Owens Valley and Los Angeles was well-established (Nadeau MS:51). Prior to Beveridge days, teamsters had made frequent and regular trips between the Cerro Gordo mines and Los Angeles; twenty-two days were required for a round trip. This freighting route was used extensively in transporting Owens Valley agricultural products to Los Angeles and undoubtedly continued to be used to bring supplies into Owens Valley following the demise of Cerro Gordo. For comparative purposes, an approximately 50-mile freighting trip to Bodie cost between $18 and $20 per ton (Billeb 1968:151).

A number of stage lines entered Owens Valley from various surrounding points (Wilson 1937:81). Stages would have provided transportation for Beveridge miners to advertise their mines in various centers of capital. Potential investors would have used this mode of transportation to access mines in the Inyo Mountains. During the early 1870s, a stage line from San Francisco carried passengers through Bakersfield on its way to Owens Valley. Another line, from Los Angeles and San Bernardino, accessed the region from the south. A third line ran from Carson City and Virginia City, down the eastern side of the Sierras into Owens Valley. By 1898, a regular stage line ran a biweekly service from the rail connection at Mojave to Keeler, at the western base of the Inyo Mountains (*Inyo Independent* 17 June 1898a).

The coming of the railroad to Owens Valley was described in detail in Chapter III. The advent of a rail line in the region had a direct impact on potential contact between Beveridge and the outside world. Before the railroad, all of Inyo County was isolated, and separated from centers of capital where inexpensive goods and reliable investment could be procured (Anonymous 1885:345). In 1881, the Carson & Colorado Railroad completed a line between Nevada and Owens Valley (Myrick 1962:172). By 1883, the line was extended to Keeler, with the result that exorbitant mining and freighting costs were lessened (Stovall 1907:n.p.). Goods that once had been freighted to and from Los Angeles by teamster now went northward by train (Inyo County Board of Supervisors 1966:57). In 1886, the route from San Francisco to Independence entailed a 244-mile trip on the Southern Pacific line from San Francisco to Reno, thence a 41-mile trip to Mound House via the Virginia & Truckee line, followed by a 276-mile stretch on the Carson & Colorado line to Independence. Another leg on the last mentioned line carried the passenger to Lone Pine (Hanks 1886:200-201). The Keynot Mine was located approximately 12 miles due east of the Lone Pine station (Keynote Mining and Milling Company 1906:n.p.).

Until 1910, when a rail connection with Mojave was made, Owens Valley residents shipped goods via the north-bound trains, and received supplies from the same direction. After the connection was complete, business deals necessarily conducted in San Francisco began to be conducted in Los Angeles. This new southern market included the ocean port of San Pedro, with foreign and coastal trade (Dixon 1907:n.p.). The Keynot Mine was located 10 miles northeast of the Owenyo railroad station, and a trail was said to access the mine from Owenyo (Huguenin 1916:n.p.). The 1917 Report of the State Mineralogist (Waring and Huguenin 1917:59) stated that the nearest shipping point to Beveridge was the Mt. Whitney Station of the Southern Pacific Railroad.

A number of times throughout Beveridge history, proposals were made to construct a wagon or truck road into the district. These attempts are representative of intentions to improve the profitability of mining and milling in the district; attempts to overcome the constraints of the terrain are further described in Chapter XI.

Supply Networks

In addition to the supplies made available by far-reaching transportation networks such as freighting routes and the railroad, local supplies also were exploited. The towns of Bishop, Independence, and Lone Pine all were established in 1861 (Belden 1966:n.p.; Hoover et al. 1966:116), so that stores, saloons, hotels, assay offices, and post offices were well established by the time the Beveridge Mining District was formed. Although financial assets may have been a stumbling block for Beveridge miners, local availability of goods for purchase was not. In addition to availability, the necessarily simple lifestyle of the miner "reduced to a minimum his critical dependence on expensive outside suppliers and exorbitant freight lines" (Waldbauer 1986:55).

An advertisement in the *Inyo Independent* (6 May 1882m) stated that L. Lasky's Lone Pine store dealt in general merchandise, including dry goods, clothing, groceries, kitchen goods, construction hardware, furniture, ammunition, and liquor. According to the advertisement, goods would be "shipped C.O.D. to aii parts of the County." It is suggested that Lasky arranged shipment of supplies to the Beveridge Mining District.

In her treatise on the Owens Valley, Smith (1978:188) wrote,

> During the '70s, with Cerro Gordo, Panamint and Bodie at their peaks, farmers prospered. But when the big mines closed, . . . there were some lean years. . . . In the late 1880s, beef on the hoof went down to 2¢ a pound, the price of horses so low they were not worth feeding.

Since the Beveridge Mining District was just beginning to boom as other local mines were going out of business, this situation probably provided for inexpensive supplies for the district. At least two stores operated in the district; these are discussed in Chapter X.

Particular attention was given to shipping notations on packing crates found in artifact assemblages of the various loci, since origin of commodities is revealed in this way. The following inscriptions were hand-lettered or stenciled onto crate parts: "MOJAVE", "Majave [sic] Cal", "R Lockett/Lone Pine" (two examples), "E Lone Pine". It is interesting to note that all destinations imprinted on shipping crates are local. No attempt was made to ascertain consumer markets from embossments on cans or bottles; these markings generally reveal the location of the product manufacturer, and do not provide data concerning the location of the distributor or place of purchase (cf. Hardesty 1988:3).

In addition to supplies obtained from Lone Pine, Independence, and Bishop, it is possible that Beveridge miners obtained produce from Indian farms in Saline Valley (discussed in Chapter 3).

Site Morphology

Further information concerning interaction at Beveridge was gained through a study of the morphology of the settlement itself. Hardesty (1988:13) stated that the "social interactions that take place within the [mining settlement] are expressed in the morphology and the activity of settlements." Generally, mining site loci fall into one of three categories: mine workings, ore processing areas, and habitation centers. The morphology of mine workings and processing loci is discussed in Chapter XI. Within the habitation category, the traditional mining camp contained a stratified residential scheme. Miners inhabited one area, mill hands either lived with miners or in another distinct area, while managers/owners occupied a separate area comprised of larger, more pretentious homes (cf. Francaviglia 1991:99). The situation at Beveridge differs from this standard morphology in that mines were operated on a small scale by their owners, and no major financiers are known to have lived in the district. Lasky, who owned and operated the Lasky Mill and Keynot Mine, and McEvoy, who owned and operated the McEvoy Mill and associated mines, apparently lived and worked among their employees in the district. Rather than the three-level stratified residential scheme observed in traditional mining sites, Beveridge is characterized by small-scale, individual operations or small partnerships with simple stone masonry dwellings during the early days, and corporate ventures with diversified jobs with larger tent cabins or frame structures during the later period. Additional structures (cook house, assay office, tram operating stations) peculiar to corporate operations also are present at the site.

Observation of a variety of mining settlements reveals that miners' dwellings tend to be situated in proximity to mine workings. Even when an actual town is associated with the mines, houses of miners usually are found within a convenient distance from the mines (cf. Brown 1979:20; Rohe 1984:110; Costello 1992:6).

Typically, potential locations for dwellings at mining sites are limited by the surrounding terrain. Particularly in regions such as the rugged Inyo Mountains, few level areas exist. Even when a level spot can be found, it is small, and surrounded by steep grades. In a setting where mining provides the livelihood for all occupants, mining and milling equipment and support structures usually are placed on the best land available. Often it was necessary to clear a level pad of boulders, or create a level pad by blasting bedrock outcrops away. Fieldwork in the Beveridge Mining District resulted in the recording of two residential structures where blasting was required to achieve the necessary house site.

Preparation of building sites also was found to be an opportunistic activity. Twenty-one residences were recorded that incorporated natural, vertical outcrops or living trees into their construction.

Early California placer miners "tended to form compact urban rather than dispersed rural settlements" (Rohrbough 1986:11). However, difficult terrain placed constraining limits on this tendency. One researcher (Demangeon 1962:506) noted that in areas of smooth relief, concentrated settlements are favored, while in rugged, broken relief dispersed settlements are favored. In more than one mining site (Tintic, Utah [Harris 1961:13], and Masonic, California [Billeb 1968:92; Florin 1971:79], for example), a number of residential sections developed in response to rugged terrain, location of ore bodies, or diverse job duties.

Miners perceived their tenure at a site as transient, planning to stay only as long as the ore held out, or they made their fortune. As stated by Rohrbough (1986:43), they "came together for a short time in their lives to make money, not communities."

Hardesty (1988:1) noted that miners colonize islands where ore deposits are located. The island is surrounded by a social and cultural wilderness, forcing colonists to bring with them an "imported social and cultural environment" (cf. Bulmer 1975:86). Because of the difficulty of movement within the district, social relationships were found to reflect the loose sense of community and high degree of individual idiosyncracy described by Hardesty (1988:102).

> The impact of small scale technology upon social relations appears to be centrifugal, encouraging laissez faire individualism and fissioning within mining communities.

Hardesty (1988:103-104) stated that one of the implications of *laissez faire* individualism is inward-looking, atomistic households exhibiting little evidence of cooperative behavior. At Beveridge, even if cooperative behavior (in the form of communal mess halls, saloons, churches) were desired, it would have been a very difficult activity to carry out. Environmental constraints precluded easy travel between mines; such endeavors would have been time-consuming and tiring. As a result, Beveridge is characterized by a series of single-component sites, and sites made up of few components (e.g., a makeshift residence with associated prospects), making up a site complex with historically and geographically defined boundaries.

Site Makeup

> The physical and social isolation of mining communities, coupled with the harsh working conditions and the labor requirements of the mining industry, give rise to recurrent patterns of population dynamics . . . [Godoy 1985:205].

Frontier societies in general, and mining settlements in particular, were populated predominantly by young adult males with no ties to family or land (cf. Lantz 1958:88; Rohrbough 1986:11, 43). Waldbauer (1986:55) stated that most miners in the Hoodoo Mountains of Idaho were bachelors because independence was a central characteristic of their personalities. Francaviglia (1991:114) outlined the standard scenario for the mining community:

> In a typical mining district, the sex/gender ratio varied through time. Whereas women might have represented a small minority of the population in the earliest boom days of a mining community, this soon changed. . . . we should remember that the longer a district operated, the more family-oriented it was likely to become. As a mining district became successful, families arrived, and the population might stabilize at about 35 to 40 percent female.

Families would not be expected to travel with prospectors or mine speculators. However, when a miner became settled in a district, it would have been desirable to bring a wife (and, possibly, children) to the site. At Beveridge, the lack of any real town, coupled with the grueling access routes, precluded the development of the population ratio described by Francaviglia. According to Brown (1979:29), items such as curtains, rugs, painted or wallpapered walls, and knickknacks were not present in miner's cabins unless added by wives (a claim that cannot be substantiated). Evidence directly attributable to the presence of women and children in the Beveridge Mining

District was found at only three domestic structures. The assay office/residence at Locus 45 contained a decorative dress button, and a hairpin. Also present was a sewing needle container, although it is acknowledged that this item does not necessarily indicate female ownership. The structure was furnished with wallpaper and carpeting, and cracks and knotholes in the walls were covered with metal strips that would have afforded privacy. A child's boot (Fig. 15) was found in a refuse dump at the residence and possible store at Locus 14. The refuse dump at a well-built domestic structure of stone masonry in Keynot Canyon (Locus 6) contained a tiny porcelain doll (Fig. 16). A large slab metate was located just outside the entrance to this structure, and may be indicative of a Mexican or Indian occupant.

Although women in mining camps generally are polarized as either prostitutes or agents of social control, Francaviglia (1991:115) warned against this stereotype, reminding students of mining sites that the greatest percentage of women fell between these two extremes. The only mention of prostitutes in connection with Beveridge was in an anecdote told to the author by Delos Flint (personal communication 1992). During his 1940 fieldwork, Flint obtained the following story from his guide, then owner of the Keynot Mine. A Beveridge miner, desiring financial backing for his mining venture, obtained investments from a group of prostitutes employed in San Diego. When he did not report on his progress, the madam involved made a trip to Beveridge to see what had become of their money.

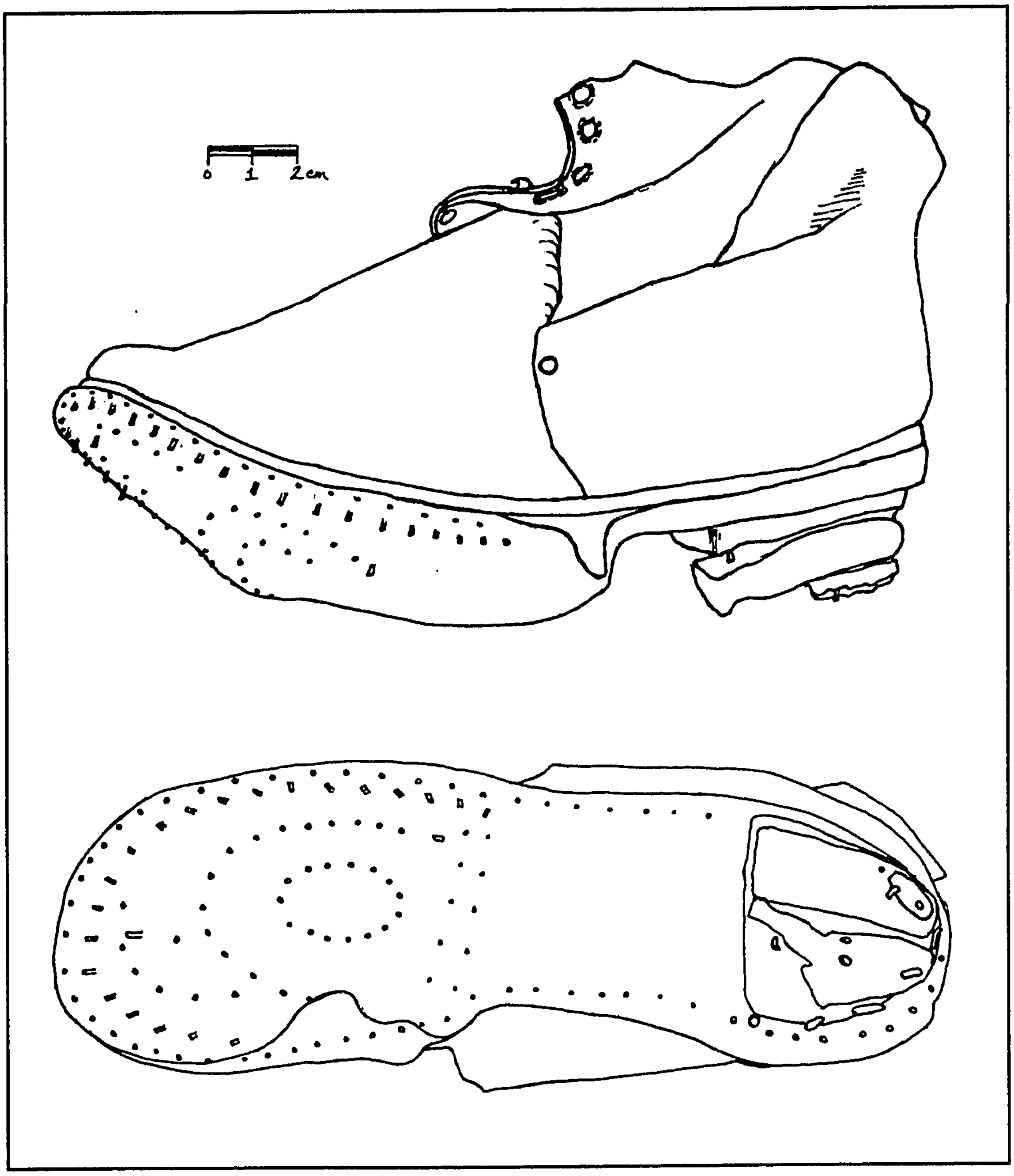

Figure 15. Child's boot, Locus 14.

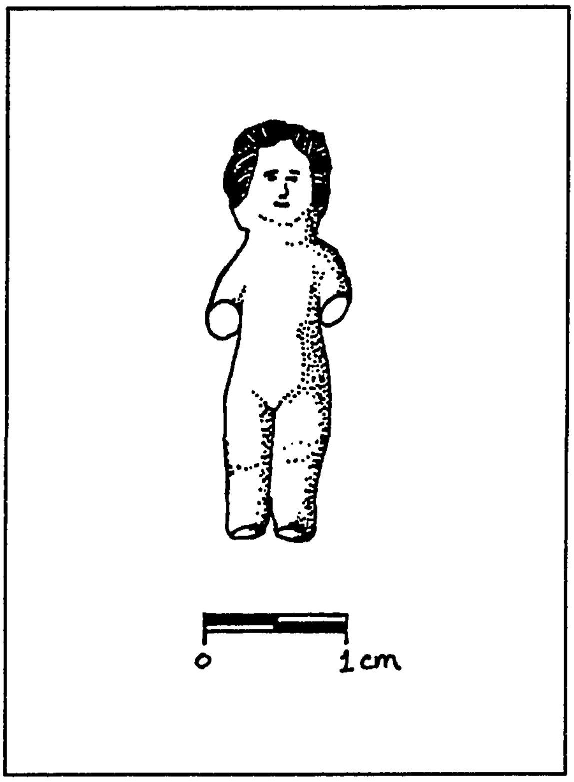

Figure 16. Porcelain doll, Locus 6.

In Chapter VII was mentioned one Beveridge Nilson, reportedly born while his parents lived at Beveridge, indicating that at least one wife and family accompanied a miner to the district.

Appendix B shows a large number of Beveridge miners having the same last names. Presumably, this indicates family partnerships, such as brothers or father/son teams. Additionally, this appendix provides some idea of the ethnic constitution of those associated with Beveridge.

The lure of gold attracted miners from around the world, and consequently mining camp societies were ethnically diverse. Traditionally, the various ethnic groups tended to congregate in distinct residential areas, working together with others of the same ethnic background. Discriminatory actions against Mexican miners in California have already been discussed (see Chapter IV). Most mining societies were characterized by racial fears and hatred. The situation in California's early placer camps was described by Bean and Rawls (1988:125):

> As Americans poured into the mining districts of California in 1849 and 1850, they found themselves in competition with substantial numbers of foreigners. The most numerous of these were Mexicans . . . Feelings of hostility left over from the Mexican War were intensified because many of the Sonorans were experienced miners, skillful in locating good claims . . . Americans feared that foreigners were removing too much of the . . . gold and that there would soon be none left. Mining camp codes, enforced by vigilance committees and soon ratified by the state legislature, excluded Mexicans and Asians from many of the diggings.

It is known that Mexicans worked mines in what was to become Beveridge prior to formation of the district. It may be supposed that at least some mines were usurped by Anglos when the district was made a legal entity. However, no evidence for anti-Mexican sentiment under the legal protection of the Beveridge Mining District was found in either contemporary written accounts or the archaeological record.

Numerous references to the Beveridge "Mexican Camp" (*Inyo Independent* 3 July 1880d, 25 September 1880f, 5 February 1881a, 26 February 1881b, 14 May 1881g) indicate that members of this ethnic group worked together, and ample evidence exists to indicate that Mexicans also worked with Anglos in the district. A number of articles in the local newspaper concerning the Beveridge District link Anglo and Spanish names. Thirty-four (31%) of the 111 identified Beveridge District mines were given Spanish names in the historical period, suggesting that at least these mines were founded by Mexicans. (The Mano del Hombre and Mano del Hombre Segundo mines were named within the last two decades, and the Mexican Mine was not included in this count). Over 20 Spanish surnames were found associated with Beveridge (Appendix B), testifying to the intensive involvement of that ethnic group in mining the district. Inyo County voter registration records (Anonymous 1877, 1879, 1880, 1890) were searched for names listed in Appendix B. These records list country of nativity, occupation, place of local residence, and naturalization status. Countries of nativity for persons known to have been associated with the Beveridge Mining District include Canada, Dalmatia, England, France, Germany, Ireland, Mexico, Scotland, and Switzerland.

In most mining camps of the American West, racial tensions caused minority ethnic groups to be isolated or perform jobs of a service nature. Numerous historical documents suggest that, at Beveridge, this was not the case. Here Mexicans owned and operated mines, as evidenced by articles in the *Inyo Independent*, and any segregation of miners was simply a matter of geographical necessity.

In part, agreeable racial relations probably stemmed from the ethnic mixture found in the local region, especially at Lone Pine. According to Chalfant (1933:260), Mexicans comprised a large portion of the population at Lone Pine in 1872. According to Cook (MS:17):

> . . . as the discovery of new and richer mines in the area were made many miners came to locate [in Lone Pine]. They were a multi-national group consisting of Mexicans, Chileans, French, Germans, Swiss and others. The town . . . soon became known as the celebration center of Inyo County. Apart from the Fourth of July the main celebrations were staged by the Mexicans on September 16th, which was Mexican Independence Day; September 18th, the Natal Day of Chile; July 14th, Bastille Day, celebrated by the French.

During compilation of a list of names associated with the Beveridge Mining District, one was confirmed to be of Cornish descent. The following was written about William Henry Varcoe, a Beveridge miner.

> The . . . recollections of Mr. Varcoe take him back in memory to Cornwall, England, where he was born [in] 1862 . . . Educated in the schools of Cornwall, he later accepted any . . . employment that he could secure . . . When he was nineteen years of age he came to the United States . . . After remaining in Michigan for about a year a desire to try his luck as a miner took him to Montana, and in the mines near Butte he continued his efforts with varying degrees of success for three years. From Montana he then went to Winnemucca, Nev., a locality which claimed his efforts for seventeen years, at the end of which time he went to Aspen, Colo., and in one year's time he cleaned up $25,000 in the mines. Still later experiences as a miner are recorded in Nevada and Silver City, Idaho . . . about this time . . . he . . . settled on his present ranch near Orange [California] [Armor 1911:222-225].

Young Varcoe probably obtained mining experience prior to coming to the United States. It is known that he worked at Beveridge during 1884 or 1885 (Anonymous 1885:345), at the age of 22 or 23. The time he spent there must have been short or resulted in little return, for it is not mentioned in his brief biography.

In the early days of hard-rock mining, American miners relied heavily on foreign expertise, such as that afforded by Mexican and Cornish miners who had generations of experience in the field. Cornish miners had long worked the tin and copper mines of Cornwall, England, and worked extensively in Wisconsin and other eastern mines before the California Gold Rush brought them west. In 1870, there were approximately 2,000 Cornish in California, and about 3,000 in the 1880s (Rowe 1974:113-114). The emigration was so intense that Cornwall lost nearly one-third of its population to mines around the world (but especially in the United States) by the end of the nineteenth century (Todd 1964:154). In fact, Young (1976:3) stated that until about 1880, most hard-rock miners on the western frontier were likely to be either Cornish or Irish.

Cornish miners were noted not only for their competence in underground mining techniques; they also were accomplished stone masons (Todd 1967:47, 116, 235). Perhaps some of the impressive rockwork in the Beveridge Mining District was built by Varcoe or other Cornish miners.

With one exception, no other recognized ethnic markers were discovered during fieldwork or archival research. One crushed opium tin was found at Locus 4, an old site that was assigned to the early period of Beveridge history.

Francaviglia (1991:112) described a typical mining settlement population ratio he terms an "occupational population pyramid." In his typical case, less than 1% of the population is made up of mine owners, with mine managers comprising about 10%, laborers about 40%, and the remaining half of the population not directly employed in the mining industry. Beveridge differed markedly from such a makeup, since very few non-mining persons occupied the district at any point of its history.

Support Services

As stated by Purser (1987:70), the "town was the place for transacting business, buying supplies, attending public events, and general socializing. These activities often merged in daily routine." This arrangement differed at Beveridge, due to the difficulties involved in getting from place to place. In spite of this factor, evidence was found for a surprising amount of support facilities and services. Godoy (1985:207) noted that the location of mining settlements in particularly inaccessible areas "gives rise to relatively self-contained communities."

A Keynot voting precinct was established for local elections in the years 1884, 1886, and 1888, with polls held in the district (*Inyo Independent* 13 September 1884k, 17 July 1886h, 13 October 1888d). This support service catered to only about 40 men who were then at work in the district (*Inyo Independent* 15 March 1884b).

The Beveridge Mining District continued to operate as a legal entity. In 1884, Beveridge miners reportedly elected a district recorder, adopted previous district by-laws, and reduced to one dollar the fee for recording a claim and for annual assessment certificates (*Inyo Independent* 6 December 1884s).

At least one store was operating in Beveridge Canyon in 1884, for election polls were held there. The store also served as home for Thomas McDonough (*Inyo Independent* 13 September 1884k, 30 October 1886k, 13 October 1888d). In a publication dated 1884/1885 (Anonymous 1885:345), Thomas McDonough and William C. Kisling are listed as Beveridge merchants. As these two men are known to have maintained a mining partnership (*Inyo Independent* 27 September 1884m; 23 May 1885p), it is suggested that they also may have been partners as merchants.

Local tradition states that the two-room stone structure known as "Frenchy's" (Locus 36), served as a store. The structure is advantageously located on the trail into the district from Lone Pine. The belief that Frenchy's was a store is based on the discovery of three bound account ledgers (Anonymous 1916, 1917, 1919) recovered from the site sometime during the past two decades, and accessioned at the Eastern California Museum. The name ''French'' appears throughout the books.

Archaeological evidence was found to indicate that the frame structure at Locus 14 (Fig. 14) operated as a store, post office, and/or saloon in addition to functioning as a dwelling. The photograph depicts the structure after the rehabilitation described in Chapter VIII. In addition to containing a bed and loft, the structure contained much shelving, a counter, a screened shelving unit, a wall-mounted pigeon-hole unit, and two large tables (Fig. 17). Maintenance of an inventory of bulk items is suggested by the presence of large wooden storage bins, a galvanized ''trash'' can lid, and large barrel hoops. The refuse dump associated with this structure was found to contain an inordinate number of cans that had become bulged prior to opening. This was interpreted to indicate use of damaged goods by a store keeper, but may simply be indicative of a load of cheap supplies purchased by a thrifty occupant. Bulging may also have occurred as a result of freezing.

Beveridge had a post office during 1881 and 1882 (Frickstad 1955:50), and possibly as late as 1884 (Anonymous 1885:345), with mail delivery from Lone Pine.

One early reference to the ''Mexican Camp'' at the Keynot Mine (*Inyo Independent* 25 September 1880f) indicates that a boarding house, saloon, and stable were to be found there. No archaeological evidence for any of these structures was found. It is recognized that the term ''boarding house'' can be loosely applied to any structure that could be rented for a night. At Calico, a group of miners operated a ''hotel'' known as the Hyena House, which consisted of nothing more than a rockshelter enclosed with a

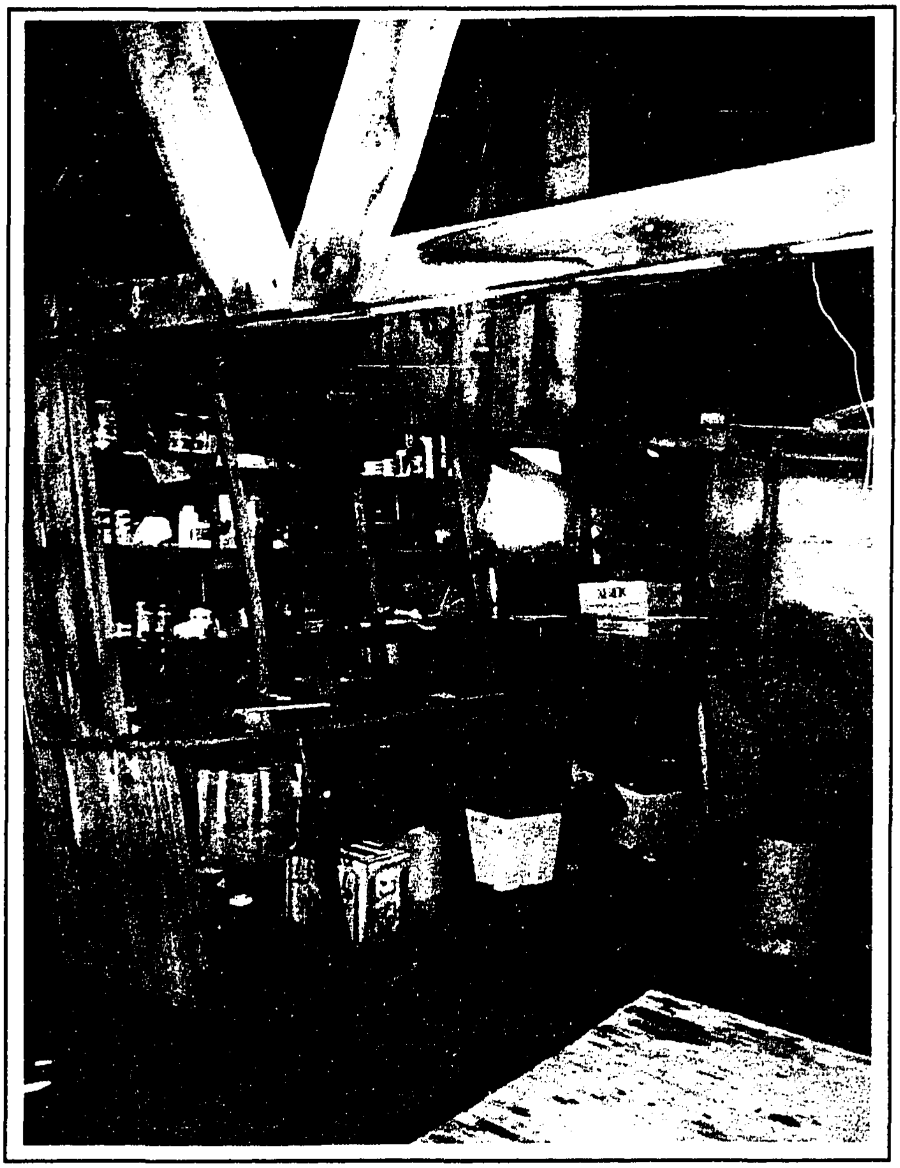

Figure 17. Interior of frame cabin at Locus 14.

rock wall (Anonymous 1952:12). Similarly, frontier saloons did not necessarily fit the stereotypical image that included a mirrored wooden bar lined with myriad bottles and glasses, and furnished with numerous round gambling tables. This factor may explain the lack of archaeological evidence for such a facility. In many mining camps, location of saloons can be identified by the presence of refuse dumps containing a high percentage of alcoholic beverage containers. As stated by Chalfant (1933:289):

> In all mining camps of [the frontier] period saloons were among the first establishments to open, and were the most numerous in the business census. The only absolute requisites for beginning were a barrel or two of alcoholic compound and utensils for dishing it up for customers.

In his "Archaeological Consideration of the Frontier," Lewis (1973:93) devised a colonization gradient into which frontier settlements fit, based on their function and relationships to one another. Beveridge fits somewhere between his nucleated and semi-nucleated settlements.

> . . . Further away from the more settled area of the colony are the *nucleated settlements*. Each of these is composed of a number of households organized politically to the extent of having a municipal government. The position of each at the end of a transportation route makes them secondary foci of social and political activity in the area linked by their governmental activities to the frontier town. Many of these activities, however, are carried out only on an irregular basis.
>
> . . . *Semi-nucleated settlements* have no facilities for the dispersal of provisions larger than the individual house. The settlements are characterized by a singular lack of integration and facilities rather than by their presence [original emphasis].

Beveridge operated under the political organization of the mining district, with occasional oversight from the county or federal government. The local election precinct, post office, and visit by a U.S. Census Bureau enumerator in 1880 (*Inyo Independent* 3 July 1880d) are examples of this irregular attention, while indicating the necessary link of dependence to the larger towns of Lone Pine and Independence.

Aschmann (1970:182) noted that mining districts provide shared benefits such as transportation to outside markets and supply sources, milling and ore processing plants, and larger settlements where social services and facilities may be obtained.

It has been shown that the occupants of the Beveridge Mining District attempted (with admirable success) to integrate support facilities and provide for at least a minimal amount of social interaction. The situation at Beveridge differed markedly from the unusual one described for the mines of the Hoodoo Mountains of Idaho:

> The lives of Hoodoo miners were lonely, but many liked it that way. Some, living within a quarter mile of one another, visited each other only once a year [Waldbauer 1986:55].

While the Beveridge miners attempted to bring a minimum of support facilities to the district, at least in the form of subsistence suppliers and the occasional indulgence, several glaring omissions were noted. Beveridge had no church, cemetery, fraternal lodge, house of prostitution, school, or newspaper. Each of these was dispensable for one reason or another; lack of children in the district eliminated the need for a school, and churches, prostitutes, and local news would have been available in Independence and Lone Pine, about one day's journey away. Fraternal lodges also were available in nearby towns, in fact, a Beveridge miner served as an officer in one (*Inyo Independent* 26 January 1894b). No burial sites are known at Beveridge, although it is possible that district miners died while working there. Burial in the district would seem likely when one considers the difficult, not to mention unceremonious nature, of transporting over treacherous trails the body of a dead partner draped over the back of a mule. In addition, most of the Beveridge miners probably had no family ties in local towns, and so would not care to be buried there.

No record exists of a doctor serving the Beveridge miners, although mining certainly is a dangerous occupation, accompanied with many high-risk activities, such as blasting with explosives, falling into shafts or winzes, or simply stumbling on one of the steep, narrow trails. Without a doctor in the district, the Beveridge miners truly would have been far from adequate medical attention. Even the facilities of local towns were inadequate for some ailments; in 1894, Patrick Keyes, a Beveridge miner, was reported going to San Francisco for medical treatment (*Inyo Independent* 16 November 1894g).

Visits to Local Towns

In a normal frontier settlement, the town would have provided a place for miners and their families to transact business, buy supplies, attend public events, and socialize in general (Purser 1987:70). At Beveridge it was inherently difficult (often prohibitively so) to meet in a common place to conduct social activities. Miners looked to outlying settlements in Owens Valley to meet these needs.

Despite the exhausting trek, Beveridge miners made frequent trips into Owens Valley for supplies, to bring ores, or simply for entertainment.

> The miners do not tie themselves down to steady drudgery; a few days work, . . . a trip to the pan [mill], a chunk of bullion a trip to Lone Pine or Independence, continued until the proceeds are spent, and then back to the mine [*Inyo Independent* 27 September 1884n].

Mine and mill owners made frequent and regular trips into Independence to hire miners or packers, and to bring the proceeds of a mill run (*Inyo Independent* 11 March 1882e, 26 July 1884g, 3 March 1893a, 22 May 1896n). Miner Pat Keyes made the trip nearly every month (*Inyo Independent* 16 March 1894d, 20 December 1895g, 3 January 1896a, 27 March 1896g, 10 April 1896h, 8 May 1896k, 26 March 1897c).

Purser (1987:69) described the "public character" of communal holiday events in a settlement, and even ascribed public character to such shared entities as shade trees and the town dump. Evidence for the observation of holidays by Beveridge miners was found in a few newspaper items. Remembering that the town of Independence celebrated Independence Day in a big way, it comes as no surprise that the miners from the Elgin Mine were reported in town for the fourth, while work at the mine was halted (*Inyo Independent* 5 July 1884d). In 1887, one report stated that "many visitors from the mining camps of the county came in to spend the holidays at Independence" (*Inyo Independent* 31 December 1887i). Another item proves that Beveridge miners also provided for the proper observance of holidays in the district:

> Tim Madden came in from Beveridge on Monday last . . . On his return he will take with him a turkey and a couple of gallons of the flavoring extract for mincemeat to celebrate Christmas with [*Inyo Independent* 18 December 1896v].

Evidence of Cooperative Efforts

An Australian miner described the typical mining boom town:

> As [the residents] were not permanent they had only temporary abodes, mostly tents. Very often each did not know his neighbour and each one had to look after himself [Philipp 1987:45].

It was expected that the situation at Beveridge would be one in which miners would be unfamiliar with one another due to the barriers between mines. Research revealed surprising evidence for a spirit of neighborliness and cooperative effort. This type of cooperation would have been desirable if not necessary for whatever success was to be attained in the district. It would have been beneficial to maintain a working relationship, if not closer ties, so that miners from neighboring mines might be induced to carry one's supplies on their next trip out of the mountains. Ability to borrow a cup of sugar from your neighbor takes on greater importance when the alternative (a two- or three-day round trip to Lone Pine or Independence) is considered.

The *Inyo Independent* carried occasional letters from Beveridge miners who reported on activity in the district; these letters demonstrate intimate knowledge of the operations of other miners (e.g., *Inyo Independent* 5 February 1881a).

Amicability of Beveridge District miners may, in part, be a function of loneliness. Newspaper reports were found that detail visits to the district wherein a newspaper correspondent was met with hospitality and welcome.

Cooperation also took the form of business arrangements. It was not possible for all Beveridge mines to operate their own millsites, so the few mills in the district took ores on a contract basis. This system allowed for an active functioning of the Beveridge community. When ore was brought for milling, miners could exchange information and goods while they awaited the results of the run of ore.

> The miners bring their ore [to McDonough and Kisling's mill] in little dabs; . . . the quantities ranging from twenty pounds to a ton. The ore is worked and the bullion handed to the owner, who has in most instances sat around waiting for the completion of the operation [*Inyo Independent* 27 September 1884m].

This situation at Beveridge enabled regular contact and socialization between miners, even though the stereotypical avenues for socialization (saloons, churches) did not exist.

Chapter X

RESEARCH QUESTION II

What is the nature of the material culture present at the site? What sacrifices are people willing to make in order to transport items they consider necessary into a precipitous area? What items are people willing to do without while living and working in an area with limited access? Would there be evidence of reuse of items? Would there be evidence of improvised items?

EXPECTATIONS

This research question addresses the internal problem solving to which the Beveridge people applied themselves. Domestic refuse was expected to reveal much about which items were considered necessities and which were dispensed with in consideration of the energy and expense required in bringing them to the site. Presumably, evidence would be found of sacrifices, and certain commodities present in mining camps located near major access routes would be absent from the archaeological record at Beveridge.

Home-made or improvised items provide another way to investigate the scarcity of certain goods at the site. It would be unnecessary, for instance, to transport a colander or sifter to the site when an equally functional utensil could easily be fashioned on-site from an empty metal can. Improvisation of household goods and mining equipment is a common occurrence at mining and working camps. In light of the extreme situation at Beveridge, it was presumed that similar activities were conducted there.

The mining frontier has been described as a "social and cultural wilderness" (Hardesty 1988:ix). Beveridge readily qualifies for such a description when its remote location is considered. The exaggerated social and cultural wilderness setting of the camp was expected to be readily observable in extant material remains.

In her treatise on the material culture of Paradise Valley, a nineteenth-century mining community in Nevada, Purser (1987:1) stated that ". . . people used their material culture in part to impose culturally defined concepts of order on their surrounding world." She further noted that

> . . . the meanings invested in these goods had to derive their logic and power to carry meaning from the immediate circumstances of daily community interaction, even when they made reference to values from beyond the community [Purser 1987:212].

Similarly, Spencer-Wood (1987:9) wrote that

> While types of goods, such as food types, ceramic, glass, or house forms, and site location may have primarily technomic, utilitarian functions in subsistence and foodways, variations within these utilitarian categories in sociotechnic attributes of quality and price of goods can be explained primarily by their functions in social group behaviors.

Based on an assumption, then, that material culture does serve an important cultural role, it was expected that the Beveridge miners would have brought some unnecessary yet culturally significant items to the camp, either to serve as markers of status or identity (Heberling 1987; Purser 1987:245; Shepard 1987), or simply to make life in the district more pleasant. The presence of processed or prepared goods were indicators of wealth in the community observed by Purser. That luxury items were viewed as status markers in nineteenth-century mining camps is evidenced by the elevated status ascribed the owners of the first pianos in Cripple Creek (Lee 1958:22) and Aspen (Rohrbough 1986:126), Colorado.

RESULTS

Data concerning the material culture assemblage at Beveridge was compiled almost exclusively through archaeological investigations at the site. Fieldwork revealed the nature of residential structures as well as artifact assemblages. In addition to inventories of artifacts found in refuse dumps and structures, labelled shipping crates were found in abundance. Only a few contemporary newspaper reports mentioned goods in transit to the site, and these failed to itemize components of the shipments.

Material culture studies recently have gained new respect as avenues for potential insight into the ''social past of middle-class and working-class cultures'' through a study of patterns of ''home furnishings, foodways, clothing, and organization of domestic space'' (Schlereth 1985:163). Current status of the field and the potential for this type of study was discussed in Chapter I.

Any inferences based on the material culture record at Beveridge must take into consideration the effects of reuse of items by later prospectors and miners. This phenomenon was discussed in Chapter VIII. The effects of looting at the site also must be considered. As discussed in Chapter VIII, artifacts left on tables in cabins following abandonment of the site remained extant as late as the 1960s. These artifacts have since been removed from the site, and the potential for gleaning data based on that portion of the domestic artifact assemblage is lost. Loss of artifacts to looters, however, is not believed to have had a great impact on percentages or types of artifacts present at the site, since broken or otherwise damaged examples rarely are collected by looters.

The uniquely remote situation at Beveridge was found to alter the function of culturally-recognized status markers, because it was unfeasible to have a luxury item, such as an expensive piece of furniture, there. Also, the lessened interaction between residents lowered the potential for display of luxury items. Status markers at this remote camp probably took the form of successful challenges to the natural environment. Most Beveridge miners could not afford costly site preparation, and built houses that incorporated natural rock outcrops in clever ways. Surely, other miners must have looked on this type of ingenuity, and the increased comfort it afforded, with envy. Such a situation was observed at the desert site of the Valley View Mine, Hart, California, where a rock garden complete with flower beds, walkways, and water piped to a fountain and pool were constructed at a residence/administrative building (Hallaran and Wilke 1987:15-16). This behavior was interpreted as reflective of "attempts to create a bit of civilization in the wilderness and thereby afford a diversion from the reality of the place." It is suggested that the behavior also stands as an attempt at elevated social status among mining peers.

According to Purser (1987:245), the presence and amount of processed goods are markers of wealth. At Beveridge, the *amount* of goods of *any* type are a marker of wealth, since only those with adequate funds could afford to hire a packer to bring supplies to the site. Small, isolated domiciles and mine workings at Beveridge, which would have been occupied and worked by individuals or small partnerships, are characterized by very small artifact assemblages. Better-constructed homes and corporate mine workings (where a greater number of individuals would have been employed), characteristically include sizeable and varied artifact dumps as site components.

Features

Wolle (1953:10) described the typical phases of construction found in mining camps:

> First, tents were pitched; next, dugouts or log cabins were built. As soon as a sawmill was packed in, and dressed lumber was available, frame structures were erected, including many with imposing false-fronts. If the camp continued to flourish, brick, adobe, and stone buildings were constructed . . .

Beveridge differed from this typical scenario, however. Building material that was locally available and inexpensive was employed extensively throughout the history of the site. Prior to fieldwork, it was expected that numerous tent pads would be observed at the site. Such portable structures were relatively cheap and attractive to the transient mining population. Cleared and levelled pads would be conspicuous in the steep, rocky Beveridge landscape, but only a few such features were identified (Loci 30, 36, 41 1/2, 45, and E). Apparently, readily available local materials such as stone and pinyon or juniper logs were utilized in lieu of expensive and awkwardly-transported dressed lumber. It is possible that some of the low stone-walled constructions were foundations for tent cabins or frame structures, with the upper portions removed for reuse elsewhere.

The pinyon-juniper woodlands of the Great Basin were heavily exploited by miners during the last century and the first two decades of the present century (Paher 1976:185; Young and Budy 1979:113). Remote mining camps required wood for heating and cooking in domestic structures, as well as for fuel in mining and milling machinery. Bodie, Aurora, and other camps of eastern California imported wood from the Sierra Nevada when local supplies were depleted (Kersten 1964:501, 504; Young and Budy 1979:114). Lumber in Aurora reportedly cost as much as $100 per thousand board feet (Kersten 1964:501). The fact that no wagon roads were possible into the Beveridge District, coupled with low capital investment, resulted in local wood being used extensively, with only a small amount of supplemental imported milled lumber.

Francaviglia (1991:158) stated that miners dealt with the high cost of building materials by ingenious use of available resources such as barrels and cans, and by constructing purely functional, albeit primitive, buildings such as dugouts or lean-tos with no formal style. Both of these solutions were observed at Beveridge, perhaps in greater abundance than at more easily accessed sites. Many structures served as residences as well as places of business; the following discussion of the various types of structures encountered in the district includes residences as well as working enclosures. Constructions that served as support structures for mining equipment, etc., are considered in Chapter XI.

Beveridge domiciles were found to be of the simplest kind. Earliest dwellings were stone masonry, either dry-laid or mortared with mud or arrastra tailings. Few stone structures incorporated dressed stone, although in several cases attempts were made to orient blocks of stone to create smooth wall faces. A few stone structures were well-chinked, in an attempt to insulate against extremes of weather. Seemingly, tailings mortar was used in construction whenever it was available nearby; such structures, then, are known to post-date first use of arrastras in the immediate area, and were built before seasonal rains washed away tailings in the canyon bottom. They could, however, have been built while the arrastras were still in use. (During this research, tailings were found only at arrastra sites on contours above the canyon floors. All traces of tailings in the canyon bottoms have been washed away.) Arrastra stones were found incorporated into a number of structures, which can only be said to post-date first use of that technology at the site.

Opportunistic location of residences reflects the meager resources available to Beveridge miners. A small rockshelter at Locus 25 1/2 contained historical artifacts. The interior was blackened by fire. No attempts were made to enclose the open side of the shelter, and it apparently was occupied as a simple shelter from the winter cold or summer sun.

Frequently, stone structures were built so that a convenient vertical face of bedrock or outcrop of boulders could be used in wall construction (e.g., Loci 17, 19, 25, 36, 37 1/2, 40, 41, 41 1/2, 48 1/2, and B) (Fig. 18). Probably because the ground at Beveridge is incredibly rocky, only five residences were found (Loci 14, 48, 50, and AA [two

Figure 18. Wall of stone cabin at Locus 28, showing inset wooden niche and incorporation of natural outcrop.

examples]) that were partially dugout. In this land of little topsoil, it was a common practice to blast away rocks, creating a space for a dwelling. Four examples were recorded where builders had incorporated living trees or shrubs as vertical posts or anchors (Loci 4, B, and AA [two examples]). Numerous structures were erected against trees for summer shade (e.g., Loci 25, 42, and 45).

In several cases, wire and other anchors were found in cliff faces near low stone walls; these features are interpreted as stabilizers for tent or tarp structures, or to anchor stovepipes in such structures. Several examples were found of natural rock crevices used as the basis for fireplace chimneys. Exhausted pieces of hardware were found incorporated into buildings; a length of pipe formed a ceiling beam at Locus 17, and drill steel and pipe were used to form a fireplace lintel at Locus 47.

Many stone structures incorporated logs of local pinyon or juniper; usually logs were peeled, and occasionally squared for more precise construction. Several structures in the Keynot area (Locus B) were equipped with roof beams of pinyon logs. Since no traces of roofing material remain at these structures, it is suggested that the pinyon logs supported a canvas tarp or sheet metal which later was removed for reuse elsewhere. The roofs of only two stone structures remain (Loci 25 and 36). The roof shown in Figure 19 was constructed with a center beam of pinyon, over which a framework of willow poles was placed. Willow would have been available just downstream from this structure in the bottom of Beveridge Canyon. Over this framework was placed a type of thatch which appears to consist of mud, sticks, and grasses. Only one small patch of thatching remains on the roof. The roof shown in Figure 20 was constructed of corrugated metal.

All frame structures (Loci 1, 9, 14, 40, and 45) were constructed with extremely thrifty use of dressed lumber. According to one source (Young and Budy 1979:115),

> Use of wood in the . . . mining strikes and boomtowns in western Nevada and eastern California . . . more or less followed the same pattern: transportation of fuelwood and timber from the adjacent Sierra Nevada and secondary reliance on the pinyon-juniper woodlands, especially for firewood.

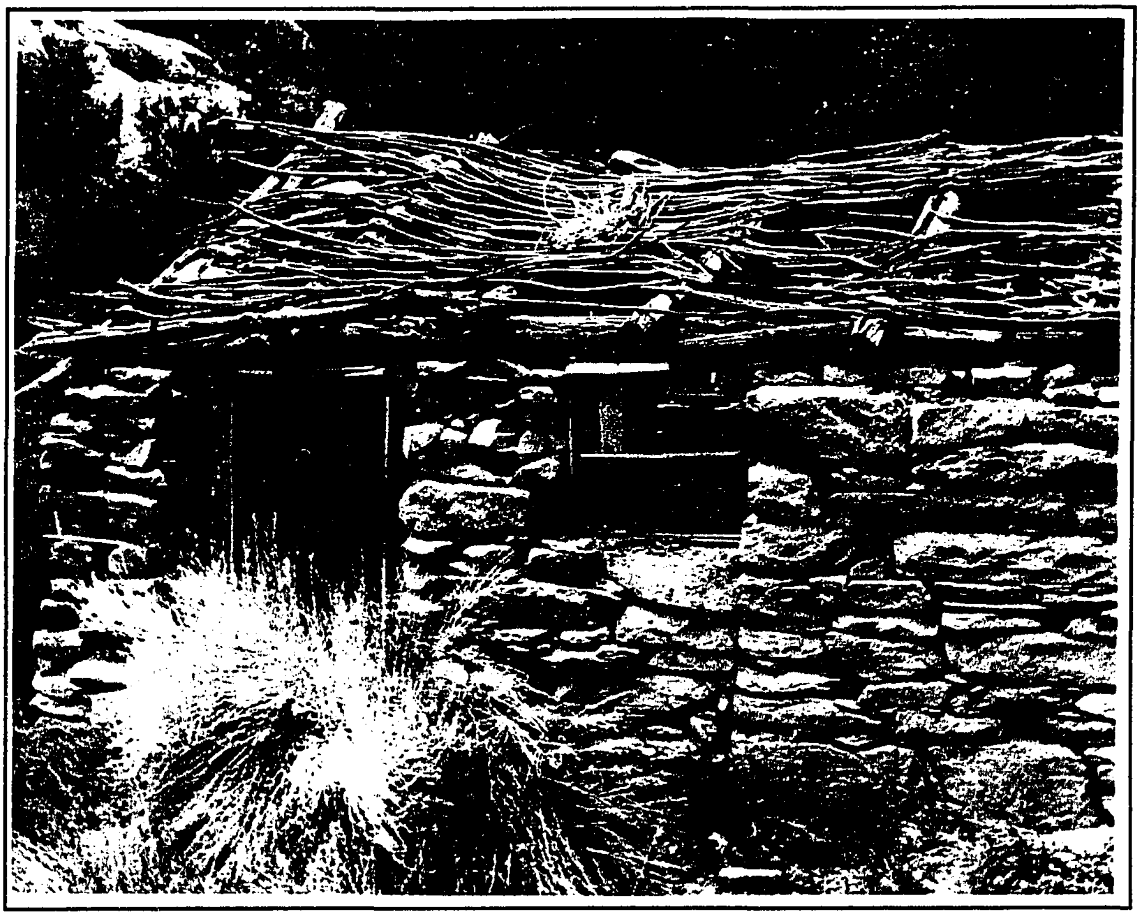

Figure 19. Stone masonry cabin with roof of willow poles, Locus 25.

A sawmill was located near Keynot peak, and presumably supplied some dressed lumber to the Beveridge mines, but the present research did not reveal the type of lumber it produced. Further research is planned to identify the nature and degree of local impact of this operation. Extensive examples of timber and plank splicing, and reuse of boards were observed. In each of the structures with plank siding, boards were merely abutted, and board and batten methods (which would have required more wood) were not used in any of the structures.

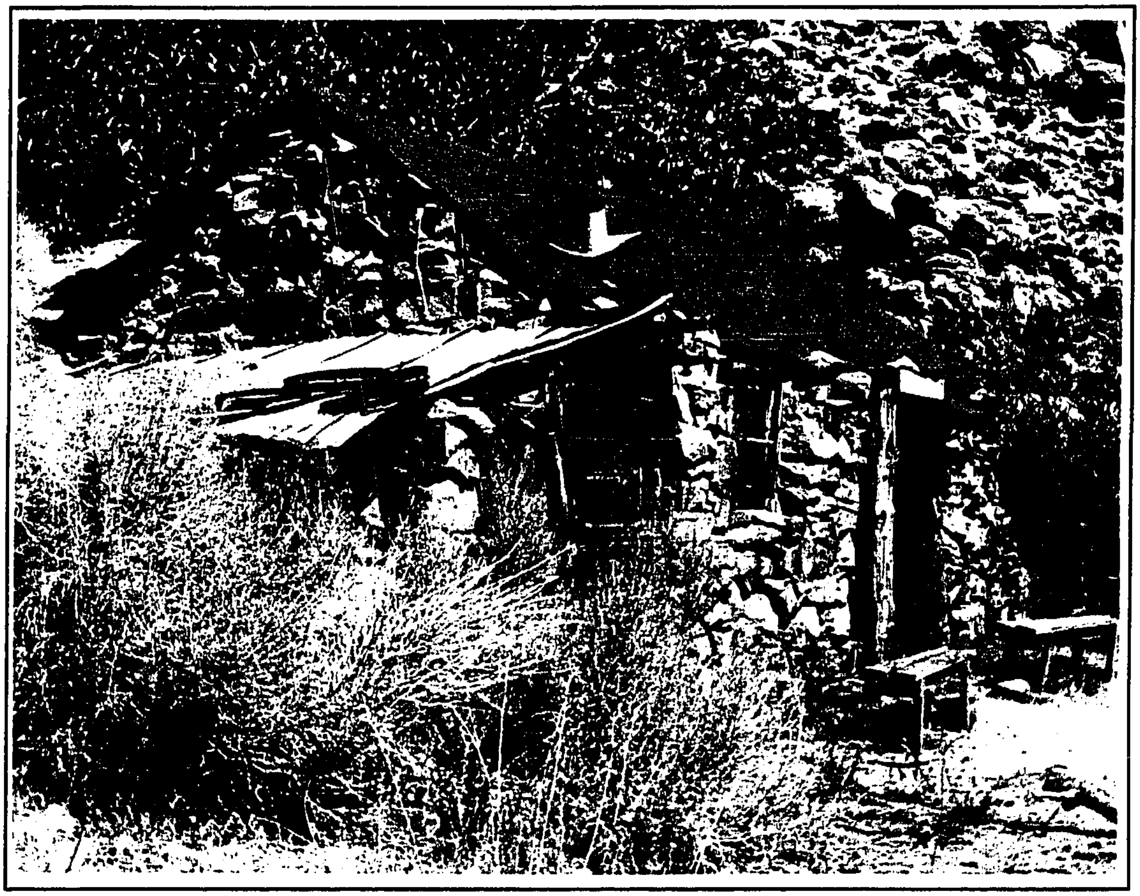

Figure 20. Stone masonry cabin with sheet metal roof, Locus 36.

One log cabin was built in Keynot Canyon (Locus B). This was a crude construction of pinyon logs partially dugout at the rear. Presumably, the log ''foundation'' was topped with canvas or lumber that has since been removed.

Two cabins in Keynot Canyon are frame constructions covered with galvanized sheet metal siding. The structures appear in a 1941 photograph of the site (Flint 1941:68). At the time of the present investigation, one structure was partially demolished by a landslide from the slopes above; the other was completely in ruin. The structures were occupied by miners during the 1980s, when Keynot ores were reworked for a short time. Artifacts found interspersed in the construction rubble were found to be modern, and presumably the recent occupation included removal of historic material from the structures prior to use. Tongue and groove flooring, modern fiberglass insulation, and new siding panels were added at this time.

Corrugated metal was used extensively during the historic period as a construction material. A pack train of mules loaded with eight-foot-long sheets of shiny metal would have been an interesting sight, and must have been difficult to maneuver around the numerous hairpin switchbacks of the trails. Francaviglia (1991:125) explained the utility and practicality of corrugated metal:

> Corrugated metal is one of the more ubiquitous building materials in mining districts. It represents the ultimate in functional building material, for it is about as strong and durable as sheet metal can be. Available in standardized sheets, it is unpretentious and inexpensive. The corrugations add strength while keeping down weight. When galvanized (zinc-coated), sheet metal withstands the weather well and, importantly, does not require painting. Sheet metal has another quality; it can be reused. Being simply nailed in place, it can be removed when the company decides to disassemble and relocate a metal-sheathed building, ore chute, or conveyor system. In fact, if one were to choose a building material that personifies mining, it would be corrugated metal, for, like many features in the [mining] landscape, it is an industrial product that is portable, easily removed for shipment elsewhere, and standardized.

Tent cabins, or canvas-covered frame constructions, were located in several portions of the district (Loci 9, 40, and 45). Such constructions are constructed of a combination of milled lumber, corrugated metal, and canvas (Fig. 21). Markings on the canvas were still legible in some places, and indicate the location of the manufacturer, although not necessarily the place where the tent was purchased. One reads ''DOWNIE BROS/INC/TENTS AND AWNINGS/644 SO. SAN PEDRO ST. L.A./. . . 306'', and

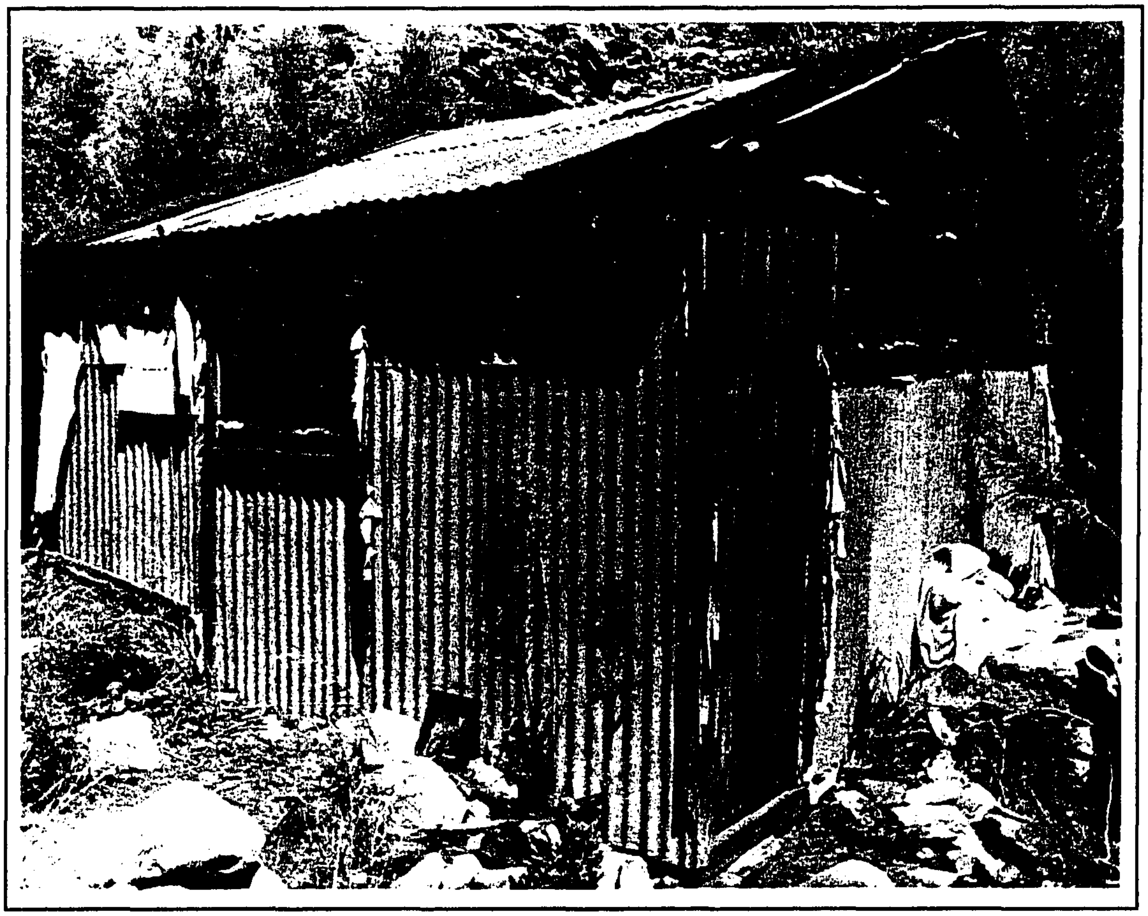

Figure 21. Frame cabin with corrugated metal and canvas siding, Locus 40.

another reads "... /MANUFACTURERS OF/TENTS AWNINGS FLAGS/SPORTING GOODS/138-140-142 S. MAIN ST./LOS ANGELES. CAL". Other pieces of canvas used in cabin construction probably originally served as cement bags. These read "ELASTIC WATERPROOF/PORTLAND CEMENT/OLSON PATENT/NOV. 5TH 1918", and "MONOLITH/M/PORTLAND CEMENT/MONOLITH, CALIF. 19-9". (The Monolith Cement Plant was built near Tehachapi, Kern County, in 1908, to support construction of the Los Angeles Aqueduct [Hample 1991:17].)

The residence/assay office (Figs. 10-13) at Locus 45 is a canvas-covered wood construction. This one-room structure had a wooden floor, glass windows, carpet, and wallpaper. Portions of the exterior were covered with tar paper. This living/working structure is nestled in the lee of a towering, L-shaped outcrop of rock which was partially blasted for clearance. Cracks in the walls that do not face the rock face are covered with opened metal cans and sheet metal to afford privacy. This feature cannot be interpreted as an attempt to seal the building against the cold, since the north wall was not similarly treated. This is the only structure with the additional feature of poured concrete steps.

An enclosed working pad is located between the rear of the assay office and the cliff face. A wooden fence isolates this area from prying eyes. The working area was accessed from the outside by stone steps, and from the structure by the back door. Fragile assay equipment, expensive and potentially dangerous chemicals, irreplaceable log books, and valuable specimens of ore would have been stored in the structure, which was equipped with two locks on the inside and one on the outside of the front door. The assay office, with its living quarters and attached workspace, loosely fits the following description of the typical mining camp business:

> . . . the typical business establishment [consisted] of a sales or merchandise room facing the street and occupying the full width of the building. A smaller storage room and sometimes living quarters adjoined it in the rear [Rohe 1984:104].

Two other structures at Beveridge are believed to have served as stores and residences. The frame structure at Locus 14 (Fig. 16) first consisted of one large room with an enclosed loft. Later, a second room was added, and eventually, the loft was removed. The stone structure at Locus 36 (Fig. 20) contains one room with an attached lean-to storage unit. As already stated, log books removed from this cabin during the last few decades are now in the collections of the Eastern California Museum.

The wooden and canvas cookhouse (Fig. 22) would have served the miners and support personnel for the milling operation located nearby. This one-room structure was equipped with several surprising amenities; the countertop is covered with rubberized cheesecloth, the two doors are screened to keep insects away, the floor is laid with smooth arrastra stones and broken-up, flat blocks of poured concrete, and an insulated pipe carried hot water to the structure from the nearby boiler. Glass windows allowed light into the room. Two sheet metal stoves were found on a paved outdoor patio east of the structure for summer cooking, and stovepipe holes in the roof indicate that stoves were located inside as well.

Generally, only improvements that would afford greater comfort or ease of living were incorporated into dwellings at Beveridge. A few frame structures (Loci 1, 14, 40, and 45) were built with wooden flooring, and niche shelves (Fig. 18) were built into the walls of several stone structures (Loci 18, 28, 42, and B). One nonessential was brought to the site in considerable quantity; glass windows were built into several frame homes, and sherds of window glass were found scattered about several partially collapsed stone structures. A typical human need for ordered living may be indicated in the following: three Beveridge structures (Loci 20, 41, and 45 1/2) were found to have been laid out with a compass. It seems unlikely that their orientation is purely coincidental.

Figure 22. Cookhouse at Locus 45.

As noted above, natural outcrops were incorporated into constructions wherever possible, to conserve building materials and energy expended. Five storage caches were built into naturally overhanging rock outcrops near three stone structures (Loci 18, 28, and 41).

The location of three privies is known. One, located near the Beveridge cookhouse at Locus 45, consisted of a stone-lined excavation, with a wooden box seat above. The superstructure probably was of lumber, although no portion of it remains extant. (This feature was excavated by looters as described in Chapter VIII.) Another outhouse (Fig. 23) of wood and corrugated metal is anomalous in its placement against the cliff face on the north side of Beveridge Canyon at Locus 45. The structure was accessed by a plank "bridge." It was suspended over a natural crevice in the rock, so that no excavation was required beneath the structure. The third outhouse is indicated by the presence of a box seat near the residence and possible store at Locus 14.

Artifacts

Remote Beveridge was devoid of the cultural amenities found in more easily accessed mining sites. Examples were found, however, of attempts to bring some acceptable cultural elements to this harsh environment. Near the structure at Locus 36, walnut trees and mint still flourish. The structures at Loci 7 and 14 were situated to take advantage of breathtaking canyon views. Colorful magazine pictures were hung on the back of the door at the residence/assay office at Locus 45. Drawings of gay '90s-style women were tacked onto the door jamb of the chemical storage structure at Locus 45. Four bound Shakespearean volumes are in the possession of the Eastern California Museum, accompanied by the following data, "These books were found in the rafters

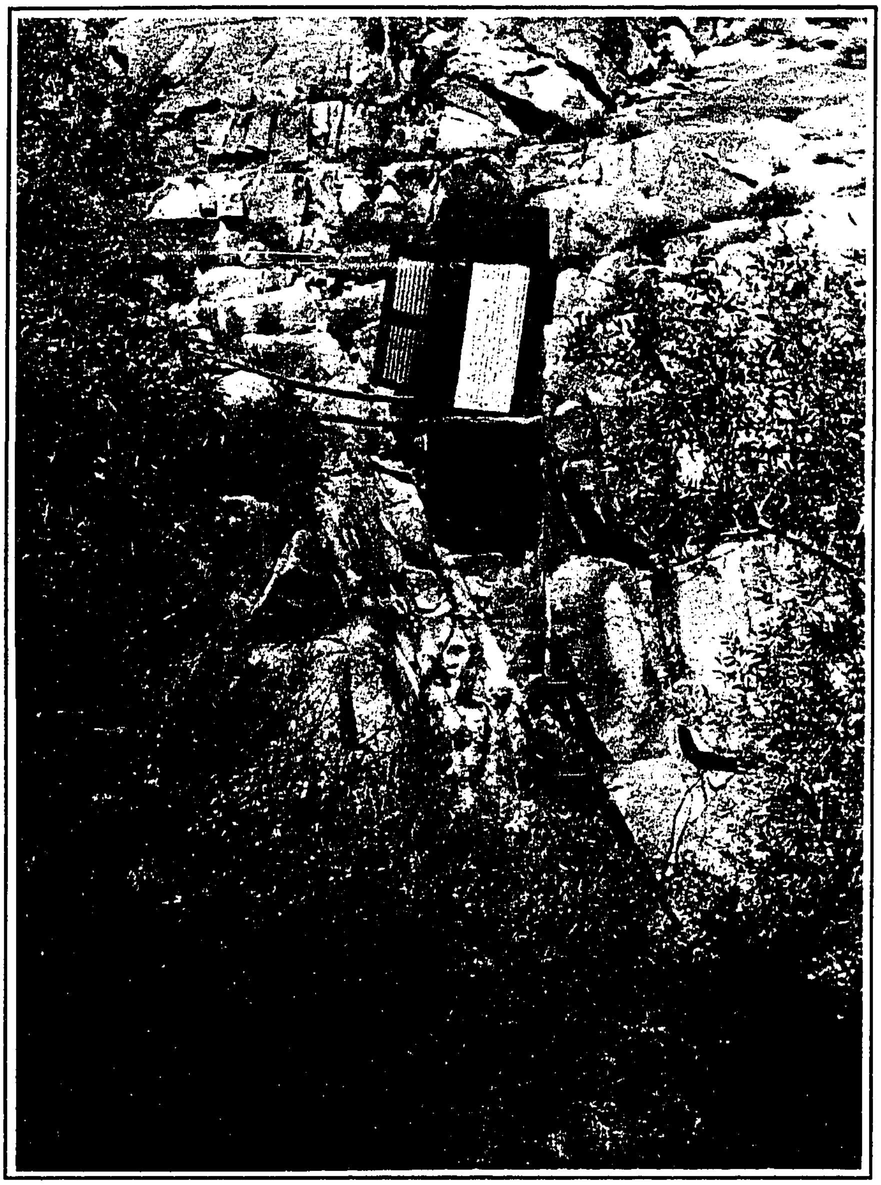

Figure 23. Outhouse, Locus 45.

of an old cabin in Beveridge." Inside the front covers is inscribed "Virginia Twigg/New Harmony/Indiana/1896". (It is interesting to note that New Harmony was a Utopian community.) The desire to keep abreast of current events was revealed in stashes of newspapers, including the *Christian Science Monitor*, 1919 *Detroit Free Press*, 1936 *Libertarian Journal*, and 1935 *Los Angeles Examiner*. Efforts to dispel boredom were observed in the presence of magazines, including the *Saturday Evening Post*.

One surprising discovery was the widespread occurrence of mass-produced beds. A 1926 prospector's guide (von Bernewitz 1926:4) urged,

> In preparing his outfit the prospector should not leave out the things that will make him comfortable, but should avoid any unnecessary weight. Plenty of bedding is essential, . . . A light mattress adds much to comfort. . . . If the camp is more or less permanent, cheap comfortable folding camp-beds of wood and canvas or of steel with a spring are procurable in most towns. Good rest is essential to effective work, so a good bed is worth what it costs in effort.

Apparently, the Beveridge miners believed that a good bed *was* worth the expense and effort, for nine mass-produced beds were recorded in various parts of the district. Eight are metal, one is wood, and all are quite heavy. One bed at Locus 45 was made so that it could be converted into a chaise longue, with extra springs in the seat area. Only one homemade bed was encountered. (Other homemade beds are present in structures at Loci 14 and 36, but were built by recent visitors to the site.)

Efforts to deal with the discomforts peculiar to the region are visible in many extant features. Makeshift sheet metal guards were placed on a vertical roof support and table legs to keep mice from climbing into areas where they were unwanted. A wooden evaporative cooling shack was built up on supports over the flowing stream at Locus 45. This small, upright construction was equipped with shelves and meat hooks, and was cooled by channelling water over its corrugated metal roof, into a perforated rain gutter, where it was allowed to drip onto burlap and canvas walls. The structure rests directly against the trunk of a particularly large willow, where it w .s placed for shade. This structure would have provided a cool storage unit for foods that otherwise would have spoiled in the heat.

Typical domestic artifact assemblages at Beveridge include barrel parts, crate parts, condensed milk cans, canned meat tins, sardine/fish cans, baking powder cans, spice cans, tobacco or cigarette tins, lard pails, cooking oil cans, canning jar sherds and lids, butchered bone, patent medicine bottle sherds, alcoholic beverage bottle sherds, ceramic sherds, enamelware pots and pans, cast iron or sheet metal stove parts, stove pipe, lantern parts, and leather shoe parts. Each of these items was found in abundance throughout the Beveridge Mining District. The assemblage at the possible store at Locus 14 was found to include the greatest variety of goods, present in the greatest numbers, of any locus recorded during fieldwork.

It is not surprising that sheet metal stoves and stove parts were present in abundance in the district. Such stoves are lightweight, and therefore portable, and frequently are found in mining and other working camps (cf. Swope and Hallaran 1989:46; Yohe and Swope 1991:13, 15). An historical photograph dated 1876 depicts a sheet metal stove in use outdoors near miner's tents in a camp in the gold fields near Deadwood, Dakota Territory (Wallace 1976:145). In addition to sheet metal stove parts, a vast number of cast iron stove parts were noted at fifteen different loci throughout the study area. These stoves would have been large, heavy, and cumbersome to transport. Nevertheless, cast iron stoves usually are preferable because they are efficient for both cooking and heating, while sheet metal stoves are most effective for cooking. Miners who occupied the district during cold parts of the year would have required a reliable source of heat. A placer miner who lived on Agua Fria Creek during the Depression related that a small, sheet metal stove warmed his 9 x 12 ft. tent cabin quickly during winter (Coffey and Hoeper 1972:23).

Large, lidded galvanized cans were found at three loci (9, 14, and 45), and are representative of efforts to store bulk foods over a long period of time in an area where foodstuffs were not readily available.

Communal food preparation is revealed by the presence of the cookhouse at Locus 45, and artifacts such as a very large-capacity frying pan near the cookhouse, and a coffee pot of enormous proportions at Locus 37 1/2. Otherwise, food preparation for individuals or small groups is indicated by dumps of small-sized cans, and other cooking debris near small domestic structures.

The presence of a cobbler's shoe tree (Locus 25) is indicative of attempts to make Beveridge a type of "self-contained community" (Godoy 1985:207). The ability to make repairs on-site would have simplified life at Beveridge. An 1880 report (*Inyo Independent* 25 September 1880f) stated that two miners were "fixing up a shop for sharpening tools with which to work their mines." Any tools or facilities that would have saved a miner the trouble of an additional trip to Owens Valley would have been highly desirable.

Very few examples of luxury items were encountered during field investigations. Nevertheless, a few fragments of decorative pressed glass objects were found (Loci 17, and 41 1/2). Although pressed glass technology was a relatively inexpensive version of more expensive cut glass, it is difficult to imagine why a miner occupying a crude dry-laid stone masonry dwelling would transport such a fragile and fancy item to this remote camp; perhaps the objects were already damaged and had been relegated to everyday service before they were brought to Beveridge. These items might have held sentimental value for their owners. They also could be construed as indicators of the presence of miners' wives, who might have found it desirable to maintain a semblance of high class in an otherwise deficient setting. However, only evidence directly related to women (a hairpin, a decorative dress button) was taken as an indicator of their presence in the district.

A long-lived legend about a piano at Beveridge (Murbarger 1964:15) still gains attention. A 1964 article (Cragen 1964) should have dispelled this rumor once and for all:

> Bill Caipen and John Rutherford just returned from the "high" Inyos and a three day exploring trip. We thought they might bring a piano back with them, but at least they brought a picture of one which tacked on the wall of an old building might have started the whole story that there was a piano at old Beveridge. This story has been bandied around for many years, that a piano was hauled in there by mule back . . . many years ago.

The piano myth continues to receive attention in current publications (Budlong 1992:34, 39).

As was expected, the artifact assemblages at the various loci included an abundance of reused and altered items. Such behavior is a response to unavailability of goods, and the difficulty and expense of transportation. Hardesty (1986:52) described the phenomenon:

> . . . transport cost is at times sufficiently great in more remote frontier regions to discourage simply throwing away an item. Perhaps even more

important is the problem of distribution from regional supply centers. Commodities that are not especially expensive may be available only occasionally in company stores or other remote retailing centers. Accordingly, it is not surprising to find that artifact reuse is quite common on the mining frontier. . . .

The impact of reuse upon archaeological patterns can be considerable. What it does mostly is to remove artifacts from one chronological and functional context to another within the mining district. Thus, a 19th century tin can originally deposited in a domestic trash scatter can be located in a 1920s mining structure and identified as a lantern.

The problem of artifacts moved from one context to another is not a factor in this investigation. Since no attempt was made to tabulate occurrences of artifacts by type, and since the site is accurately dated through written sources, artifacts were used rather as a means to understand and interpret human behavior in a unique setting. For this reason, artifact reuse became a revealing component, rather than a problem. Used items modified for household reuse are shown in Table 1. Additional items modified for use in mining technology are discussed in Chapter XI.

In addition to reuse of items in functions for which they were not originally intended, evidence of repair of useful objects was observed. A bucket eye was repaired, so that the handle could be reattached (Locus 49). The bail of a lard pail was replaced with a wire handle (Locus 14).

An attempt was made to identify food items consumed at the site. While a considerable amount is known regarding the availability of food in California Gold Rush placer camps and large, western mining towns (e.g., Archibald 1981; Conlin 1986), data on small lode-mining camps never have been compiled. A few field observations were revealing in this regard.

Table 1

Occurrence of Used Items Modified for Household Reuse

Original Use	Modified Use
fuel can	stove pipe elbow
fuel can	bucket (2 examples)
fuel can	cut for scrap metal
placer pan	cut for scrap metal
can	sieve (3 examples)
can	pail (2 examples)
cans	stovepipe
can lid	punched for unknown use (3 examples)
lard pail	candle holder
cigarette tin	candle holder
can	candle lantern
shipping crates	shelving (numerous examples)
shipping crate	wooden door patch
broken axe head	log-splitting wedge

Shipping crates were found used as shelving, or cut or broken and used as scrap lumber. It is acknowledged that boxes could have been used to ship to the site goods which were not the original contents. However, it remains possible that the goods appearing on labels were transported to, and consumed in, Beveridge. Crate contents included: evaporated milk, sliced pineapple, dried beef, MJB coffee, Jell-O, lard, Royal Baking Powder, tobacco, Ivory soap, Old Dutch Cleanser, and an unidentified Heinz company product. One box bears the mark of the Prune and Apricot Growers Association. A burlap bag bears the C and H Sugar company mark.

Fieldwork and archival investigations revealed much information concerning the material culture of the Beveridge Mining District. A few surprising commodities were present in the form of foodstuffs (represented by shipping crates) as well as household goods (such as decorative pressed glass). Considerable evidence of recycling of items was observed, and numerous objects were improvised from used items. As expected, the isolation and scant resources of the Inyo Mountains resulted in a situation of thrift and conservation.

Chapter XI

RESEARCH QUESTION III

What level of mining technology was employed at Beveridge? How was standard mining technology adapted or modified in order to make the best possible use of the terrain and equipment transported to the site? As mining technologies changed at the site, was old equipment modified and used in new ways? How were heavy, bulky items transported into the site? Did the miners develop creative ways of transporting equipment over rough terrain and steep, narrow trails? Did the Beveridge miners use basically simple mining and ore-processing techniques so that at least some heavy equipment would not have to be brought to the site? Or was the terrain viewed as a surmountable barrier in light of projected returns from use of certain techniques?

EXPECTATIONS

Inspection of extant mining equipment and scars on the landscape at Beveridge was expected to reveal much about the techniques employed at the site. It was hoped that research would reveal which mining methods were considered profitable for this site, and which were dispensed with in light of difficulties peculiar to Beveridge. Improvisation of mining equipment from available goods has been observed elsewhere, and was expected to be prevalent at Beveridge, considering the difficulties involved in obtaining goods from the outside world.

RESULTS

Identifications of the various mining technologies used at Beveridge were made through archival research and field analysis. A variety of extractive mining technologies, as well as techniques of milling and ore processing, were identified and analyzed.

Extractive Mining Technologies

Sequential mining activity and the passage of time have rendered it impossible to determine which mine workings were associated with the earliest efforts of prospectors in the district. Mexican prospectors and miners undoubtedly worked mines in the region prior to formation of the Beveridge Mining District, but prospecting and mining activities of later miners have obliterated or overlapped the evidence of early work.

The region is punctuated with small prospect excavations. Most of these do not cover more than a $10m^2$ area, and are no more than one or two meters deep. The term ''scratch prospect'' was coined as a descriptive designation for these abundant prospects that proceeded no farther than a scratch on the ground surface. In a few cases (Loci 4 and B), scratch prospects were found in a series, and provide a loosely-applied example of the prospecting technique of interval sampling a hillside for occurrence of ores (von Bernewitz 1926:58-59; Idriess 1932:12; Bradley 1934b:257).

In some instances, prospects at Beveridge gained considerable depth and give the appearance of adits. For the purposes of this research, the term ''prospect'' was applied to excavations that did not proceed beyond a surface manifestation, and the term ''adit'' was applied to excavations that achieved substantial depth underground, regardless of indications of veins in the workings.

Extractive mining techniques employed at Beveridge were inseparably linked to the type of ore body encountered in the Inyo Mountains. Most ores at Beveridge were accessible via horizontally-oriented excavations (known as adits) from the surface. A 1906 report on the Keynot Mine stated that

> the method of developing the property is by tunnel, and all work to date has been a system of tunnels run in on both veins, beginning at the canyon level [Keynote Mining and Milling Company 1906:n.p.].

Only one vertical shaft (Locus 9) and three inclined shafts (Loci 31 and 47) were recorded during fieldwork. An inclined shaft may be defined as follows, "a shaft sunk at an inclination from the vertical usually following the dip of a lode (Thrush 1968:574)." The advantages of adits over shafts were discussed by Wright (1936:173):

> In a mountainous country it usually is possible to open up a vein or ore body by a . . . tunnel along the vein . . . The advantages of developing an ore deposit from a tunnel or adit compared to shaft-sinking are obvious. A tunnel is the cheapest method; as the workings are self-drained, no machinery is required for hoisting, haulage costs are lower than those for hoisting over the same distance, and the cost of tunneling or drifting is usually about one-third that for sinking a shaft.

The Big Horn and Keynot mines are the only Beveridge mines that had much vertical development; this was in the form of winzes and stopes within adit workings (Taylor and Joseph 1988:59).

Mining at Beveridge followed the rat-hole system described by Hardesty (1988:22):

> The "rat-hole" system was one of the earliest methods to be used and is still used in some small mining operations. Access to and removal of the ore body are accomplished with a single shaft . . . or adit . . . Mining then takes

place by following the ore body with a maze-like network of . . . horizontal passages . . . winzes. . ., and raises [stopes] . . .

Many adits at Beveridge are unidirectional, frequently containing curves to follow the course of a vein. A few adits contain crosscuts, "a horizontal underground opening driven at right angles, or obliquely to the course of the vein" (Anonymous 1958:5). Most contain some degree of stoping, "an excavation above a level from which ore is mined" (Anonymous 1958:5), while only a few contain winzes, "shaft-like opening[s] sunk from a level within a mine" (Anonymous 1958:5). Most Beveridge mine workings are large enough for a person to stand in, and a miner could easily have pushed an ore car in them. Exfoliation of ceilings has raised the floor of many adits and caving was noted in many others. Evidence was observed in a number of adits that pockets of rich ore had been followed from an adit wall or ceiling, in stopes that ranged from arm-sized to room-sized excavations.

Above all, mined excavations at Beveridge were carried out in such a way that no extra effort would be expended. At Locus 51, a large body of ore was stoped out from under a gigantic overhanging boulder (Fig. 24). The excavation followed no precise pattern, and the stoped area was accessed by several wide entrances.

Examples of simple, practical mining tools such as pickaxes, shovels, spades, wheelbarrows, and buckets are abundant in the Beveridge Mining District, and indicate the minimization of expensive technology. Money and resources were spared when equipment was made by hand. Makeshift ladders were noted in one vertical shaft (Locus 9) as well as in winzes connecting levels of the Keynot workings (Locus 1).

Figue 24. Stoping performed under massive boulder, Locus 51.

Evidence of excavation methods employed at Beveridge was recovered in the form of drill scars in mine workings, drill steel and other artifacts abandoned at several sites, and one historical reference. The process of drilling holes for inserting sticks of dynamite or packing explosives results in drill scars when the surface is incompletely blasted away. A long, thin, metal rod (Fig. 25) used to extract fines from drill holes during drilling was recovered on the trail between Loci 45 and 47. A nearly identical spoon was described by Ihlseng (1904:414):

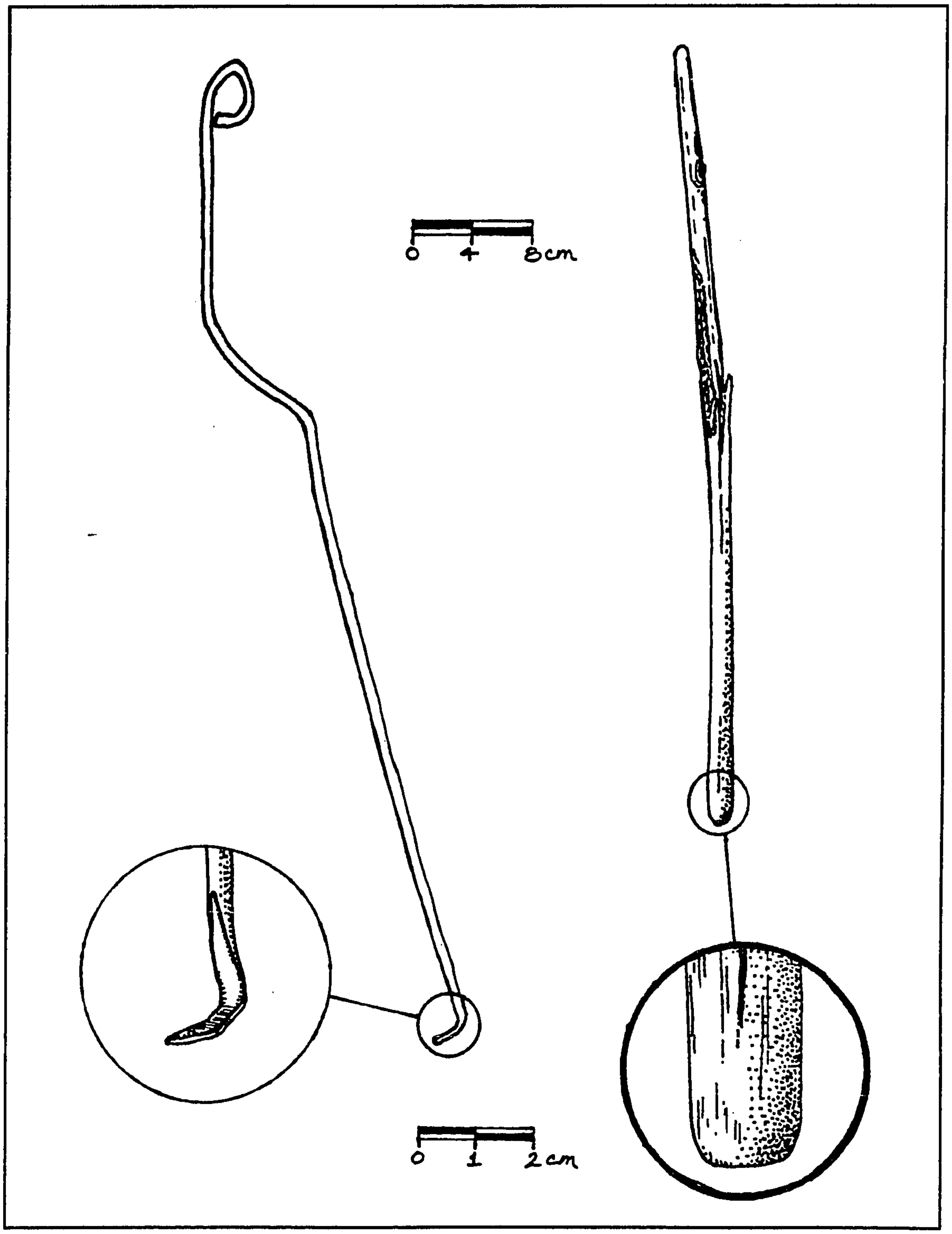

Figure 25. Iron rod used to remove fines from drill holes and wooden tamping stick.

> A spoon is a round 3/8″ iron bar 40″ long, with a handle at one end and the other flattened out and curved slightly for 5″ or 6″ of its length, then bent to form a small cup that will scoop out the débris.

Young (1976:33) described the method of ramming a charge "with a long wooden rod." A long wooden rod (Fig. 25), or tamping stick, representative of this practice, was recovered from the underground workings at Locus 47.

Pneumatic drills were invented in 1869 (Hardesty 1988:21), but did not come into general use in mines of the American West until the 1900s (Lingenfelter 1974:18). Because of this, and because no hoses for pneumatic drilling were found, it is presumed that hand-powered drills were used exclusively in the Beveridge mines. Huguenin (1916:2) noted that hand drills had been employed at the Keynot Mine. Drill steel, blasting cap cans, a "Hercules Powder" can and instruction pamphlet, and fuse cans were found at a number of loci, and represent use of these materials in the district.

Lack of adequate milled timbering at Beveridge was an inconvenience as well as a safety hazard. Local pinyon logs were used extensively in mine timbering at Beveridge (Fig. 26); sometimes the logs were peeled and/or shaped with an adze, and sometimes they simply were used as cut. Whenever possible, miners incorporated milled timbers, the largest of which measured 8 x 8 in. (Locus 17). The meager resources available and the thriftiness of the Beveridge miners is exemplified in the use at Locus 51 of a pick handle as a support timber! Wedges of wood scrap such as local pinyon or juniper, milled lumber, crate parts, and architectural wood (painted house trim) were observed. At Beveridge, it was not practical to use the square set method of timbering which had been developed in the Comstock mines (Hardesty 1988:23-24). Instead, a cheap

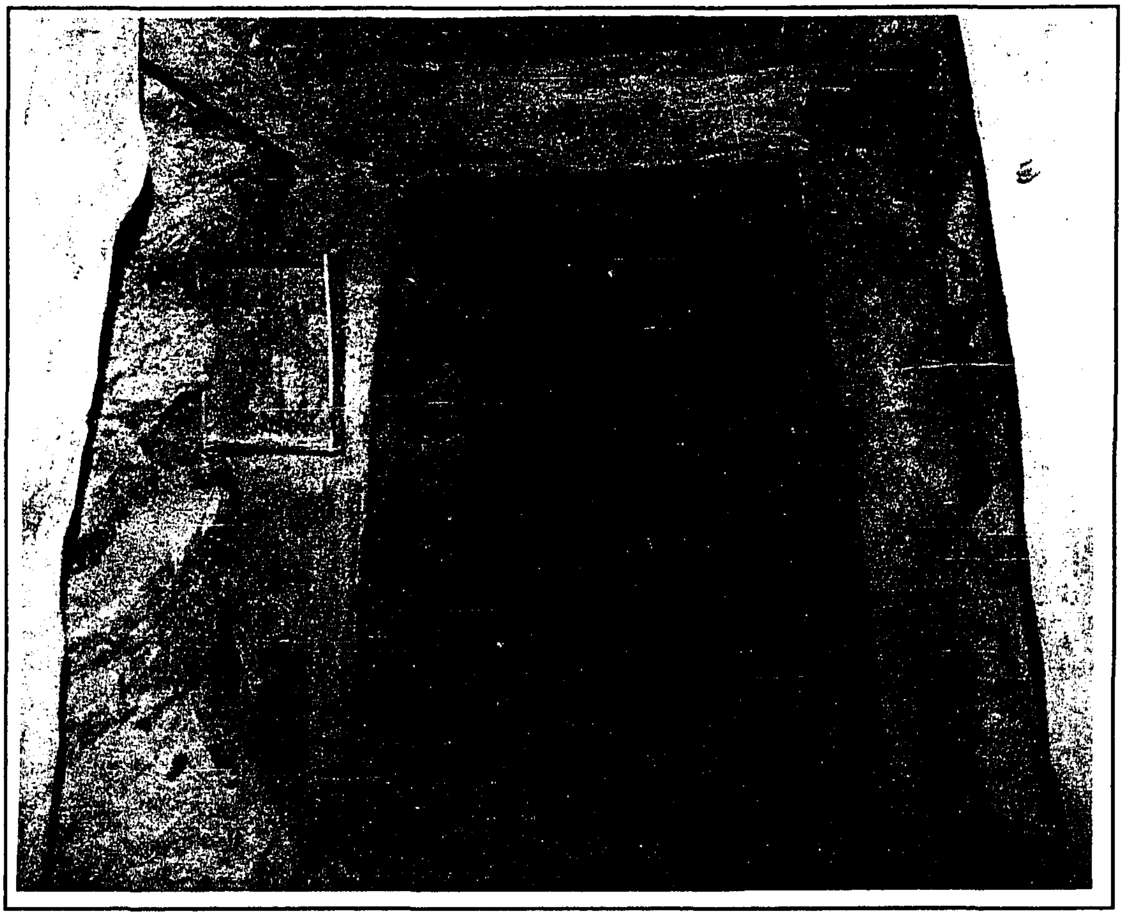

Figure 26. Timbering representative of that found in Beveridge District adits.

alternative was put to use. When a body of rock was removed by stoping, the mined area was supported at the front with timber cribbing or a rock wall, and the area behind the cribbing was backfilled to provide support for the hanging wall (''the rock on the upper side of a mineral vein or deposit'' [Thrush 1968:526]). Figure 27 depicts the typical cribbing employed in Beveridge mine workings.

Rockwork was used extensively to support backfilled areas (Fig. 28), as retaining walls for workings or platforms, or to prevent waste rock and ore from falling onto workings below (Fig. 29). When the latter was observed, it was interpreted as an

Figure 27. Cribbing representative of that found in Beveridge District adits.

indication of successive phases of mining; obviously, the upper workings in such a case were excavated concurrently with or after the lower workings.

Ore car track was observed in many adits; its use is indicated in many others by carefully levelled floors and gentle adit curvatures. Ore cars also were used to transport ore to chutes, to millsites, and within millsites (Fig. 30).

In one adit at Locus 2, continuous lengths of galvanized stovepipe were strapped to the ceiling to supply air to, or conduct gasses from, the back of the adit, which contains a spray-painted warning reading "danger gas." This contraption (Fig. 31)

Figure 28. Rockwork retaining wall, representative of those found in adits in the Beveridge Mining District.

would have required the action of a compressor or similar power source, or a stove or oven, either of which most likely would have been placed just outside the adit portal, perhaps as illustrated in Anonymous (1916:531). This crude ventilation unit may date to more recent work at the Keynot Mine. Von Bernewitz (1926:85) described adit ventilation thus:

> A shaft or tunnel without another outlet to the surface may be considered a dead-end. Little air circulates, consequently it becomes hot, humid, and more or less foul . . . Some method of ventilation usually becomes necessary by the time a . . . tunnel is 100 feet long. . . . Fans

Figure 29. Rockwork retaining wall outside adit portal.

> operate either as blowers or exhaust, mostly as the former in metal mines. They are placed near the portal of the tunnel. The air pipe is fixed near the roof and should discharge as near the [working] face as possible. The whole plant is light and easily moved.

Message boards and crate shelving were discovered just inside the portals of a number of adits, and may be indicative of cooperative labor. This may have been a place to post notices, or a storage unit for hard hats, candles, head lamps, and other equipment needed only when in the mine. It also is possible that annual notices of assessment work were posted here.

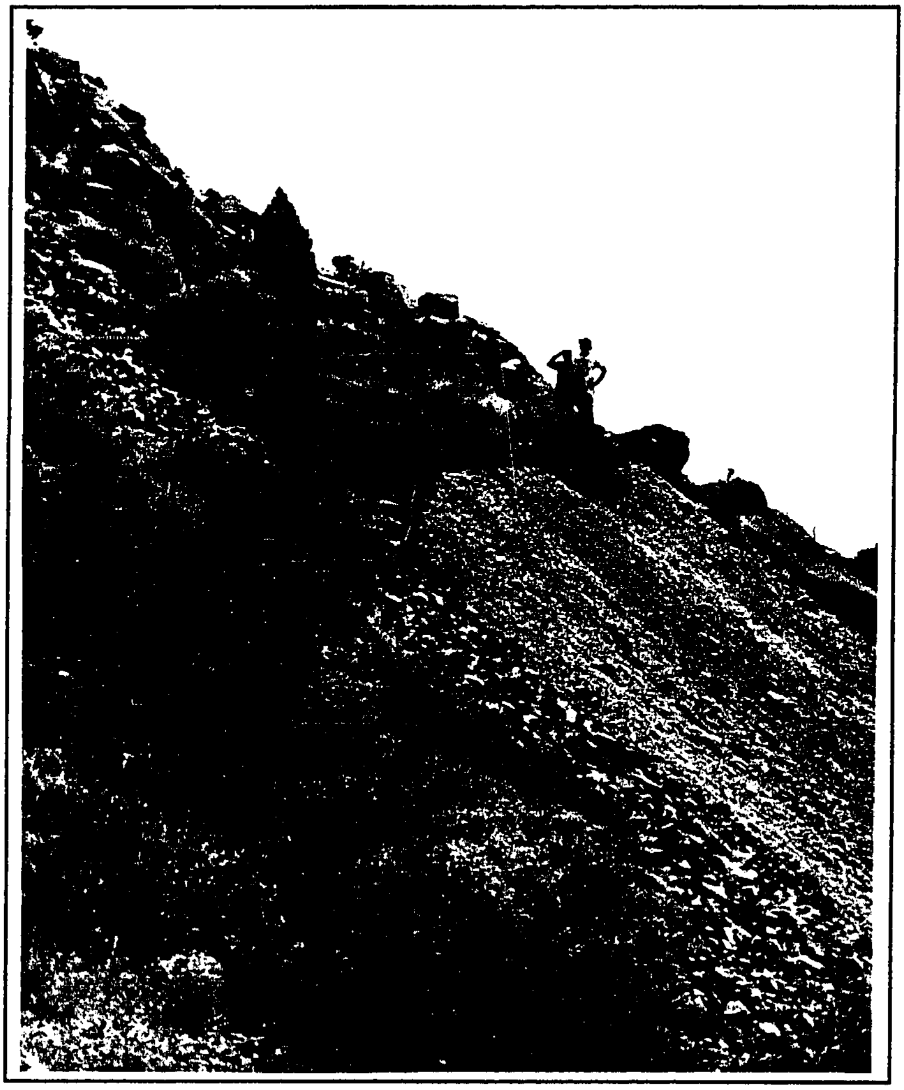

Figure 30. Ore car and track at Locus 2.

Evidence of forge or smithy platforms was noted in the form of slag and/or charcoal scatters in or near a number of adits, further evidence of the self-sufficiency of the Beveridge mines in terms of the work that could be accomplished within the district.

In passing, it should be noted that placer gold is known in the Beveridge District, although this resource was never exploited by Beveridge miners (Taylor and Joseph 1988:86, A68).

Figure 31. Adit at Locus 2, showing ventilation unit.

Taylor and Joseph (1988:58) described mining in the district:

When the richest, free-milling ore was depleted, mining stopped, leaving the veins that required sophisticated higher cost mining and milling methods.

> Selective mining was necessary because of the lack of means to transport large quantities of ore and equipment.

Milling and Ore Processing Technologies

In addition to extractive mining technologies revealed in the archival and archaeological record, data concerning the milling of ores at Beveridge were obtained. Several types of milling technology were recorded in the portion of the Beveridge Mining District addressed during this study; some represent sequential milling episodes. Mills are described together with the ore processing and recovery operations that functioned with them.

Evidence of sorting ores prior to milling was observed in a number of cobbing stones and cobbing platforms. Cobbing is the process by which as much barren rock as possible is removed from gold-bearing rock by breaking it with a small hammer.

> Cobbing hammers are 1-hand hammers, for cleaving and hand picking values from waste, the cobber sitting with a pounding block before him. A good cobbing hammer has at one end a sharp wedge-shaped pean [sic], either parallel or at right angles to handle. Weights range from 1.5 to 4 lb, average 2 to 3 lb; handle usually 12 in [Peele 1918:1622-1623].

This procedure is performed only where high-grade ores that cleave easily from low-grade ores occur (Peele 1918:1621). At several loci (40, 51, and D), paved cobbing floors were located outside mine workings. At Locus 30, cobbing pavement was laid near a milling operation. At a few loci (48, 51, and A), single cobbing stones exhibited a pecked surface resulting from repeated hammer blows. At least one of these stones previously had been used as arrastra pavement.

From earliest mining throughout the boom period of Beveridge history, crude arrastra mills were employed extensively to crush ores. The preponderance of arrastra milling technology in the district led to Beveridge Canyon being known as Arastra Canyon for a time. Following is a description of the arrastra, its construction, and methods of use.

Arrastras (also known as "drag mills") probably were introduced to American mines by Sonoran miners (Kelly and Kelly 1983:65). Following their introduction, they were used in nearly every mining district in California (Bradley 1934a:266). According to Louis (1899:284) the arrastra is

> especially suitable for the purposes of miners with little or no capital, working their own claims, particularly where the ore is rich and the vein small, and is *par excellence* the machine for the prospector and pioneer in remote and new mining regions. . . . It has also the great advantage that it can be worked by animal power--horses, mules or oxen--and can therefore be used in places where fuel is so scarce that steam-power is out of the question, and where there are no streams capable of furnishing water-power [original emphasis].

Arrastras could be built anywhere, with relative ease, from locally available materials such as rocks, wood, and clay. Although some used steam or water power, arrastras could easily be powered by one animal and tended by one person (Kelly and Kelly 1983:86). Even after the stamp mill came into use, the arrastra remained the least expensive milling method (Preston 1895:58), and was viewed as a cheap alternative to other forms of milling (Paul 1963:31).

Paul (1963:31-32) described the arrastra as follows:

> A hard-surfaced circular bed [of fine-grained basalt, granite, or quartzite (Preston 1895:58)] with retaining walls was built and heavy abrasive stones

> were placed in it and hitched to a horizontal arm that, in turn, projected out from a central pivot. With a mule for motive power, . . . the stones were then dragged around in a perpetual circle, over broken-up, gold-bearing rock dumped into the track.

Drag stones were suspended "so that the forward end is an inch above the pavement while the other end drags" (Shinn 1980:80-81), so that "the drag-stone rides over the quartz lying on the pavement instead of pushing it along before it" (Louis 1899:287). Bradley (1934a:268) provided a sketch of arrastra construction, and Olmsted (1962:174) illustrated a mule-powered arrastra in use.

In size and capacity, arrastras ranged from three or four feet in diameter with a capacity of a few hundred pounds of ore daily, to 20 feet in diameter with a capacity of three to six tons daily (Bradley 1934a:267; Shinn 1980:80; Kelly and Kelly 1983:86). Animal-powered grinding was accomplished at a rate of about six to ten revolutions per minute (Kelly and Kelly 1983:86), and a 10-foot diameter arrastra, charged with approximately 500 pounds of ore, would require continuous grinding for about four hours (Lydon 1959:10).

Day (1979:62-63) noted that ore was first crushed to approximately half-inch-size (other accounts maintain that the ore was walnut-size [Kelly and Kelly 1983:87] or 3/4 in. [Lydon 1959:1], which seems more likely). "In small establishments, . . . this breaking is usually done by hand" (Louis 1899:288). After being crushed in the arrastra, the ore was fine enough to pass through window screen.

One method of amalgamation used in conjunction with arrastras was described by Day (1979:62-63), and may have been employed in the Beveridge Mining District.

> When free gold was the sole object of recovery, mercury was sprinkled inside the arrastra. Due to the heavier weight, the gold and mercury naturally sank to the bottom, where by contact and attrition the mercury absorbed the gold, forming an amalgam which sought and filled all the uneven, low spaces of the rock-cement basin.

Water was added to the mixture throughout grinding, to create a thin pulp (Shinn 1980:81). Usually, a number of batches of ore were run in the arrastra before cleanup (Lydon 1959:10). When grinding of the final batch was complete, amalgamation proceeded as outlined above. A large amount of water was then added, and drained away. The load was panned to ascertain that the gold and amalgam had settled, if so, pannings would then be free of amalgam particles (Louis 1899:291). The slurry was collected from crevices in the arrastra bottom with picks (Preston 1895:60). Gold then could be panned from the slurry and retorted (Olmsted 1962:176). Retorting is defined as ''removing the mercury from an amalgam by volatizing it in an iron retort [distillation vessel], conducting it away, and condensing it'' (Thrush 1968:919). It also is possible that slurry from Beveridge arrastras was merely panned to recover particles of free gold, without the aid of an amalgamating substance.

Some arrastra mills were equipped with discharge gates and troughs, but simpler examples were not, and required that a breach be made in the wall when water was to be drained. A drainage mechanism was identified on only one arrastra at Beveridge (Locus 4), and it is assumed that the remainder were drained by lifting one of the wall stones from the construction.

Arrastras were cleaned in this manner during their useful life, and were thoroughly cleaned only upon exhaustion, when the pavement stones were excessively worn (Louis

1899:291). "It was usually profitable to dismantle a time-expired arrastra and riffle the ground beneath it, into which amalgam had seeped . . ." (Young 1970:71). Because of this, intact examples are unusual. Pavement stones in the arrastras at Beveridge were found to have been lifted for cleaning, and allowed to fall back out of their original positions. Young (1970:71) described the arrastra as a "reasonably satisfactory triple-function mill, acting in succession as a wet grinder, amalgamator, and separator."

Extensive archival accounts were discovered that make reference to use of arrastras in the Beveridge Mining District; many were discussed in the individual mine histories in Chapter VII. Two of the arrastras recorded at Beveridge are illustrated in Figures 32 and 33. While fairly large operations could be supported by the primitive arrastra technology, stamp mills afforded better crushing capacity per day, and yielded a higher amount of recovered gold per run. As stated by Flint (1941:66),

> The older [Beveridge] mills, the arrastras . . . , were erected by the expenditure of only the builders' labor, but the later, more grandiose ventures were made possible by promotional activities in the financial and mining cities of the United States.

Beveridge arrastras are known to have been powered by animals, water, steam, and gasoline. Examples of horse-, water-, and steam-powered arrastras are illustrated in Crawford (1894:128).

Arrastras in Hunter Canyon were used on a contract basis by mines in the area. According to Taylor and Joseph (1988:A3), the Hunter arrastras had 12-foot diameters, were driven by a 12-horsepower steam engine, and had a 5-ton per day total capacity (another source [Tucker and Sampson 1934:310] sets total capacity at 3 tons per day).

Figure 32. Arrastra, representative of those found in the Beveridge Mining District.

(The history of these arrastras was detailed in the discussion of the Big Horn Mine, found in Chapter VII.)

> Messrs. Thomas McDonough and W. C. Kisling own and run a little 36 inch pan [arrastra]. . . . [They] are now extending their works by putting in a new 28 feet wheel; the present wheel is but 12 feet in diameter. The new wheel will work two pans and a small battery of stamps. . . . Energetic work and modern methods would work wonders in Hunter's canyon [*Inyo Independent* 27 September 1884m].

An 1881 cleanup of an undisclosed number of arrastras serving the Keynot Mine yielded $13,000 in bullion after a 3-week run in 1881 (*Inyo Independent* 11 June 1881h).

Figure 33. Arrastra at Locus 4.

This report was made at the time the McEvoy Mill commenced work; it was expected, however, that arrastras would continue to be used in conjunction with the mill. A single miner working his Beveridge arrastra for eight days in 1885 recovered $180 in gold (*Inyo Independent* 23 May 1885p).

The Elgin Mine's arrastra produced 40 ounces of gold from an eight-ton run in 1883 (*Inyo Independent* 6 October 1883v). At the time of that report, operators of the mine were engaged in building about seven miles of trail to the McEvoy Mill so that their ore could be crushed there.

An 1883 report (Burchard 1883, cited in Taylor and Joseph 1988:58) stated of the Beveridge District,

> The Mexican system of mining, crude and simple and working for immediate results[,] has done nothing to settle the great question as to the extent and permanence of these deposits. In several canyons and along streams of water they have erected a number of crude arrastras, with which they occasionally and spasmodically reduce the richest ore they crevice from the paystreaks of adjoining ledges, and the fact they frequently have large clean-ups by so crude a process indicates a marvelous richness of ore.

In 1885, it was reported that the Hidalgo Group of Mines was "worked by Mexicans on tribute, who assort the ore very closely and work in arrastras" (Unknown 1885:n.p.). Hand-sorted Hidalgo ore was said to yield about $420 per ton.

Some indication of the expense involved in milling ores on a custom basis in Beveridge arrastras is provided by the following item:

> A crushing of eighteen tons of ore from the Gavilan mine was made some days ago at the arastra [sic] at Hunter Canyon. . . . The ore yielded $43 per ton. The cost of mining was $4 per ton; packing the ore to the arrastra, $6 per ton; crushing, $10 per ton; total cost, $20 per ton, leaving a [profit] margin of $23 per ton [*Inyo Independent* 9 May 1885n].

According to the *Inyo Independent* (6 March 1896f), by 1896 only two or three arrastras continued to crush ore in the Beveridge District.

In 1897, Beveridge miner Pat Keyes purchased a 6-horsepower gasoline engine, which was to power two new arrastras then under construction (*Inyo Independent* 23 April 1897e, 30 April 1897f). There reportedly were approximately 200 tons of $35 ore ready for milling, enough to keep the arrastras running for an entire year. By erecting arrastras at his mine, Keyes expected to save the expense of packing ore to another mill, and to be able to "work ore of a lower grade." Apparently, Keyes' new operation did not run as smoothly as anticipated, for about four months later, he moved his arrastra down to a water source, where matters were at last "progressing very satisfactorily" (*Inyo Independent* 10 September 1897s).

In 1899, miner Spear was awaiting the arrival of new boiler tubes so that his steam-powered arrastra could begin crushing over six tons of high grade ore (*Inyo Independent* 26 May 1899c).

Undoubtedly, many of the arrastras that once existed at Beveridge were dismantled and their stones scattered. Some previously used arrastra stones were observed incorporated into later arrastras (as indicated by ground surfaces in improper orientations), and others were found to have been used in house construction, in retaining walls, as pavement stones in a tent cabin floor, or merely scattered on the landscape. Successive building of new arrastras as older ones became exhausted results in the obliteration of earlier examples. It also is probable that later, more sophisticated milling technologies and associated silting (especially in the canyon bottoms) have obliterated arrastra remains.

Placer pans were identified at three loci (9, 40, and B). Since the little placer gold that occurs in the district has never been exploited (Taylor and Joseph 1988:86), these tools probably indicate panning of cobbed-out samples of ore preparatory to transport to a millsite. Two of the pans were located at considerable distance from a water source, and it may be inferred that panning was done in a bucket or other small vessel.

Arrastras were profitable only when used on ores of particularly high grade, since they failed to recover the high percentage of gold that was possible with other, more efficient mill processes. Stamp mills made extraction and processing of lower-grade ores profitable. Although transportation of ores and mill machinery remained a problem, the improved yield was considered worth the effort and expense.

Stamp mills were the first milling machinery transported to Beveridge. The stamp mill was described by Young (1970:195-196).

> Universal in the West after 1853, the stamp mill consisted of . . . pillarlike stamps whose lower ends, or shoes were replaceable cylindrical masses of iron, each weighing as much as one thousand pounds. . . . a heavy iron trough, the battery [or mortar box], ran around and under the shoes, enclosing all of them. [Ore and water were fed mechanically or manually into the back of the mortar box.] In the bottom of the battery . . . were equal numbers of flat iron dies, each matching and meeting its appropriate shoe. Provision was made for slotted metal screens in the side of the battery or mortar trough, facing away from the input chute. Overhead . . . ran a substantial drive shaft, equipped with flaring cams, each of which engaged and raised its assigned stamp, then released it to drop a matter of perhaps a foot onto the die [thereby crushing the ore].

An amalgamating table was attached on an apron in front of the stamp battery, and amalgamation was carried out in the following manner:

> Forming the front of the battery box and receiving the splash from the impact are renewable screens through which can pass only particles which have been reduced to the desired size. The size depends upon the characteristics of the ore, 20 mesh . . . being common. . . .
>
> Some mercury is fed to the battery and makes contact with the metal particles, forming amalgam. Some of this might build up inside the battery, and some might be splashed through the screen.
>
> The discharge from the battery flows over amalgamating plates. These are copper plates usually about the width of the battery (approximately 5 feet) and 10 to 12 feet long. The copper sheets have a silver plating and are coated with a thin film of mercury which adheres to the silver [or gold]. They thus catch the particles of amalgam which work through the screens, or particles of metal not previously amalgamated [Dunning and Peplow 1959:25].

Amalgam is then recovered from the battery and amalgamating plates, and retorted to separate the bullion from the mercury [Dunning and Peplow 1959:26].

> Awkward and ear-shattering as they were, stamp mills survived for so long because . . . they were readily transportable, comparatively easy to erect upon wooden framing, cheap to operate, stressed chiefly in compression, and repairable even by a journeyman blacksmith. They required no delicacy of handling or construction, and the few moving parts could be cast well enough to obviate any need for fine machining. Mill capacity came to be reckoned by stamps . . . A two-stamp arrangement was estimated as equal to about one arrastra . . . [Young 1970:198].

Further data concerning stamp mills may be found in Rickard (1898).

The portion of the Beveridge Mining District addressed during this study contained a 1-stamp mill (Locus 17), a 5-stamp mill (Locus 45), and the foundations for a 4- or 5-stamp mill (Locus 31). Other stamp mills are known to have operated in the district, but their locations were not visited during fieldwork. The Cinnamon Mine ran a 2-stamp mill located between McElvoy and Keynot canyons. Taylor, McEvoy & Company operated a 5-stamp mill in McElvoy Canyon; data regarding this mill were retrieved from archival sources, and are presented below. A 5-stamp mill served the northern Laura Mine, and a 4-stamp mill was located at the southern Laura Mine. According to a source dated 1885 (Unknown 1885:n.p.), a partnership known as Hanger & Brott had a 4-stamp mill at an undisclosed location. In 1885, a 4-stamp mill reportedly was erected in Beveridge Canyon (*Inyo Independent* 23 May 1885p). According to Flint (1941:6-7), the Keynote Mining and Milling Company built a five-stamp mill in Beveridge Canyon in 1906. These may be references to some of the mills listed above, however. The three stamp mills recorded during this study are described within the context of the milling and ore processing operation into which they fit. No attempt was made to tabulate mill returns, as these data are sketchy at best. The photographs in Figures 34 and 35 were taken about 1910, and depict two stamp mills in the district. One of these is probably the McEvoy Mill.

The partnership of Taylor, Chandler and McEvoy (later Taylor, McEvoy & Co.) operated about 12 mines (*Inyo Independent* 25 September 1880f) in McElvoy Canyon (formerly Freeborn Cañon), north of Keynot Canyon and near the northern district boundary. The New Year Mine was operated by this company, but specific names for other mines of the group are not known. Hence, they do not appear in the list of mine histories found in Chapter VII. (Further discussion of the Taylor-McEvoy Mine Area is provided in Taylor and Joseph [1988:A14]).

This partnership employed at least one steam arrastra to crush their ore, but by March 1880, anticipated the need for a mill with greater crushing capacity (*Inyo Independent* 27 March 1880a; *Inyo Independent* 22 May 1880b). According to a report in the *Daily Evening Bulletin*, (16 June 1880b), the erection of a small stamp mill was amply justified. Reportedly, the engine that had been used to drive the company's arrastra was designed to run a 10-stamp mill, and so would have no trouble running the planned-for 5-stamp mill. The operation was said to be solidly backed financially, and preparations were made in the way of trailwork and transport of supplies to run the new mill (*Inyo Independent* 19 June 1880c). The mill machinery was packed to the site by mule train. Grading and masonry work were completed by September, and carpentry was underway on the mill support structure (*Inyo Independent* 25 September 1880f).

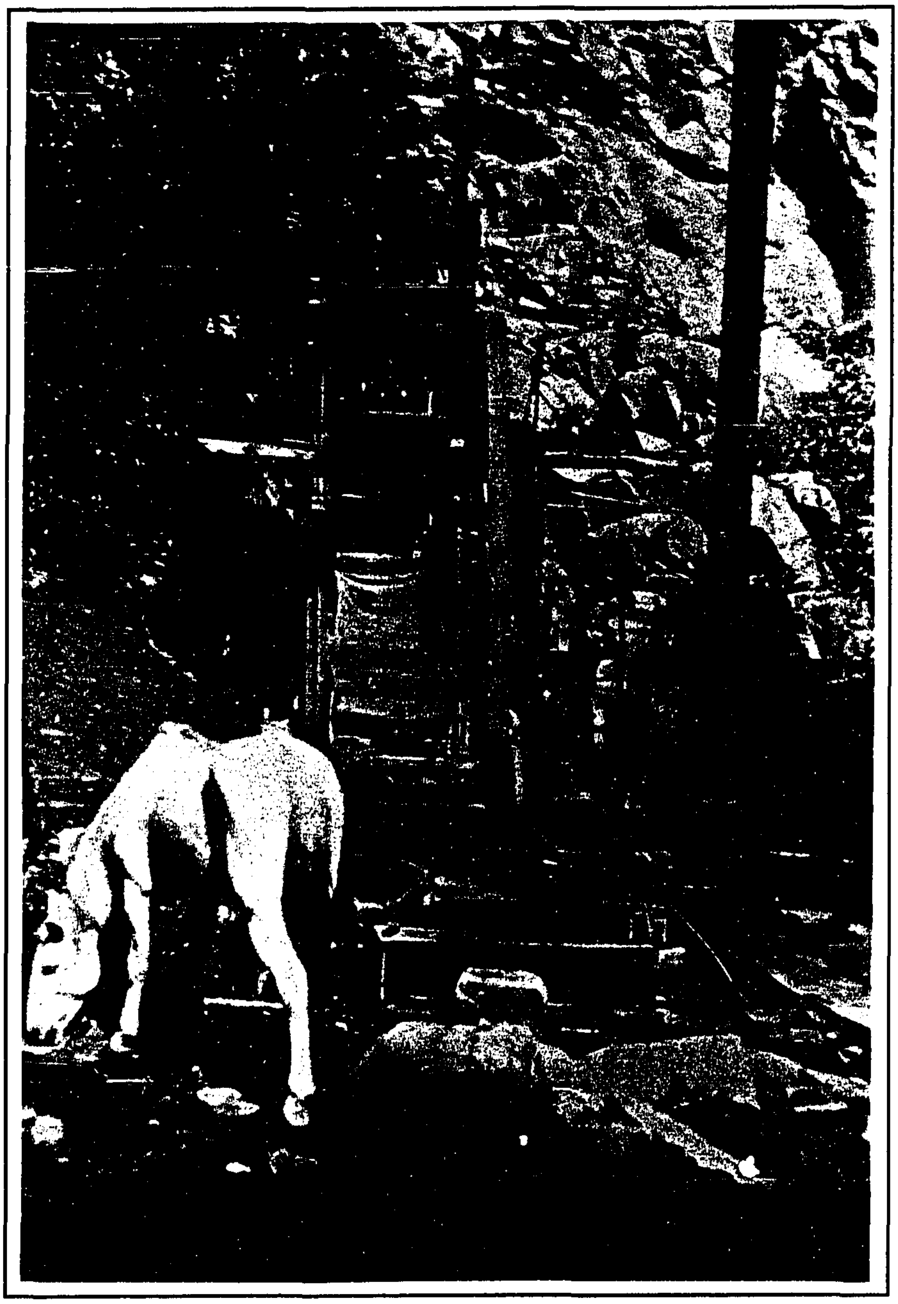

Figure 34. Historical photograph of stamp mill in Beveridge Mining District.

By February 1881, the mill was described as neat and substantially constructed, and already was in the process of cleaning up after a run of ore (*Inyo Independent* 5

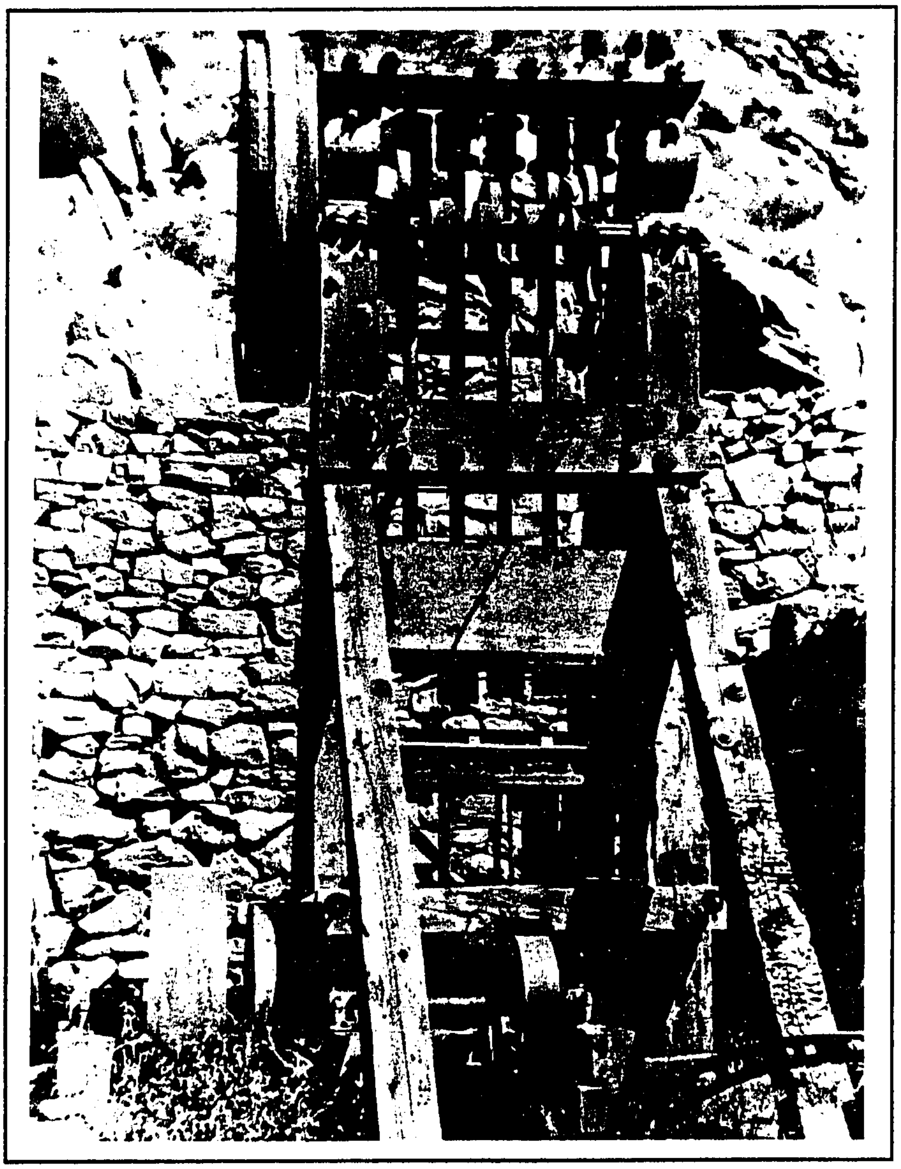

Figure 35. Historical photograph of stamp mill in Beveridge Mining District.

February 1881a). The mill had a capacity of 10 tons of ore per day (*Inyo Independent* 7 May 1881d) and supported itself by crushing custom ores under contract with mines in the area (*Inyo Independent* 26 February 1881b, 2 September 1882ii), including the Boraga, Buena Noche, Consejo, Elgin, Golden Wreath, Keynot, Lapwing, Larky, Losano, Pat Keyes, and Sunrise mines, and probably also the New Year Mine (see Chapter VII). The local newspaper contained regular reports of ores crushed at the mill (*Inyo Independent* 7 May 1881e, 13 May 1882p, 17 June 1882w, 21 October 1882kk, 16 June 1883m). The mill was successful; after a few years of operation, it was said that the output of the McEvoy Mill ''shuts out the arastras [sic] from working custom ores'' (*Inyo Independent* 15 March 1884b).

Intensive work at the mill required frequent repairs. Breakdowns, delays, and accidents were reported in the local news (*Inyo Independent* 17 June 1882w, 21 October 1882kk, 8 September 1883t). Although stamp mills had the reputation of being easily repaired on-site (Young 1970:198), at least some breakdowns of the McEvoy Mill required new parts and outside assistance. In August, 1883, the mill required a new pulley for a cam shaft; the part had arrived in Independence, and was awaiting transport to the mill via pack train (*Inyo Independent* 4 August 1883q).

In December 1882, a newspaper report stated that a rival mill was to be built. The report stated that Lasky of Lone Pine was ''about putting up a mill'' to work Keynot ores (*Inyo Independent* 16 December 1882nn). The mill also was to crush ores on a contract basis for other mines (*Inyo Independent* 3 March 1883c). By February 1883, mill machinery was being packed to Beveridge Canyon from Lone Pine (*Inyo Independent* 3 February 1883a). Lasky wasted no time in erecting his mill; by February 24, he was pushing completion of the mill so that Keynot ores could be crushed immediately (*Inyo Independent* 24 February 1883b). Construction of the Lasky Mill was described in the newspaper:

> Owing to the rugged nature of the country the enterprise has been attended with extraordinary difficulties, which could only have been surmounted by men of determination and great experience in mountaineering [*Inyo Independent* 3 March 1883c].

The mill commenced crushing Keynot ore in March (*Inyo Independent* 17 March 1883d), but the Keynot continued also to have ore crushed at the McEvoy Mill (*Inyo Independent* 7 April 1883e). The McEvoy Mill had in two years' part-time work produced several hundred thousand dollars from the Keynot Mine (*Inyo Independent* 30 December 1882oo), as well as the production from other mines; now it had an competitor.

> . . . now that it has a rival, Charley [McEvoy] is making extra efforts to keep his mill ahead, both in quantity of ore worked, and percentage of gold saved. There is said to be enough ore in sight now to keep the two mills running all Summer [*Inyo Independent* 7 April 1883e].

The Lasky Mill proved to be a serious opponent; it crushed seven tons per day. Only two weeks after start-up, the Lasky Mill reportedly was turning out $1,000 to $1,200 in gold bullion per week (*Inyo Independent* 12 May 1883h). Reports of the McEvoy Mill are not to be found in the newspaper during the next two years. In 1885, 1.5 miles of water pipe were laid in Beveridge Canyon to serve the Lasky Mill (*Inyo Independent* 6 June 1885v). In 1886, it was reported that the McEvoy Mine and Mill had been leased, and would soon commence work for the season (*Inyo Independent* 23 January 1886c). Later that year, Lasky was reported making a run of (presumably Keynot) ore at the McEvoy Mill (*Inyo Independent* 24 April 1886g). As late as 1893, plans were made to restart the "old McEvoy mill" (*Inyo Independent* 28 July 1893e), and the mill reportedly crushed ore from one of Pat Keyes' mines in 1894 (*Inyo Independent* 16 November 1894g). The arrastra at the McEvoy Mill continued to be used into the 1890s as well (*Inyo Independent* 28 July 1893e, 2 August 1895c). The latest newspaper report regarding the Lasky Mill is dated 1899 (*Inyo Independent* 30 June 1899j).

The 5-stamp Lasky Mill (Fig. 36) remains virtually intact at Locus 45. The Lasky stamps reportedly weighed 750 pounds each, with a crushing capacity of about 10 tons per day (Close 1985:79).

Records indicate that the Lasky Mill crushed ores on a contract basis from the following mines; Blackbird, Briton & Porter, Buena Vista, Christmas, El Peñasco, El Plan, Hidalgo, Ibex, Julia, Keynot, La Cachora, La Cueva, La Ma-tzin [unknown missing letter], La Paloma, Los Angeles, Matson, Quervon, San Antonio, San Ignacio, Santiago, True Business, and Vivarea. According to Close (1985:79), "about 4,100 tons of handsorted ore were treated from which 24,000 oz of gold were recovered." Further details were provided in Chapter VII.

Ore was transported to the Lasky Mill via pack train over trails leading into Beveridge Canyon from outlying mines. The Lasky Mill was built in a natural platform in the bottom of Beveridge Canyon, to minimize required levelling and redirection of water. The mill was supported on a framework of heavy upright timbers. An ore bin and amalgamating plate, no longer extant, would have been attached to the mill.

The mill was run by a 12-horsepower steam engine (Close 1985:79) embossed, "THE PICKERING/PORTLAND. CONN./GOVERNOR", which remains extant at the locus. The engine was operated by steam from a boiler situated adjacent to the mill. The boiler chamber and firebox are housed in a shell of stone masonry mortared with

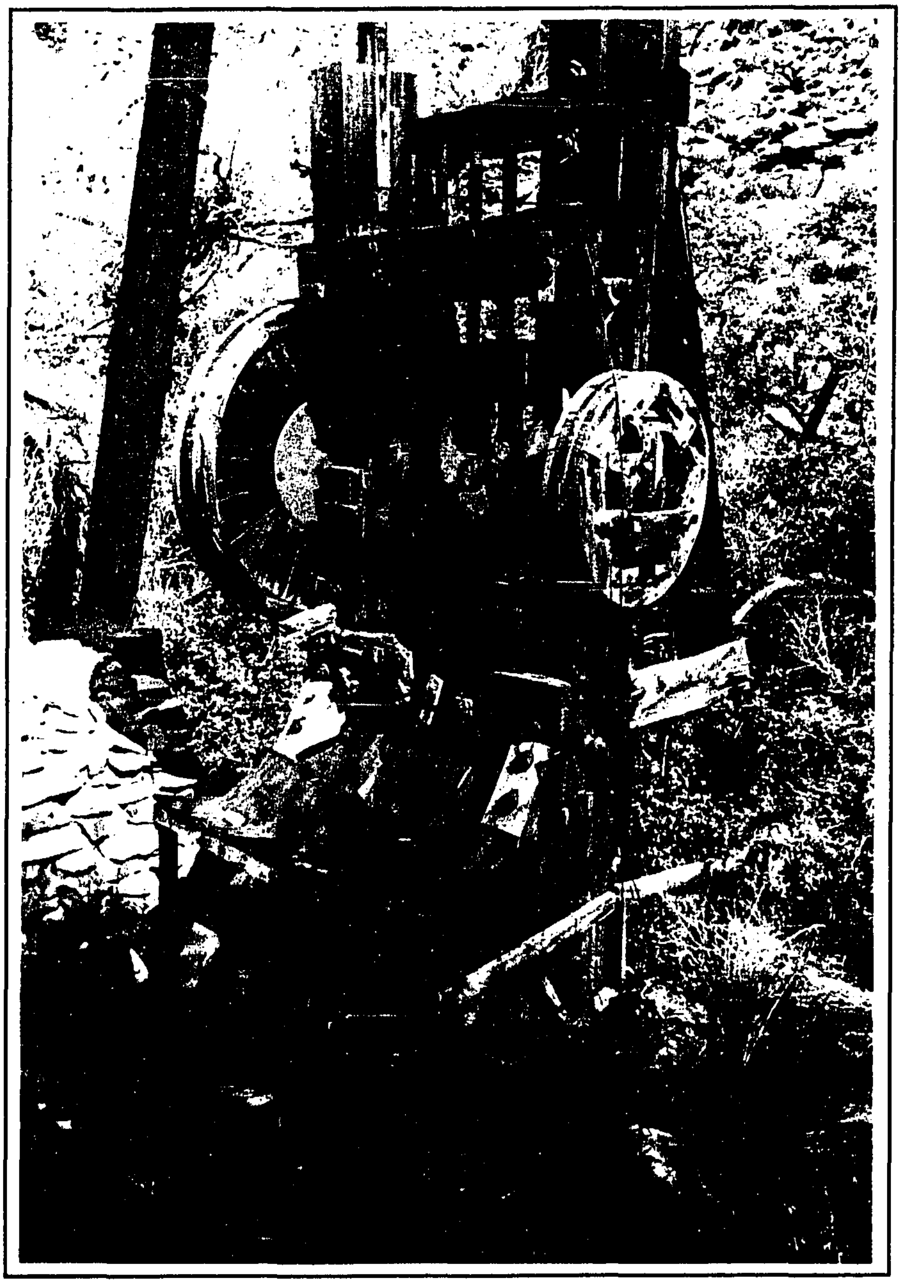

Figure 36. Lasky 5-stamp mill, Locus 45.

tailings (presumably from earlier arrastra use in the immediate area). The boiler chimney has fallen from its original position, but is held vertical by wires that originally were anchored in four directions. A machine room or boiler tender cabin is attached to the boiler, and contains shelving. The cabin is roofed with sheet metal, and burlap was hung in the doorway. Burlap would have allowed ventilation during the summer months, while keeping out insects; if wet, the burlap would have served to cool the cabin. The boiler construction is nearly identical to that located in Death Valley at the Harmony Borax Works, with the exception that adobe bricks were used for construction at that site. The Harmony boiler dates to the 1880s, and was described and depicted by Teague and Shenk (1977:69, 72-77).

Several support structures were associated with the Lasky Mill operation. A cookhouse, assay office, and numerous stone dwellings surrounding the millsite were already described. The area contains several working platforms, and is littered with machinery parts and assorted hardware.

The assay office functioned also as a residence, and has already been described. The presence of a length of glass assay tubing, an assay pressure tank, cupels, sherds of heavy glass chemical bottles, fire bricks and a mound of lead indicate assay activities at this feature. The importance of maintaining assay facilities at a millsite was outlined by Preston (1895:47-48).

> Although at present most California mills have their own assayers to test the ore and the tailings, the time was not so very remote when it was not considered requisite to do *any* assaying. The expert millman could tell (?) by horn-spoon test how much his ore would mill to the ton; and if a horn-spoon test of the tailings showed no amalgam, he confidently asserted that all was being saved. It was decidedly a case where ''ignorance was bliss.'' No gold milling can be carried on understandingly without light being thrown on the different results achieved, and which can only be given by careful sampling and assaying. It is not sufficient to know that a certain loss has been sustained. It should be accompanied by a knowledge in what particular part of the operation the loss has been incurred, to enable the

> operator to remedy the evil; hence, the necessity of constant sampling and assaying [original emphasis].

(A horn spoon is long and thin, made of horn or iron, and used much like a gold pan for delicately testing the gold contents of an ore. Richards and Locke [1940:480] stated that "the horn spoon has found special favor in looking for mercury in the pulp from amalgamated plates or pans; but it is too small for general ore-dressing work." A local miner reported finding a metal horn spoon at the Keynot Mine.)

Two Beveridge prospectors had an assay sample run at the Independence Assay Office in 1882 (*Inyo Independent* 13 May 1882n). Probably these men worked a new, unproven claim, and could not afford their own assay kit.

Another tent cabin (Fig. 37) served as a chemical storage shed, and contains a large metal bin overflowing with a white, powdery substance (possibly lye). Cyanide reportedly was removed from this structure by a BLM crew during 1971 (Bureau of Land Management 1971; *Inyo Independent* 4 November 1971). The structure was built on a footing of stone masonry, and incorporated both scraps of milled lumber and local pinyon poles in its construction. The structure was built against a large willow for shade.

Another frame and canvas structure once stood between the cookhouse and boiler at Locus 45. This structure has collapsed under the weight of a fallen willow branch, and is hopelessly covered in a tangle of vegetation. Prior to its collapse, mining books reportedly were located in a drawer in this structure (Alan Akin, personal communication 1991), and it is suggested that the structure served as an administrative office.

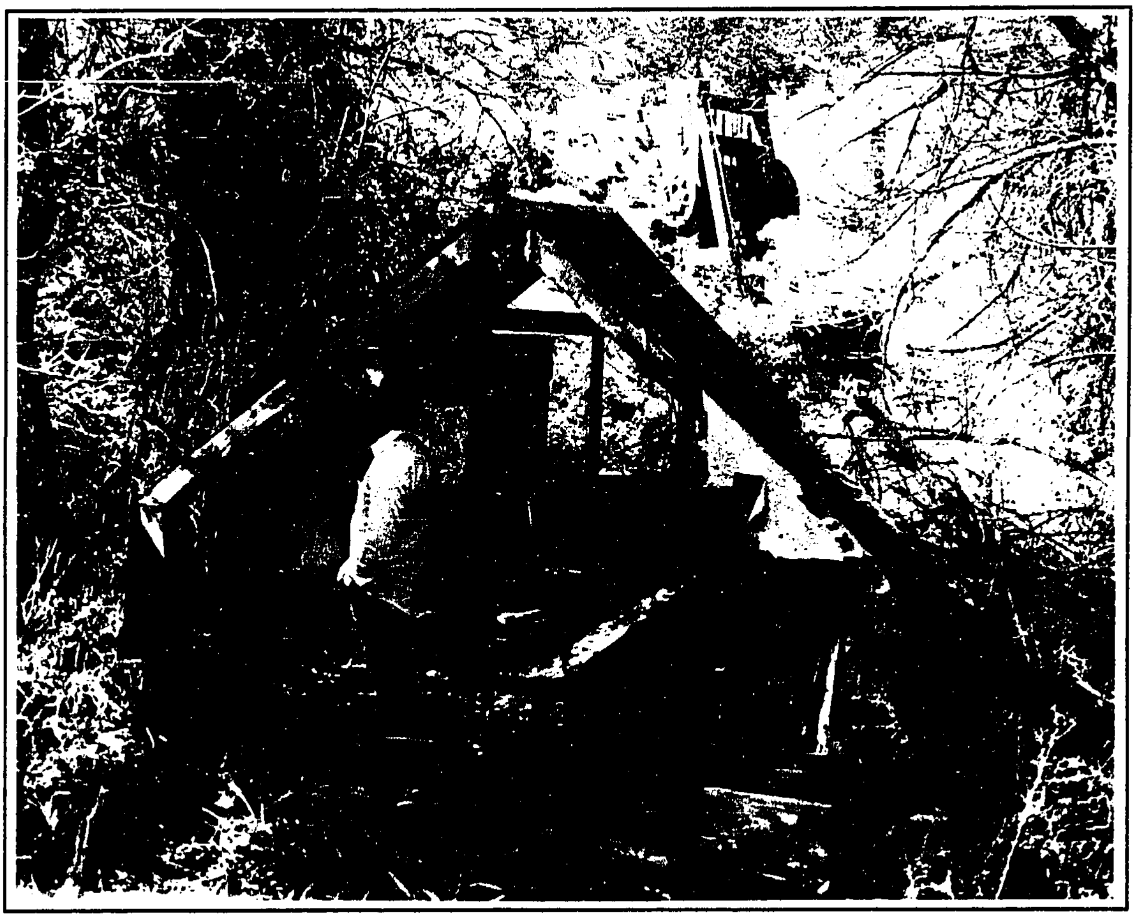

Figure 37. Chemical storage shed, Locus 45.

A later phase of mining and milling is represented by archaeological remains near the site of the Lasky Mill. Work at a series of adits at Locus 46, on the north side of Beveridge Canyon, supplied ore to an aerial [wireline] tram, mill, and cyanide recovery plant just downcanyon from the Lasky millsite. A pack trail is situated between these mine workings and Beveridge Canyon.

Ore was moved from the main adit portal at Locus 46 via ore car. On a contour with the adit entrance, cars of ore were dumped into a natural rock crevice. The crevice (which may have been partially deepened by blasting or pick work) led to an ore bin at the aerial tram terminus (Fig. 38) on a level below. The ore bin was constructed of milled lumber and split local pinyon logs. A bedrock outcrop was partially blasted away to open a pad for the bin, and a dry-laid stone foundation was used to retain the structure. Later mining at Locus 46 is revealed by dumping of ore against the ore bin. Obviously, this would not have been allowed if the bin were still in use. (Nearby, a modern claim cairn bears dates of assessment work conducted during 1982 and 1987.)

Before dropping into the ore bin, rock was passed over a fixed-bar grizzly (as illustrated in Preston [1895:14]). As described by Munday (1929:235),

> The fixed bar grizzly consists of a series of screen bars set at such a distance apart as to allow the required fine material to pass between the bars and to retain the oversize. The grizzly is set at such an angle as to allow the material to move over the bars by gravity. The screen bars are usually made of a tapered section set on edge with the thicker edge at the top [to prevent jamming]. . . . The material is introduced at the higher end. All the small material will fall through the spaces between the bars and the large will run down the bars and then to the crusher.

No evidence of an initial crusher was found, although presence of the grizzly certainly indicates its location near the ore bin (Preston 1895:32). A water tank and high-pressure water pump may have provided power and water for the crusher.

Once in the ore bin, ore was fed into carriers (buckets) on the aerial tram line through a gate at the front of the bin. A working platform was provided for the tram attendant. The tram terminus was built adjacent to a large, old juniper, which would have provided shade for the tram operator.

This aerial tramway is of the bi-cable, continuous type.

> On continuous tramways, a series of loaded carriers travel in one direction on a track cable, and empty carriers return in the other direction.

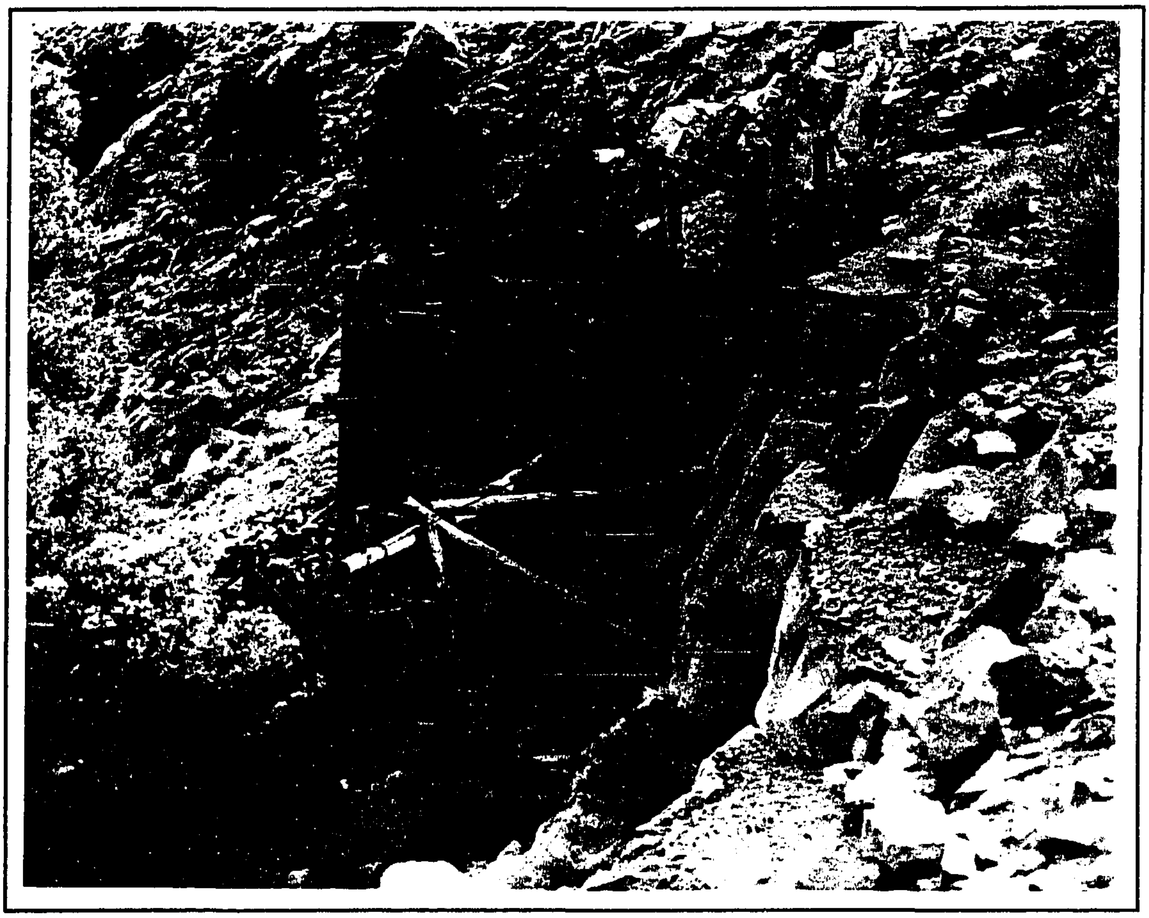

Figure 38. Ore bin and upper terminus of aerial tram, Locus 46.

> . . . Bi-cable tramways have a fixed track cable, along which the carriers are hauled by a traction rope. . . . A bi-cable tramway consists of: 1, two track cables stretched at required tension; 2, an endless traction rope for moving the loads; 3, numerous carriers for the loads, each fitted with carriage or trolley to run on track cable and a clamp or grip for seizing traction rope; 4, a station at each end to operate or control the traction rope and provide places for loading and unloading carriers; 5, intermediate towers for supporting track cable and traction rope [Peele 1941:26-02, 26-08].

The tram was wired with two gauges of smooth-coil cable (illustrated by Peele 1918:1569). According to Peele (1918:1569), smooth-coil cable was not as smooth as other types in use, but would "become fairly smooth by wear." Little general wear was observed on the cable line; it therefore is suggested that the tram was not used for a great length of time.

Buckets were clamped onto the smaller cable, and apparently rode by gravity on the larger cable. The tram employed buckets (Fig. 39) similar to that illustrated in Wallis-Tayler (1911:58). Maker's plates on the buckets read "MANUFACTURED BY/TRENTON IRON CO/TRENTON.N.J.", and an embossment on the clamp mechanism reads, "TRENTON/IRON/1894" and "PAT MAY 18 1897". Five buckets remain at the site. These buckets were equipped with bells that would have announced their arrival, preventing accidents to an inattentive tram operator. Buckets were manually clamped onto the traction cable for travel down the line.

Between the two terminal stations, buckets passed over four intermediate stations (Fig. 40) on the intervening ridge. The stations were crudely though sturdily constructed of local pinyon logs tied together with cable, heavy bolts, drill steel anchors, ore car track, and baling wire. The stations were placed on natural boulder outcrops, with additional dry-laid stonework to create a platform.

The lower tram terminus (Locus 44) is much more crudely constructed than the upper terminus. The pinyon log structure is anchored onto a bedrock outcrop with cable, bolts, and drill steel. A ladder was placed from ground level to a working platform in the center of the structure. Buckets made a 180° turn at the end, where their travel along the cable intercepted a length of bent ore car track, serving to disengage them from the line. Buckets then were dumped sideways onto another grizzly for further sorting.

Figure 39. Ore bucket.

Empty buckets were manually moved around the track, and back onto the smaller cable to be returned to the upper terminus.

Figure 40. Intermediate station on aerial tram.

A hand-operated winch is present near the top of the lower tram terminus; apparently, the operation could be run by hand if necessary. A brake mechanism at the upper tram terminus could be engaged to control the speed of full buckets travelling down the line. A telephone cable runs up the center of the tram, allowing contact between attendants at each end.

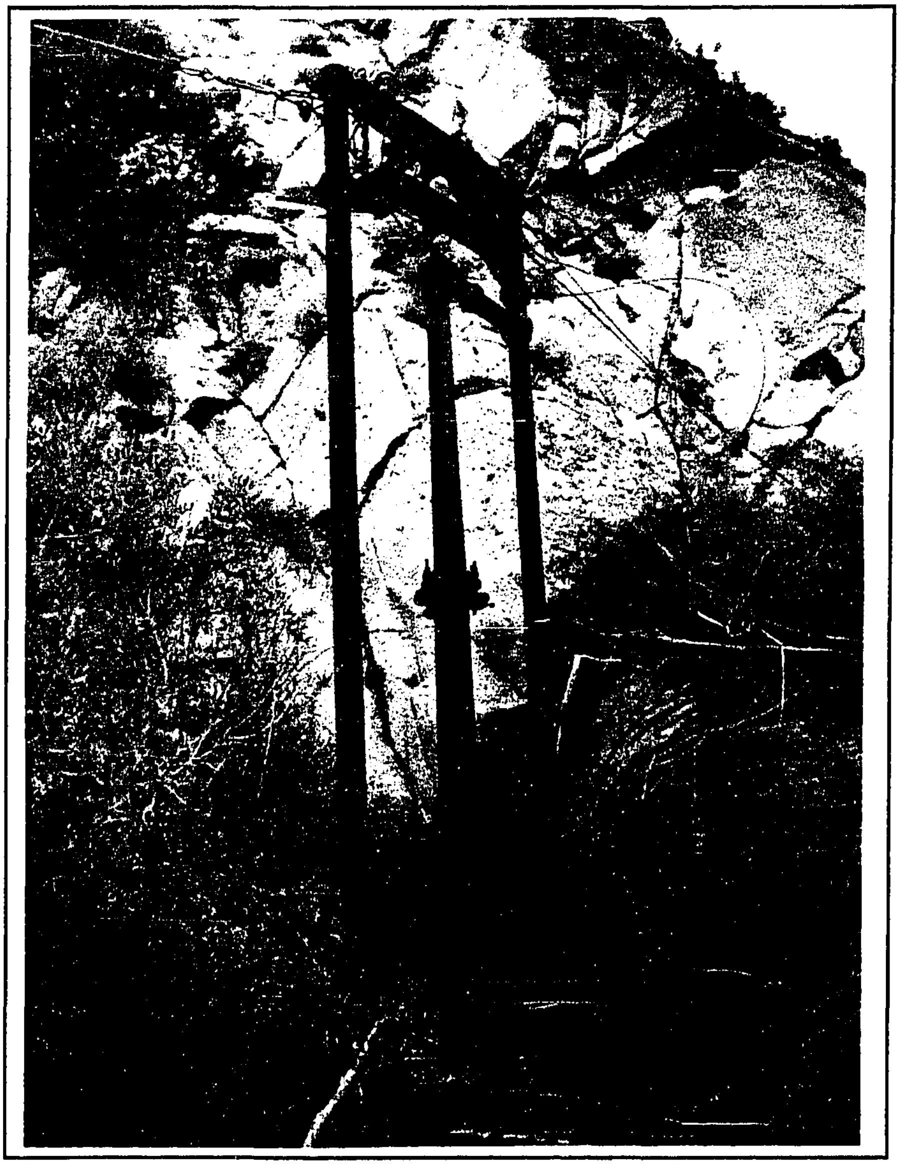

Figure 41. Gyratory crusher at Locus 45.

After sorting on the grizzly, larger pieces of ore were sent to a Gibson gyratory crusher (Fig. 41) for further reduction, and then on to an unidentified (no longer extant) secondary crusher anchored to machinery mounts on the hillside nearby. Smaller ore was delivered directly to the unidentified crusher. No indication was found to reveal the type of mill used in this step of the process. A maker's mark on the gyratory crusher reads "W. W. GIBSON SAN FRANCISCO/PATENTS PENDING". The gyratory crusher was described by Young (1970:218):

> [An] iron cone hung point downward . . . At its lower extremity an eccentric gear joined it to its power train. When in operation, the cone was impelled to wobble about, slightly off center. Surrounding the cone was a somewhat more flaring fixed cone; at one point the opposed walls were nearly touching, and at the opposite point they were the maximum distance apart. Ore was dumped into the bell-like top flare and the machine set going. As the cone wobbled about, there was much tumult but seemingly little activity (the wobble was too slight to be obvious), until the observer noticed that the blocks of ore were mysteriously cracking, falling in fragments that dropped farther down, cracked again, and finally vanished into the dusty dark below. The repeated waves of constriction between wall and cone had rather neatly done in the ore.

When the ore was sufficiently reduced, it was placed on a rubber-backed canvas conveyor belt known as a vanner (Fig. 42).

> Vanners . . . consist of a wide endless slowly-traveling belt running over pulleys at both ends, the head end slightly higher than the tailing end. The feed is distributed evenly across the belt and tiny streams of wash water carry the worthless material down the belt and into a tailing launder. The heavy concentrates hug the belt and are carried over the head end into a concentrate box. The whole belt is given a short end, side or gyrating shaking motion to assist in separation [Bradley 1934a:278].

The vanner effectively recovered a high percentage of the free gold contained in the ore; the remainder was sent on for further processing (Larry Vredenburgh, personal communication 1992).

Power and water for this milling and gold-recovery operation were provided by a Pelton water wheel (as illustrated in Preston 1901:32) mounted in front of a well-built stone dam just upcanyon from the locus. The dam measures at least 10 feet in height, and was situated at a particularly narrow point in the canyon.

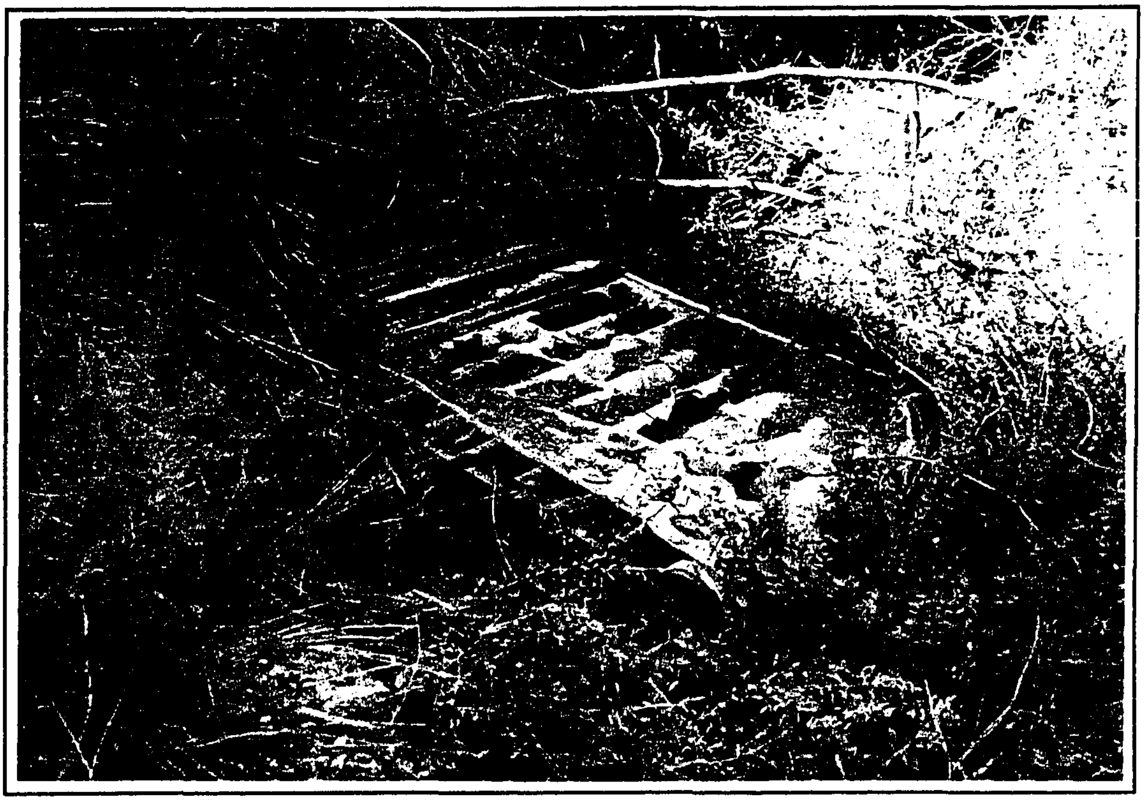

Figure 42. Vanner at Locus 45.

It is unclear what means of transport carried material from the vanner to the cyanide operation just downcanyon, but lengths of elevated ore car track suggest that ore cars may have been used. Six redwood tanks served to leach gold from the sand, and a final sump tank collected liquid for recycling.

> The process is based on the fact that gold (or silver) is soluble in a weak solution of potassium or sodium cyanide and that the dissolved gold is precipitated from the solution by metallic zinc [Bradley 1934a:280].

The cyanide process is detailed in Scheidel (1894), Bosqui (1899), and MacFarren (1912). Cyanidation ushered in a revolution in gold recovery just prior to the turn of the century. The process was a commercial success from 1890 (Scheidel 1894:13), and by

1900 had created a second boom in the gold mining industry (State Historical Preservation Center 1985:5). The process was developed in an attempt to "leach from tailing, waste, and low-grade ore virtually every atom of gold they carried" (Young 1970:283). Tailings are the remains of fluid mill waste, from which some amount of gold has been removed. Early methods removed gold incompletely; the cyanide process made it possible to rework discarded tailings and formerly unprofitable low-grade ore dumps. Scheidel (1894:42) noted that "expenses must be high where operations have to be carried on in an inaccessible situation."

Simply put, the process involved mixing a solution of cyanide with wet ore that had been crushed to about the consistency of sand. The mixture was placed in a percolation tank, where the gold became dissolved in the solution. The pregnant liquor was decanted from the tank and run through zinc boxes to precipitate the gold out of solution (Young 1970:284). The resulting gold-zinc precipitate was washed, dried, mixed with flux and melted into bullion (Bradley 1934a:280).

The cyanide process used one of two methods, leaching (percolation) and agitation (Bradley 1934a:280). The three cyanide plants recorded at Beveridge used the leaching process. This type of plant was "cheaper to build and operate than a plant equipped for . . . agitation" (Bradley 1934a:280). Leaching plants required only that ore be reduced to coarse "sands," while agitation required finer crushing, to the stage known as "slimes."

The first two tanks in the process at Locus 43 operated independently, and were equipped with a clutch system so that one could be disengaged. The mixture was decanted from the bottoms of these tanks. The next two tanks in the process had a filtration system in their bottoms. Each tank in the process was built on-site of pre-fabricated redwood panels and bar bands, and was elevated on a system of local logs. Cyanide tanks were elevated so that leakage could be easily detected (Scheidel 1894:28).

A set of zinc boxes (Fig. 43) is located in the canyon bottom just below the cyanide tanks. The boxes are constructed of milled lumber and supported by a framework of pinyon logs, rockwork, milled lumber, and pipe. A diesel engine and gas tank rest near the zinc boxes, and probably operated the tanks.

A working deck with workbench is suspended over the canyon bottom, which is swampy in this area. A sluice box is situated at the edge of the working platform.

A later phase of gold recovery is revealed at this locus. The side of one of the sand tanks was removed for reprocessing of its auriferous contents.

Probably, one of the two phases of cyanide recovery included reworking of tailings from the 5-stamp mill at Locus 45. Surely this mill deposited tailings in the canyon bottom during its operation, but no tailings currently are present at the site. This interpretation provides an answer to the missing tailings mystery outlined by Budlong (1992:37). Additionally, ponding of water behind the dam at Locus 44 would have served to disperse any tailings present behind the dam.

Documentary evidence revealed the addition of two cyanide recovery plants at mines in the Beveridge Mining District. Although the Casey (or Tom Casey) Mine was not investigated during the present fieldwork, it is known to be located near the head of Craig Canyon, in the southern part of the district (Tucker and Sampson 1938:423). A

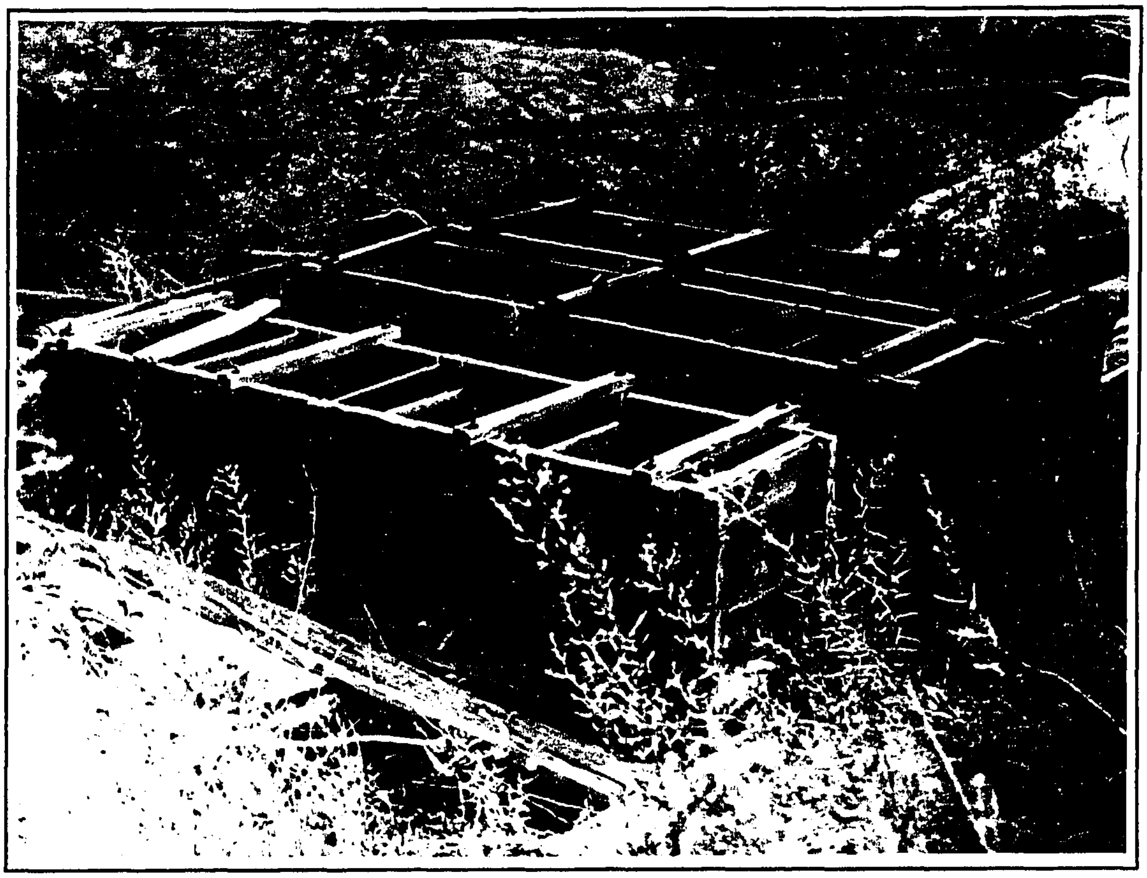

Figure 43. Zinc boxes at Locus 44.

report dated 1899 (*Inyo Independent* 9 June 1899i) remarked on the purchase of Casey Mine tailings for reworking by the P.D.Q. Cyanide Company. The next month the following article appeared:

> John C. Quinn of the P. D. Q. cyanide company arrived here [Independence] last Monday from Los Angeles. The material for two [cyanide] plants is now on the road, one to be erected . . . at Beveridge [*Inyo Independent* 14 July 1899h].

In 1905, the Nevada-Inyo Mining Company reportedly was about to alter its mill to include a concentrator and cyanide plant. Research failed to disclose the name of the mine associated with this Beveridge millsite.

The Highland Chief Mine (Locus 17) ran a small though complex mill and metal recovery plant. Early milling at the site was performed by a 1-stamp spring mill (Fig. 44). According to Young (1970:198), this little mill would have had only half the capacity of one arrastra. Later, the stamp mill was replaced with a new mill. This later phase of milling, ore processing, and gold recovery was carried out in a series of stages.

First, ore was fed into a jaw crusher, which pulverized ore between a flat, fixed jaw and a reciprocating upper jaw (Louis 1899:103; Preston 1895:14-15; Gaudin 1939:26). This type of crusher

> consists of a heavy rectangular metal frame, the front portion of which forms the fixed jaw. The swinging jaw is actuated by a toggle-joint at its lower end, the pitman [connecting rod] being worked by a powerful eccentric forged on the driving shaft of the machine. . . .
>
> The efficiency of this type of crusher is dependent on many circumstances, one of the chief items being of course the quality of the quartz [Louis 1899:103].

An embossed inscription on the crusher reads "MOYLE N°/ROLL JAW/FORCED FEED/CRUSHER &/PULVERIZER/E R MOYLE EGINEERING [sic]/& EQUIPMENT CO/LOS ANGELES CALIF/USA". The crusher was operated by an engine that has been removed from the site. From the jaw crusher, reduced ore dropped into an ore bin, and was delivered into an intermediate, gyratory crusher. Peele (1918:1627) noted the efficiency of a two-part system feeding ore from a jaw crusher to a gyratory crusher. The cone mill at the Highland Chief Mine is embossed "W W GIBSON PORTLAND".

When Highland Chief ores were sufficiently reduced, gold was recovered in a redwood tank, using the cyanide recovery process. No mill reports from the Highland Chief mill and cyanide recovery plant are known.

Figure 44. Locus 17, 1-stamp spring mill.

In 1885, the local newspaper carried the following notation:

. . . McDonough & Kissling have completed a new mill in Arastra [Beveridge] Canyon; it is of four stamps and will be run on custom work [*Inyo Independent* 23 May 1885p].

Possibly, this mill is represented by the foundations recorded at Locus 31. Those foundations indicate a 4-stamp, or possibly a 5-stamp, mill.

Two inclined shafts and a prospect, with an associated trail and working platform, are situated on the slopes north of this feature. An ore bin and crude ore gate were built into a dry-laid stone foundation. A broken stamp lies nearby, along with boiler grates and a silver plated copper amalgam plate. Tailings are present in the vicinity.

Immediately downcanyon from this construction (at Locus 30) are the remains of a gold recovery operation. Included are a stone dam, an earthen and stone water channel, water wheel parts, a cobbing area, a tailings pond, and part of a mercury canister. A prospect is located north of this complex.

Although this locus does not reveal a complete picture of the work conducted here, it may be interpreted as a mercury recovery operation predating use of the cyanide process. Power to run the stamp mill probably was generated by the water wheel.

Another mining/ore processing operation Locus 40 is located in Beveridge Canyon. The Beveridge Mine consists of five adits, one shaft, and six prospects on the north side of the canyon, and one adit, two inclined shafts, and three prospects on the south side of the canyon.

A pack trail passes the workings on the south side of the canyon, and leads to the millsite in the canyon bottom. The northern workings are accessed via a pack trail that swings past a frame cabin covered with sheet metal and canvas.

Ore car track was placed on the trails leading from one of these adits. An embossment on an ore car in front of one adit reads, "GLOBE IRON WORKS

STOCKTON CAL". An ore chute was used to drop ore from the track to an ore bin (no longer extant) at the upper terminus of an aerial tram. This single-rope (or mono-cable) tram employed one bucket to carry ore on smooth-coil cable from the northern workings to the millsite below. Such reversible trams also are called "jig-back" or "to-and-fro" trams (Peele 1941:26-36).

A winch was used at the upper terminus, and a brake mechanism was attached to the line to control downward speed. The ore bucket hangs suspended at the lower tram terminus; it was constructed of previously used sheet metal. A wooden roller at the upper tram terminus is handmade; no part of this tram was prefabricated. The tram makes a single arc between the upper and lower ends; no intermediate towers were necessary. The line probably was a single endless rope which ran around a large wooden sheave wheel at the lower terminus and a wooden roller at the upper terminus. The wheel and roller are extant at the site.

According to Peele (1941:26-36), the cost of erection and operation of this type of tram is low, "the simplest and cheapest for moderate distances," but their capacity "is limited by the reciprocating movement."

An operator would have stood on a wooden platform at the lower tram terminus and manually emptied the bucket into a jaw crusher. This machinery is no longer present at the site, but is indicated by jaw crusher toggle plates on a platform below. After initial crushing, ore dropped into either of two ore bins.

Each bin was equipped with a Challenge-type ore feeder (as illustrated in Preston 1895:16), which delivered ore into two mills in front of the ore bins. (One of the feeders has been salvaged from the site; the attached ore bin was destroyed at that time.) Preston (1895:16) described the feeder:

> . . . the Challenge is undoubtedly the best all-round machine, which is proved by its almost universal adoption. . . . the Challenge feeders consist of a hopper with a movable circular plate beneath, set slightly inclined toward the mortar, receiving a rotary motion by means of gear wheels acting on the lower face of the plate, which are moved by a friction grip . . . Movable wings extending from the point of the hopper over the plate toward the throat of the mortar permit a given quantity of the ore to be scraped off at each blow through a partial rotation of the plate.

Two Huntington grinding mills (Fig. 45) are bolted to heavy timber framing in front of the ore bins. Embossed onto the fronts of the mills is the following, "THE F. M. DAVIS/IRON WKS. CO./DENVER COLO.". The following discussion of the Huntington mill is taken from Louis (1899:292-300), Preston (1895:60-62), and Gaudin (1939:92-94). The mill consists of an iron drum containing a geared, revolving pillar. Loosely suspended iron rollers press against the interior sides of the drum, crushing the ore. The addition of water results in the ore being reduced to pulp, which escapes from the drum through screens mounted around its circumference. Two methods of gold recovery were applied to Huntington mills. First, mercury was added to the drum prior to crushing, and the resulting amalgam was drawn off through a groove in the bottom of the drum. Additionally, crushed ore was discharged onto concentrating and/or amalgamating tables. The remains of a bumping (concentrating) table are scattered below the millsite. One source (Close 1985:34) indicated that the mills were driven by two gasoline engines. Steam engine parts and boiler tanks are scattered on a flat nearby, and suggest use of that machinery in the operation. Figure 46 depicts a Huntington Mill

Figure 45. Huntington mills and ore bins at Locus 40.

in operation in a virtually identical set-up to that at Locus 40 (not in the Beveridge District).

Reportedly, Huntington mills recovered gold in amounts of over 80%. Louis (1899:292) further outlined the disadvantages and benefits associated with use of stamp mills versus Huntington mills. According to this source, it was possible to freeze a broken stamp so that it did no crushing, while the other stamps continued work. Breakdowns in Huntington Mills, on the other hand, required a halt in the milling process.

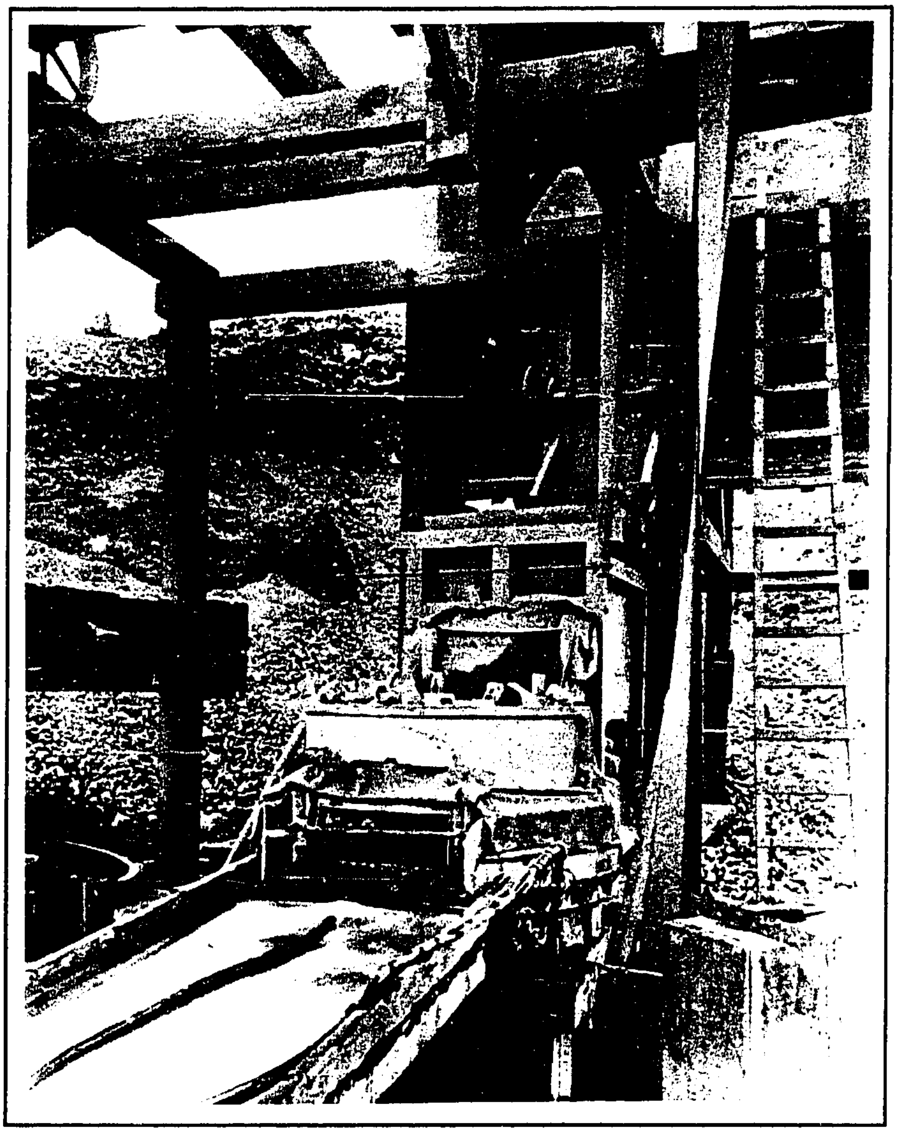

Figure 46. Historical photograph of a Huntington mill in use.

The great disadvantage of the percussive acting stamp mill, as compared with grinding machines, is that the power required to work it is always the same, whether there is any ore under the stamps or not, whereas a grinding mill runs with far less power when empty than when it is crushing. . . . one of the disadvantages of the Huntington mill is the fact that any ore-feeder connected with it is bound to feed at a uniform rate of speed, whatever be the rate of crushing of the machine. . . . Compared with the Huntington mill, the stamp has the disadvantages of greater initial cost, greater total weight, and greater time required and cost incurred in its erection. It seems

> clear, however, that its greater reliability compensates in most cases for all these drawbacks.

A cyanide recovery plant is located in the canyon bottom immediately adjacent to the millsite. The cyanide process may have been used contemporaneously with the Huntington mill operation, or may date to a later phase of recovery. At least three redwood sand tanks figured into the process; the third probably was used to collect liquid for recycling. Although no zinc boxes remain at the site, a pile of zinc shavings attests to their use here.

Modifications to Mining and Milling Technologies

The various milling and ore processing technologies known to have been used at Beveridge were attempts to eke the most profit possible out of a valuable, though difficult region. The only mining and milling methods used at Beveridge were those which were adaptable to rugged terrain. According to Taylor and Joseph (1988:58),

> it paid to transport only the highest grade ore of more than 6 ounces of gold per ton . . . and this type of ore soon ran out. Additionally, only small milling equipment could be brought into the district; consequently, a few small, inefficient mills were built to process the ore. The chief recovery method used at these mills was amalgamation with only about 50 percent of the gold being saved.

Even when standard mining technologies were employed at Beveridge, they often were adapted or modified in order to make the best possible use of the constraints particular to this terrain.

One of the most basic responses to the extremely steep slopes encountered in the Beveridge Mining District was the building of impressive stone retaining walls.

Retaining walls frequently were used to capture waste rock dumps from encroaching upon mine workings or residences below. Level working pads and terraces were created on slopes with the help of retaining walls. In other cases, trails, platforms, and pads were created by blasting away bedrock outcrops. Numerous drill holes and blasting scars attest to this practice.

Winter snows and cold in the Inyo Mountains hampered some milling operations, probably because of lack of flowing water, and sometimes caused mills to close during the winter months (*Inyo Independent* 15 December 1883y, 6 December 1895f, 12 November 1897w). Because they did not require a constant flow of water, arrastras were better suited for use throughout winter (*Inyo Independent* 12 January 1884a). Every attempt was made, however, to keep mining operations open year-round, and numerous reports are known of miners wintering in the district (*Inyo Independent* 1 December 1883w, 12 November 1897w). One of the risks of closing a mine for the winter is illustrated by the following from the *Inyo Independent* (5 January 1889b):

> Tom McDonough heard a few days ago that parties were taking rich ore out of his mine over in Beveridge. He has gone over the Inyo mountains to see what was going on. Mr. McDonough usually comes in from his mine in the winter and stays in the [Owens] Valley until spring, not leaving anyone at the mine.

Although winter snows made work during that season problematic, they were tolerated because of the increased water they provided later in the year (*Inyo Independent* 6 March 1886e). Lack of water was a constant concern for most miners in the district; a few were fortunate enough to hold claims and millsites near springs and canyon bottoms where a water source could be relied upon.

In most of the district, water was not available in great quantity. Obvious efforts to conserve and stretch water resources were observed in several parts of the district. An earthen dam was constructed in an extremely narrow portion of Beveridge Canyon (Locus 19). Associated with this dam was a reservoir and system of water channels. Three stone dams also were recorded. One is a massive stone dam at the Locus 44 millsite (described above). Again, a particularly narrow part of Beveridge Canyon was chosen as a dam site. Another stone dam at Locus 30 is associated with an earthen water ditch and water wheel parts. Another stone dam (Locus 32) was situated just downcanyon from a well-constructed stone structure.

In most cases, millsites and ore processing loci are situated for advantageous use of available resources. The fact that Pat Keyes operated an arrastra away from a water source may at first seem surprising, until the following is considered. Erection of a mill near water would require transport of tons of ore from the mine to the millsite. Erection of a mill near the mine would require transport of only enough water to operate the mill. Accordingly, at least one Beveridge arrastra (Locus 4) was recorded on a hilltop away from the nearest water source. Flint's report (1941:68) illustrates another hilltop arrastra. Obviously, arrastras as well as other types of mills which required water were placed near a water source whenever possible, but difficulties in transport were an important consideration.

In another case, a sizable water tank was located at the dry locale containing a primary crusher and tram terminus at Locus 46. In one case, the water in Beveridge Canyon was more than necessary to supply needs. A wooden decking was built as a working platform over a swampy portion of the stream below. This feature is associated with the cyanide operation at Locus 43.

The summer sun at Beveridge can be relentless. Examples of domiciles built next to large, old trees have already been discussed. At Locus 46, the tram terminus was situated to take advantage of the shade afforded by a large, old juniper.

Lumber and wood fuel resources would have been problematic in the Beveridge District. DeDecker (1987:50) indicated that the by-laws of the Beveridge Mining District contained a timber law, but details of its regulations were lost along with other documentation concerning the organization of the district. Pinyon Pine is a slow-growing tree, and although plentiful throughout much of the district, would have become depleted quickly if exploited without regulation. Dense stands of Mountain Mahogany are not uncommon in the district; the dense wood of this shrub would have provided good charcoal.

Productive development of a mining district depends on the development of an adequate transportation network (cf. Kersten 1964:498; Francaviglia 1991:70). Only when supplies can be brought into a site, and when ore or bullion can be taken from the site, can profits be made on capital expenditures.

Transportation has always been problematic in the Inyo Mountains. Trail building required blasting and construction of retaining walls. During fieldwork, it was noted that trails intended for human foot traffic and/or pack animals were prepared with the least necessary effort. Only when ore car track was laid on a trail was attention given to removal of imbedded rocks, blasting rough outcrops, etc.

In 1907, the lack of easy access in the mining areas encircling Owens Valley was bemoaned.

> Within the county are deposits extensive enough to supply the world's markets in several lines, once the problem of cheap transportation is solved [Anonymous 1907:n.p.].

Transportation within the district was not easy even after the construction of trails, and rendered transport of ores for milling and obtaining supplies difficult. Small-scale ore transport problems were solved with makeshift ore chutes and ore cars on tracks. Aerial tramways were employed to transport ore to mills in two particularly steep parts of Beveridge canyon.

> Another small mill is said to be in actual operation in the deep gorge two or three miles to the southward [south of the Laura Mill between McElvoy and Keynot canyons]. Though so near, this new mill is still very far--full a half day's hard travel distant, owing to the nature of the intervening ground, impassable in a direct line even by the most accomplished mountain billy-goat. Not very much farther in apparent distance, but nearly a day's travel by the trail, is found the Taylor & McEvoy five-stamp steam mill . . . in a still more wonderfully deep and rugged gorge [*Inyo Independent* 20 May 1882q].

Most Beveridge ores were packed to mills within the district. Documentary research resulted in numerous references to the arrangement of pack trains to move Beveridge ore from mines to mills (*Inyo Independent* 24 May 1895a, 10 April 1896h; 30 June 1899k; 14 July 1899m). It seems that most pack trains were engaged in the town of Independence. The earliest such reference (*Inyo Independent* 7 May 1881d) stated that W. L. Hunter "has the contract for packing the ore, but has first to build some three miles of trail."

While wagons, and later trucks, were preferred for ore transportation (Gardner 1939:314), this method simply was not possible at Beveridge.

> If any considerable amount of ore is to be mined, a road or an aerial tramway usually is built. . . .
>
> Ore is transported on the backs of animals when relatively small tonnages of high-grade material are hauled down steep mountain sides or over rough country where no roads exist . . . Loads can be brought down much steeper grades with pack animals than in wheeled vehicles [Gardner 1939:314, 325, 328].

Archaeological evidence in the form of mule shoes, horseshoes, horseshoe nails, harness leather, trace parts, and a working harness attest to the widespread use of beasts of burden in the Beveridge Mining District.

Contemporary news reports also relate transport of bullion from Beveridge following processing (*Inyo Independent* 31 July 1896p, 29 September 1899q). One account (*Inyo Independent* 7 February 1885c) stated that ore from a mine just outside the northern boundary of the Beveridge Mining District was shipped by train to Selby & Co., San Francisco.

Development of the mines in the Beveridge Mining District is characterized by cyclical plans to construct a better access route to the mines. Miners shifted between plotting new, ambitious routes into the district and pessimism. Just one year after the district was formed, the following appeared in the local newspaper:

> The road . . . up the Union cañon I believe to be practicable, and will shortly prove it a fact, if so. It will lessen the distance to the mines more than one half [*Inyo Independent* 8 June 1878b].

By 1881, miners were discouraged about the prospects for accessing the site.

> The [Beveridge] mines are near the summit on the east slope of the Inyos; the country is terribly rough, and no wagon roads can be made to them nearer than the base of the mountains [*Inyo Independent* 26 February 1881].

A "new road to Beveridge" was said to be a certainty in 1905, and work on it reportedly would commence soon (*Inyo Register* 23 November 1905). A 1906 report of the Keynote Mining and Milling Company (1906:n.p.) stated that a good wagon road might very easily be brought to the Keynot Mine, thereby overcoming the difficulties of transportation and "contending with Mexican packers." Apparently, later miners did not cultivate the same amicable working and social relationship with other ethnic groups as did their earlier counterparts.

A report on the Saline Valley Salt Company aerial tram (in the Inyo Mountains south of the Beveridge Mining District) stated in 1917 that this tram was necessary because "it was impossible to build roads on the east flank of the Inyo Mountains," adding that even the construction of a trail from the summit eastward to Saline Valley was accomplished with great difficulty.

In 1935, the following article appeared in the *Inyo Register* (16 May 1935):

> From the Cerro Gordo mine[s] it is feasible to build a road following the crest of the Inyo range north to the Burgess mine. From the Burgess mine the road could be extended north following the ridge to the west of New York Butte, then on to the head of Beveridge canyon. From my investigation [I] do not consider it feasible to build roads to mines in Hunter, Beveridge or Keynot canyons. However, trails could be easily built from the different mines to connect with the above mentioned road.

The proposed road was built, following the route of a trail used by early Beveridge miners (*Inyo Independent* 18 May 1878a). The road extended northward from Cerro

Gordo to the area of the Burgess Mine, but was never extended farther north. The suggested trails connecting the Beveridge District mines also were built, although certainly not with the ease implied in this article.

Proposed work at the Keynot Mine in the 1980s included building a road northward from the Burgess Mine, along the Inyo crest to Keynot Peak, and then east to the Keynot Mine (Moore 1981:1). Because the mining operation did not proceed, this road was never built.

Beveridge miners made the best of the available transportation network. Maker's marks on mining equipment observed during fieldwork indicate manufacture in Los Angeles and San Francisco, California; Portland, Connecticut; St. Paul, Minnesota; St. Louis, Missouri; Trenton, New Jersey; and Seneca Falls, New York. Probably, equipment manufactured in various parts of the United States was distributed from shipping points in San Francisco or Los Angeles.

Contemporary newspaper accounts relate the shipment of equipment for the Beveridge mines. In 1882, the Laura Mill was expecting delivery of an amalgamating plate, which was to arrive in Bishop (*Inyo Independent* 24 June 1882y). A new boiler for the Gavilan Mine was shipped from San Francisco in 1885 (*Inyo Independent* 6 June 1885s). In 1899, a Beveridge miner was in Independence arranging for new arrastra gearing (*Inyo Independent* 18 August 1899o).

As expected, evidence was found of difficult and creative transport of heavy, bulky machinery to the site. Although stamp mill machinery had the reputation of being relatively transportable and easily erected (Young 1970:198), this article from the *Inyo*

Independent (30 December 1882oo) indicates that the Inyo Mountains comprised a formidable obstacle.

> . . . the roughness of the country has retarded development and prevented extensive operations. . . . As a result but a single five-stamp mill has been erected in the entire district, and that with infinite toil was packed in sections by mules over the lofty summit and down into the depths of a terrible cañon, and was planted between frowning battlements of overhanging rock, where it stands to-day a monument of rare faith and energy. An entire year was exhausted in severe and steady labor before the stamps were ready for crushing.

The Huntington Mills at Locus 40 are examples of attempts to minimize transport problems. This type of mill was particularly well-suited for use in the Beveridge District because it was manufactured in several pieces, and made to be assembled on-site (Louis 1899:295, 297; Preston 1895:60).

Beveridge miners regarded certain types of mining machinery indispensable, and transported amazingly large and cumbersome items to the site. The boiler at Locus 45 in Beveridge Canyon, and one known to have been used in Hunter Canyon (*Inyo Independent* 2 May 1885k) certainly posed a unique transport problem. The boiler in Hunter Canyon was said to have been packed in sections by mules. Since the boiler in Beveridge Canyon remains encased in rockwork, it is not possible to determine if it was assembled from pieces. An illustration in Watkins (1971:131) shows a team of at least eight mules, attended by several men, pulling a wagon carrying a boiler that appears to be similar in size to that located in Beveridge Canyon. It is impossible that such an assembly could have traversed the steep, narrow mountain trails leading to the site.

The two aerial trams at Loci 40 and 46 are equipped with considerable lengths of continuous cable. Wallis-Tayler (1911:108) described the means of transporting cable to another rugged area.

> The transport of this rope was, owing to the rugged nature of the country to be traversed, a matter of very serious difficulty. It was accomplished by dividing the rope into ten lengths, each length made up into seven coils, with an intermediate length of 10 feet, and each of the coils in each length was loaded upon the back of a mule, the entire train being composed of seventy mules, and three men being provided to each seven mules . . .
>
> In transporting a wire rope in this manner, the coils should be made up as small as possible, say not over 24 inches, so as to enable them to be secured to the pack saddles.

Cables for the Beveridge trams, although shorter than the cable in the example given by Wallis-Tayler, undoubtedly were transported to the site in a similar manner. Brown (1979:n.p.) illustrated a train of pack animals carrying cable in this way.

Mills and other mining machinery often require substantial foundations. Louis (1899:228) noted that stamp mill foundations must "withstand the constant jar of the stamps and the powerful pull of the belt or thrust of the gearing." In areas where transportation is not a problem, foundations usually are of poured concrete and/or heavy, milled timbers. At Beveridge, milled lumber of any dimension was scarce, and long timbers were nearly impossible to transport on trails containing many sharp switchbacks. Out of necessity, compromises were made at Beveridge.

> One lone cedar [juniper?] tree grew near where they are building [the McEvoy Mill], and they are using it and other pieces for a battery block. The other timbers for the mill are such as can be packed on a mule. It is

> making a great deal more work by having to splice the timbers [*Inyo Independent* 25 September 1880f].

Timbers used as vertical supports for the Lasky Mill (Locus 45) also were spliced, and care was taken to notch the splices for maximum strength.

Wooden supports for the jaw crusher at Locus 17 and the Huntington Mills at Locus 40 may have been factory-produced, and sold with the mill. In any case, these timbers are considerably shorter than those required for erection of a stamp mill, and could have been carried in by pack mule with comparative ease.

Evidence of makeshift use of available milled lumber and local posts and logs was observed throughout the district. Local logs were used as tram support towers, cyanide tank footings, mine timbering, and ties for ore car track.

In 1883, wood was sold to various points in Inyo County at prices of five to twelve dollars per cord (Keeler 1883:n.p.). Lumber at Panamint sold for $250 per 1,000 feet (Nadeau MS:53). Locally-available pinyon came to be regarded with great respect. At Cerro Gordo, theft of pinyon poles brought a $25 fine (Nadeau MS:51).

It was expected that numerous examples of reuse of objects would be widespread in the district, and in fact, examples of this type of behavior are legion on the landscape. Table 2 shows a partial list of objects modified for use in mining or milling pursuits.

Similarly, examples of repaired items and homemade items were found repeatedly. One of the ore buckets on the aerial tram at Loci 44 and 46 exhibits a welded patch. Obviously, an item as useful, necessary, and difficult to transport as an ore bucket was not disposable. Homemade items included several buckets fashioned from fuel cans, a

Table 2

Occurrence of Used Items Modified for Industrial Reuse

Original Use	Modified Use
fuel cans	ore chute lining
fuel can	ore chute
fuel can	sluice part
stovepipe	ore chute
fuel cans	ore bin lining
50-gallon drum	ore chute
corrugated metal	sluice
ore car track	aerial tram support
machinery elbow joint	pestle
mercury cannister	mortar (3 examples)
crate parts	mine timbering wedge
painted house trim	mine timbering wedge
redwood lumber	mine timbering
drill steel	crowbar
arrastra stones	cobbing stones
fuel can	scrap metal
poured concrete	paving stones
rock drill box	cut and made into smaller box
shovel	spade

box with screened bottom, several crude ladders, and a chemical basket for suspension in a cyanide tank. Two of the intermediate tram supports incorporated rollers fashioned of a small-diameter length of pipe set with cement into a large-diameter pipe.

Repeated observations were made that reveal the sometimes desperate use of available materials in place of the needed item. Instead of cutting extra long bolts on tram supports, the extra space was taken up with multiple washers and nuts. The ends of headless bolts were pounded to create heads.

The Quest for Capital Investment

In addition to the physical technologies discussed above, research uncovered evidence of another behavior displayed by Beveridge miners in their attempt to make the district productive. The quest for capital investment may be considered a type of technology, inasmuch as it served to further the development of the Beveridge Mining District.

Despite the difficulties involved in accessing Beveridge, miners remained optimistic about the inevitable prosperity of the district. It was believed that if only adequate capital investment could be obtained, the Beveridge mines would flourish. The history of mining in the district is characterized by the active search for investors.

Small-scale mining operations, such as placer mining and individual prospecting, were simply financed by the individuals involved. Hard-rock mining, with its associated requirements of laborers, drilling equipment, ore transportation, milling, and gold recovery, required substantial capital. Additionally, hard-rock mines generally were located in less accessible areas than placers, therefore creating new supply challenges that could only be solved with adequate funding.

Throughout the history of the Beveridge Mining District, miners promoted their concerns in an effort to attract outside investors. Some of the efforts were genuine advertisement of promising claims; others were blatant propaganda intended to dazzle wealthy would-be investors who had little knowledge of the region. Some of the propaganda was launched by local merchants and administrators in hopes of bringing outside monies to the Owens Valley and Inyo County. The files of the *Inyo Independent* provide numerous examples.

> There are beyond doubt many more paying ledges yet to be located all through [the Beveridge] district, as well as elsewhere on every side of the four peaks constituting the Inyos . . . Some day full ten thousand men will delve within the shadows of those peaks, for, therein everywhere, mineral of some sort is now to be seen, and some time, if not now, it will all pay to take out [*Inyo Independent* 3 July 1880d].

> Beginning at Cerro Gordo and following the Inyo range north to Deep Spring Valley, a distance of about sixty miles, there is probably no region in the United States that can show as many and as rich mines and prospects as this section of Inyo County. These mines are now attracting much attention, especially in New York and other Eastern cities [*Inyo Independent* 16 October 1880g].

Genuine reports of far-reaching interest in the mines of Beveridge and greater Inyo County include the following:

> The Chilula mine, at Beveridge, [h]as been sold to San Francisco parties . . . [*Inyo Independent* 9 January 1886a].

> J. D. Bancroft of Chicago and Geo. D. Rives, brother of Judge Rives, left here Monday to inspect mines in Inyo county. Should the property satisfy Mr. Bancroft a sale will be consummated [*Inyo Independent* 26 January 1894c].

> The sale was announced this morning of five gold mining locations in the Beveridge mining district, . . . the price paid being in the neighborhood of $250,000.

> The purchasers are H. S. Gillette and Calvin I. Brown, two prominent capitalists from Chicago, who have had the ground carefully prospected for some months past by experts . . . The advent of outside capital into the camp is hailed as the forerunner of still greater prosperity by the other mine owners of the camp [*Inyo Independent* 18 December 1896u].

> An expert representing London capital has been looking over the situation here [in Inyo County] [*Inyo Independent* 9 June 1899d].

> Charles Houle, Norm Mairs and Mr. Correll left for the Beveridge mining district last Tuesday morning. Messrs. Houle and Mairs have mining claims there and Mr. Correll wants to see and investigate the properties with a view to bonding them [*Inyo Independent* 16 February 1900b].

On a smaller scale, the *Inyo Independent* carried reports of frequent property transfers between Beveridge miners. Further attempts at local advertisement of Beveridge mines were made in the form of mineral specimens from Beveridge mines. Beveridge mineral and ore specimens were donated for display to the Independence assay office, the *Inyo Independent* office, the Independence Mineral Cabinet (*Inyo Independent* 13 May 1882o, 29 November 1884r), and exhibited at the Mineral Exposition (*Inyo Independent* 30 June 1883n) and the Inyo County Fair (*Inyo Independent* 22 October 1887e, 22 October 1887f).

DISCUSSION

Investigations into the three research questions revealed the determination and stamina of Beveridge miners. Data were gathered concerning the way of life in the Beveridge Mining District, the nature of interaction between players at Beveridge, the type of material culture present in the archaeological record, and the level of mining technology used at the site.

Beveridge miners, merchants, millmen, packers, and others developed unique methods to deal with the constrictive environment they encountered. Hardesty (1988:102, 112) called these adaptive or "coping" strategies, and stated that the unique geology of ore bodies forced the development of appropriate mining methods. The unpredictable nature of the ore bodies, and the additional predictably harsh region at Beveridge required miners to incorporate opportunistic solutions to the challenges they faced. All of their solutions were necessarily accomplished within the bounds of the limited capital available. In addition, mountain ranges of the Great Basin often are devoid of vegetation for fuel or building materials. Likewise, water and faunal resources frequently are scarce. The various mining strikes made in this region faced extremely challenging odds for survival and productivity. A contemporary journalist described the efforts of Beveridge miners this way.

> While noting the stupendous works of nature [in the Inyo Mountains], the observer will not fail to give heed to the works of man in his efforts to overcome the difficulties of the situation, bearing in mind that this word "man" is a representation of a mere handful of enterprising individuals, possessed of an abundance of hope, energy and splendid engineering abilities, but scarce any other capital whatever, strong arms excepted [*Inyo Independent* 20 May 1882q].

Local Owens Valley society gave credit to Beveridge miners for their successful efforts. The following is from the *Inyo Independent* (17 June 1882x),

> Charley McEvoy came in on Thursday from Beveridge, with a smiling countenance, and a pocket full of rich gold specimens. Charley is the "boss" on working gold ores, and it is owing to the skillful handling of the Beveridge ores in the Taylor & McEvoy mill that has made that district a success.

When a mining district is formed in a remote locality, high-grade ores are processed first, so that transportation and supply networks may be built with the resulting capital (cf. Francaviglia 1991:72). The realization of this typical scenario was precluded at Beveridge, due to the impracticability of road building.

Although Beveridge was only about 12 miles by air from the towns of Lone Pine and Independence, it was effectively cut off from them due to the difficult intervening pack trails. As discussed above, this isolation resulted in a situation of cooperative neighborliness that has been observed in other frontier communities (e.g., Hobson 1951:61).

In his *Mining Frontiers of the Far West*, Paul (1963:1) stated that much was done wastefully on the mining frontier. Such was not the case at Beveridge. Evidence was abundant of recycling and thrifty reuse of items, and incorporation of local materials whenever possible. Development of mines in the Beveridge district was not easy; the harsh terrain and remoteness made access, transport, and mining difficult.

As noted by Hardesty (1985:215),

> Even when the natural environments of the industrial frontier were quite variable, every attempt was made to use the same adaptive solutions. . . . a standardized technology was used by mining and milling operations.

However, Hardesty (1985:219) also recognized that "the idiosyncracies of local environments sometimes make *unique* technologies more cost effective than a standardized industrial technology" [original emphasis].

It has been shown that the Beveridge miners brought heavy, cumbersome equipment to the site despite the oppressive task involved. However, attempts were made to simplify and minimize the amount and weight of materials brought to the site. For example, arrastras constructed of local materials were the first milling technology used at the site, and continued to be used alongside technically superior mills. Lighter mills, such as stamp mills and Huntington mills were chosen over heavier counterparts. When heavy mill machinery was transported to the site, every attempt was made to allay the difficulty of transporting heavy timbers by using local wood for foundations.

Chapter XII

IMPLICATIONS FOR THE STUDY OF HISTORICAL MINING SITES

The study of historical mining sites has come a long way since this statement was made in 1967:

> . . . what we might learn of the technology of mining from the excavation of the sites themselves is going to make a minimal contribution to our information about human behavior, because the extreme economic importance of the mining industry has resulted in very careful documentation of the tools and equipment by mining engineers . . . and it is very unlikely that we will gain new information through excavation that is not better documented in the technical literature [Fenenga 1967:81].

This study has shown that the technical literature has failed to record such details as how mining equipment was transported into remote sites, how equipment was erected at the site, how the surrounding terrain was altered and prepared for the equipment, what repairs may have been necessary during the use-life of the equipment, and how equipment was operated on a low budget. Questions of anthropological interest are, likewise, not addressed in technical mining records.

THE ANTHROPO-ARCHAEOLOGICAL STUDY OF HISTORICAL MINING SITES

> Despite his antiquity, the miner . . . was recently discovered by anthropologists. This discovery, not fortuitously, came when the energy and environmental crisis made us all aware of the finite supply of nonrenewable natural resources and the limits of industrial growth. If interest in mining came late, systematic studies of mining have yet to arrive [Godoy 1985:199].

By the mid-1970s, only a few geographical studies of mining landscapes had been conducted (Hart 1975:174). These statements are even more shocking when the following is considered. As has been shown, mining often is carried out in a series of phases. Frequently, the phases are separated by decades, while a site rests idle awaiting the inception of a new extractive or processing technology that will allow access to lower-grade ore bodies, or allow reworking of tailings and low-grade ore dumps. Mining is an inherently destructive process; sequential mining destroys the remains and scars of earlier mining activity. Since anthropological studies of miners, and archaeological studies of mining sites are relatively recent, a wealth of data already have been lost.

A considerable body of literature has developed as a result of CRM projects conducted at mining sites. Also, the recent trend toward social history studies has produced a few pertinent treatises (cf. Fetherling 1988:237). Few of these works address pertinent research questions, although the social history works probably come closer to achieving that goal. Works by Hardesty (1985, 1986, 1988, 1990a, 1990b) and Francaviglia (1988, 1991) are exemplary in this regard.

CRM-based studies of mining sites seldom provide more pertinent data than early works in the field of industrial archaeology. Hardesty (1990a:42) warned against archaeological studies that asked trivial research questions, and called for studies that incorporated questions in a broader scientific and scholarly framework. Godoy (1985:211) bemoaned the overabundance of anthropological studies concerned with migrations (rushes) to mining sites, and suggested an integrative perspective currently missing from mining studies.

> . . . a truly anthropological study of mining will examine both the geological and economic infrastructure of the firm/industry as well as their secondary sociopolitical and ideological dimensions [Godoy 1985:211].

Studies of living mining societies, as proposed by Godoy, will amass a greater body of knowledge for the archaeologist concerned with past mining societies. This type of ethnography is virtually nonexistent in the field. The future of mining-sites research is bright, and holds great potential for revealing information concerning social settings as well as technical aspects of the mining frontier.

Although the emphases of early industrial archaeology are now considered somewhat naïve, the archaeological study of mining sites cannot (and should not) be separated from a study of the mining industry itself. "Industry forms the backdrop for all human activities" in a mining district (Francaviglia 1991:9). But, the archaeologist charged with recording and interpreting a mining site must go beyond an accounting of the technologies represented by archaeological remains.

> The landscape of any particular mining district is really a mosaic of smaller scenes created by, or for, different groups of people who have diverse tasks to perform [Francaviglia 1991:99].

The mining site must be considered as a behavior system (cf. Hardesty 1986:47), with the potential to reveal behaviors of anthropological interest. Research centering on the Beveridge Mining District revealed much concerning human behaviors in a remote area, accessed with great difficulty.

Three decades ago, it was stated that "little is known concerning the relation between the environment and social behavior" (Heyman 1964:4). Recently, studies have begun to address this aspect of inquiry (Greene 1990:25; Huston 1990:19). The present research at Beveridge resulted in a wealth of information concerning the relationship between miners and a particularly harsh mining region.

The anthropological study of mining sites, although new, has made some great steps since Godoy's (1985:199) statement that it only recently had been discovered by anthropologists. Researchers such as Hardesty and Francaviglia created an early standard in the field, and prospects for the future are exciting.

NEW IDEAS ABOUT MINING SITES IN THE AMERICAN WEST

Until recently, the following statement characterized negative attitudes about mining landscapes.

> The entire mining landscape is distinctive; devastated hillsides, abandoned workings, ugly waste dumps, broken and rotting machinery, dreary rows of tired and weatherbeaten houses, ghost towns, rutted roads, and rusting railroad tracks [Hart 1975:174].

Mining landscapes often are described as ugly, abysmal, or revolting (Francaviglia 1991:11). Recent works have attempted to rearrange our thought processes with regard to the mining landscape, attempting to instill an appreciation that will lead to inquiring study of mining remains.

> Mining landscapes may be ugly to some (conservationists or romanticists, perhaps), or beautiful to others (mining engineers or some artists, perhaps), but that is beside the point. For most people who live in them, these landscapes have simply become part of the visual framework of ordinary everyday life [Francaviglia 1991:11].

Francaviglia (1991:11) urged researchers to avoid the "elitism that prevents us from understanding what such places really mean to the people who create and inhabit them."

This is the important point that must be recognized in future anthropological and archaeological studies of mining sites.

Francaviglia (1991:173) even went so far as to state that

> if every culture needs ruins to emphasize its past accomplishments and its relationship to nature, then our once-prosperous mining towns are among the most powerful of our cultural symbols.

Even if the researcher does not acknowledge such lofty interpretations of the significance of meaning at mining sites, it is a fact that the remains of mining have particular longevity in the landscape. Mounds of rock and tailings, and open pits remain a long time in the environment. Since many mining sites of the American West are located in desert regions, even mining machinery and support structures have surprising longevity when unmolested by looters and vandals. As stated by Fagan (1988:524),

> fortunately, . . . artifacts and other elements of the technological subsystem often survive. Because technology is a primary way in which different cultures adapt to their environment, detailed models of technological subsystems allow archaeologists to obtain a relatively comprehensive picture of the cultural system as a whole.

Another important contribution is possible through the study of mining sites. Alanen (1979:49) noted that understanding, interpreting, and preserving the structures and environments of "ordinary people and common places" requires the adoption of new research procedures and documentary sources. This type of research, again, is a step away from the elitist bias so often encountered in historical/archaeological research.

Recently, a new type of research concentrates on the rural historic landscape, which often is the direct result of everyday, occupational activities such as mining (McClelland et al. MS:2).

Another type of mining-sites research only recently addressed is the study of the small-scale site. Because large, well-known mining sites such as Bodie have received massive popular attention, a stereotypical pattern of the western American mining site is perceived as typical by the American public. In the American West, the small-scale, low-budget mining site is more typical of the majority of mines than their famous, well-publicized counterparts. Because the large western boomtown has received such popular attention, the small-scale site is often ignored. Since few written records were kept for the small mining site, it often is the case that an historical and anthropological record of the site can only be gained through archaeological research. Godoy (1985:210) pointed out an additional potential for ''substantial contributions to mineral economics through the study of the small-scale sector,'' especially in Third World nations.

Finally, mining-sites research must be conducted in a holistic, contextual framework of spheres of significance. No mining site existed as an island; rather, it was connected to concentric spheres of influence on a local (district), regional, state, national, and international level. These spheres can be used by anthropologists to place the site in a proper historical and anthropological context.

Several avenues for anthropo-archaeological research at mining sites are proposed. By applying these research strategies, the Beveridge Mining District was shown to differ from its contemporaries and other mining sites in the Great Basin. Beveridge provides an effective case study for the application of a variety of types of mining-sites research, and illustrates several points. First, popular stereotypes of the western American hard-rock mining camp are not necessarily accurate. Second, studies of small-scale western mining sites have the potential to yield much new data to the field. Third, certain human behaviors are considered optimal, and when faced with obstacles such as a forbidding mountain barrier, people will attempt to continue optimal behaviors. Fourth, the historical archaeologist must be able to understand the mining landscape if historical mining sites are to be adequately interpreted. Finally, through the application of a variety of research contexts, more sophisticated studies of mining sites may be attained.

With its beginnings in industrial archaeology, mining-sites research is fast becoming a field of research in its own right. Mining sites are given archaeological and anthropological attention with increasing frequency. With the application of holistic, contextual research questions and the abandonment of previous stereotypes, the future of mining-sites research promises to yield much new information concerning the lifeways, material culture, and technology of miners and mining sites.

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1881c Saline Valley. 26 February. Independence, California.

1881d Beveridge Matters. 7 May. Independence, California.

1881e Bullion Shipment. 7 May. Independence, California.

1881f A Good Clean Up. 7 May. Independence, California.

1881g Beveridge Gold Yield. 14 May. Independence, California.

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1881j Movements of Miners. 23 July. Independence, California.

1881k At Beveridge. 24 September. Independence, California.

1881m A New Mill. 8 October. Independence, California.

1881n Ore Ahead. 8 October. Independence, California.

1881o A Beautiful Specimen. 22 October. Independence, California.

1881p At Beveridge. 31 December. Independence, California.

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1882f Mining Transfer. 1 April. Independence, California.

1882g The Keynot. 8 April. Independence, California.

1882h Proposed New Mills. 8 April. Independence, California.

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1882j Good. 22 April. Independence, California.

1882k A Skeleton Found. 6 May. Independence, California.

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1882u Beveridge District. 3 June. Independence, California.

1882v The Laura Mill. 3 June. Independence, California.

1882w Beveridge. 17 June. Independence, California.

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1882z Packing. 1 July. Independence, California.

1882aa The Laura. 1 July. Independence, California.

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1882ee Good News. 5 August. Independence, California.

1882ff Lapwing Mine. 5 August. Independence, California.

1882gg Mill Started. 5 August. Independence, California.

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1882jj Transfers. 2 September. Independence, California.

1882kk Beveridge. 21 October. Independence, California.

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1882nn The Keynot. 16 December. Independence, California.

1882oo The Inyo Range. 30 December. Independence, California.

1883a New Mill. 3 February. Independence, California.

1883b Beveridge District. 24 February. Independence, California.

1883c Beveridge. 3 March. Independence, California.

1883d Started Up. 17 March. Independence, California.

1883e Beveridge. 7 April. Independence, California.

Inyo Independent

1883f Lasky's Mill. 21 April. Independence, California.

1883g Two Rich Specimens. 28 April. Independence, California.

1883h The Keynot. 12 May. Independence, California.

1883i Beveridge District. 26 May. Independence, California.

1883j The Keynot. 26 May. Independence, California.

1883k At McEvoy's. 16 June. Independence, California.

1883m McEvoy's Mill. 16 June. Independence, California.

1883n Keynot Ore. 30 June. Independence, California.

1883o The Elgin. 30 June. Independence, California.

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1883q McEvoy's Mill. 4 August. Independence, California.

1883r New Life. 18 August. Independence, California.

1883s The Keynot. 25 August. Independence, California.

1883t The McEvoy Mill. 8 September. Independence, California.

1883u Arrastras. 29 September. Independence, California.

1883v The Elgin. 6 October. Independence, California.

1883w The Keynot. 1 December. Independence, California.

1883x Keynot. 8 December. Independence, California.

1883y The Keynot Mill. 15 December. Independence, California.

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1884e Beveridge Mines. 19 July. Independence, California.

1884f Beveridge Bridge. 26 July. Independence, California.

1884g Personal Mention. 26 July. Independence, California.

1884h Mining Items. 2 August. Independence, California.

1884i Personal Mention. 9 August. Independence, California.

1884j Mining Items: Beveridge District. 13 September. Independence, California.

1884k Political. 13 September. Independence, California.

1884m [Untitled.] 20 September. Independence, California.

1884n Mining Items: Hunters Canyon. 27 September. Independence, California.

1884o Property Transfers. 18 October. Independence, California.

1884p Lasky Mill. 1 November. Independence, California.

1884q Election Returns. 8 November. Independence, California.

1884r Arastra Canyon. 29 November. Independence, California.

1884s Beveridge Items. 6 December. Independence, California.

1885a Big Mining Strike. 3 January. Independence, California.

1885b Mining Items, Keynot Mine. 24 January. Independence, California.

1885c Mining Items: White Hill Mine. 7 February. Independence, California.

1885d Hard Luck. 21 February. Independence, California.

1885e White Hill Mine. 7 March. Independence, California.

Inyo Independent

1885f Beveridge. 14 March. Independence, California.

1885g Mining Items: Keynot Mine. 28 March. Independence, California.

1885h Keynot Mill. 11 April. Independence, California.

1885i Mining Items. 11 April. Independence, California.

1885j The Straus Claim. 11 April. Independence, California.

1885k Mining Items: Beveridge Distirict. 2 May. Independence, California.

1885m Lasky Mill. 2 May. Independence, California.

1885n Mining Items: Gavilan. 9 May. Independence, California.

1885o [Untitled.] 9 May. Independence, California.

1885p Mining Items: Beveridge Notes. 23 May. Independence, California.

1885q Mining Items: Gavilan Mine. 30 May. Independence, California.

1885r Water Question Settled. 30 May. Independence, California.

1885s Increased Milling Capacity. 6 June. Independence, California.

1885t Personal Mention. 6 June. Independence, California.

1885u Recorded Transfers. 6 June. Independence, California.

1885v Water Supply. 6 June. Independence, California.

1885w Beveridge. 8 August. Independence, California.

1885x Property Transfers. 15 August. Independence, California.

1885y Why Inyo County is Not Prosperous. 28 November. Independence, California.

1886a Mine Sold. 9 January. Independence, California.

1886b [Untitled.] 23 January. Independence, California.

Inyo Independent

1886c [Untitled.] 23 January. Independence, California.

1886d [Untitled.] 23 January. Independence, California.

1886e [Untitled.] 6 March. Independence, California.

1886f [Untitled.] 24 April. Independence, California.

1886g [Untitled.] 24 April. Independence, California.

1886h [Untitled.] 17 July. Independence, California.

1886i Rich Ore. 11 September. Independence, California.

1886j [Untitled.] 26 September. Independence, California.

1886k Election Proclamation. 30 October. Independence, California.

1886m [Untitled.] 13 November. Independence, California.

1886n Keynot Mine. 20 November. Independence, California.

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1887d [Untitled.] 15 October. Independence, California.

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1889a [Untitled.] 5 January. Independence, California.

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1889c A Valuable Mine. 20 April. Independence, California.

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1889e [Untitled.] 11 May. Independence, California.

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1891a [Untitled.] 17 July. Independence, California.

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1892b [Untitled.] 18 November. Independence, California.

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1893f [Untitled.] 1 September. Independence, California.

1894a [Untitled.] 5 January. Independence, California.

1894b [Untitled.] 26 January. Independence, California.

1894c [Untitled.] 26 January. Independence, California.

1894d [Untitled.] 16 March. Independence, California.

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1894f [Untitled.] 9 November. Independence, California.

1894g [Untitled.] 16 November. Independence, California.

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1895b [Untitled.] 12 July. Independence, California.

1895c [Untitled.] 2 August. Independence, California.

1895d [Untitled.] 25 October. Independence, California.

1895e [Untitled.] 15 November. Independence, California.

1895f Mining Items. 6 December. Independence, California.

1895g [Untitled.] 20 December. Independence, California.

1896a [Untitled.] 3 January. Independence, California.

1896b Location Notices. 7 February. Independence, California.

1896c Location Notices. 14 February. Independence, California.

1896d Chats by the Lakeside. 21 February. Independence, California.

1896e Location Notices. 6 March. Independence, California.

1896f [Untitled.] 6 March. Independence, California.

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1896g [Untitled.] 27 March. Independence, California.

1896h [Untitled.] 10 April. Independence, California.

1896i [Untitled.] 24 April. Independence, California.

1896j [Untitled.] 1 May. Independence, California.

1896k [Untitled.] 8 May. Independence, California.

1896m [Untitled.] 15 May. Independence, California.

1896n [Untitled.] 22 May. Independence, California.

1896o [Untitled.] 5 June. Independence, California.

1896p More Bullion. 31 July. Independence, California.

1896q [Untitled.] 9 October. Independence, California.

1896r [Untitled.] 16 October. Independence, California.

1896s [Untitled.] 23 October. Independence, California.

1896t [Untitled.] 4 December. Independence, California.

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1897b Big Mining Suit. 19 February. Independence, California.

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1897d [Untitled.] 2 April. Independence, California.

1897e [Untitled.] 23 April. Independence, California.

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1897f New Gasoline Engine. 30 April. Independence, California.

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1897h Mining Suit. 23 July. Independence, California.

1897i [Untitled.] 23 July. Independence, California.

1897j Superior Court Proceedings. 30 July. Independence, California.

1897k Superior Court Proceedings. 6 August. Independence, California.

1897m [Untitled.] 6 August. Independence, California.

1897n [Untitled.] 13 August. Independence, California.

1897o [Untitled.] 27 August. Independence, California.

1897p Real Estate Transfers. 3 September. Independence, California.

1897q Mining Case Decided. 10 September. Independence, California.

1897r Real Estate Transfers. 10 September. Independence, California.

1897s [Untitled.] 10 September. Independence, California.

1897t Real Estate Transfers. 17 September. Independence, California.

1897u Superior Court Proceedings. 1 October. Independence, California.

1897v Superior Court Proceedings. 12 November. Independence, California.

1897w [Untitled.] 12 November. Independence, California.

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1898e [Untitled.] 2 December. Independence, California.

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1899b Evidently An Error. 10 May. Independence, California.

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1899e Bodie Items. 9 June. Independence, California.

1899f Carson and Colorado Railroad [advertisement.] 9 June. Independence, California.

1899g Virginia and Truckee Railroad [advertisement.] 9 June. Independence, California.

1899h [Untitled.] 9 June. Independence, California.

1899i [Untitled.] 9 June. Independence, California.

1899j [Untitled.] 30 June. Independence, California.

1899k [Untitled.] 30 June. Independence, California.

1899m [Untitled.] 14 July. Independence, California.

1899n [Untitled.] 21 July. Independence, California.

1899o [Untitled.] 18 August. Independence, California.

1899p [Untitled.] 25 August. Independence, California.

1899q [Untitled.] 29 September. Independence, California.

1899r [Untitled.] 13 October. Independence, California.

1899s [Untitled.] 27 October. Independence, California.

Inyo Independent

1899t [Untitled.] 17 November. Independence, California.]

1899u [Untitled.] 24 November. Independence, California.

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1900b [Untitled.] 16 February. Independence, California.

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Appendix A

REFERENCES TO BEVERIDGE DISTRICT MINES AND CLAIMS

Appendix A

REFERENCES TO BEVERIDGE DISTRICT MINES AND CLAIMS

BCT = *Bishop Creek Times*
DI = *Daily Independent*
II = *Inyo Independent*
IR = *Inyo Register*
LAMR = *Los Angeles Mining Review*
MSP = *Mining and Scientific Press*

Alta:	*II* 5/18/1878, 6/8/1878
Alturas:	*II* 4/1/1882; Unknown 1885
Arambula:	*II* 8/8/1885
Avo:	*II* 4/1/1882
Barranca:	Crawford 1894:136; Crawford 1896:179
Beauty:	Crawford 1894:138; Crawford 1896:181
Benicia:	Crawford 1896:179
Beveridge Mine:	Unknown 1885; Close 1985:22, 34-35, 72; Taylor and Joseph 1988:120, A9
Beveridge Canyon:	*IR* 5/16/1935; Close 1985:22, 38, 72; Taylor and Joseph 1988:120, A6, A7, A9
Big Horn (Bighorn):	Tucker 1926:465; Tucker and Sampson 1934:310; *IR* 5/16/1935; Tucker and Sampson 1938:383, 469, plate III; Norman and Stewart 1951:145; Goodwin 1957:454-455; Clark 1970:147; Clark 1980:134; Vredenburgh et al. 1981:246; Clark 1985:182; Close 1985:19, 22, 29-30, 73; DeDecker 1987:50; Taylor and Joseph 1988:59, 119, A3, A4
Big Treasure:	*II* 5/28/1887
Blackbird:	*II* 12/15/1883
Blackboard:	Unknown 1885
Borago Broncho (Boraga):	*II* 5/18/1878, *II* 6/8/1878; *II* 9/2/1882; Unknown 1885; Crawford 1894:136
Briton & Porter:	Crawford 1894:136; Crawford 1896:179
Britton (Brittan):	*II* 12/15/1883; Unknown 1885
Buena Noche:	*II* 9/8/1883

Buena Vista:	*II* 12/15/1883
Burgess (Iron Sides):	Waring and Huguenin 1917:75; Knopf 1918:122; Tucker 1921:280; Tucker 1926:469; *IR* 5/16/1935; Tucker and Sampson 1938:388, 474, plate III; Norman and Stewart 1951:147; Mitchell 1969:17; Clark 1970:147; Close 1985:39, 74; DeDecker 1987:51; Taylor and Joseph 1988:119, A5
Casey (see Tom Casey)	
Champion Lode:	*II* 5/18/1878, *II* 6/8/1878; Tucker and Sampson 1938:plate III
Chilula (Chilulu, Chalula):	*II* 5/23/1885; *II* 1/9/1886; *II* 1/23/1886; Crawford 1894:137; Crawford 1896:180; *LAMR* 5/3/1903; DeDecker 1987:51
Christmas:	*II* 6/21/1884; Tucker and Sampson 1938:plate III
Cinnamon:	Tucker 1921:279; Tucker 1926:467; Tucker and Sampson 1938:392, 470, plate III; Norman and Stewart 1951:148; Clark 1970:147; Clark 1980:134; Clark 1985:182; Close 1985:23, 74; DeDecker 1987:51; Taylor and Joseph 1988:120, A12
Consejo:	*II* 9/2/1882
Easter Sunday:	*II* 4/11/1885
Eclipse:	*II* 4/1/1882; Tucker and Sampson 1938:plate III
Elgin:	*II* 6/30/1883o; *II* 10/6/1883; *II* 7/5/1884; Unknown 1885
El Paso:	Crawford 1894:138; Crawford 1896:181
El Peñasco (El Pemasco):	*II* 5/26/1883; *II* 12/15/1883; Unknown 1885
El Plan:	*II* 6/21/1884; *II* 11/1/1884
Enterprise:	*II* 11/25/1882
Eureka:	*II* 5/18/1878; Waring and Huguenin 1917:77; Tucker and Sampson 1938:plate III
Franklin:	*II* 5/18/1878, *II* 6/8/1878
Gavilan (Gavilon, Gavalan):	*II* 5/9/1885; *II* 5/23/1885; *II* 5/30/1885; *II* 6/6/1885; *II* 6/6/1885; *II* 8/15/1885; *II* 5/11/1889; Crawford 1894:137; Crawford 1896:180; *LAMR* 5/3/1903; Close 1985:23, 36-37, 76; DeDecker 1987:51; Taylor and Joseph 1988:119, A5
Gold Dollar:	Huguenin 1916; Tucker and Sampson 1938:plate III
Gold Hill Nos. 1, 2, and 3:	*II* 9/2/1882; Unknown 1885; Tucker and Sampson 1938:plate III

Gold Standard (Vega):	Tucker and Sampson 1938:397, 472, plate III; Norman and Stewart 1951:164; Clark 1980:134; Clark 1985:182; Close 1985:39, 76; Taylor and Joseph 1988:119, A3
Golden Eagle:	Waring and Huguenin 1917:78; Tucker 1926:469; *IR* 5/16/1935; Tucker and Sampson 1938:398, 473, plate III; Norman and Stewart 1951:151; Clark 1970:147; Clark 1980:134; Clark 1985:182
Golden Fleece:	Unknown 1885
Golden Gate Nos. 1 and 2:	Unknown 1885
Golden Horn:	*II* 5/18/1878, *II* 6/8/1878
Golden Princess (see Keynot)	
Golden Reef:	*II* 9/13/1884; Unknown 1885
Golden Thread:	*II* 5/18/1878, *II* 6/8/1878
Golden Wreath:	*II* 9/8/1883; Tucker and Sampson 1938:plate III
Guadalupe (Guadaloupe):	*II* 4/7/1899; Huguenin 1916
Happy New Year Nos. 1 and 2:	Huguenin 1916
Hidalgo (Group):	*II* 9/25/1880; *II* 4/1/1882; *II* 9/2/1882; *II* 5/26/1883; *II* 12/15/1883; Unknown 1885
Highland Chief:	Tucker and Sampson 1938:399, 473, plate III; Norman and Stewart 1951:153; Close 1985:23, 76; Taylor and Joseph 1988:120, A7
Hunter Arrastras:	*II* 9/25/1880; *II* 9/2/1882; *II* 9/29/1883; *II* 5/2/1885; Vredenburgh et al. 1981:246; Close 1985:23, 77; Taylor and Joseph 1988:119, A3-A4
Ibex:	*II* 4/1/1882; *II* 11/1/1884; Unknown 1885
Ironsides (see Burgess)	
Joy and Vega:	Close 1985:23, 77; DeDecker 1987:51; Taylor and Joseph 1988:120, A17
Journigan (Journagan):	*IR* 5/16/1935; Tucker and Sampson 1938:401-402, 474, plate III; Norman and Stewart 1951:153
Julia:	*II* 11/1/1884
Junietta:	*II* 2/5/1881
Justice:	*II* 4/1/1882
Keynot:	*II* 5/7/1881; *II* 5/14/1881; *II* 6/11/1881; *II* 9/24/18 81; *II* 10/8/1881; *II* 10/8/1881; *BCT* 10/31/1881; *II* 12/31/1881; *II* 1/21/1882; *II* 1/28/1882; *II* 2/25/1882; *II* 3/4/1882; *II* 3/11/1882; *II* 4/1/1882; *II* 4/8/1882; *II* 4/8/1882; *II* 4/8/1882; *BCT* 4/15/1882; *II* 5/13/1882; *II* 5/20/1882; *II* 6/3/1882; *II* 6/17/1882; *II* 7/8/1882; *II* 7/15/1882; *II* 8/5/1882; *II* 8/26/1882; *II* 9/2/1882; *II* 9/2/1882; *II* 10/21/1882;

Keynot, cont'd.:	*II* 12/16/1882; *II* 12/30/1882; *II* 2/24/1883; *II* 3/3/1883; *II* 4/7/1883; *II* 4/21/1883; *II* 5/12/1883; *II* 5/26/1883; *II* 5/26/1883; *II* 6/30/1883; *II* 6/30/1883; *II* 8/25/1883; *II* 9/8/1883; *II* 12/1/1883; *II* 12/8/1883; *II* 12/15/1883; *II* 1/12/1884; *II* 6/21/1884; *II* 7/19/1884; *II* 9/13/1884; *II* 11/1/1884; *II* 11/29/1884; *II* 12/6/1884; Unknown 1885; *II* 1/24/1885; *II* 3/28/1885; *II* 4/11/1885; *II* 5/2/1885; *II* 8/8/1885; *II* 1/23/1886; *II* 4/24/1886; *II* 9/26/1886; *II* 11/20/1886; *II* 9/10/1887; *II* 10/22/1887; *II* 11/19/1887; *II* 12/24/1887; Goodyear 1888:233; *II* 1/14/1888; *II* 6/9/1888; *II* 9/29/1888; *II* 4/20/1889; *II* 11/11/1892; Crawford 1894:138; *II* 5/24/1895; Crawford 1896:181; *II* 10/23/1896; *II* 2/19/1897; *II* 7/23/1897; *II* 7/23/1897; *II* 7/30/1897; *II* 8/6/1897; *II* 8/6/1897; *II* 8/13/1897; *II* 8/27/1897; *II* 9/10/1897; *II* 10/1/1897; *II* 11/12/1897; *II* 11/12/1897; *II* 11/26/1897; *II* 8/5/1898; *II* 6/30/1899; *II* 4/3/1903; *LAMR* 5/3/1903; *II* 6/24/1904; Keynote Mining and Milling Company 1906; White 1914:112; Huguenin 1916, 1918; Waring and Huguenin 1917:81; Knopf 1918:118; Tucker 1926:470; Tucker 1931:543; *II* 2/2/1934; *IR* 5/16/1935; Tucker and Sampson 1938:404-405, 474, plate III; Flint 1941:7, 66-70; Norman and Stewart 1951:154; Clark 1970:147; Gudde 1975:33; Clark 1980:134; BLM 1981; Certini 1981a-d; *DI* 7/14/81a, 7/14/81b, 8/6/81c, 8/19/81d; Vredenburgh et al. 1981:246; Certini 1982; *DI* 5/11/1982; *IR* 8/19/1984; Clark 1985:182; *IR* 1/23/1985; Close 1985:19, 23-24, 26-27, 38, 78; Wheelock 1985:27; DeDecker 1987:50; Taylor and Joseph 1988:54, 59, 120, A8; BLM n.d.
Keynote Extension:	Huguenin 1916
Keys (see Pat Keyes)	
Keystone:	Flint 1941:6-7, 66; Close 1985:78
King:	Crawford 1894:138; Crawford 1896:181
La Cachora (Cachora):	*II* 12/15/1883; *II* 11/1/1884; Unknown 1885
La Cueva:	*II* 12/15/1883; Unknown 1885
Laehard:	*II* 10/18/1884o
La Ma-tzin:	*II* 12/15/1883

La Paloma:	*II* 12/15/1883
Lapwing:	*II* 7/8/1882; *II* 7/15/1882; *II* 12/16/1882; *II* 9/8/1883
Larky:	Unknown 1885
Laura:	*II* 9/24/1881; *II* 10/22/1881; *II* 5/20/1882; *II* 6/3/1882u; *II* 6/3/1882v; *II* 6/3/1882w; *II* 6/24/1882; *II* 7/1/1882; *II* 7/1/1882; 8/5/1882; Unknown 1885; Crawford 1894:138; Crawford 1896:182; Close 1985:24, 38, 79; DeDecker 1987:51; Taylor and Joseph 1988:120, A14
Lone Pine:	Crawford 1894:138; Crawford 1896:181
Los Angeles:	*II* 5/26/1883; *II* 12/15/1883; Unknown 1885; Tucker and Sampson 1938:plate III
Losano:	*II* 4/8/1882
Mallard Duck:	Flint 1941:67
Mano Del Hombre:	Close 1985:24, 38, 79; Taylor and Joseph 1988:120, A10
Mano Del Hombre Segundo:	Close 1985:24, 80; Taylor and Joseph 1988:121, A18
Matson:	Unknown 1885
Mayflower:	*II* 6/2/1899; Tucker and Sampson 1938:476
McEvoy (McAvoy, McElvoy, McAlvoy, Tayler-McElvoy):	*II* 1/23/1886; Crawford 1894:138; Crawford 1896:182; Close 1985:25, 32, 86; DeDecker 1987:51; Taylor and Joseph 1988:120, A14
Mexican:	*II* 4/1/1882; Crawford 1894:138; Crawford 1896:181
Montana (Montano):	Crawford 1894:137; Crawford 1896:180; DeDecker 1987:51
Mountain Sheep:	*II* 11/25/1882
Mountain View:	Huguenin 1916; Waring and Huguenin 1917:82; Tucker 1926:471; *IR* 5/16/1935; Tucker and Sampson 1938:413, plate III; Goodwin 1957:494; Clark 1970:147
Mundan:	Unknown 1885
Nevada-Inyo Mining Company:	*IR* 11/30/1905
New Year:	*II* 2/5/1881; Unknown 1885
New Year's Gift:	*II* 2/5/1881
Oro:	Unknown 1885
Paddy Jack:	Unknown 1885

Pat Keyes (Keys):	Crawford 1894:138; *II* 7/12/1895; *II* 10/25/1895; *II* 11/15/1895; *II* 12/6/1895; Crawford 1896:181; *II* 4/10/1896; *II* 4/24/1896; *II* 7/31/1896; *II* 10/23/1896; *II* 3/26/1897; *II* 4/23/1897; *II* 4/30/1897; *II* 9/10/1897; *II* 6/30/1899; *II* 7/14/1899; *II* 8/18/1899; *II* 9/29/1899; Close 1985:24, 78, 81; Taylor and Joseph 1988:120, A15
Philadelphia:	*II* 2/5/1881
Pobst-Johnson:	*II* 6/24/1904
Queen:	Crawford 1894:138; Crawford 1896:181
Quervon:	*II* 11/1/1884
Reavis:	Unknown 1885
Redmore:	*II* 6/8/1878
Red Dog:	Close 1985:25, 38, 84; Taylor and Joseph 1988:120, A11
Red Warrior:	*II* 5/18/1878, *II* 6/8/1878
Robles:	*II* 5/18/1878, *II* 6/8/1878
San Antonio (San Antonia):	*II* 5/18/1878, *II* 6/8/1878; *II* 11/1/1884; Crawford 1894:137; Crawford 1896:180; DeDecker 1987:51
San Ignacio (San Ygnacio):	*II* 12/15/1883; Unknown 1885
San Pedro:	*II* 6/8/1878; Tucker and Sampson 1938:plate III
Santa Cruz:	Crawford 1896:183
Santiago:	*II* 12/15/1883; *II* 11/1/1884; Unknown 1885
Sidewinder:	Huguenin 1916
Snow Flake:	*II* 5/18/1878
Straus:	*II* 1/3/1885; *II* 3/14/1885f; *II* 4/11/1885
Sunday:	Huguenin 1916
Sunrise:	*II* 2/5/1881
Sweitzer (Switzer):	Crawford 1894:374; Close 1985:39, 86; Taylor and Joseph 1988:120, A12
Tamarack:	*II* 4/1/1882
Taylor (see McElvoy)	
Teddy Bear:	Alan Akin, personal communication 1990
Tom Casey:	*II* 6/9/1899; *IR* 5/16/1935; Tucker and Sampson 1938:423, 470, 479, plate III; Norman and Stewart 1951:163; Clark 1970:147; Clark 1980:134; Clark 1985:182
Trepier (Trapier):	*II* 6/22/1894; Close 1985:86; Taylor and Joseph 1988:A2; Webb and Budlong 1992
Trinidad:	*II* 6/8/1878
Triumph:	Huguenin 1916
True Blue:	*II* 5/28/1887

True Business:	*II* 4/1/1882; *II* 5/26/1883; *II* 12/15/1883; Unknown 1885
Union:	*II* 2/5/1881; Tucker and Sampson 1938:plate III
Vivarea (Vivora):	*II* 7/19/1884; *II* 11/1/1884
War Eagle:	Huguenin 1916; *IR* 5/16/1935; Tucker and Sampson 1938:plate III; Flint 1941:66-70

Appendix B

NAMES ASSOCIATED WITH THE BEVERIDGE MINING DISTRICT

Appendix B

NAMES ASSOCIATED WITH THE BEVERIDGE MINING DISTRICT

BCT=Bishop Creek Times
II = Inyo Independent

Note: Following is an exhaustive list of all encountered references to names associated with the Beveridge Mining District. References to company names are not included even though they may contain names found on this list (Taylor, McEvoy, & Co.; Hughes, Hunter & Co.). Names are listed as if they were two individuals when it is unclear if there is one or two (Fuentes, and Fuentes, O. G., for example). One-time visitors to the site (census enumerator, mining experts) are not included in the list.

Alexander:	*II* 2/7/1885c
Anderson:	*II* 6/2/1899d
Anton (Antona), John C.:	*II* 3/15/1884b; 1/23/1886c; *II* 4/24/1886g; *II* 10/30/1886k; Waring and Huguenin 1917:78; Tucker 1926:469; Tucker and Sampson 1938:398, 473
Apple, N. L.:	*II* 9/13/1884k
Arambula, Bernardo:	*II* 10/18/1884o
Arambula, Hilario:	*II* 5/23/1885p; *II* 5/30/1885q; *II* 1/9/1886a
Baker:	*II* 6/30/1883o; *II* 10/6/1883v; *II* 7/5/1884d
Baker, J. V.:	*II* 5/13/1882n
Baldwin:	*II* 8/5/1898c
Barnes:	*II* 5/13/1882n; *II* 6/30/1883o; *II* 10/6/1883v; *II* 7/5/1884d; *II* 2/7/1885c
Bastian, Tom (and brother):	*II* 1/24/1885b
Bell, Neel:	*II* 12/20/1895g
Black, Jack:	*II* 10/16/1896r
Black, John:	Crawford 1896:179, 183; *II* 9/10/1897r
Britton (Brittain):	*II* 5/18/1878a; 9/25/1880f
Brott:	Unknown 1885
Brough, S. R.:	Waring and Huguenin 1917:82
Brown, Calvin I.:	*II* 12/18/1896u

Burkwalter (Buckwalter, Burkwater), Joe:	*II* 2/7/1896; *II* 2/14/1896c; 4/24/1896i; *II* 5/22/1896n; *II* 2/12/1897a
Calsagia (Calsacia), Domenico:	*II* 2/5/1881a; 9/11/1886i
Cannas, Jose:	*II* 2/7/1896b
Carrasco:	*II* 6/30/1899j
Carrasco, Bob:	*II* 5/2/1885k
Carrasco, Chris:	*II* 2/7/1896b
Carrasco, Ruperto:	*II* 2/7/1896b; *II* 2/19/1897b; *II* 7/23/1897h; *II* 7/30/1897j; *II* 8/6/1897k; *II* 9/10/1897; *II* 8/27/1897o; *II* 9/10/1897q; *II* 9/17/1897t; *II* 10/1/1897u; *II* 11/12/1897v; *II* 11/26/1897x
Carrasco boys:	*II* 7/28/1893e
Cartier, H. P.:	*II* 9/25/1880f; *II* 2/26/1881c; *II* 1/26/1894b
Cartier, Phil:	*II* 4/28/1883g
Cartier, Henry:	*II* 12/4/1896t
Casey, Thomas:	Tucker and Sampson 1938:423, 470, 479
Chandler:	*II* 3/27/1880a; 9/25/1880f
Chapman, M. E.:	*II* 8/5/1882ee
Chavaune, A.:	*II* 8/26/1882ff
Cohn (Crohn, Cohen), Chris:	*II* 7/3/1880d; *II* 8/2/1884h; *II* 1/3/1885a; *II* 5/9/1885n; *II* 6/6/1885s; *II* 8/8/1885w; *II* 7/3/1880d; *II* 9/25/1880f; *II* 5/6/1882k; *II* 11/23/1890g; *II* 1/5/1900a]
Cohn, E.:	*II* 8/15/1885x
Coldren:	*II* 4/8/1882h
Conklin, A. R., Judge:	*II* 6/24/1882y; *II* 7/1/1882aa; *II* 8/5/1882ee
Conkrite, Manly:	*II* 9/2/1882gg
Conterno, E. O.:	Huguenin 1916
Conterno, Jules:	Keynote 1906; *II* 2/2/1934; Tucker and Sampson 1938:404
Correll:	*II* 2/16/1900b
Crosman:	*II* 9/26/1886j
Decker, Stephen:	*II* 2/5/1881a
Dornalech, P.:	*II* 5/20/1882r
Edwards:	*II* 10/8/1881m
Edwards, E. H.:	*II* 11/25/1882jj; *II* 9/17/1897t
Eudey, Jos.:	*II* 6/8/1878b
Fuentes:	*II* 2/26/1881b
Fuentes, O. G.:	*II* 1/21/1882a; *II* 1/28/1882b; *II* 2/25/1882c; *II* 2/7/1896b; *II* 2/21/1896d
Gelcich, P. G.:	*II* 7/3/1880; 7/10/1880e
Gillette, H. S.:	*II* 12/18/1896u

Green, Charles:	Crawford 1896:180
Gregory, George:	*II* 9/25/1880f
Gunn, J. J.:	*II* 11/18/1898d
Gurley, Bob:	*II* 9/25/1880f
Haley, J. J.:	Crawford 1894:136
Hanger, James:	*II* 9/25/1880f; Unknown 1885
Hanger, Jos.:	*II* 11/25/1882jj
Hancock, L. W.:	*II* 2/7/1896b
Hancock, Thomas:	Tucker and Sampson 1938:399
Hess, A. W.:	Tucker 1921:279; Tucker 1926:467; Tucker and Sampson 1938:392
Hess, F. M.:	Tucker 1921:279; Tucker 1926:467; Tucker and Sampson 1938:392, 470-471, 473
Holland:	*II* 7/10/1880e; *II* 6/30/1899j
Holland, D.:	*II* 2/7/1896b; *II* 2/19/1897b; 9/10/1897q; 9/17/1897t
Holland, Dave:	*II* 4/7/1899a
Hollenbeck, Charley:	*II* 10/22/1881o
Holt, J. H.:	*II* 7/23/1881j
Houle, Charles:	*II* 2/16/1900b
Hughes:	*II* 5/18/1878a; *II* 7/3/1880d; 9/25/1880f; *II* 5/20/1882q; Unknown 1885
Hughes, J. R.:	*II* 6/2/1893b
Hunter, W. L.:	*II* 5/18/1878a; *II* 6/8/1878b; *II* 7/3/1880d; *II* 9/25/1880f; *II* 5/7/1881d; *II* 5/20/1882q; *II* 9/2/1882gg; *II* 9/29/1883u; *II* 11/8/1884q; Unknown 1885; Crawford 1894:136; *II* 5/24/1895a; Crawford 1896:179; *II* 7/9/1897g; *II* 5/18/1900d; *II* 3/14/1902a; Chalfant 1933:294; Tucker and Sampson 1938:383; Farquhar 1965:176; Reed 1967:27-30; DeDecker 1987:4950
Isenduphs, Herman:	*II* 9/25/1880f
Jacoby, Morris:	*II* 6/24/1904
Journigan, Roy:	Tucker and Sampson 1938:402, 474
Kehoe:	*II* 2/7/1885c
Keyes, (Keys) Patrick W.:	*II* 6/30/1883o; *II* 10/6/1883v; *II* 7/5/1884d; *II* 10/15/1887d; Crawford 1894:138; *II* 3/16/1894d; *II* 11/16/1894g; *II* 5/24/1895a; *II* 7/12/1895b; *II* 8/2/1895c; *II* 10/25/1895d; *II* 11/15/1895e; *II* 12/6/1895f; *II* 12/20/1895g; Crawford 1896:182; *II* 1/3/1896a; *II* 2/7/1896b; *II* 3/27/1896g; *II* 4/10/1896h; *II* 4/24/1896i; *II* 5/8/1896k; *II* 7/31/1896p; *II* 10/23/1896s;

Keyes, cont'd.:	*II* 3/26/1897c; *II* 4/23/1897e; *II* 4/30/1897f; *II* 9/10/1897s; *II*6/30/1899k; *II* 7/14/1899m; 6/29/1901b
Kisling (Kissling, Kisler), William C.:	*II* 9/13/1884k; *II* 9/27/1884n; *II* 11/29/1884r; Anonymous 1885:345; *II* 5/23/1885p; *II* 6/6/1885u
Labarge, P. [see also Lebarge]:	*II* 3/31/1893a
LaGrange, J. I.:	*II* 2/7/1896b
Laird, Lester:	*II* 5/1/1896j; *II* 7/14/1899m; *II* 4/26/1901a; *II* 12/5/1902b
Lambert, A. C.:	*II* 10/30/1886k
Lasky:	*II* 2/26/1881ad; *II* 6/30/1883p; *II* 7/19/1884e; *II* 5/30/1885r; *II* 5/21/1887a; *II* 12/24/1887h
Lasky, B.:	*II* 9/29/1888c
Lasky, Ben E.:	*II* 7/17/1891h; *II* 3/31/1893a; *II* 11/12/1897w; *II* 8/5/1898c
Lasky, J.:	Crawford 1894:138; Crawford 1896:181; Flint 1941:7
Lasky, L. L.:	*II* 5/6/1882m; *II* 12/16/1882kk; *II* 2/3/1883a; *II* 2/24/1883b; *II* 3/3/1883c; *II* 4/7/1883e; *II* 4/21/1883f; *II* 10/18/1884o; *II* 1/24/1885b; *II* 2/19/1897b; *II* 7/23/1897h; *II* 7/30/1897j; *II* 8/6/1897k; *II* 8/27/1897o; *II* 9/10/1897q; *II* 10/1/1897u; *II* 11/12/1897v; *II* 11/26/1897x
Lasky, M. C.:	*II* 5/26/1883i; *II* 12/15/1883y; *II* 3/15/1884b; *II* 6/21/1884c; *II* 10/22/1887e; *II* 11/19/1887g; *II* 7/23/1897i
Lasky, Mike:	*II* 4/24/1886g; *II* 11/20/1886; *II* 1/14/1888a; *II* 6/9/1888b
Lebarge, P.:	*II* 2/7/1896b; *II* 2/14/1896c
Lematre, J.:	*II* 8/26/1882ff
Lent, H. J.:	*II* 2/7/1896b
Lewis, Dan:	*II* 6/29/1901b
Lightner, Dan:	*II* 4/8/1882h
Lockett, Harry:	*II* 6/2/1899d
Madden, Tim:	*II* 12/20/1895g; *II* 2/14/1896c; *II* 4/10/1896h; *II* 12/18/1896v; *II* 2/12/1897a; *II* 4/30/1897f
Mairs, A. F.:	Crawford 1896:182; *II* 2/7/1896b
Mairs, Norm:	*II* 2/16/1900b
Mairs, O. I.:	*II* 6/24/1882y
Malgrant, C.:	Anonymous 1885:345
Marsh, G. F.:	Tucker and Sampson 1938:474

Maysan, C.:	*II* 5/28/1887b
McDonough, Tom (Thomas):	California State Library Pioneer File; *II* 9/13/1884k; *II* 9/13/1884k; *II* 9/20/1884m; *II* 9/27/1884n; *II* 11/29/1884r; *II* 11/29/1884r; *II* 12/6/1884s; Anonymous 1885:345; *II* 5/2/1885k; *II* 5/23/1885p; *II* 5/30/1885q; *II* 5/30/1885r; *II* 6/6/1885u; *II* 7/17/1886h; *II* 10/30/186k; *II* 11/13/1886m; *II* 11/20/1886n; *II* 10/13/1888d; *II* 1/5/1889b; *II* 5/11/1889e; Chalfant 1933:294; Farquhar 1965:176
McEvoy, Charley:	*II* 3/27/1880a; *II* 6/19/1880c; 9/25/1880f; *II* 2/5/1881a; *II* 5/13/1882o; *II* 6/17/1882x; *II* 7/8/1882bb; *II* 9/2/1882gg; *II* 10/21/1882kk; *II* 12/16/1882nn; *II* 4/7/1883e; *II* 5/26/1883j; *II* 6/16/1883k; *II* 6/16/1883m; *II* 9/8/1883t; *II* 1/12/1884a; *II* 7/26/1884g; *II* 8/9/1884i
McKnight:	*II* 4/8/1882h
McLaughlin, I. W.:	*II* 11/11/1892i
McLaughlin, J.:	*II* 7/17/1886h
Mesa, Juan:	*II* 7/10/1880e
Miller, W. K.:	*II* 5/11/1889d
Miranda:	*II* 4/8/1882g
Miranda, Francisco:	*II* 9/2/1882hh
Miranda, Frank:	*BCT* 10/31/1881; *II* 9/25/1880f; *II* 6/30/1883n; *II* 10/13/1888d
Miranda, Lorenzo:	*II* 9/2/1882hh
Mitchell, Bob:	*II* 11/29/1884r; 5/2/1885k
Molino [Molina], Jesus:	*II* 5/23/1885p; 9/10/1897q
Montano:	Crawford 1894:137
Montano, A. A.:	*II* 5/20/1882r
Montano, Jesus:	*II* 9/3/1897p; *II* 9/10/1897q
Montieth, Col. A. E.:	Tucker and Sampson 1938:397, 472
Morales, Nieves:	*II* 4/1/1882f
Morana, A.:	*II* 10/18/1884o
Morano bros.:	*II* 9/25/1880f
Morena:	*II* 7/19/1884e
Moreno:	*II* 2/26/1881b
Moreno, Antonio:	*II* 4/1/1882f; *II* 9/2/1882gg
Nixon:	*II* 9/13/1884j
Noyes, Arthur:	*II* 8/2/1895c
O'Day, John:	*II* 2/12/1897a
Oliver:	*II* 9/25/1880f
Orona, Francisco:	*II* 8/15/1885x

Oswald:	*II* 7/3/1880; *II* 9/25/1880f
Otero:	*II* 9/25/1880f
Pauch, F. G.:	*II* 2/2/1934; Tucker and Sampson 1938:404
Pobst, David.:	*II* 9/25/1880f; *II* 6/2/1893b
Porter:	*II* 5/18/1878a; *II* 6/8/1878b
Preston:	*II* 1/9/1886a
Probst, Daniel:	*II* 11/25/1882jj
Quinn, John C.:	*II* 6/9/1899i; *II* 7/14/1899h
Randall, Nat:	*II* 9/25/1880f; *II* 5/6/1882k
Richardson, John:	Anonymous 1885:345
Ritchie, Wm.:	*II* 4/8/1882g
Ruiz, J.:	*II* 2/7/1896b
Salazar, Ramon:	*II* 9/10/1897q
Smith, Arthur:	*II* 2/7/1896
Spear:	Crawford 1896:179
Spear, Frederic:	Tucker and Sampson 1934:310
Spear, Reube:	*II* 5/2/1885k; *II* 6/6/1885t
Spear, R. C.:	*II* 5/26/1899c
Spear, Sam:	Tucker 1926:465; IR 8/1/1929; Tucker 1931:543; Tucker and Sampson 1934:310; Tucker and Sampson 1938:383, 469; Goodwin 1957:454
Stansbury, Jim:	*II* 7/28/1893e
Starborough, James:	Crawford 1894:374
St. Clair, George:	*II* 10/13/1888d
Storey, Geo.:	*II* 3/4/1882d
Straus:	*II* 8/2/1884h; *II* 1/3/1885a; *II* 4/11/1885j; *II* 5/9/1885n; *II* 5/23/1885p; *II* 6/6/1885s; *II* 8/8/1885w; *II* 8/15/1885x
Strauss, J. E.:	*II* 9/2/1882hh
Sutliff, Jess G.:	*II* 2/2/1934
Tatner:	*II* 10/8/1881m
Taylor, J. Hartley:	Tucker and Sampson 1938:475
Taylor, Peter:	*II* 3/27/1880a; *II* 5/22/1880b; *II* 6/19/1880c; 9/25/1880f; *II* 2/5/1881a; *II* 1/21/1882a; 3/11/1882
Thebe, M. K.:	*II* 2/7/1896b
Thompson:	*II* 11/29/1884r
Thorpe, George:	*II* 2/7/1896b; 7/14/1899m
Tinder, Glen:	*II* 2/2/1934; Tucker and Sampson 1938:404
Trepier, Victor:	*II* 6/22/1894e
Underwood, John C.:	*II* 9/3/1897p; *II* 9/10/1897r
Valenzuela, Angel:	Anonymous 1885:345
Varcoe, William Henry:	Anonymous 1885:345Armor 1911:222-225

Wagner:	*II* 11/29/1884r
Welch, Jack:	*II* 7/15/1882cc
Wells, Kate:	Waring and Huguenin 1917:75; Tucker 1921:280; Tucker 1926:469; Tucker and Sampson 1938:388
White, M. H.:	*II* 8/5/1882ee
Wilder:	*II* 8/5/1898c
Wilder, L.:	*II* 2/7/1896b
Wilder, R.:	*II* 8/2/1895c
Williams, Josiah:	Anonymous 1885:345
Williams, O. S.:	Huguenin 1916; Waring and Huguenin 1917:75; Huguenin 1918; Tucker 1926:470
Williamson, Dr. Mark:	*II* 2/2/1934
Wilson:	Crawford 1894:137
Wilson, M. A.:	Tucker and Sampson 1934:310; Tucker and Sampson 1938:383, 469, 476