

THE EMPIRE MINE HISTORIC DISTRICT REVISITED: EVOLUTION OF A GOLDEN LANDSCAPE

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The Empire Mine Historic District encompasses remains of numerous gold mining ventures. Many of the historic-era operations, from early placer mining to large incorporated hard rock extraction and milling ventures, have been long forgotten, as have their contributions to the gold mining history of the West. Several of the historic district's contributing elements have been investigated during remediation activities at the park, and the evolving mine landscape is coming to light. This paper will describe extended survey and excavation findings resulting from studies intended to lessen impacts to the historic district's contributing elements.

EMPIRE MINE HISTORIC DISTRICT REMEDIATION

With a solid understanding of what historical remains are within the park and what types of values they contribute to the historic district, the California Department of Parks and Recreation (DPR) and the Archaeological Studies Center (ASC) are ensuring that no significant elements will be lost during implementation of remedial actions without appropriate consideration. Three remedial action plans have been executed as of this writing: (1) addressing the recreational trail network that traversed throughout numerous abandoned mine operations on Osborn Hill; (2) addressing groundwater draining from the mine tunnels into Woodpecker Ravine; and (3) addressing ruins of a cyanide refinery that operated from about 1910 until closure in the 1950s. Each of these is discussed further below. Generally speaking, targeted cultural resources studies were a mixture of site-specific evaluations and treatments designed to lessen the impacts from remediation activities on significant cultural resources. By highlighting these actions, we hope to provide a deeper understanding of the history and historical archaeology in the park.

OSBORN HILL TRAIL NETWORK PROJECT

The Osborn Hill Trail Network Project renovated the trail system on Osborn Hill to minimize erosion and sedimentation, and to remediate areas where metals exceeded safety levels for human health. The project also has replaced and installed new accessory trail equipment such as public entry gates and signs, and removed fences that blocked access to areas with elevated metals, after potential exposure risks were reduced. Many roads and trails crisscrossing this portion of the park had to be closed to the public due to the presence of high concentrations of potentially harmful metals. The proposed trail changes were reviewed with regard to cultural resources, and three areas were determined to warrant site-specific evaluation studies, including the Daisy Hill lode mine complex, Sebastopol lode mine complex, and Old Heuston Hill mining landscape complex.

Daisy Hill Lode Mine Complex

The Daisy Hill Lode Mine complex (CA-NEV-1880H), recently determined eligible as a contributing element of the Empire Mine Historic District (Selverston 2009a), was identified and evaluated during the trail project. The site's large waste dumps, as well as the arrangement of other features, such as prospects and building terraces, evoke a sense of the historic district's gold mining

legacy under National Register of Historic Places (NRHP) Criterion A. Multiple phases of lode mining are evident within the site, reflecting distinctive types, periods, and methods of construction, contributing to the historic district's exemplary Criterion C qualities. Additionally, as a complex mining property, the Daisy Hill Mine belongs to a class of sites known for their ability to address the broadest range of research themes with the most focus, thereby contributing to the historic district's significance under Criterion D (Selverston 2009a:48).

Ore from the Daisy Hill Mine was being processed in 1853, making it one of the earliest lode mines in the district (Tenney 1853:624). Prospecting at this time was rather rudimentary and relatively shallow. The inexperience of the miners and the crudeness of early technology led to many disastrous failures, and quartz came into disfavor. A county history published in 1867 noted that Daisy had been more or less worked, but was full of promise (Bean 1867:226). This was at a moment when advances such as dynamite and mechanical drills were being made in the industry and investors were eyeing opportunity. The Daisy Hill Mining Company under Ambrose Powning, a middle-aged English immigrant—probably Cornish—hired local contractor James Fiddick in late 1871 to relocate a hoisting plant from the Dromedary Mine near town to the Daisy Hill ledge (District Court 1872). It is likely that the new facility was capable of extending down to the water table, which was about 250 ft. below the ground surface.

Irish gold miners James Gallagher and Cornelius Cuminsky recorded their location of 1,000 ft. along the Daisy Hill ledge with the county in 1879 (Nevada County Office of the Recorder 1870s-1880s-a[8]:155). The Daisy Hill lode mine was listed with other mines as a prominent operation that could be put on a dividend basis with suitable investment (Wells 1880:194). Archives indicate that there was a scramble for the lode, evidenced by John Hastings filing a claim in 1882, a few years after Cuminsky and Gallagher's. Cuminsky once again located the Daisy Hill claim three years later, this time partnered with local gold mine speculator and long-time Grass Valley resident Edwin F. Morse (Nevada County Office of the Recorder 1870s-1880s-a[10]:80). The two pursued a mineral patent and had the claim formally surveyed in 1888. The surveyor, Charles E. Uren (1888), noted that the ledge had been worked extensively to the water table 250 ft. down and that the expense necessary for a suitable patent and for hoisting and pumping facilities prevented Cuminsky and Morse from going any deeper. It appears the mine had been idle at a depth of 250 ft. since the 1870s.

Charles H. Taylor, a native of Grass Valley, formed the Daisy Hill Mining Company in 1893 and directed mine development as superintendent into 1895 (Poingdestre 1895:163; Prisk 1895:85). Taylor was the son of an Englishman who operated a foundry in Grass Valley and learned about the mining industry locally. He likely expanded operations above the water table further by drifting and stoping, as no new portals were depicted on detailed maps produced afterwards, and in 1896 it was reported that "drifts have been extended 300' to 400' from the incline, and on the north side it has been stoped up to the surface" (California State Mining Bureau 1896:240; U.S. Geological Survey 1896). Cuminsky and Morse finally received the patent for the mine in 1895, at which time it was probably sold (U.S. Bureau of Land Management 2009:Doc. No. 25862). C. Kingsley of San Francisco owned the mine in 1896, but the mine was listed as idle that year (California State Mining Bureau 1896:240). Although the mine was listed as idle in 1907, the Empire Mine's roll-up map created in the 1906-1909 period depicts a new shaft and hoist works south of the ca. 1872 one, as well as an office and a stable (Lortie and Docken 1980; U.S. Geological Survey 1908:214). This second portal, therefore, must have been developed between 1896 and 1907. Apparently Bourn and Starr were responsible for deeper explorations at Daisy Hill via a second incline shaft, likely due to the old, ca. 1872 incline's age (Uren 1916). The North Star Mines Company acquired the idle mine in 1918 and likely dismantled the buildings (MacBoyle 1919:150).

The Daisy Hill Lode Mine Complex was bisected by a substantial unpaved service road that was used for decades. The road follows a historic alignment, although the segment within the site presently is west of the original path, evidenced by a truncated, late-nineteenth-century brick foundation associated with a surface plant in the roadbed. The road was recently considered unsustainable by DPR due to its grade and was closed and replaced by a new official road. The plan for the new road placed it directly

over one of the historic shafts and the surface plant, so DPR and ASC worked together to relocate the new alignment so that no cultural resources would be compromised (Selverston 2011). The decommissioning of the old road was also carried out in such a way as to preserve resources in and around the roadbed, by trucking in clean sandy fill soil that contrasts with the local native ground and then covering that with hay and mulch.

Old Heuston Hill Mining Landscape Complex

Frank Lortie and Bob Docken discovered the artifact deposit within the Old Heuston Hill mining landscape complex, concluding that the dirt road had cut through an “old trash dump” composed of glass bottle fragments and earthenware ceramic sherds (Lortie and Docken 1980:Site OH-11). Scott Green (2006a) revisited the area nearly three decades later as part of a forest fire fuel reduction project. Green’s extensive site record for EMSHP-10-2006 documented many more features and historic-era artifacts in an area stretching approximately 2,100 ft. from the Betsy Mine to the north side of Little Wolf Creek (Green 2006b). The ASC revisited the site in 2008 during the intensive inventory of the historic district and characterized and untangled numerous overlapping feature systems identified in the area into discrete resources (Selverston 2009b). The mining landscape and artifact deposit (NEV-1889H) was evaluated potentially eligible to the NRHP as a contributing element of the historic district (Selverston 2009a).

The Heuston Hill claims were worked successfully from 1853 until 1855. The lode line, or ledge, is adjacent to the Sebastopol ledge to the east. The ledge, which passes below the short ridgeline that later became known as Old Heuston Hill, was named for the Heuston brothers, W. A. and Julius, whose company included several well-known Grass Valley gold miners (Nevada County Office of the Recorder 1850s-1860s[A]:379). Heuston Hill mine development ceased when the excavations reached groundwater, the same obstacle that hindered many early lode mines. George H. Stackhouse, one of the original claimants, bought the Heuston brothers’ share, “the new firm also owning the Orleans Mill” located in the park 1,000 ft. northwest at the confluence of Sebastopol Ravine and Little Wolf Creek (Byrne 1865:72). Mine development resumed on Heuston Hill about the same time that initial work ceased at the neighboring Sebastopol, as evidenced by the recording and transfer of a growing number of claims on the Heuston Hill ledge in January and February 1858. The new owners invested in machinery to work the claims much deeper, well below the water level.

There was a sustained slump in gold mining on a national scale in the wake of the Civil War, between 1864 and 1872. Operations at the rich Heuston Hill, however, hummed along unabated. As reported in the local newspaper, “the six worthy Cornishmen who own it go on the even tenor of their way, the world knowing of their doings only by their weekly deposits of bullion” (Nevada Daily Transcript, 30 November 1864:2, col. 3). The 1888 *Eighth Annual Report of the State Mineralogist* includes a detailed description of the Orleans Mine and mill, which was entering its underground network far from Old Heuston Hill, probably using the Orleans Tunnel near to its Orleans mill on Little Wolf Creek (California State Mining Bureau 1888).

The prospects and shafts densely packed on the edge of Old Heuston Hill mark the location of intense mining activity in the 1850s and 1860s. Gold miners lived on the terrace above and cast their debris into the abandoned workings. The intact, ca. 1850s mining landscape features permit a visitor to appreciate the site’s association with California’s gold mining history. As such, they contribute to the significance of the encompassing historic district under Criterion A. Similarly, the overlapping mine operations that are traceable on the landscape relate to a sequence of distinctive mining processes beginning in an early experimental phase of the industry and continuing up into the early twentieth century, contributing to the historic district’s value under Criterion C. Their archaeological data are particularly valuable, as these types of sites have unusually high potential to address multiple research themes important in the study of gold mining. The site’s archaeological contribution renders the property individually eligible to the NRHP under Criterion D, in addition to being eligible as a contributor to the historic district.

Sebastopol Lode Mine Complex

Lortie and Docken also recorded portions of the Sebastopol Lode Mine complex in 1979, noting “a large circular depression with associated waste-rock piles and other more shallow depressions in the area east and north of the depression” (Lortie and Docken 1980:Site OH-11). They correctly speculated that the large depression might be the remains of the Sebastopol shaft. Again, as with the Heuston Hill Mining Complex, ASC revisited the site in 2008 during the historic district inventory (Selverston 2009b). The sprawling and complicated Sebastopol Mine site (NEV-1888H) was divided into five distinct loci (A-E) and was determined to be potentially eligible as a contributing element of the historic district (Selverston 2009a).

Several claims were recorded on the Sebastopol ledge on February 12, 1855, at about the time efforts waned on Heuston Hill. The company apparently failed to maintain the mineral rights, since they were “jumped” within a year (Nevada County Office of the Recorder 1850s-1860s[A]:72). While none of the original claimants were identified in the archival record, probably being transients, the eight men who appropriated the rights on November 29, 1855, are well-known. The Scottish-born Watt brothers appear to have run much of the Sebastopol operation. William Watt directed exploration with an adit in 1856, “intersecting the ledge at a vertical depth of 75 feet, and the ore found paid on an average of \$40 per ton. A hoisting works and an eight-stamp mill were erected and an incline shaft was sunk to a depth of 200 feet, all of the cost being paid out of the proceeds of the mine” (Prisk 1895:27). William sank the main Sebastopol Mine incline in the center of the claim, while his brother, Robert Watt, erected and managed the quartz mill on top of “Sebastopol Hill” (Byrne 1865:106). By 1858, the Sebastopol Mine was one of only two in all of Nevada County that had managed to penetrate into the hard volcanic greenstone, and the venture had already yielded \$200,000 (Hutchings & Rosenfield 1858:148; Lindgren 1896:254). Unfortunately for claimants Laton, Judd, and the Watt brothers, in 1858 a widespread rush to the Frazer River goldfields in British Columbia led to a labor shortage, and work at the Sebastopol Mine essentially stopped (Byrne 1865:75). When the California State Agricultural Society (1859:359) described Watt and Company’s facility a year later, it was no longer operating.

David Watt and others, including James Bennallock, later incorporated as the Sebastopol Consolidated Gold Mining Company on June 23, 1880. The new company immediately began reopening the Sebastopol Mine, without waiting for the patent. Watt and Bennallock, acting superintendent/foreman, oversaw substantial investment. By the end of 1880, the main building was 30 by 90 ft., with two stories. The engines occupied the first floor, “set upon very solid foundations of heavy timbers” to reduce vibration. The building enclosed the mouth of the incline shaft. Ore cars were pulled up into the second floor where they could then be run off on tracks to the dumps. On one side of the main hoisting- and pump-works building, a 16-x-48-in. tubular boiler was set on brickwork in an adjoining structure. On the other side was an attached 16-x-16-ft. blacksmith shop. The inclined shaft, which had caved in, was reopened and retimbered for 90 ft., down to the level of an existing drain tunnel. The newspaper reported that 40 men would be employed when the mine was sufficiently drained (Grass Valley Daily Union 1880). The operation continued for about six years before the hoisting works were brought down by fire around 1886 (Prisk 1895:77, 83).

The Sebastopol lode mine complex is a significant cultural resource (Selverston and Walker 2012). The intact, ca. 1850s mining landscape features permit a visitor to appreciate the site’s association with California’s gold mining history. As such, they contribute to the significance of the encompassing historic district under Criterion A. Similarly, the overlapping mine operations that are traceable on the landscape relate to a sequence of distinctive mining processes beginning in an early experimental phase of the industry and continuing up into the early twentieth century, contributing to the historic district’s value under Criterion C.

MAGENTA DRAIN PASSIVE TREATMENT SYSTEM

In 2006, the Department of Toxic Substances Control and the Central Valley Regional Water Quality Control Board conducted a Preliminary Endangerment Assessment (PEA) of a portion of Empire Mine State Historic Park (Department of Toxic Substances Control 2006). The PEA assessed whether metals and reagent concentrations identified within the park posed a potential risk to human health and the environment. According to the findings of the PEA, arsenic, lead, mercury, and cadmium were present in soils above the screening levels in the former mill tailings stockpile area and within the drainage below the cyanide plant. In addition, the PEA identified at least one point source of pollutants, the Magenta Drain, a portal that drains groundwater from underground workings into Woodpecker Ravine.

A Passive Water Treatment System (PTS) was chosen as the most viable and effective way to treat effluent water flowing from the Magenta Drain portal. Essentially, the water flowing from the portal is conveyed to a vault and pumped uphill through above-ground piping to settling ponds. The settling ponds and wetlands are situated to create a gravity flow system to deliver the water through the pond and wetlands and back downhill to the existing channel immediately downstream of the Magenta Drain. A consideration of the project's effect on significant cultural resources contributing to the historic district's eligibility found that cultural resources were located in the project area.

Although several historic resources were identified, information-rich types such as building ruins or artifact deposits were not found (Selverston 2009b). A determination was made in consultation with other resource specialists and project designers to remove the vegetation and continue with the design of the Magenta Drain PTS during cultural resource investigations. All known cultural resources within and adjacent to the APE were investigated further during and following the clearing of vegetation, and newly discovered resources were immediately investigated (Hilton and Selverston 2011). The level of investigation conformed to the type of resource, ranging from detailed documentation of features such as ditches or roads to hand and mechanical excavations of some features and a newly discovered ca. 1860s artifact deposit.

WOODPECKER RAVINE GOLD MINE

Placer mining along Woodpecker Ravine began during the Gold Rush and was followed by years of substantial development (Gudde and Gudde 1975:375). Scottish-born brothers Robert and John L. Smith were among those to take up residence beside these rich deposits (Wells 1880:230). The two came to Grass Valley in 1853 and settled on either side of Woodpecker Ravine crossing. John and Robert joined Alex Henderson and others in taking up placer claims on Woodpecker Ravine on April 8, 1856, under the combined name Woodpecker Mining Company (Nevada County Office of the Recorder 1850s-1860s[A]:196). The Smith brothers continued to prospect in Woodpecker Ravine under the name Robert Smith Company for the remainder of the decade with a variety of partners (Nevada County Office of the Recorder 1850s-1860s[A]:157, 250). They turned their attention to deeper deposits in the early 1860s, however. First they purchased in 1863 a third of the nearby Heuston Hill, and then, the next year, they refurbished the Orleans Mill on the creek just below the mine (Bean 1867:225).

Alexander Henderson, fellow Scotsman and one of the Smiths' original mining partners, continued working the Woodpecker Ravine gold mine. Like the Smith brothers, Alex came to Grass Valley in 1853 and settled on Pikes Flat (a.k.a. Raceville) on the west side of Woodpecker Creek not far downstream from Robert's residence (Bethell 1872; Wells 1880:220). William Autry, Henderson's longtime mining partner, resided right next door. Autry joined Henderson in consolidating their claims at least by August 11, 1858, when he bought a $\frac{3}{8}$ share of the Woodpecker Quartz and Gravel claims from one James Clayton for \$950 (Nevada County Office of the Recorder 1850s-1900[3]:455). The deed also listed $\frac{3}{8}$ shares in a ditch, reservoirs, sluices, tools, and other property, as well as half of the mining ground adjacent along the ravine. Henderson and Autry were listed as sole partners of the Woodpecker Ravine Quartz Mining Company two years later when they entered into articles of agreement with a small neighboring company of miners, the Pitton Quartz Mining Company, consisting of John, Alexander, and

Robert Winn (Nevada County Office of the Recorder 1870s-1880s-b[2]:13). The two groups entered into agreement on July 16, 1860, to combine portions of their claims under the Pitton name and specifically permitted tunnel and drainage privileges. The two were joined by eight others on November 2, 1864, in recording the Autry and Henderson Ledge (Nevada County Office of the Recorder 1850s-1860s[D]:103). The ledge is located on the southwest side of Woodpecker Ravine alongside of or on the diggings of Autry and Henderson. A few months later, on January 28, 1865, all of Henderson and Autry's partners transferred to them full title to the ledge (Nevada County Office of the Recorder 1850s-1900[16]:118).

The Woodpecker Ravine Gold Mine site (NEV-554H) consists of a fairly large placer diggings landscape stretching from the bottom of the ravine south and uphill. The overall workings of the operation are evident at the site, originating at a supply ditch and pond or reservoir near the top of the hill, filtering down through various sluice channels between placer waste piles and steep cut banks, to the main Woodpecker Ravine channel workings over 1,000 ft. below. The Woodpecker Mining Company, a small joint stock entity composed mostly of nearby Scottish residents, chased the stream and bench placers up the steep slope to the south. The physical remains indicate the small company carved into the side of Woodpecker Ravine using simple and makeshift hand tools, such as sluice boxes and long toms, shovels, and modified buckets. The remains are consistent with the deed documenting consolidation of the operation in 1858, which included shares of the Woodpecker Quartz and Gravel claims, as well as "a ditch, reservoirs, sluices, tools, and other property" (Nevada County Office of the Recorder 1850s-1900[3]:455). Placer deposits in the site appear to have been mined out by the early 1860s, a trend throughout California (Selverston 2009a:36).

The Woodpecker Ravine Gold Mine site is a significant resource (Hilton and Selverston 2011). The clarity in the surface arrangement and evolution of gold mining feature systems contributes to the theme of mining technology, particularly relevant under Criterion D at the level of the historic district. While eligibility under Criteria A and C is applicable, both at individual and district levels, most of the site examined appears to no longer convey its significance in this regard. The exception to this is the central area that was not physically altered. This central portion of the site appears to retain enough aspects of integrity to potentially contribute to the overall significance of the historic district under Criterion A. The historical main supply reservoir at the top of the hills is a small reservoir.

JONES, GALLAGHER, O'CONNOR GOLD MINE COMPLEX

Hundreds of gold miners descended upon Mary's Ravine during the Gold Rush, formally drafting up mining laws for Mary's Diggings in the winter of 1851 (Nevada County Office of the Recorder 1850s-1860s[A]:108). Prospectors soon pushed out of Mary's Diggings and up the adjacent gullies to hunt down the sources of the rich gold deposits. A company of 15 miners located 100-ft.-square claims on the slopes adjoining Mary's Diggings on the north in the summer of 1853 (Nevada County Office of the Recorder 1850s-1860s[A]:115). Charles Jones and Company in January 1859 claimed the Jones Hill Lead during a period of resurgence in lode mining. In fact, historian Ronald Limbaugh (1999:36) argues that the burgeoning population of Cornish miners in Grass Valley helped revive California's hard rock industry in the early 1860s. Charles Jones and his wife had settled in Grass Valley at least by 1859 (Nevada County Office of the Recorder 1850s-1900[5]:466). The name Jones is of Welsh origin, but a Cornish relation cannot be ruled out.

Apparently Jones did not maintain the claim, as a small company of five men re-claimed it, calling it the Gallagher Ledge in August 1863 (Nevada County Office of the Recorder 1850s-1860s[D]:54). They were soon followed by five more miners adding length to the original claim. This was a period marked by substantial investment in the industry but slumping gold production across the state, particularly in the Grass Valley Mining District where a pattern of consolidation and increased financial connection between the mines and San Francisco emerged during an overall slump in the industry (Selverston 2009a:36). The claim was described as situated on Mary's Hill on the south side of and running across Ophir Hill Road, and had formerly been known as the Jones Ledge. The Gallagher

Company was comprised of Irish immigrants mostly involved in quartz mining. There were more Irish than Cornish in the mining district at this time, with 22 percent of Grass Valley's male workers in 1860 having been born in Ireland, compared to 20 percent from Great Britain (Mann 1982:86).

The company found investors for their venture after their initial prospecting, beginning with a September 1865 contract between the owners of the Gallagher claims and fellow Irishmen Cornelius Reilly and Samuel T. Curtis (Nevada County Office of the Recorder 1850s-1900[19]:95). Reilly and Curtis, both well-known quartz miners, paid \$1,000 in the deal and pledged another \$7,000 to be paid within 6 months (Byrne 1865:46, 48). Numerous transactions were recorded in the early part of 1866 pertaining to the Gallagher Company venture. First, the mine was seized along with other assets by the sheriff in January 1866 in relation to a court case filed in the U.S. District Court (Case 2784) against Sam Curtis. Curtis owed Charles Felton \$3,218 from a loan made in September 1865. Records show that Con Reilly and Sam Curtis simultaneously developed numerous other ventures, apparently leaving the Gallagher idle at some point. According to an article written a decade after mining on the Gallagher Ledge ceased, operations had consisted of a series of 35-ft.-deep prospects at different points for 1,800 ft. along the Gallagher Ledge, yielding \$12 to \$80 per ton (Daily Alta California, 8 April 1877). Work at the Gallagher Mine was suspended when a fire consumed the company's steam hoisting works, probably in 1866 and certainly no later than 1867. No record was found documenting sale or development of the property, and if the claim had been left idle for more than a year it would have been considered abandoned.

Thomas O'Connor and Felix F. Cassidy noticed the abandoned potential of the deposits and carried out a well-orchestrated jump on the claims. O'Connor re-located the idle Jones/Gallagher lode on January 15, 1875, describing it as commencing on the north side of Gilroy and Company's claims and extending 800 ft. to the Conaway or Grass Valley Water Company reservoir, along with 300 ft. on either side (Nevada County Office of the Recorder 1870s-1880s-a[6]:56). O'Connor then joined Cassidy and Thomas McFate in patenting the Cassidy Consolidated, which combined his claim with the Gilroy Claim to the south, both worked from a shaft south of the site and the PTS project. Their mineral report by Bethell (1877:10) said that "tunnels 1000 ft. in length were run and hoisting works erected which was ultimately destroyed by fire, and then the whole abandoned." This testimony explains the demise of the Gallagher venture that prospected here between 1863 and 1867.

The ASC originally recorded components of the site during the inventory of the historic district (Selverston 2009b), at which time the boundary of the mine features was established. The artifacts went unnoticed at that time, completely overgrown by a thicket of young-growth manzanita. The physical remains consist of a mining landscape along an ephemeral gully and dwelling ruins surrounded by a domestic artifact deposit on the slope above the diggings, found just prior to construction. The limited placer mining that first occurred in the gully created shallow cuts along the bank of the drainage and small piles of placer waste. This early placer effort was followed by lode prospecting into the northwest bank, evidenced by a series of 13 cratered depressions. The prospects have deep central craters surrounded by tall circular berms. The prospects are densest near a bedrock outcrop above the bank, evidently the source of any auriferous gold taken from the gully. A ca. 1860 artifact deposit and probable stone footing were discovered on the slope above the diggings in the thick vegetation, which was cleared and investigated using metal detection and surface scrapes. The deposit was determined to be associated with a dwelling that was contemporaneous with the gold mining, consisting of a scatter of fragmented brick, window pane, large densities of cut nail fasteners, bottles, tableware, buttons, and what appears to be an intact stone threshold within the highest concentration of domestic and structural artifacts. The materials recovered indicate a 1850s-1860s occupation.

The site is a significant resource (Hilton and Selverston 2011). The gully provokes a sense of its association to early gold mining and is considered eligible as a historic district contributor and individually as well, under Criterion A. The entire property retains its integrity in all respects as far as its data potential under Criterion D is concerned. The ca. 1860s artifact deposit sandwiched between the diggings and Empire/Ophir Hill Road represents a small household involved with mining the gully below.

The early 1860s were one of the busiest periods along this ledge of gold, at that time called the Gallagher Ledge. The artifact deposits' contribution is most valuable as data measured under Criterion D. They are unnoticeable on the landscape but provide valuable data for understanding past events.

All cultural features were delineated in the field and mapped during this investigation. The artifact deposit was thoroughly explored using metal detection and surface scrapes in areas of dense metal. A single small structural element was identified during surface scrapes and further excavated. The dwelling area lacked dense accumulations, with only thin, moderately dense surface concentrations sampled. The remains had the appearance of having been disturbed well before the PTS project, probably having been scrapped and piled down slope during an earlier event, such as a timber harvest. Controlled mechanical excavations of some of the prospects and construction monitoring documented relatively small deposits dating to the 1950s, but none related to the nearby occupation. Further inspection by mechanical means using a large excavator showed that these prospects had variable shallow depths and, in one case, a stone-lined collar. The open prospect pits eventually became modern-era trash repositories, as many of them had modern domestic debris, including beer bottles, food refuse and wrappers, and other items.

CYANIDE PLANT

The last remedial effort carried out at the park as of this writing was cleaning up the Empire Mine Cyanide Plant ruins (NEV-967H, Locus B). The project area for this action consists of the cyanide plant ruins adjacent to the Empire Mine yard, the nearby adit enhancement footprint, and a small amount of surrounding acreage. The basic plan of the approved action was to clean out and control drainage through the cyanide plant, cover designated areas around the ruins and adit project enhancements with 6-12 in. of clean fill, control access to the ruins, and control storm runoff throughout the project area.

The Empire Mine added its state-of-the-art cyanide plant in 1910, described concisely by McQuiston (1986:45-48). The plant was housed in a large, multileveled building down slope from the stamp mill, employing gravity to move the pulp from the mill and through the cyanide process. The mill and cyanide plant were remodeled and substantially enlarged along with the mine yard facilities between 1913 and 1919. The building was enlarged to almost twice its size, extending southward to accommodate the new arrangement. Similarly, the cyanide plant was enlarged to about twice its original size, also mostly to the south, and reorganized in order to handle the increased mill tailings and concentrates. The facility was also used to process material from other mines, including those owned by Newmont as well as others, by agreement. When operations ceased at the Empire in the 1950s, the cyanide plant was closed and dismantled.

Substantial ruins now reflect these historic activities, and in the cases of both the stamp mill and the cyanide plant, the different arrangements are clearly evident. The organization of rooms, foundations, and machine mounts of the latter reflect known stages in the cyanide process. Substantial and impressive cement walls, floors, and foundations remain. There is an assortment of smaller foundations for various machines and tanks related to the cyanide process, many of which are unique and distinguishable. Two small buildings still stand in the cyanide plant area: a lime shed, and a transformer house. The cyanide plant is linked to the Empire Mine stamp mill uphill by way of a roadway, flume or launder, and tramway foundations.

In the early stages of the project, ASC crews determined that another site (NEV-1919H), identified in thick brush in 2008 during the historic district work, extended into the project area west of the Adit Project (Selverston 2009b). In fact, the distribution of artifacts around the recently built Adit Project facilities indicates that the site has been impacted to some degree. This resource is a small, approximately 2-acre gold prospecting camp. At the time of recordation in 2008, two outlying mine prospects and two small, sparse artifact scatters were identified in association with a dense cluster of prospecting features documented together as a mine landscape. The presence of gold mining features in association with artifacts defines the property as a complex.

The landscape is the result of shallow prospecting evidenced by numerous round depressions surrounded by berms. The cluster of prospects or “coyote holes” is located outside the southwest corner of the original square Empire Mine claim. In fact, they are arranged perfectly along the lode line or ledge of the Gilroy claim, a mine location eventually patented as part of the Cassidy Consolidated Quartz Mine Claim (U.S. Bureau of Land Management 2009:Doc. No. 19183). The artifact deposit consists of dark olive, aqua, and colorless bottle glass, tablewares, a small number of cans, calcined butchered bone, a large number of pipe fragments, and pieces of clothing. The material dates to the early 1860s and was contemporaneous with the deposits investigated in the Jones/Gallagher/O’Connor Gold Mine Complex to the north.

The nearby mine landscape complex (NEV-1919H) is a contributor to the Empire Mine Historic District for its potential to yield important information about the miners’ ethnicity, class, and habits, as well as the techniques they employed in the venture.

CONCLUSION

Remediation activities continue at Empire Mine State Historic Park. As remediation activities are developed and undertaken, future archaeological studies will also be completed. These remediation activities provide unique opportunities to study the historical mining landscape and artifacts associated with over 150 years of gold mining. California State Parks and the ASC are continually developing ways to study the history of gold mining within the NRHP district. Future endeavors will undoubtedly add to our understanding of the technology and development of gold mining in historic California.

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