CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

LIFE AND LABOR ON THE AQUEDUCT LINE: AN ARCHAEOLOGICAL INVESTIGATION OF A LOS ANGELES AQUEDUCT CONSTRUCTION CAMP IN SAN FRANCISQUITO CANYON, SANTA CLARITA, CA

A thesis submitted in partial fulfillment of the requirements
For the degree of Master of Arts in Anthropology,
Public Archaeology

By

Krystal A. Kissinger

May 2017

The thesis of Krystal A. Kissinger is approved:

Dr. Mark W. Allen	Date
Dr. Kimberly Kirner	Date
Dr. James E. Snead, Chair	Date

California State University, Northridge

ACKNOWLEDGEMENTS

I owe a sincere thanks to several individuals without whom this project could not have been completed. First, I would like to thank my advisor, Dr. James E. Snead, who guided me through every step of this arduous process and never allowed me to give up on myself. I have been constantly amazed by the dedication you have to your students. I am deeply indebted to my very good friend and colleague, Ann Stansell. I don't know how this project could have been completed without your support from beginning to end—I thank you from the bottom of my heart. Thank you to Dr. Kimberly Kirner for your unwavering support, and for introducing me to the beauty of the Owens Valley—the place that I now call home. I would also like to thank Dr. Mark Allen, my first archaeology professor, whose enthusiasm for teaching and fieldwork fueled my own passion for archaeology. I was fortunate enough to have an excellent crew of volunteers who gave up their weekends to help with the fieldwork: Jairo Avila, Aaron Davis, Anna Davis, Allison Hill, Nicole Kulaga, Julee Licon, Efren Martinez, Austin Ringelstein, Thalia Ryder, Travis Samonas, and Ann Stansell. Thanks are also due to the Heritage Program of the Angeles National Forest, Joanna Huckabee, David Peebles, and Thalia Ryder for allowing me to do the fieldwork and helping me all along the way. I also owe many thanks to: Angela Tatum and Dr. Paul Soifer at the LADWP Records Center; John Klusmire, Roberta Harlan, and Heather Todd at the ECM; and Nancy Masters at the Inyo County Library. I am so, so thankful for my colleagues at the Inyo National Forest, Jacquie Beidl and Ashley Blythe, and the Bureau of Land Management Bishop Field Office, who encouraged me throughout the entire writing process and allowed me to mold my work schedule around my thesis. I would also like to thank my family, who has

cheered me on throughout my life and academic career. I am forever grateful for the love and support of Marty Hornick—thank you for everything you did to make this daunting task easier on me. To anyone I forgot to mention, please forgive me as the hour is late and I must finally part with this thesis. I will surely remember you later, thank you.

TABLE OF CONTENTS

List of Tables

List of Figures

ABSTRACT

LIFE AND LABOR ON THE AQUEDUCT LINE: AN ARCHAEOLOGICAL INVESTIGATION OF A LOS ANGELES AQUEDUCT CONSTRUCTION CAMP IN SAN FRANCISQUITO CANYON, SANTA CLARITA, CA

By

Krystal A. Kissinger

Master of Arts in Anthropology, Public Archaeology

The construction of the First Los Angeles Aqueduct from 1907 to 1913 was an event that forever transformed the environmental, political, and social landscapes of California, especially in the Los Angeles and Owens Valley regions. The magnitude of this undertaking required a tremendous amount of planning, organization, and of course—labor. The 57 construction camps erected along the 233 mile path of the aqueduct offer unique contexts to explore what life and work were really like for early 20th century laborers working in the American West during this so-called "Progressive Era". This research project examines and synthesizes historical and archaeological data (such as archival documents and photographs, oral histories, artifacts, and the archaeological remains of camp structures and features) in order to investigate the overall living and working conditions experienced by the laborers of the First Los Angeles Aqueduct. The central focus of this archaeological investigation will be on "Hogback Camp" (Forest Service Site No. 05-01-53-409), the site of a work camp occupied from 1911 to 1912 during the construction of the First Los Angeles Aqueduct in San Francisquito Canyon, Santa Clarita, California.

CHAPTER I

INTRODUCTION

Although capital and labor struggle to make their respective stories part of the national public memory, more times than not, the story of the benefits of industrialization is more prominent on the landscape than that of the hardships faced by the working class (Shackel 2009:xiii).

Over 100 years after its construction, the Los Angeles Aqueduct continues to represent different things to different people. To the people of Los Angeles (whether they realize it or not) the aqueduct is a lifeline carrying a resource as vital as blood to the human body, and without which Los Angeles could not exist as it does today. To the Los Angeles Department of Water and Power (LADWP), the municipal agency responsible for the reliable delivery of water and power to Angelinos, it stands as the crown jewel and shining achievement of their department and beloved Superintendent and Chief Engineer, William Mulholland. To many residing in the Owens Valley, the aqueduct and the glaring impacts it has had on the landscape serve as a daily reminder of Los Angeles' "theft" of water, which on the other hand, has held unwelcome development of the Valley at bay. To those who study the environment, it is a lesson in the drastic, desiccating and detrimental environmental effects that can result from the removal of water from its natural sources and distributing it elsewhere (Reisner 1993; Carle 2016). For historians and those who continue to write on the subject, the focus of the Los Angeles Aqueduct saga remains largely on the aftermath of its construction, namely, the California Water Wars that erupted in the 1920s (e.g. Walton 1992).

When I think of the construction of the aqueduct, and the rugged, remote terrain through which it passes, I think about the individuals who built it and what their experiences must have been like. Indeed, the laborers who carried out this magnificent

feat of engineering and construction are all-too-often forgotten in the popular narrative. When one really considers the intensive labor that went into building the intricate, colossal water system that is the Los Angeles Aqueduct, and attempts to put themselves in the shoes of an aqueduct laborer, it brings to mind a number of questions regarding day to day life and work along the aqueduct line: What did a typical day of work on the aqueduct entail? Was it dangerous? What kinds of activities did the workers do for fun after a hard day's work? What did they eat? What hardships did they face? The discipline of historical archaeology, which utilizes both the historical and archaeological record, is uniquely suited to investigating the answers to these questions. Though little remains of the construction camps that housed the workers who built the First Los Angeles Aqueduct, that which does remain in the historical and archaeological record can contribute to our understanding of how this group of workers experienced life while carrying out the rough work of building the aqueduct.

Though the work camps along the Los Angeles Aqueduct shared the common purpose of constructing it, they differed in many ways. Some of these differences include the region and terrain in which they were located, the time period and duration of occupation, the primary kind of work being carried out, and the occupants of the camp. Considering the variety of factors that affected the operation and occupation of aqueduct camps, it is clear that workers must have had different experiences in each camp. Following this logic, it is reasonable to assume that the archaeological signature of each camp should also be unique.

Understanding the diversity of construction camps along the aqueduct is thus the key to understanding the diversity of worker experience within them. However, to date

historical archaeological research on individual camps has been mainly limited to camps located north of the Elizabeth Division of aqueduct work (Faull 1995; Van Bueren et al. 1999; Hangan 2003; Nilsson et al. 2006; Figure 1.1). Although there were similarities between these camps, considerable differences in the material culture and archaeological signatures were also noted. No similar research including formal archaeological excavation has been conducted in the camps of the southernmost divisions.

The primary focus of this thesis is Hogback Camp (Forest Service Site No. 05-01-53-409) and the workers who lived there from October 1911 to at least August 1912. This camp was part of the Los Angeles Aqueduct Power Division of work in San Francisquito Canyon dedicated to tunneling for hydroelectric power (Figure 1.1; Table 1.1). Hogback Camp was confined to an area of approximately 1 acre on terraces cut into a steep hillside of the canyon. Thus, Hogback Camp differs from the previously studied camps on the basis of size, location, and primary function of work, and offers new data on yet another type of aqueduct work camp community. Hogback Camp is also the first Los Angeles Aqueduct Camp to be formally archaeologically excavated south of the Fairmont Reservoir, which further adds to the significance of this study.

Background

The construction of the Los Angeles Aqueduct ranks among the Panama Canal and New York's Catskill Aqueduct as one of the largest water projects in the world for its time. Constructed from 1907 to 1913, the 233 mile-long waterway was built to provide a stable and ample supply of water to the rapidly growing population of the city. This was one of the first instances of a municipality acquiring and diverting large quantities of water from such a long distance to supply an urban population, and signaled the start of

California's modern water system (Kahrl 1982:4-5). Construction of the aqueduct also took place against the backdrop of immense change in the United States with the rise of the Progressive Movement, which sought widespread reform in labor, politics, public health, education, immigration, and just about every other aspect of American society and government (Wiebe 1967).

Table 1.1 Descriptions of First Los Angeles Aqueduct Divisions (City of Los Angeles, BLAA 1908:9).

Division Name	**Division Number**	**Extent or Description of Division**
Long Valley	1	Mt. Diablo Base Line to south boundary of Mono County
Owens Valley	2	North boundary of Inyo County to and including Cottonwood Creek
Olancha	3	Cottonwood Creek to and including Haiwee Reservoirs, Hogback and Haiwee Creeks
Rose Valley	4	South end of Haiwee Reservoir to Little Lake
Grapevine	5	Little Lake to north end of Indian Wells siphon
Freeman	6	North end of Indian Wells siphon to Red Rock Summit
Jawbone	7	Red Rock Summit to south end of Pine Canyon
Mojave	8	South end of Pine Canyon to north end of Antelope Valley Cottonwood siphon
Antelope Valley	9	North end of Antelope Valley siphon to Fairmont Reservoir
Elizabeth Lake	10	Fairmont Reservoir and long tunnel to diversion in San Francisquito Canyon
Saugus	11	Diversion in San Francisquito to San Fernando Reservoirs
Railroads	12	All matter pertaining to any railroads
Cement Works	13	All subjects pertaining to cement plants
Power Plants	14	All subjects pertaining to power plants

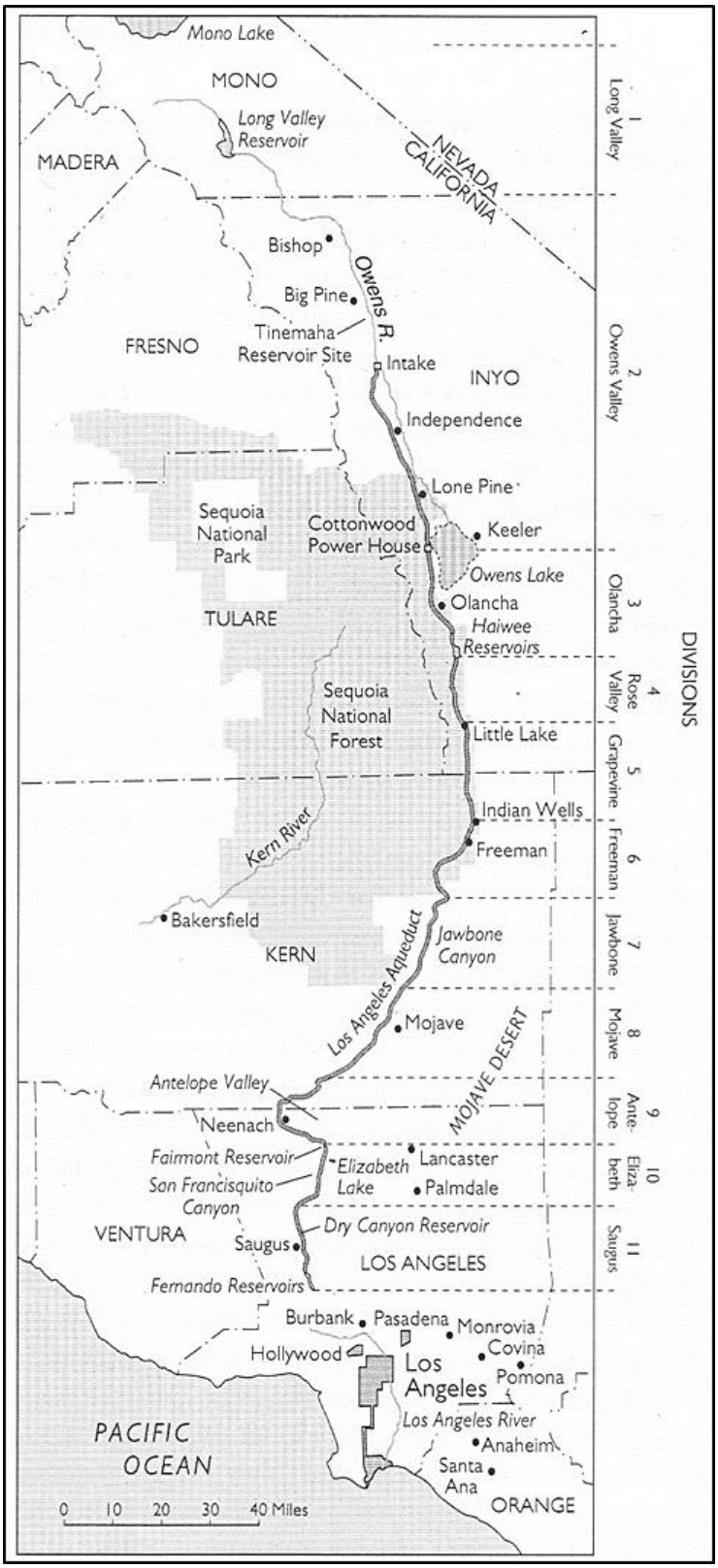


FIGURE 1.1 Map of First Los Angeles Aqueduct Divisions (LADWP).

Study Area

The Los Angeles Aqueduct system is comprised of tunnels, siphons, covered conduit, open-lined canal, and open channel that begins in the Mono Basin and extends over 400 miles to its terminus at the Cascades in Santa Clarita, California. The original First Los Angeles Aqueduct starts at its intake just north of Independence, California and shares its terminus with the Second Los Angeles Aqueduct at the Cascades (Figure 1.1). Hogback Camp, the site that is the focus of this research, is located in San Francisquito Canyon in Santa Clarita, California (Figure 1.2). San Francisquito Canyon is considered one of the most important sections of the Los Angeles Aqueduct because of its role in providing hydroelectric power to the City of Los Angeles (City of Los Angeles, BLAAP 1910). In addition, San Francisquito Canyon was the site of a prominent feature of the Los Angeles Aqueduct system, the St. Francis Dam, which catastrophically failed in March of 1928 claiming up to 411 lives in its flood path (Stansell 2014:3; Stansell, personal communication 2017). Today, San Francisquito Canyon remains a scenic canyon dotted with ranches, abandoned roads, and notable features of the Los Angeles Aqueduct system such as the massive penstocks dropping into San Francisquito Power Plants No. 1 and No. 2.

Research Framework

The quote by Paul Shackel (2009:xiii) at the beginning of this chapter gets at the very core of what this thesis aims to accomplish. By investigating the experiences and hardships of aqueduct workers, this thesis will celebrate the accomplishments of the individuals who toiled over the construction of the Los Angeles Aqueduct, rather than focusing on how the City of Los Angeles has benefitted from the aqueduct. Historical

archaeology, a discipline that combines the use of historical documents and archaeological methods, is the ideal methodological and theoretical umbrella under which to carry out this investigation. Historical archaeology is aimed at understanding the development of industrial capitalism and how its material culture connects to the social classifications that formed within such a system (Delle et al. 2000:14). On a deeper level, historical archaeology examines perceptions of difference and inequality, which have acted as major functions in the "process of industrialization, the evolution of class consciousness, and the nature of dialogs both among wage laborers and between those workers and their employers" (Van Bueren 2002:29). Work communities in industrial settings such as the aqueduct work camps afford historical archaeologists ideal contexts in which to study issues related to labor, as well as the experiences, struggles, and triumphs of the working class. This is the lens through which this research on the laborers of the First Los Angeles Aqueduct was carried out.

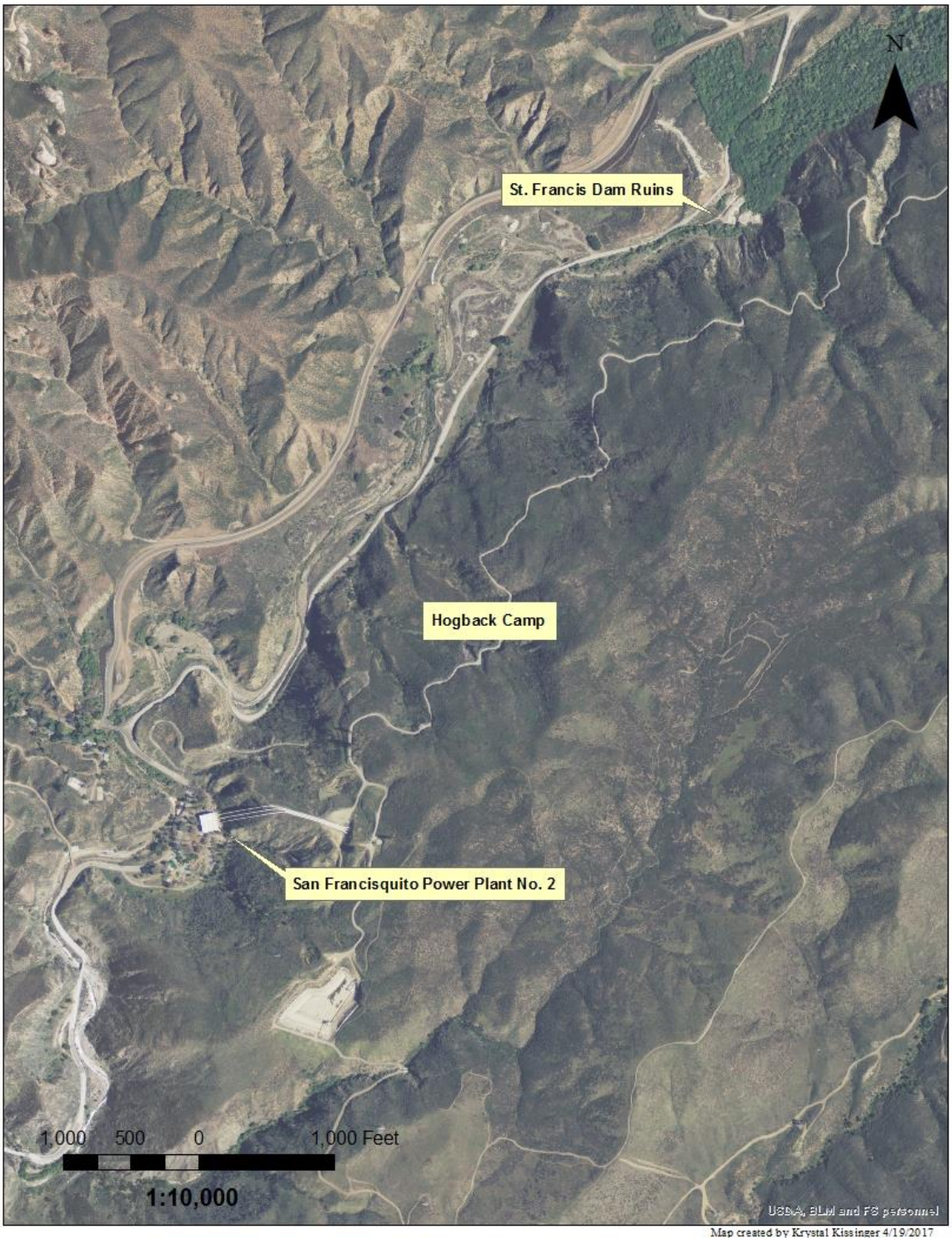


FIGURE 1.2 Hogback Camp in relation to San Francisquito Power Plant No. 2 and St. Francis Dam Ruins

CHAPTER II

HISTORICAL BACKGROUND

Water and the Progressive West

The period of time from the end of the American Civil War in 1865 to the eruption of World War I in 1914 (the coalescence of the Gilded Age and Progressive Era) was marked by major change in the political, economic and social structures that formed American society (Wiebe 1967). People moved from rural areas to cities, immigrants poured into the country, schools and professions became more formalized, labor unions were organized, corruption in government was combatted, and infrastructure further developed—in essence, everything moved toward order and progress (Wiebe 1967). The rapid pace of industrialization spurred the advancement of industrial capitalism and resulted in the formation of a new working class. Under the systems of industrial capitalism and wage labor, which generally prized efficiency and production over the welfare of the individual, the people of the new working class often worked long hours under unsafe conditions and were afforded very few rights or protections (Shackel 2009). This was the case for workers across the country from the factories of the East, to the textile mills of the South, to the mines of the West, to the construction of the transcontinental railroads.

At the same time that urbanization and big industry boomed in the East, good climate and new opportunities lured people west. The discovery of gold in California in 1849 and the subsequent completion of the transcontinental railroad in 1869 resulted in scores of people migrating to the Western frontier (Kahrl 1982:1-2; Reisner 1993:48; Wiebe 1967:47-50). Settlement of the West was also greatly fostered by the irrigation

movement and a slew of legislation originating with the Homestead Act of 1862, which sought to transform the vastly unsettled arid West by promoting wide-spread irrigation and granting large land allotments for settlers to farm (Reisner 1993:41-48). One of the few to realize the problems that would eventually arise from mass irrigation of the West was famed explorer and geologist, John Wesley Powell. At the 1893 International Irrigation Congress held in Los Angeles, California, Powell warned, "When all the rivers are used…when all the springs are used, when all the reservoirs along the streams are used…when all the wells are sunk or dug that can be dug…there is still not sufficient water to irrigate all this arid region." Despite the truthfulness of his words, he was harshly criticized by the delegates who firmly believed irrigation could transform the deserts of the West (Worster 2001:529). Powell's warning went ignored and the irrigation movement pressed on.

Passage of the Reclamation Act in 1902 supported the development of water resources on public lands, although it eventually facilitated the undertaking of water projects on private lands as well (Rogge et al. 1995:7). The Act also resulted in the creation of the Reclamation Service (later renamed the Bureau of Reclamation), a federal agency that would come to have a major hand in the development of water projects in the West (Worster 2001:569). Ultimately, this legislation brought the federal government into the water business and spurred the construction of infrastructure for the storage, diversion, and distribution of water with the intention of reclaiming arid lands (Worster 2001:569).

The Reclamation Act and its associated consequences have been viewed from many standpoints. Some viewed it as a socialistic outgrowth of the Progressive

Movement, others as an attempt to relieve the overcrowded and unruly conditions of the industrial cities in the East, and still more viewed it as Manifest Destiny (Reisner 1993:111). In reality, the Reclamation Act was inevitable if the West was ever to be settled on any grand scale. By 1889, over three million acres in the West were under irrigation—and people continued to pour in from every region in the country (Reisner 1993:111). Thus, the reclamation of the West not only had a profound impact on the landscape, but also played an important part in the shaping of its history and culture (Rogge, et al. 1995:1). By bringing water to arid western regions, the federal government allowed for the growth of agriculture and large urban centers, such as San Francisco and Los Angeles. In the case of Los Angeles, water development catapulted it ahead of San Francisco to become the West's most prominent city (Kahrl 1982:7).

Planning the Los Angeles Aqueduct

Still another fundamentally important question is that of water power. Its significance in the future development of our whole country, and especially of the west, is but just the beginning to be understood. The plan of the city of Los Angeles, for example, to bring water for its use a distance of nearly 250 miles—perhaps the boldest project of the kind in modern times—promises not only to achieve its purpose, but in addition to produce a water power sufficiently valuable to pay large interest on the investment (President Theodore Roosevelt 1907).

As did the Reclamation Act, the construction of the First Los Angeles Aqueduct represented the fundamental ideologies of the Progressive Era and water development in the West. It was a project sanctioned by President Theodore Roosevelt under the popular progressive notion of "the greatest good to the greatest number" (Hoffman 1981:48). The endeavor was spearheaded by three individuals: J.B. Lippincott, an engineer who worked for the Reclamation Service and later the City of Los Angeles Water Department; Fred Eaton, who first conceived of the idea to bring Owens Valley water to Los Angeles; and

William Mulholland, Superintendent of the City of Los Angeles Water Department and Chief Engineer of the Los Angeles Aqueduct (Hoffman 1981; Kahrl 1982; Reisner 1993).

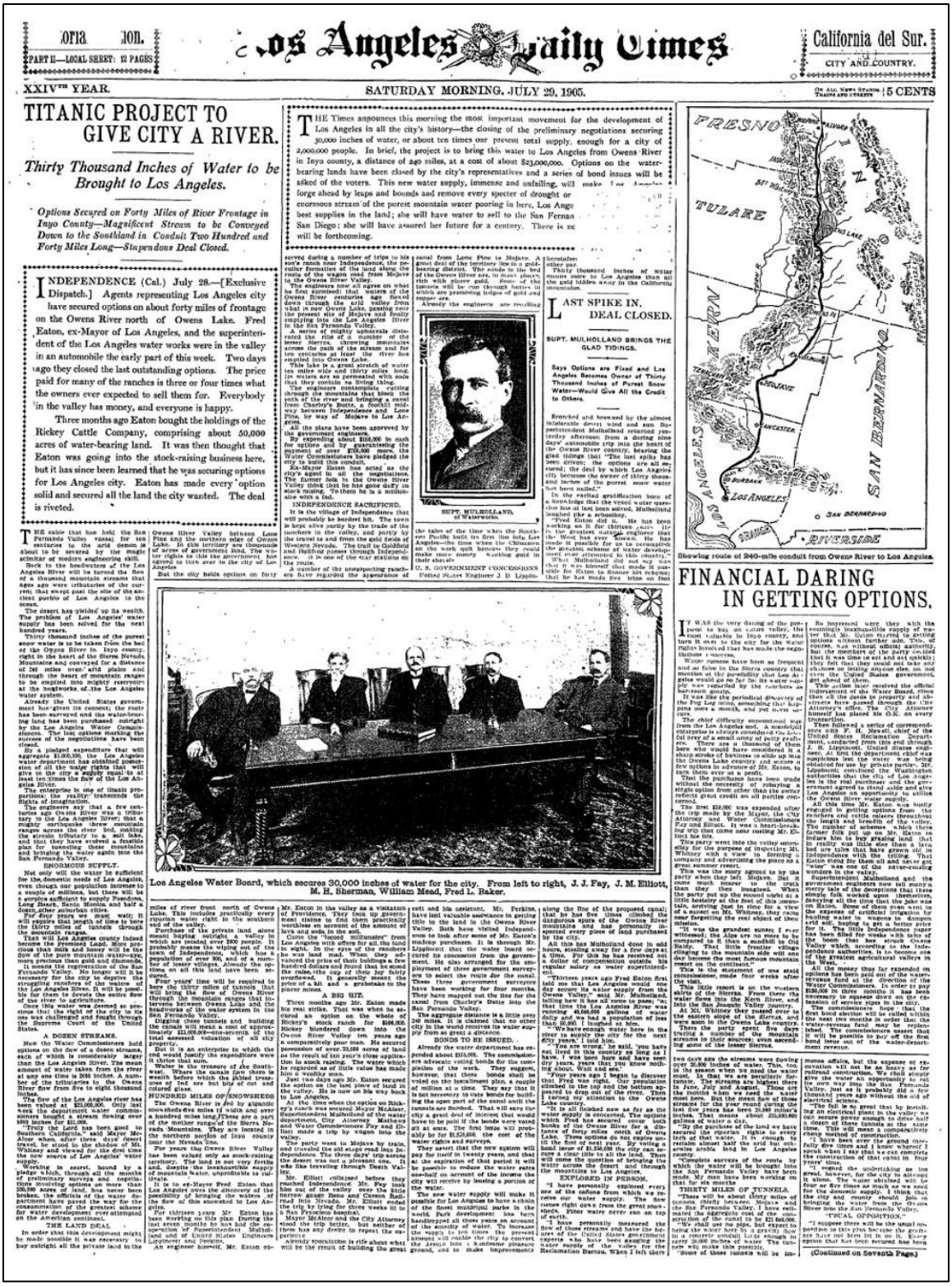
The project was intended to address a critical limit on the city's growth. Since the town was established under Spanish colonial rule in 1781, water had been supplied by the Los Angeles River and its tributaries in the San Gabriel, Santa Monica, and Santa Susanna Mountains, and under Spanish policy, river water was considered public property that must be managed fairly and efficiently (Kahrl 1982:7). However, as the city grew under American rule in the 1800s, management of water became more difficult and the original sources of supply could no longer keep up with agricultural and domestic demands (Kahrl 1982:8; Reisner 1993:55).

Following years of litigation with private water companies, the City of Los Angeles gained control of its domestic water system in 1902, appointing William Mulholland as its Superintendent (Kahrl 1982:17-18). Under Superintendent Mulholland the city overhauled its entire water system, replacing conduit, adding reservoirs, and expanding groundwater pumping; however, by 1904, with the city's population continuing to skyrocket, Mulholland acknowledged, "The time has come when we shall have to supplement its flow from some other source" (Kahrl 1982:24-25; C. Mulholland 2000:90-91). After investigating new possible sources of water south of the Tehachapi range and west of San Bernardino, the search for a viable water supply took Mulholland to a valley far north of Los Angeles (City of Los Angeles 1916:13).

Located roughly 250 miles north of Los Angeles, between the Eastern Sierra and White-Inyo Mountain Ranges near the eastern boundary of California, lies the Owens Valley. Fred Eaton first set eyes on the valley in 1892 on a trip to scout out a proposal for

a potential irrigation project and colony (Hoffman 1981:33). Although the project never came to fruition, the thought of the abundant waters of the Owens River and breathtaking snow-capped Eastern Sierra remained with Eaton long after this trip (Hoffman 1981:33-34). As it became clear that Los Angeles would need another major water source, Eaton raised the possibility of obtaining water from the valley with Mulholland, who later recalled, "Mr. Eaton had talked to me about Owens River for thirteen years; and would twit me with the fact that sooner or later the city of Los Angeles would go to the Owens River country to get an additional water supply" (C. Mulholland 2000:120-121). Despite his initial skepticism, as soon as Mulholland returned from his first trip with Eaton to scope out the waters of the Owens Valley, he began making the necessary arrangements to bring its water to the city (Kahrl 1982:49).

While Mulholland planned for the aqueduct's construction, Eaton worked on acquiring land and water rights for the city, and all the while Reclamation Service engineer, J.B. Lippincott, acted as a sort of double-agent, providing the city with documents detailing surveys and stream measurements in the Owens Valley (Hoffman 1981:66-79; Kahrl 1982:89, 117-129; Reisner 1993:63-68). On July 29th, 1905, one day after the city finished obtaining roughly 90,000 acres of Owens Valley land and water rights, the aqueduct project was finally announced to the public with a front page newspaper headline, "Titanic Project to Give City a River" (Hoffman 1981:90; Figure 2.1). The project gained overwhelming approval by Los Angeles residents (who voted to pay for its construction through bonds) and those who had an interest in it, including potential workers.



ORIGINAL EDITION. PART II—LOCAL SHEET: 12 PAGES

Los Angeles Daily Times

California del Sur. CITY AND COUNTRY.

XXIVTH YEAR. SATURDAY MORNING, JULY 29, 1905. ON ALL NEWS STANDS TRAINS AND STEAMERS | 5 CENTS

TITANIC PROJECT TO GIVE CITY A RIVER.

Thirty Thousand Inches of Water to be Brought to Los Angeles.

Options Secured on Forty Miles of River Frontage in Inyo County—Magnificent Stream to be Conveyed Down to the Southland in Conduit Two Hundred and Forty Miles Long—Stupendous Deal Closed.

THE Times announces this morning the most important movement for the development of Los Angeles in all the city's history—the closing of the preliminary negotiations securing 30,000 inches of water, or about ten times our present total supply, enough for a city of 2,000,000 people. In brief, the project is to bring this water to Los Angeles from Owens River in Inyo county, a distance of 240 miles, at a cost of about $23,000,000. Options on the water-bearing lands have been closed by the city's representatives and a series of bond issues will be asked of the voters. This new water supply, immense and unfailing, will make the Angeles forge ahead by leaps and bounds and remove every specter of drought or ... enormous stream of the purest mountain water pouring in here, Los Ange... best supplies in the land; she will have water to sell to the San Fernan... San Diego; she will have assured her future for a century. There is no ... will be forthcoming.

INDEPENDENCE (Cal.) July 28.—[Exclusive Dispatch.] Agents representing Los Angeles city have secured options on about forty miles of frontage on the Owens River north of Owens Lake. Fred Eaton, ex-Mayor of Los Angeles, and the superintendent of the Los Angeles water works were in the valley in an automobile the early part of this week. Two days ago they closed the last outstanding options. The price paid for many of the ranches is three or four times what the owners ever expected to sell them for. Everybody in the valley has money, and everyone is happy.

Three months ago Eaton bought the holdings of the Rickey Cattle Company, comprising about 50,000 acres of water-bearing land. It was then thought that Eaton was going into the stock-raising business here, but it has since been learned that he was securing options for Los Angeles city. Eaton has made every option solid and secured all the land the city wanted. The deal is riveted.

THE cable that has held the San Fernando Valley vassal for ten centuries to the arid demon is about to be severed by the magic scimitar of modern engineering skill.

Back to the bondwasters of the Los Angeles River will be turned the flow of a thousand mountain streams that ages ago were tributaries of the current that swept past the site of the ancient pueblo of Los Angeles to the ocean.

The desert has yielded up its wealth. The problem of Los Angeles' water supply has been solved for the next hundred years.

Thirty thousand inches of the purest snow water is to be taken from the bed of the Owens River in Inyo county, right in the heart of the Sierra Nevada Mountains and conveyed for a distance of 240 miles over arid plains and through the heart of mountain ranges to be emptied into mighty reservoirs at the headworks of the Los Angeles water system.

Already the United States government has given its consent; the route has been surveyed and the water-bearing land has been purchased outright by the Los Angeles Water Commissioners. The last options marking the success of the negotiations have been closed.

By a pledged expenditure that will aggregate $1,000,000, the Los Angeles water department has obtained possession of all the water rights that will give to the city a supply equal to at least ten times the flow of the Los Angeles River.

The enterprise is one of titanic proportions; the reality transcends the flights of imagination.

The engineers say that a few centuries ago Owens River was a tributary to the Los Angeles River; that a mighty earthquake threw mountain ranges across the river bed, making the stream tributary to a salt lake, and that they have evolved a feasible plan for tunneling these mountains and bringing the water again into the San Fernando Valley.

ENORMOUS SUPPLY.

Not only will the water be sufficient for the domestic needs of Los Angeles, even though our population increase to a couple of millions, but there will be a surplus sufficient to supply Pasadena, Long Beach, Santa Monica and half a dozen other suburban cities.

For four years we must wait; it will require that length of time to bore the thirty miles of tunnels through the mountain ranges.

Then will Los Angeles county indeed become the Promised Land. More precious than milk and honey will be the flow of the pure mountain water—aye, more precious than gold and diamonds. It means the regeneration of the San Fernando Valley. No longer will it be necessary for the city to deprive the struggling residents of the valley of the last drop of water. It will be possible for them to divert the entire flow of the river to agriculture.

Once this water was deemed so precious that the right of the city to its use was challenged and fought through the Supreme Court of the United States.

A DOZEN STREAMS.

Now the Water Commissioners hold options on the flow of a dozen streams, each of which is considerably larger than the Los Angeles River. The mean amount of water taken from the river at any one time is 2000 inches. A number of the tributaries to the Owens River flow from five to eight thousand inches.

The flow of the Los Angeles river has been valued at $25,000,000. Only last week the department water commissioners bought a stream flowing over 4000 inches for $21,000.

"Truly the Lord has been good to Southern California," said Mayor McAlister when, after three days' travel, he stood in the shadow of Mt. Whitney and viewed for the first time the new source of Los Angeles' water supply.

Working in secret, bound by a pledge which, through all the months of preliminary negotiations, negotiations involving options on more than 200,000 acres of land, has never been broken, the officials of the water department have paved the way for the consummation of the greatest scheme for water development ever attempted on the American continent.

THE LAND DEAL.

In order that this development might be made possible it was necessary to buy outright all the private land in the Owens River Valley between Lone Pine and the northern edge of Owens Lake. In this territory are thousands of acres of government land. The water rights to this the government has agreed to turn over to the city of Los Angeles.

But the city holds options on forty miles of river front north of Owens Lake. This includes practically every riparian water right in the southern end of the valley.

Purchase of the private land alone means buying outright a valley in which are located over 2000 people. It probably means the wiping out of the town of Independence, which has a population of over 300, and of a number of lesser villages. Already the options on all this land have been secured.

Four years' time will be required to bore the thirty miles of tunnels that will bring the flow of Owens River through the mountain ranges that intervene between Owens Lake and the headworks of the water system in the San Fernando Valley.

Digging these tunnels and building the canals will mean a cost of approximately $23,000,000—one-seventh of the total assessed valuation of all city property.

But it is an enterprise in which the end would justify the expenditure were it thrice that sum.

Water is the treasure of the Southwest. Where the canals flow there is wealth before which the jubled treasures of Ind are but bits of cut and colored glass.

HUNDRED MILES OF SNOWSHEDS.

The Owens River is fed by gigantic snowsheds five miles in width and over a hundred miles long. These are a part of the mother range of the Sierra Nevada Mountains. They are located in the northern section of Inyo county near the Inyo line.

For years the Owens River Valley has been valued only as stock-raising territory. The land is not very fertile and, despite the inexhaustible supply of mountain water, unpredictable in its ...

It is to ex-Mayor Fred Eaton that Los Angeles owes the discovery of the possibility of bringing the waters of the flow of this snowshed to Los Angeles.

For thirteen years Mr. Eaton has been working on this plan. During the last seven months he has had the cooperation of Superintendent Mulholland and of United States Engineers Lippincott and Perkins.

An engineer himself, Mr. Eaton estimated during a running trip in his ... son's ranch near Independence, the probable formation of the land along the route of the wagon road from Mojave to the Owens River Valley.

The engineers now all agree on what has been assumed: that waters of the Owens River centuries ago flowed down through the arid valley from what is now Owens Lake, passing near the present site of Mojave and finally emptying into the Los Angeles River in the San Fernando Valley.

A series of mighty upheavals disintegrated the rise of a number of the lesser Sierras, throwing mountains across the path of the stream and for ten centuries at least the river has emptied into Owens Lake.

This lake is a great stretch of water ten miles wide and thirty miles long. Its waters are so permeated with soda that they contain no living thing.

The engineers contemplate cutting through the mountains that block the path of the river and bringing a canal from Charlotte's Butte, a foothill midway between Independence and Lone Pine, by way of Mojave to Los Angeles.

All the plans have been approved by the government engineers.

By expending about $150,000 in cash for options and by guaranteeing the payment of over $750,000 more, the Water Commissioners have pledged the city to build this conduit.

Ex-Mayor Eaton has acted as the city's agent in all the negotiations. The farmer folk in the Owens River Valley think that he has gone daft on stock raising. To them he is a millionaire with a fad.

INDEPENDENCE SACRIFICED.

It is the village of Independence that will probably be hardest hit. The town is kept alive partly by the trade of the ranchers in the valley, and partly by the travel to and from the gold fields of Western Nevada. The trail to Goldfield and Rhyolite passes through Independence, and is one of the star stations on the route.

A number of the unsuspecting ranchers have regarded the appearance of Mr. Eaton in the valley as a visitation of Providence. They took up government claims to find them practically valueless on account of the amount of land sold to Eaton.

Some of these hoodwinked men from Los Angeles will offer for all the land in sight. In the eyes of the ranchers he was land mad. When they advanced the price of their holdings a few hundred dollars and asked him to scale the rates, the cup of their joy fairly overflowed. It genuinely meant the price of a kit and a grubstake to the fortunate ones.

A BIG BUY.

Three months ago Mr. Eaton made his real strike. That was when he secured an option on the whole of Rickey's stock ranch for $106,000. Rickey blundered down into the Owens River Valley from Texas ago a comparatively poor man. He secured possession of over 50,000 acres of land as the result of ten year's close application to stock raising. The water which he regarded as of little value has made him a wealthy man.

Just two days ago Mr. Eaton secured the option on the last piece of land in the valley. He is now on his way back to Los Angeles.

At the time when the option on Rickey's ranch was secured Mayor Alexander, Superintendent Mulholland of the water department, City Attorney Mathews and Water Commissioners Fay and Elliott made a trip by wagon into the valley.

The party went to Mojave by train, and traveled the old stage road into Independence. The three days' trip across the desert was not a pleasant one. It was like traveling through Death Valley.

Mr. Elliott collapsed before reached Independence. Mr. Fay took him out of the valley over the little narrow gauge Reno and Carson Railroad into Nevada. Mr. Elliott ended the trip by lying for three weeks in a San Francisco hospital.

Mayor McAlister and the City Attorney stood the trip better, but neither of them has any desire to repeat the experience.

Already speculation is rife about what will be the result of building the great canal from Owens River to Mojave. A great deal of the territory lies in a gold-bearing district. The sands in the bed of the Owens River are in most places rich with placer gold. Some of the tunnels will be run through buttes in which are promising ledges of gold and copper ore.

Already the engineers are recalling the tales of the time when the Southern Pacific built its first line into Los Angeles—the time when the Chinamen on the work quit because they could make more money scaling gold in their sluices.

U. S. GOVERNMENT CONCESSIONS.

United States Engineer J. D. Lippincott and his assistant, Mr. Perkins, have lent valuable assistance in getting title to the land in the Owens River Valley. Both have visited Independence to look after some of Mr. Eaton's hodcarp purchases. It is through Mr. Lippincott that the water board secured its concession from the government. He also arranged for the employment of three government surveyors to select the route for the canal. These three government surveyors have been working for four months. They have mapped out the line for the canal from Charley's Butte into the San Fernando Valley.

The aggregate distance is a little over 240 miles. It is claimed that no other city in the world receives its water supply from as great a distance.

BONDS TO BE ISSUED.

Already the water department has expended about $150,000. The consolidation ordinance provides for the issuance of bonds, however, that these bonds shall be voted on the installment plan, a couple of million at a time. They say that it is not necessary to vote bonds for building the open part of the canal until the tunnels are finished. That will save the city a great deal of interest that would have to be paid if the bonds were voted all at once. The first issue will probably be for $1,250,000, the cost of the water rights and surveys.

They assert that the new system will pay for itself in twenty years, and that at the expiration of that period it will be possible to reduce the water rates one-half on account of the income the city will receive by leasing a portion of the water.

The new water supply will make it possible for Los Angeles to have a chain of the finest municipal parks in the world. Park development has been handicapped all these years on account of the scarcity of water. To increase the supply to ten times the present amount will enable the city to convert the arroyos into a handsome pleasure ground, and to make improvements along the line of the proposed canal; that he has five times climbed the dangerous paths of the Sierra Nevada mountains and has personally inspected every place of importance by the city.

All this has Mulholland done in odd hours, stealing away for a few days at a time. For this he has received not a dollar of compensation outside his regular salary as water superintendent.

Thirteen years ago Fred Eaton first told me that Los Angeles would one day secure its water supply from the Owens Valley," said Mr. Mulholland. "Now it has all come to pass; 'tis that time the Los Angeles River was running 4000 inches of water. Today Los Angeles has had a population of less than 50,000."

"We have enough water here in the river to supply a population of a hundred years," I said to Eaton.

"You are wrong," he said, "you have not lived in this country as long as I have. I was born here and have seen dry years, years that you know nothing about. Wait and see."

Four years ago I began to discover that Fred was right. Water became scarce in the top and the bottom appeared to drop out of the river. Then I began to pay attention to the Owens Lake country.

"It is all thought now that the water supply is concerned. The options which Fred has secured cover both banks of the Owens River for a distance of forty miles south of Owens Lake. These options do not expire until the first of next year. By voting a bond issue of $1,250,000 the city can secure a clear title to all the land. There will come the question of bringing the water across the desert and through the mountains to Los Angeles.

EXPLAINED IN PERSON.

"I have personally explored every one of the cañons from which we receive our water supply. The flow comes right down from the great snowsheds. Eaton never rode on top of earth.

"I have personally measured the flow of those streams and have the figures of the United States government experts who have been sampling the water supply of the valley for the Reclamation Bureau. When I left there two days ago the streams were flowing over 20,000 inches of water. This, too, in the season when we need the water most. In that we are peculiarly fortunate. The streams are highest there in June, July and August. Those are the months when we need the water most here. But the mean flow of those streams for the year round gives the lowest dry years has been 20,000 miner's inches. There are about 50,000 miner's inches to a cubic foot.

"By the purchase of the land we have secured the riparian rights to every inch of that water. It is enough to irrigate all the arid but rich alluvial arable land in Los Angeles county.

"Complete surveys of the route by which the water will be brought into the San Fernando Valley have been made. My men have been working on that for six months.

THIRTY MILES OF TUNNELS.

"There will be about thirty miles of tunnels, chiefly between Mojave and the San Fernando Valley. We have estimated the aggregate cost of the construction of the canal to be $23,000,000.

"We shall use no pipe, but expect to bring the water here in a gravity flow in a concrete conduit large enough to carry 30,000 inches of water. The conduit will cost $2,000,000.

"Some of these tunnels will be immense affairs, but the expense of excavation will not be as heavy as for railroad construction. We shall simply give the water an opportunity to run in our way into the San Fernando Valley, just as it probably did a few thousand years ago without the aid of electrical science.

"The fall is so great that by installing an electrical plant in the valley we can secure power enough to drive half a dozen of these tunnels at the same time. This will mean a comparatively cheap method of construction.

"I have been over the ground carefully five times and I know whereof I speak when I say that we can complete the construction of that canal in four years' time.

"I regard the undertaking as too great, however, for the city to do it alone. The water obtained will be four or five times as much as we need for the domestic supply. I think that the city and county should join in bringing the water from the Owens River into the San Fernando Valley.

"LOCAL OPPORTUNITY.

"I suppose there will be the usual opposition in this place because the grafters have not been let in on it. Every option that has been secured has been

(Continued on Seventh Page.)

SUPT. MULHOLLAND, of Waterworks.

LAST SPIKE IN, DEAL CLOSED.

SUPT. MULHOLLAND BRINGS THE GLAD TIDINGS.

Says Options are Fixed and Los Angeles Becomes Owner of Thirty Thousand Inches of the Purest Snow Water—Would Give All the Credit to Others.

Drenched and benumbed by the almost intolerable desert wind and sun Superintendent Mulholland returned yesterday afternoon from a during nine days' automobile trip into the heart of the Owens River country, bearing the glad tidings that "The last spike has been driven; the options are all secured; the deal by which Los Angeles city becomes the owner of thirty thousand inches of the purest snow water has been sealed."

Big as the vastness of the vast gratification born of a stone lodge that the vexed water question has at last been solved, Mulholland laughed like a schoolboy.

"Fred Eaton did it. He has been working on it for thirteen years. He is the greatest natural engineer that the West has ever known. He has made it possible for us to accomplish the greatest scheme of water development ever attempted in this country."

What Mulholland did not say was that it was himself that made it possible for Eaton to finance his scheme; that he has made five trips on foot

Los Angeles Water Board, which secures 30,000 inches of water for the city. From left to right, J. J. Fay, J. M. Elliott, M. H. Sherman, William Mead, Fred L. Baker.

Showing route of 240-mile conduit from Owens River to Los Angeles.

FINANCIAL DARING IN GETTING OPTIONS.

IT WAS the very daring of the proposal to buy an entire valley, the most valuable in Inyo county, and turn it over to the city for the Water Rights Board that has made the negotiations a success.

Water options have been so frequent and so false in the Sierra country that mention of the possibility that Los Angeles would go so far in its water supply was regarded by the ranchers as bad taste.

It was like the periodical discovery of the Peg Leg mine, something that happens once a month, and yet never occurs.

The chief difficulty encountered was from the Los Angeles end. Such an enterprise is always considered the behest of a small army of city traffic. There are a thousand of them who would have considered it a sharp stroke of business to slide up into the Owens Lake country and secure a few options in advance of Mr. Eaton, to turn them over as a profit.

That the purchases have been made without the necessity of robbing a single option from other than the owner reflects great credit on all parties concerned.

The first $50,000 was expended after the trip made by the Mayor, the City Attorney and Water Commissioners Fay and Elliott. It was a heart-breaking trip that came near ending Mr. Elliott his life.

This party went into the valley ostensibly for the purpose of inspecting Mt. Whitney with a view to forming a company and advertising the place as a great summer resort.

This was the story agreed to by the party when they left Mojave. But it came much nearer to the truth than they then imagined. When the party put up the second night as a ranch hostelry at the foot of this mountain, arriving just in time for a view of a storm on Mt. Whitney, the rains near forgetting the real object of their mission.

"It was the grandest sunset I ever saw in the sky," said Mr. Fay, "when compared to it then a sandhill in Old Shabby. That little frontier village clinging to the mountain side will one day become the most famous mountain resort on the continent."

This is the statement of one staid commissioner, made four weeks after the visit.

"This little resort is on the western skirts of the Sierras. From there the water flows into the Kern River, and into the San Joaquin Valley country.

At Mt. Whitney they passed over to the eastern slope of the Sierras, and were soon in the Owens Lake country.

"There the party spent five days tracing a number of the mountain streams to their sources, and ascending some of the lesser Sierras.

So impressed were they with the seemingly inexhaustible supply of water that Mr. Eaton started in getting options without further ado. This, of course, was without offering authority, but the members of the party decided that it was time to act and act quickly; they felt that they could not take any chances on letting anyone else, not even the United States government, get ahead of them.

This action later received the official indorsement of the Water Board. Since then all the cards in property and abstracts have passed through the City Attorney's office. The City Attorney himself has placed his O.K. on every transaction.

Then followed a series of correspondence with F. H. Newell, chief of the United States Reclamation Department, conducted from this end through J. B. Lippincott, United States engineer. At first the department chief was emphatic in the matter that water be obtained for use by private parties. Mr. Lippincott, convinced the Washington authorities that the city of Los Angeles, the greatest municipal and the most strongly organized to stand aside and give Los Angeles an opportunity to utilize the Owens River water supply.

All this time Mr. Eaton was busily engaged in getting options from the ranchers and cattle raisers throughout the length and breadth of the valley. The number of schemes which these farmer folk put up on Mr. Eaton to induce him to buy grazing land that in reality was little else than a lava bed are tales that have grown old in Independence with the telling. That Eaton stood fire them all and never got "taken" was one of the astonishing wonders in the valley.

Superintendent Mulholland and the government engineers now tell many a merry tale of the deceptions that these simple folk worked upon themselves, decoying all the time that the joke was on Eaton. Some of them even went to the expense of artificial irrigation by hauling water in wagons to dampen arid soil, hoping to get a better price for it. The little Independence paper has been filled for weeks with tales of the boom that has struck Owens Valley which, according to the Independence authorities, is to become one of the greatest agricultural valleys in the West.

All the money thus far expended on options has been paid out of the water-revenue fund at the direction of the Water Commissioners. In order to pay $150,000 in three months it was necessary to squeeze down on the expansion of service pipes in the city.

The commissioners hope that the first bond election will be called within the next two months in order that the water-revenue fund may be replenished. The commissioners assert that it will be possible to pay off the first bond issue out of the water-department revenue.

FIGURE 2.1 "Titanic Project to Give City a River" (Los Angeles Times, 1905 July 29)

As preparations for construction continued, hundreds of job seekers applied for positions along the aqueduct line. Civil Service Examinations were administered to those seeking engineer, construction clerk, surveyor, and storekeeper positions, while "unskilled" laborers such as carpenters, miners, and muckers were exempt (LAT, 1907 May 29). A newspaper article from the *Los Angeles Times* on June 25th, 1907 describes the hiring situation:

> Aqueduct authorities are besieged by applicants for work on the Owens River project. Every day brings a score of applicants, who appear in person, and every mail brings dozens of letters from those presenting their qualifications and seeking employment….Applications for positions are being received from every state and territory in the Union. Eastern engineers seem to be especially interested and many applications for employment are on file from those now employed on the great New York waterworks, and those who assisted in the construction of the Boston water supply system.

Building the Los Angeles Aqueduct

Preliminary work on the 233 mile-long aqueduct began as early as June 1907 (City of Los Angeles, BLAA 1908:134). The plan was to complete preliminary construction of facilities, telephone lines, and access and maintenance roads, then to tackle the most challenging parts of construction before moving forward with the rest of the construction plan. By the end of 1908, a through telephone line connected Los Angeles to Independence (a distance of roughly 230 miles), allowing for communication between all divisions of work (City of Los Angeles, BLAA 1908:54). Building materials were transported from Mojave to the Owens Valley and distributed to the construction camps via an added spur to the Southern Pacific Railroad built especially to support the aqueduct project (City of Los Angeles 1916:18). Building materials for the lower third portion of the aqueduct line were transported via wagon haul. In addition, nearly 200

miles of roads and trails were built for the transportation of building materials and supplies (City of Los Angeles, BLAA 1908:47).

A total of 57 aqueduct construction camps were erected along the path of work (Figure 1.1, Table 1.1). By October 1908, a total of 2,629 individuals were employed (City of Los Angeles, BLAA 1908:135). Married men with families could rent small, furnished wood-frame cabins or tent-framed houses with floors, while single men were housed together in tents. By May of 1909, the payroll included 6,060 individuals (City of Los Angeles, BLAA 1909:57). Over time these numbers fluctuated. The total number of men employed on the aqueduct in 1912 ranged from 2,800 to 3,800 men, with an average pay from $2.65 to $2.70 per day (City of Los Angeles, BLAA 1912:14). Bonus pay systems were implemented for the driving of tunnels and for the erection for steel pipes (City of Los Angeles, BLAA 1912:14).

On top of acquiring a stable and sufficient water supply, the City of Los Angeles recognized it would need an efficient and reliable power supply in order to keep up with the continued rapid growth of the city. From 1897 to 1910, the demand for electric power in Los Angeles increased tenfold from 5,000 kilowatts to 50,000 kilowatts per year (City of Los Angeles, BLAAP 1910:28). In July of 1909, an appropriation of $10,000 was made for the creation of the Bureau of Los Angeles Aqueduct Power within the Department of Public Works of the City of Los Angeles (City of Los Angeles, BLAAP 1910:9). Shortly thereafter, a bond election was held in which the people of Los Angeles voted seven to one to approve $3,500,000 in power bonds (City of Los Angeles, BLAAP 1910:10). By June 1910, the Consulting Board and City Engineers had finished the preliminary studies and on-the-ground work needed to complete the general plan of

construction for the entire Los Angeles Aqueduct Power System. This system would include the following power plants: Division Creek, Cottonwood No. 1, Cottonwood No. 2, Haiwee, San Francisquito No. 1, San Francisquito No. 2, San Fernando, and the Los Angeles Sub-Station (City of Los Angeles, BLAAP 1910:16-18).

Located only 40 miles away from Los Angeles City proper, the section of the aqueduct running along San Francisquito Canyon offered an ideal setting for the development of large hydroelectric generating power plants. By being located so close to the point of delivery, the power plants would be able to improve upon the power transmitted from more distant plants, as well as lessen the amount of energy lost through transmission, thereby reducing the overall cost of the transmission system (City of Los Angeles, BLAAP 1910:15). In addition, the proximity of San Francisquito Canyon to Los Angeles made it easier to transport equipment and materials needed for the construction of features in this power division. However, by Mulholland's own assessment, figuring out where the aqueduct line would go through San Francisquito Canyon was "unusually difficult owing to the rugged topography and the dense brush which covers the hillsides" (City of Los Angeles, BLAA 1911:42). Eventually it was decided that an upper and lower line of power conduit would have to be constructed through the canyon, with the upper line located on the west side of the canyon and the lower line on the east side. The aqueduct was officially opened on November 5th, 1913 with a massive public ceremony held not far from San Francisquito Canyon at the aqueduct's Cascades terminus.

The Los Angeles Aqueduct project, from its inception to its construction, highlights many of the industrial and progressive ideals of the early twentieth century. The project employed a massive labor force and implemented strategies to ensure the

work was carried out as efficiently and economically as possible. Although there were obstacles throughout the period of construction, including instances of labor shortage and discontent, the project managed to be completed on time and under budget. Altogether, it was a triumph for invested capitalists and the City of Los Angeles.

CHAPTER III

THEORETICAL FRAMEWORK

Current research on the experiences of early twentieth century laborers working under industrial capitalism in the western United States explores how these workers responded to capitalistic ideologies of power. Capitalist entities used a variety of strategies to maximize production of the workforce—and thereby their profits—usually at the expense of the worker. The experiences and conditions under which the aqueduct laborers worked were similar to the experiences of other laborers working under the wage labor capitalist system. The theoretical framework for the Hogback Camp project is derived from anthropological and archaeological perspectives on these conditions.

Background Theory: Marxism

Beginning with ideas and concepts developed by Karl Marx and Friedrich Engels in the mid to late 1800s, the theoretical paradigm of Marxism has been employed in a wide variety of contexts as a way to study issues of class, power, and conflict in capitalist societies. While Marx's early writings focused on human self-alienation through the labor process, his later work with Friedrich Engels emphasized the capital-labor relationship so vital to the bourgeoisie socioeconomic system (Tucker 1978). Marx details the process of wage labor in his work *Wage Labour and Capital* (1847), where he explains how the worker sells his labor power to the capitalist employer who gives him a wage that represents his commodity's (i.e. labor power) value. In this way, the capitalist controls the "modes of production," as well as the "means of production" (i.e. tools, materials, machines, etc.) (Tucker 1978:703). Marx contends that the worker must sell his labor power so that he can live on a "subsistence wage"; meanwhile, the capitalist seeks to

attain the maximum amount of "surplus value" (or excess production) through the exploitation of the worker (Tucker 1978:xxx-xxxi). In addition, Marx (1867) asserts that as accumulation of capital increases, so does the accumulation of misery among the working class (i.e. the proletariat), which will eventually culminate in the breakdown of the system and the overthrowing of the bourgeoisie class.

While Marxism has been greatly influential in studies of class and labor relations, the great revolution of the proletariat over the bourgeoisie class which Marx predicted has never really come to fruition. Rather, the relationship between labor and capital can be characterized as largely antagonistic, involving back-and-forth shifts in power between the two groups (Shackel 2009:53-57). This is well illustrated by the history of wage labor, which has been scattered with labor movements and strikes that worked to achieve gradual progress in the negotiation of better working conditions under the existing system—without actually getting rid of or drastically altering the system as it stands.

Theoretical Concepts

The theoretical framework of this research project can be broken down into a few important concepts: ideology and hegemony; resistance and "everyday resistance"; and scientific management.

Ideology and Hegemony

Ideology is a central concept in critical approaches to archaeology based in Marxist thought (Palus et al. 2006:85). The notion of ideology, as it is defined by many historical archaeologists, is "something that is institutionalized, operating through inscription and the documentary records that historical archaeologists use so productively

[Matthews et al. 2002:113-119], and we see it naturalizing the action of power as well as access to it. To wit, historical archaeology lives within institutions; it inscribes—but can also critique—structures of power…" (Palus et al. 2006:85). Post-Marxist critiques of this notion of ideology refute the idea that historical archaeologists can somehow remove themselves from something that is fixed in social reality in order to see through it (Hodder 1986; Scott 1985; Shanks and Tilley 1987, 1991). Post-Marxists prefer to use the concept of "hegemony" inspired by Antonio Gramsci (1971) in lieu of power or dominant ideology theories. Rather than subscribing to the idea that people are passive, unconscious beings incapable of penetrating the dominant ideology that is a part of their social reality, post-Marxists "see control premised on consent rather than mystification" (Palus et al. 2006:90-91). Thus, in the post-Marxist view, subordinate classes are cognizant of their situation, allowing them to push back against hegemonic control.

Resistance and Everyday Resistance

In considering the Marxian themes of power and resistance, it is important to be mindful of the full spectrum of responses to power ideologies. Individuals and collectives have discreet and not-so-discreet ways of negotiating their responses to hegemonic control. Only a complete examination of large and small forms of resistance can lead to a proper understanding of the dynamics that have thus far shaped labor struggle and progress in the United States and abroad.

As previously noted, power ideologies are not always an effect means of control. This can be seen in the response of "routine" or "everyday" resistance, over—or in combination with—other more flashy or random acts of resistance (Scott 1985; Sivaramakrishnan 2005:348). James C. Scott (1985) emphasizes the importance of

examining everyday resistance when he states, “More than one peasantry has been brutally reduced from open, radical political activity at one moment to stubborn and sporadic acts of petty resistance at the next. If we allow ourselves to call only the former ‘resistance,’ we simply allow the structure of domination to define for us what is resistance and what is not resistance” (Scott 1985:299). This idea has expanded the scope and perspective of resistance studies. It shows that acts of resistance do not have to be flaunted or openly displayed to be considered “resistance”; instead they can be subtle and more incessant than one instance of strike. Eric Wolf also makes a good argument for the investigation of everyday resistance, stating that, “…if we ground identity-making in everyday life, we must comprehend resistance in the same terms”, although he is careful to point out that “there is often a very fine line between resistance and delinquency” when interpreting drinking on the job or absenteeism, for instance, as a form of resistance (Wolf 2001:356).

Aqueduct laborers displayed forms of obvious resistance, such as a strike, and more obscure forms of resistance, such as consuming alcohol so excessively that work would halt until the men were in a sober enough state to work again (Van Bueren et al 1999:188). Aqueduct laborers also fought against unfair treatment through legal means. For instance, workers brought lawsuits against their employer in order to get fair compensation for injuries and also hired legal representation to contest the poor quality of food. Sometimes these acts of resistance were successful in achieving better working conditions or more equitable treatment, but many times they were not.

Scientific Management

First developed by Frederick Winslow Taylor in the 1890s, scientific management is a practice or strategy intended to produce the "largest output from workers with the least waste and cost" (Wiebe 1967:151). Scientific management was also used as a means of dividing and controlling the workforce, as well as enforcing discipline and obedience (Little 2007:49; Shackel 2009:57-58). An example of scientific management used by aqueduct officials during the construction of the Los Angeles Aqueduct is the bonus system that was implemented in order to speed up the pace of tunneling work. The bonus system worked in two ways: 1) the incentive of extra pay for extra work increased the productivity of the workforce, and 2) it resulted in work crews weeding out those who were lazy or could not keep up with the rest of the crew (City of Los Angeles 1916:151; Taylor 1982:55). The use of scientific management strategies is evident in the archaeology of many nineteenth and twentieth century work sites (Little 2007:49). As will be discussed in later chapters, the layouts of Los Angeles Aqueduct work camps also point to the use of scientific management strategies.

Marxian Approaches in Historical Archaeology

Although Marxian influenced theories are not a recent trend in United States archaeology, it has not been until fairly recently that archaeologists have been explicit in their engagement with this theoretical perspective (McGuire 1992:53). Australian archaeologist, V. Gordon Childe, was the first to employ Marxist theory in the West (McGuire 1992:69). Childe asserted that the power of elites was contingent on its ability to compete with elites in other societies, as well as its capacity to uphold the unequal structures of society that constituted the interior source of power (McGuire 1992:70).

Later archaeologists, such as Mark P. Leone, used Marxian concepts in their analyses and interpretations of historical archaeological sites (Leone 1988; Orser 1996).

The Ludlow Tent Colony is one of the most notable and oft-cited historic sites that has been used to examine issues related to class, labor, and resistance in the archaeology of work camps. The tent colony was the site of the Ludlow Massacre that transpired during the Colorado Coalfield Strike and War of 1913-1914. In addition to company propaganda aimed at "Americanizing" and "civilizing" the largely immigrant work force, the unsafe working conditions and high death rate of workers culminated in a strike supported by the United Mine Workers of America (UMWA) (Shackel 2009:58). Ultimately, the Colorado National Guard stormed the striker's camp and set fire to it, killing 20 individuals (including 11 children and two women) (Shackel 2009:10, 59). The Colorado Coalfield War Archaeology Project at Ludlow was aimed at understanding how the material culture was connected with the ideology and power of capitalist entities, including the coal companies, mining guards, and the Colorado National Guard (Larkin and McGuire 2009:189). Overall, this project shed light on how immigrant miners and their families negotiated identities to become Americans; how families of workers used and altered their landscapes; how women of the working class were able to feed their families on the husband's minimal wages; and how ideology and the nature of poverty in the coalfields affected the daily lives of the men, women, and children occupying this site (Larkin and McGuire 2009:xv).

The Historical Archaeology of Capitalism

One archaeological topic that has been deeply influenced by Marxist thought concerns the historical archaeology of capitalism. Scholars of this subfield of study have

taken a variety of approaches to examine the relationship between workers and capitalists (see Johnson 1999; Leone 1999; Orser 1996, 1999; Potter 1999). In particular, practitioners of the historical archaeologies of capitalism and industry have increasingly turned their attention to the study of late nineteenth and early twentieth century work camp sites and communities (Little 2007:51; Shackel 2009:3). As spaces where agents of labor and capital converged, work camp sites are ideal microcosms in which to study the processes involved in the growth of wage labor and industrial capitalism.

Approaches outlined by McGuire and Leone provide critical guidance for archaeological research on progressive-era work camps in the western United States. McGuire's work at the Ludlow Tent Colony and elsewhere demonstrates how capitalist entities employed various strategies designed to reinforce their power and mask class inequalities (Shackel 2009:38). Leone's influential work in Annapolis, Maryland investigated work discipline, individualism, and the mechanisms of wage-labor and capitalism. In the end, as Leone (1999:19-20) notes, "…the historical archaeology of capitalism, composed of many historical archaeologies of capitalism's effects, is a massive undertaking made up of many smaller parts."

The theories and concepts outlined above are the fundamental notions that guide this research on aqueduct laborers. This project examines the relationship between labor (i.e. aqueduct workers) and capital (i.e. the City of Los Angeles) through a post-Marxist perspective. As other studies have shown, aqueduct workers responded to the hegemony of their employer through various forms of resistance (Van Bueren 2002:28). Overall, the theoretical framework of this research serves to place the experiences of aqueduct laborers within the broader context of labor under the system of capitalism.

CHAPTER IV

PREVIOUS RESEARCH ON WORK CAMP SITES

Several influential archaeological studies have been conducted on nineteenth and twentieth century work camp settings of the American West. These include studies focused on mining camps (Hardesty 1988; Hardesty 1994; Gillespie and Farrell 2002; Kelly 2010), logging camps (Franzen 1992), railroad construction camps (Buckles 1983), oil camps (Baxter 1996), and other various labor camps. Some of the most comprehensive studies conducted on work camps in the West are those associated with the development of water infrastructure (Van Bueren et al. 1999:28).

Water Camps

The archaeological remains of work camp sites related to the construction of dams and other water projects have provided a new niche in the archaeology of western work camps and given new insight on the individuals whose hands helped build the arid West as we know it today. A brief overview of the most pertinent studies on water camps to this current research is included below.

In the mid to late 1980s, the "Plan 6 Historical Archaeological Project", funded by the Bureau of Reclamation, documented the archaeological remains of several labor camps occupied during the construction of seven dams from the 1890s to the 1940s in central Arizona (Rogge et al. 1995). The research framework for this study employed historical archaeology as a "tool for seeking a bottom-up view of life in the construction camps where the people who built the dams of central Arizona lived" (Rogge et al. 1995:14). More than 1,000 features were identified through archaeological survey, comprising the former locations of temporary housing such as tent houses, simple frame buildings, and wickiups; public buildings such as mess halls and industrial facilities;

refuse scatters; and the remnants of water, sewer, and electrical systems (Rogge et al. 1995:15). The assemblage of cultural material included a total of nearly 144,000 items and was dominated by nails, tin cans, broken glass and ceramics (Rogge et al. 1995:15-16). This study focused on four research themes: demography of the camps, daily life, the nature of work, and ethnic relations. Overall, the findings of this study reflected discernable and characteristic features of social status arrangements in the layout of the camps, ethnic divisions in the work force, stereotypical attitudes about different ethnic groups, and the relationship between workers and managers (Rogge et al. 1995:170).

In 1996, emergency data recovery was conducted on a historic dam camp in Butt Valley, California ahead of a retrofit project on the Butt Valley Dam. The Butt Valley Dam Camp was occupied from 1910 to 1913, while another construction camp known as Camp 5 was erected for the construction of tunnels, canals, and reservoirs for the Caribou Hydroelectric System Project in 1919 (Maniery 2002:71). The layout of the Butt Valley Dam Camp was organized with residential areas laid out in neat, evenly spaced rows (Maniery 2002:72). Overall, the archaeological evidence from Camp 5 indicated that the camp operators did their best to comply with state sanitation laws (Maniery 2002:73). In addition, medical services, bathing facilities, fairly high quality foods, running water, and electricity were all provided for the workers. Overall, the state of sanitation, health, and dietary conditions gleaned from the archaeological and historical record indicated a "relatively sophisticated system in use at a very isolated and rural location" (Maniery 2002:81).

In 1988, Greenwood and Associates was contracted by the U.S. Army Corps of Engineers, Los Angeles District to conduct an archaeological investigation of work camp

sites associated with the construction of a hydroelectric system in the Upper Santa Ana River Canyon near Mentone, California (Foster et al. 1988:1-2). Two early twentieth century camps were investigated (CA-SBR-5500H and CA-SBR-5503H) for this project. Site CA-SBR-5500H was a power house construction camp occupied in 1898 by more than 200 men, while CA-SBR-5503H was occupied in both 1903 and 1926 for work on the Warm Springs Flume (Foster et al. 1988:11;110). Research themes of this study included: water systems, transportation, networks of bridges and roads, development of hydroelectric power, organization of labor, early industrial processes, distribution networks, labor camps, architecture, economy, settlement and subsistence (Foster et al. 1988:4). Camp features included housing, food preparation facilities, eating locales, disposal areas, and work areas (Foster et al. 1988:106). Cultural materials from the camps consisted of male clothing items, large cooking pots and pans, utilitarian cutlery, cups and plates, alcoholic beverage containers, tobacco smoking equipment, large numbers of tin cans, lantern and chimney parts, stove parts, condiment bottles, barrel hoops, tools and machinery (Foster et al. 1988:106-107). Overall, the two camps that were investigated (CA-SBR-5500H and CA-SBR-5503H) revealed both structured and non-structured patterns in the layout of the camps (Foster et al. 1988:113).

Los Angeles Aqueduct Camps

Archaeological investigations have been conducted on work camps along several segments of the First Los Angeles Aqueduct. The degree to which these aqueduct camps have been studied varies between the different projects. These differences reflect variation between the camps themselves, differential preservation, and the nature of the fieldwork projects themselves.

The Alabama Gates Camp (CA-INY-3760/H) site is located in the Owens Valley near Lone Pine. The site was first recorded by McGowan et al. (1990) and updated to include a locus of livestock management activity by Costello and Marvin in 1992. Following documentation, the California State Historic Preservation Officer and Federal Highway Administration determined the site to be eligible for inclusion on the National Register of Historic Places. The site was studied in further depth by California Department of Transportation archaeologists, Van Bueren and colleagues (1999) through a data recovery program prompted by the widening of adjacent Highway 395.

The Alabama Gates Camp was occupied for a period of nine months from April 1912 to February 1913 and housed up to 150 individuals, including men and their families (Van Bueren et al. 1999:1). The primary function of this camp was the operation of steam shovels in the construction of open-lined concrete canal between the Alabama Gates and Haiwee Reservoirs, as well as the construction of the Alabama Gates and spillway (which control and divert the flow of water between the aqueduct and the Owens Valley) (Van Bueren et al. 1999:12). The archaeological features of the camp consist of residential tent and structure pads; leveled pads of a blacksmith shop, kitchen, and mess hall; refuse dumps; and other pit features of unknown function (Van Bueren et al. 1999:60-61). The cultural materials from the camp included a total of 21,000 whole items and artifact fragments, which were composed of structural materials (61%), personal items (20%), indefinite materials (7%), items associated with specialized activities such as blacksmithing (5%), food and beverage containers (5%), domestic artifacts (1%), and limited quantities of floral and faunal specimens (Van Bueren et al. 1999:79-80).

The principal research questions in this investigation considered issues such as demography, everyday activities, health and diet, living and working conditions, relationships between the workers and supervisors, camp layout, encounters with external communities, and the process of building the aqueduct (Van Bueren et al. 1999:35). On a large scale, archaeological investigations at the Alabama Gates construction camp were aimed at understanding the behavior of the laborers within the context of widespread change in social and economic structures due to the onset of industrial capitalism (Van Bueren et al. 1999). The findings indicated that workers were clearly stratified on the basis of occupation and ethnicity. The researchers also determined that a variety of factors, including scientific management strategies and camp layouts, were fixed on differences among the workers in the Alabama Gates camp. In addition, alcohol containers were discovered in both work and residential areas, which Van Bueren et al. ultimately interpreted as reflecting resistance on the part of the workers (Van Bueren et al. 1999:189).

The Dove Springs Camp is located within the Bureau of Land Management Dove Springs Off-Highway Vehicle (OHV) Open Area, three miles north of Red Rock Canyon California State Park and roughly two miles west of the El Paso Mountains and Highway 14 (Hangan 2003:*vi*,2). The site was first recorded by Mark Faull in 1995, and studied in further depth through detailed recordation, limited subsurface testing, and excavation by Margaret Hangan (2003) for a Master's Thesis project. The Dove Springs Camp, occupied from 1908 to 1910, had two primary functions: to support construction of the aqueduct and to serve as a supply depot for the other camps in the Freeman Division (Hangan 2003:83). In addition, it served as a railhead and storage yard, while supporting

residences and the construction of the two-mile long Red Rock Tunnel (Faull 1995; Hangan 2003:83).

The archaeological remains of Dove Springs include fifty features composed of tent and building pads, refuse scatters, a possible underground rock lined tank, and a cement foundation located on top of a waste rock pile (Hangan 2003:29). The cultural material from the site included artifacts primarily related to food consumption, as well as clothing items (such as buttons and rivets), insulators, and a variety of items related to railroad and construction activity (Hangan 2003:29). The site has been severely impacted by OHV activity and modern camping in the main area of the site (Hangan 2003:2). Hangan (2003) compared her findings with those of the Alabama Gates Camp and concluded that there were discernable differences in how the camps were socially structured, their layout and the ethnic composition of the work force.

In 2002, an archaeological inventory of the First and Second Los Angeles Aqueducts in Kern, Inyo, and Los Angeles Counties was conducted by the URS Corporation for the Los Angeles Department of Water and Power (LADWP) and the USDI, Bureau of Land Management, Ridgecrest (Nilsson et al. 2006). The inventory resulted in the identification and documentation of 102 resources associated with the construction of the First Los Angeles Aqueduct, including 80 historic sites and 22 multicomponent sites (Nilsson et al. 2006:197). The documented resources include 31 labor camps, 3 possible labor camps, 1 labor camp/non-Aqueduct artifact scatter, 13 construction camps, 3 division headquarters, and segments of the Los Angeles Aqueduct itself (Nilsson et al. 2006:197).

This study classified Los Angeles Aqueduct Camps into two types: labor camps and construction camps. Labor camps were classified as sites that contained the archaeological remains of both domestic and construction activities, while construction camps consisted of one or more features related to construction activities, but lacked living features and domestic material (Nilsson et al. 2006:112). Research focused on seven themes: camp layout, sanitation, ethnicity, gender, social status, subsistence, and alcohol and tobacco use (Nilsson et al. 2006:198). The findings from this inventory indicate that the layout of camps was very similar in that they were arranged in an orderly configuration in whatever kind of terrain they were situated (Nilsson et al. 2006:208,216). No direct evidence was discovered regarding the ethnicities of the camps' occupants, although a few contained evidence of women and one had evidence of children (Nilsson et al. 2006:232-234). Archaeological evidence of alcohol use in the camps documented in this inventory occurred in 19 sites, but was not found in concentration or abundance in any of the sites (Nilsson et al. 2006:243-244). On the other hand, tobacco tins were prevalent and found within 43 percent of the labor camps (in contrast to the presence of alcohol bottles in 29 percent of the labor camps) (Nilsson et al. 2006:244). In sum, Nilsson et al. (2006:245) found that "little evidence of ethnicity, gender, or social status was noted…"

Thus, while there have been archaeological investigations carried out on several Los Angeles Aqueduct Camps—the sample is clearly skewed. Almost all this work was conducted on sites north of the Fairmont Reservoir, at relatively remote locations, with southern camps receiving much less attention. We can expect some differences in this group, closer to Los Angeles and thus the core of administrative and political power in

the aqueduct system. This could have implications for the manner in which the camp was operated and managed, as well as the behaviors and activities workers engaged in. Camp size is another relevant variable: most excavations to date have taken place at large installations that were occupied for relatively long periods of time. Many of the southern sites, in contrast, were smaller and used more briefly.

The present project thus examines an aqueduct work camp distinctive from those previously discussed. Being a small camp occupied for less than a year with a different function than most aqueduct camps, Hogback Camp offers yet another dataset to contribute to the research on Los Angeles Aqueduct work camps. Furthermore, this project adds to limited work conducted on aqueduct camps dating to the First Los Angeles Aqueduct period of construction (1907-1913) in San Francisquito Canyon.

CHAPTER V: PROJECT CONTEXT

Study Area: San Francisquito Canyon

The division of aqueduct construction in San Francisquito Canyon extended from the south end of the Elizabeth Tunnel to the second power drop in San Francisquito Canyon—a total distance of 8.8 miles (City of Los Angeles, BLAA 1911:42; Figure 1.1). With the exception of one 250 feet long flume crossing the canyon and one 800 feet long pressure pipe crossing Bee Canyon, all of the conduit in San Francisquito Canyon is tunneled well under the mountain with adits allowing for tunnel access (City of Los Angeles, BLAA 1911:42).

Work in the canyon required not only the tunnels themselves, but considerable additional infrastructure. In 1908, the City of Los Angeles obtained Special Use Permits from the United States Forest Service for a construction camp, power and telephone lines to be constructed in San Francisquito Canyon (City of Los Angeles, BLAA 1908:150-151). A permit for a second camp was obtained in 1909. Based on the dates of issuance, these permits were probably for San Francisquito Canyon Camps No. 1 and 2, which are further discussed below.

Additional infrastructure was also required to facilitate construction and transportation of materials and equipment. It appears the road that runs adjacent to Hogback Camp was likely constructed around 1910, when the Bureau of the Los Angeles Aqueduct obtained a permit to build a road in San Francisquito Canyon (City of Los Angeles, BLAA 1910; Figure 5.1).

FIGURE 5.1 “Constructing road Hogsback near Le Brun” (Catherine Mulholland Collection, Delmar T. Oviatt Library, California State University, Northridge)

In 1911, the Engineering Department of the Aqueduct Bureau arranged for men and equipment from the completed portions of the aqueduct to be transferred to Power Division 14 in order to start work on the power sections through San Francisquito Canyon (City of Los Angeles, BLAA 1911:42-43). According to the Seventh Annual Report of the Bureau of the Los Angeles Aqueduct, funds in the amount of $859,200 from the Aqueduct Bureau had to be advanced to the Power Bureau in order to begin work in San Francisquito, so as not to delay aqueduct water flow through the power tunnels and to the city (City of Los Angeles, BLAA 1912:13). The loan was later repaid

to the Aqueduct Bureau from the sale of power bonds. Work on the power tunnels in San Francisquito Canyon began in August 1911 (City of Los Angeles, BLAA 1912:13).

Los Angeles Aqueduct Sites in San Francisquito Canyon

Records from the Los Angeles Department of Water and Power indicate at least four construction camps were established in the canyon between March 1909 and October 1911. These were identified as San Francisquito Canyon Camp No. 1, San Francisquito Canyon Camp No. 2, Le Brun Camp (also known as Los Angeles Aqueduct Power Camp 5), and Hogback Flats (also known as Los Angeles Aqueduct Power Camp 6). San Francisquito Camps No. 1 and 2 (Division 11) were dedicated to the development of water (i.e. tunneling for aqueduct), whereas the Le Brun and Hogback Flats camps (Division 14) were dedicated to the development of hydroelectric power (i.e. tunneling and placing conduit for power) (LADWPRC, WP19-5).

Over the past 33 years inventory work conducted under the auspices of the Angeles National Forest has documented five camps associated with the construction of the First Los Angeles Aqueduct and Power Plant No. 2 facilities in San Francsiquito Canyon. These are FS No. 05-01-53-93 ("Chinaman Flat"), FS No. 05-01-53-238 ("D-3"); FS No. 05-01-53-239 ("D-4"); and FS No. 05-01-53-375 ("Power Plant No. 2 Upper Penstock Construction Camp" and "Power Plant No. 2 Lower Flat Construction Camp"). In addition, two sites, FS No. 05-01-53-334 ("Saloon Point") and FS No. 05-01-53-254 ("S ½"), were identified as being associated with construction of the aqueduct. The distribution of these sites in relation to Hogback Camp is shown in Figure 5.2. A brief description of each site is summarized below:

FS No. 05-01-53-93, also known as “Chinaman Flat”, and recorded by Heeb (1984), Milburn (1998), and Milburn, Brasket and Vance (2006), has been identified as the site of a Chinese labor camp associated with the construction of the First Los Angeles Aqueduct circa 1906. According to informants, it was also the site of a store owned by a Chinese individual who is buried there (Heeb 1984). However, it is more likely that this site was associated with the placer gold mining that took place in San Francisquito Canyon in the late 1800s, and not the construction of the aqueduct (Robinson 1990; Nilsson and Button 2011:13).

FS No. 05-01-53-238, also known as D-3, and recorded by Bevill and Hauer (2002), has been identified as “a large camp/staging area associated with the construction of the First Los Angeles Aqueduct”. The site is described as having three major terraces, which are situated near a spoils pile from tunneling work. The following features are associated with the site: 14 leveled pads (one of which with the remnants of a structure), two adits, an access tunnel with concrete opening, and several trash dumps. In addition, Bevill and Hauer (2002) note there is “an extensive artifact scatter”, including tin cans (hole-in-top, match stick filler, and several modified cans), medicine bottles, glass, mining equipment, corrugated tin, steel pipes, sheet metal, earthenware, enameled pots and cups, utensils, shell buttons, a shoe maker’s last, electrical equipment, electric insulators, wire nails, ore bucket, ore carts, crock pots, and powder cans. Based on research conducted for the Hogback Camp project, this appears to be the site of Le Brun Camp (Los Angeles Aqueduct Power Camp 5).

FS No. 05-01-53-239, also known as D-4, and recorded by Bevill and Hauer (2002), has been identified as “a temporary camp for laborers constructing the nearby

aqueduct, ca.1910". The site is situated on a steep ridge, and is bisected by a U.S. Forest Service road. The following features are present at the site: small dug-out with sheet metal roof (collapsed), excavated structure pad, and trash scatter. Bevill and Hauer (2002) note "there are numerous artifacts dating to ca.1910", including kitchen waste, food containers, liquor bottles, tobacco tins, and personal items (such as clothing fasteners).

FS No. 05-01-53-254, also known as S ½, and recorded by Bevill (2002), has been identified as a site "likely associated with a nearby camp and work station for the First Los Angeles Aqueduct (FS-05-01-53-238)". This site contains three concentrations of historic artifacts, with two of the concentrations occurring on top of two narrow terraces cut into a hillside below a U.S. Forest Service road. The artifact concentrations include large size tin cans, tin can lids, bottle glass, metal barrel hoops, heavy steel hardware, chicken wire, enamelware cooking pots, scraps of milled lumber, a large electrical insulator, a variety of sanitary cans, clear glass bottles (liquor, medicinal, condiment, and milk), a wire clothes hanger, ceramic tableware, bottle caps, a purse clasp, auto parts, a spice tin, an enamelware drinking cup, paint cans, a key-strip coffee can, a log cabin syrup tin, a garbage pail lid, and other items. Bevill (2002) also notes "there is no evidence of a structure, such as nails, window glass, or stovepipes".

FS No. 05-01-53-334, also known as "Saloon Point", and recorded by Huckabee (2006), is composed of a bottle and can scatter with artifacts likely dating to the 1920s. Since the artifacts at Saloon Point likely post-date the construction of the First Los Angeles Aqueduct (1907-1913), it is possible that they are associated with the construction of either Power Plant No. 2 or the St. Francis Dam, which were both

constructed by the Los Angeles Department of Water and Power in this section of San Francisquito Canyon during the 1920s.

FS No. 05-01-53-375 is the Power Plant No. 2 Complex, which includes two construction camp sites ("Power Plant No. 2 Lower Flat Construction Camp" and "Power Plant No. 2 Upper Penstock Construction Camp") associated with the 1918-1920 construction of Power Plant No. 2. These sites were identified by Nilsson and colleagues (2008) during the Power Plant No. 2 Tailings Remediation Project. Using a historic topographic map provided by personnel at the LADWP Power Plant No. 2, Nilsson and colleagues were able to determine the locations of both the Power Plant No. 2 Lower Flat Construction Camp and Power Plant No. 2 Upper Penstock Construction Camp (referred to as Feature K) (Nilsson et al. 2008:11-12, 19, 25). The site of the Power Plant No. 2 Upper Penstock Construction Camp (Feature K) was examined during a systematic pedestrian survey, which revealed a concentration of artifacts below where the row of bunkhouses, office, and kitchen/pantry/mess hall once stood (Nilsson et al. 2008:19). This concentration of artifacts included "a mix of domestic, hardware, and personal debris relating to the PP2 construction period" (Nilsson et al. 2008:19).

Correlating this information with the historical record has proven challenging as there are no historic maps indicating the locations of these camps—with the exception of the Power Plant No. 2 Upper Penstock Construction Camp and the Power Plant No. 2 Lower Flat Construction Camp (Nilsson and Button 2011). Further complicating matters, historic records from the Los Angeles Department of Water and Power often use multiple names to refer to the same camp. The best clues we have in identifying camp sites are historic photographs, although these are not available for every camp.

FIGURE 5.2 Distribution of Los Angeles Aqueduct sites in relation to Hogback Camp (Note: Exact site locations are excluded at the request of the Angeles National Forest)

Hogback Camp

Hogback Camp (also known as "Hogback Flats"), was officially designated Los Angeles Aqueduct Power Camp 6 (L.A.A. Power 6), and was included in Division 14, the division of aqueduct work that pertained to the development of power plants and electrical distribution along the aqueduct (City of Los Angeles, BLAA 1908; Figures 5.4 and 5.5). The "Ten Day Reports of Progress and Men Employed" for the period of October 1st through October 10th, 1911 is the first to mention a camp at "Hogback Flats", with a total of 76 workers at the time of its establishment. At its height in May of 1912, a total of 169 workers occupied Hogback Camp. The primary function of Hogback Camp was the dangerous work of tunneling for the construction of the 6.15 mile-long lower line of conduit, which would provide hydroelectric power to San Francisquito's power plants

(City of Los Angeles, Bureau of the Los Angeles Aqueduct 1911:42). This tunneling work involved driving through sandstone, schist, and slate with “some of it soft, wet and blocky, requiring heavy timbering and concreting as soon as excavated” (City of Los Angeles, BLAA 1912:35; Figure 5.3). Power tunnels were located well under the mountains and were accessed by “adits or side drifts driven into the true line of the aqueduct”. Work on this section was slated for completion by January 1, 1913 (City of Los Angeles, BLAA 1912:35).

FIGURE 5.3 Historic photograph depicting tunneling work on the Elizabeth Tunnel

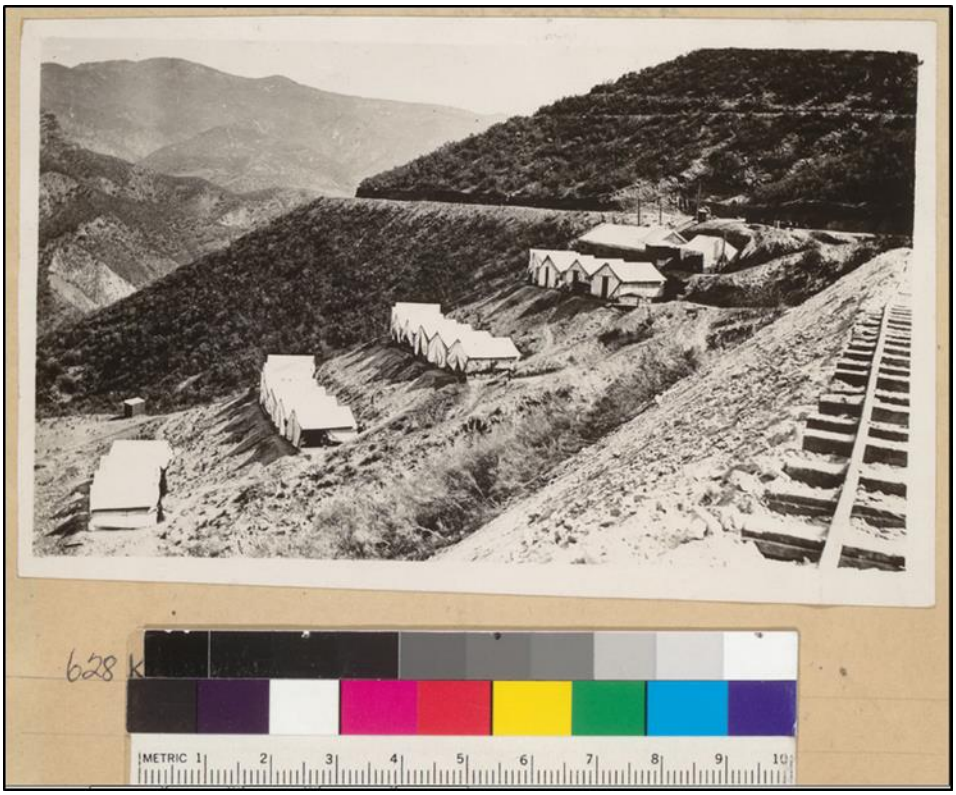


FIGURE 5.4 Historic Photo of Hogback Camp in August 1912 (Courtesy of UC Riverside, Water Resources Collections and Archives)

FIGURE 5.5 Hogback Camp in November 2014 (Photo by author)

The archaeological record associated with aqueduct construction in San Francisquito Canyon is thus both rich and complex. It is rich because it offers archaeological data from two different types of aqueduct work camps: those established to construct the waterworks (i.e. San Francisquito Canyon Camps No. 1 and No. 2) and those established to construct infrastructure for hydroelectric power (i.e. Los Angeles Aqueduct Power Camps No. 5 and No. 6). On the other hand, the archaeological record—or at least the discovery thereof—is made more complex by the elusive nature of the aqueduct through the canyon. Since the aqueduct is tunneled through most of the canyon, it makes it difficult to understand how the various aqueduct sites are related and where they tie into the overall structure of the aqueduct. Historical records help clear up some of the confusion regarding the identity of certain camps, but as previously noted these records can also be difficult to correlate to the archaeological record.

CHAPTER VI

METHODOLOGY

Research Themes

The main objective of this research project is to use the archaeological record in conjunction with the historical record to recreate the experiences of the individuals who occupied Hogback Camp in San Francisquito Canyon, Santa Clarita, California. Specific areas of interest include: camp planning; demography; ethnicity and gender; subsistence; alcohol and tobacco use; health and sanitation; labor relations and resistance. These research themes and questions have been adapted from previous archaeological investigations of twentieth century work camps in the American West, and serve as the foundation for this research on Hogback Camp (Nilsson et al. 2006; Rogge et al. 1995; Van Bueren et al. 1999).

Camp Planning

The foresight and considerations that go into the planning of a work community or camp are an important indication of the ideology of the employer and how they planned to operate and manage the camp. Scientific management, which sought to enhance productivity, can be seen in the organization and layouts of most aqueduct camps.

The layout of the camp can help address the following questions: How was the natural landscape altered in order to create space for the camp? Similarly, is there any evidence of landscaping or gardening in residential areas? Do we see any evidence of water, electric, or telephone systems? What methods were used for disposing of trash (i.e. incineration)? Are the spatial arrangements of structures/features and archaeological remains of Hogback Camp similar to camps in other landscapes or do they differ? What

does the layout of the camp tell us about certain dynamics, such as social relations between aqueduct laborers and divisions between job classes?

Archaeological Data Requirements: Detailed mapping of the camp layout; evidence indicating the functions of camp structures and features; cultural material related to electrical lighting, heating, plumbing, and telephone systems; and data indicating the layout of work camps in similar contexts.

Sources of Historical Data: Historic photographs, as well as photos and documents that show the typical kinds of structures and their organization within other Los Angeles Aqueduct camps; archival documents that discuss utilities available in worker housing.

Demography

While it is difficult to ascertain information about camp demography from the archaeological record, archival documents can help identify information such as the camp population, and the ethnicities, gender, and age of some of the camp occupants. Archival documents are able to address questions, such as: How does the demography of Hogback Camp compare to aqueduct camps in other regions along the aqueduct line, such as the Alabama Gates Camp in the Owens Valley? In addition, how does the demography of Hogback Camp compare to other early twentieth century western work camps in similar contexts (i.e. dam construction camps)? Is there a detectable shift in the demographic composition of the camp over time or during periods of labor shortage (such as the 1911-1912 labor shortage due to the breakout of the Balkan Wars prior to World War I)?

Archaeological Data Requirements: Closely dated cultural remains related to individual worker households; presence or absence of deposits that indicate presence of multiple

ethnic or cultural groups; presence of materials associated with women and children; and comparative data from other work communities occupied by ethnically diverse laborers.

Sources of Historical Data: 1910 U.S. Census Records; oral histories; employment records; newspaper articles; and a historic photograph of Hogback Camp depicting number and relative size of residential housing units.

Ethnicity and Gender

While detecting the ethnicity of individuals is admittedly difficult to accomplish in archaeological contexts, historical documentation of work camps often includes references to worker ethnicity. Although gender can also be challenging to identify in archaeological contexts, the presence of certain items such as clothing parts can reveal the gender of individuals who visited or resided at camp sites. The synthesis of archaeological and historical data offers the best opportunity for revealing ethnicity and gender of camp residents. The synthesis of this data can help address the ethnic and gender identities of Hogback Camp's occupants.

Archaeological Data Requirements: Closely dated cultural remains related to individual worker households; presence or absence of deposits or features that indicate presence of particular ethnic or cultural groups; presence or absence of materials associated with women and children.

Sources of Historical Data: 1910 U.S. Census Records; employment records; and personal recollections of aqueduct workers.

Subsistence

Food is an important part of everyday life, so it follows that the quality of one's meals can have an impact on the overall quality of life. The poor quality of food provided

to aqueduct workers by the contractor D.J. Desmond is thoroughly documented in historical records such as newspapers and oral histories (Taylor 1982; Cross 1968). The synthesis of archaeological data from Hogback Camp and historical data can address several questions regarding the subsistence patterns of the camp's occupants, for instance: Did all workers eat at the mess hall or did some groups prepare their own meals? Is there any evidence of workers supplementing their diet? What types of food did the workers eat? What was the quality of the food provided to the workers? How were perishable foods such as meat stored?

Archaeological Data Requirements: Evidence of corporate food preparation (mess hall, presence of large food containers, barrel hoops, etc.); evidence of individual or small group food preparation in worker's residential areas; quantities of different kinds of food products (food and beverage containers, etc.); presence of local game animal bones; and evidence of food gardening.

Sources of Historical Data: Oral histories; camp commissary supply lists; and historical information on retail container technology (in order to determine what product the container stored, as well as the age of the container).

Alcohol and Tobacco Use

Alcohol and tobacco consumption were apparently a popular pastime of aqueduct workers (Taylor 1982; Van Bueren et al. 1999). However, archaeological evidence from previously documented aqueduct camps reveals varying levels of alcohol use. The following questions address alcohol and tobacco consumption at Hogback Camp: Do we see a difference in the quantities of alcohol and tobacco consumed at primary camps versus more remote camps like Hogback? What about a difference in the quantities of

alcohol and tobacco products consumed in work areas versus residential areas of the camp? Is there any evidence of alcohol consumption in work areas?

Archaeological Data Requirements: Closely dated cultural remains related to individual worker households; presence or absence of liquor bottles/cans and tobacco products in work areas and/or residential areas; and other cultural materials related to alcohol and tobacco consumption.

Sources of Historical Data: Newspaper articles, oral histories, journals, and published recollections of life in the aqueduct camps.

Health and Sanitation

Issues of health and sanitation are an important component of any research on work camps because they often reflect the living and working conditions experienced by laborers. Using documentary records, such as medical reports, in combination with the archaeological record allows us to address the following questions regarding health and sanitation at Hogback Camp: What were the sanitary conditions and practices like at Hogback Camp? Did they have utilities, such as electricity or running water? How many and what kind of injuries were sustained by workers throughout the period of construction? Were there certain camps that had a higher incidence of illness or injury due to poor sanitary or work conditions? Did certain jobs have a higher incidence of injury or death (i.e. tunneling)? Were certain jobs associated with certain kinds of injuries or illness? What kind of medical attention and treatments were provided to the worker? Is there any evidence that suggests workers treated themselves for certain medical or health issues? Were they properly compensated for their injuries?

Archaeological Data Requirements: Evidence of medicinal or prescription bottles, personal grooming or health care products, and medical equipment/supplies; evidence of electricity and/or running water.

Sources of Historical Data: Oral histories; monthly reports of the medical department; documentation of workers' injuries and death claims; historical photographs of camps showing camp facilities, kitchens, mess halls, the interiors of worker dwellings, etc.

Labor Relations and Resistance

One unique aspect of living in a community that revolves around a job is that the boundaries between life and work become obscured, especially when an employer has a say in what behaviors are acceptable or unacceptable after the work day is over. Certainly this kind of dynamic would result in a unique relationship between the employer and the employed. Hence, one aspect that is explored in this investigation is the relationship between the employer and the employed at various scales. Worker resistance is also key component in the examination of labor relations between workers and their employer. Another important dynamic of work camp labor relations, is the relationship between coworkers.

The following questions will be addressed: What was the relationship like between worker and supervisor, between the City of Los Angeles and the workforce as a whole, and between worker and coworker? Is there any indication of scientific management strategies utilized at Hogback Camp? To what extent did camp operators in the aqueduct divisions near Los Angeles exercise control or maintain order among the workers, as compared to periphery camps? Is there any evidence of worker resistance to established company policies? Is there any evidence that housing areas for workers were

segregated on the basis of job class, ethnicity, or other factors? What, if any, other differences are observed in the archaeological record regarding the quality of housing, food, and other accommodations offered to workers?

Archaeological Data Requirements: Closely dated cultural remains related to individual worker households; presence and relative abundance of liquor bottles/cans and tobacco products in work areas and/or residential areas; presence of cultural materials associated with other prohibited or looked down upon activities, such as gambling paraphernalia.

Sources of Historical Data: Newspaper articles, oral histories, journals, and published recollections of life in the aqueduct camps; documents describing official company policies of the City of Los Angeles; comparative data from contemporaneous work camps that indicate the accepted/unaccepted norms and prohibited behaviors of workers in other industries.

Historical Research

Historical research for this investigation was carried out in Los Angeles and Inyo Counties, as well as online. The bulk of the records reviewed for this research were found in the Los Angeles Department of Water and Power Records Center (LADWPRC) in Los Angeles, California and the Eastern California Museum (ECM) in Independence, California. A records search for archaeological site records and reports related to Los Angeles Aqueduct sites in San Francisquito Canyon, which is located largely on lands managed by the USDA Angeles National Forest, was conducted at the Forest Supervisor's Office in Arcadia, California. Online archives that proved instrumental in this research include the California State University, Northridge Oviatt Library Digital Collections; the University of California, Riverside, California Digital Newspaper

Collection; the University of California, Riverside, Library, Water Resources Collections and Archives; the Water and Power Associates website; and the Los Angeles Aqueduct Digital Archives Platform. Historical research for this project was also greatly enhanced by the work of my colleague, Ann Stansell, who conducted research for this project at the Los Angeles Water and Power Records Center and the Santa Clarita Valley Historical Society, and compiled some of the most valuable data (such as the "Ten Day Reports on Progress and Men Employed") used in this analysis.

Archaeological Fieldwork

This section summarizes the field methods employed in the archaeological investigation of Hogback Camp (Forest Service Site No. 05-01-53-409). The fieldwork was divided into four phases of investigation:

1) Intensive pedestrian survey (utilizing transects with intervals of ten meters or less) and documentation of the site.

2) Non-invasive survey using metal detectors to determine the distribution and density of surface and subsurface metal artifacts.

3) Surface collection and subsurface sampling with shovel test units (approximately 25 cm in diameter with a maximum depth of 30 cm) in order to test the depth of subsurface deposits and to help determine the most productive areas to place formal excavation units.

4) Formal excavation of the site selectively placing 3 excavation units in the following areas within the site: Unit 1 (Privy Feature, 1 x 1 meter unit), Unit 2A/2B (Terrace 5, 2 x 1 meter unit), and Unit 3A/3B (Terrace 2, 2 x 1 meter unit).

Phase I: Survey and Documentation of Hogback Camp

The first step in conducting an archaeological investigation of Hogback Camp was to survey and record the previously undocumented site. On November 23, 2014, under the direction of my thesis advisor, Dr. James Snead, a group of student volunteers from California State University, Northridge (including myself) surveyed, mapped, and recorded the site on standard DPR 523 site forms. The site forms were then submitted to the Heritage Program staff of the Angeles National Forest who then assigned a forest service site number to Hogback Camp (Forest Service Site No. 05-01-53-409). A sample of surface artifacts were inventoried, photographed, and recorded in their location with a G.P.S. unit. Surface artifacts were left in their original location with the exception of two collected artifacts: a ceramic insulator (Catalog No. 1) and suspender buckle (Catalog No. 3).

Phase II: Non-invasive Metal Detector Survey of Hogback Camp

On February 13th and 20th, 2016, a four-person crew conducted a non-invasive metal detector survey of Hogback Camp (Figure 6.1). The objective of this survey was to identify areas of the site that contained high concentrations of artifacts. Areas that registered the most pings and/or indicated the presence of a higher valued metal were flagged for further investigation in the subsurface testing phase of the project. Although the use of the metal detector was obviously biased toward the discovery of metal artifacts, it proved useful in identifying concentrations of artifacts, especially those concealed by thick vegetation.

FIGURE 6.1 Metal detecting at Hogback Camp (Photo by author, 2016)

Phase III: Subsurface Testing of Hogback Camp

Subsurface testing of the site took place on February 27th, 2016 and March 5th, 2016 (Figure 6.2). A total of 10 shovel test units were excavated with two units placed on each of the five terraces below the road. The locations of shovel test units were selected by the density and type of cultural materials found on the surface. The excavated soil from each unit was screened through 1/8-inch mesh screen. All artifacts discovered in the test units and screens were collected for further analysis. The location of each shovel test unit was recorded with a G.P.S. unit and photographed prior to and after excavation.

FIGURE 6.2 Shovel testing at Hogback Camp (Photo by author, 2016)

Phase IV: Systematic excavation of Hogback Camp

A systematic excavation of Hogback Camp was carried out over several weekends in March and April of 2016 with the assistance of volunteers from the Anthropology Department of California State University, Northridge. Excavation unit locations were selected based on the density of surface material, particular areas of interest that could be seen in the historic photograph of the site, and features that were thought to yield significant data (i.e. privy). Excavation units were staked with strings delineating unit edges above ground surface. Level measurements were taken with line and level from a datum stake placed above surface for each unit and recorded in centimeters from above surface. All excavation units were cleared of vegetation and hand excavated with the use of brush, trowel, and shovel. The excavated soil from each level was screened through 1/8-inch mesh screen. All artifacts recovered during excavation and

collected from the surface were taken to Dr. James Snead's lab at California State University, Northridge, where they were cleaned, inventoried, and photographed. The artifacts, which are under ownership of the USDA Angeles National Forest, will continue to be curated in the Archaeological Research Center at the Anthropology Department of California State University, Northridge.

Laboratory Work and Analysis

All artifacts (whether collected or recorded and left on site) were classified according to a functional classification scheme originally developed by South (1977) and employed in the analyses of the Alabama Gates Camp and Dove Springs Camp (Van Bueren et al. 1999; Hangan 2003). This scheme was followed so that the artifacts from Hogback Camp could be readily compared to the artifacts found in the previous studies of aqueduct camps. The classification scheme consists of seven major functional groupings that are further divided into group, category, and artifact type (Van Bueren et al. 1999:57). The seven major functional groupings are as follows:

> Activities: Materials associated with specialized activities such as hunting, writing, transportation, tools, and metalworking.
>
> Containers: All types of retail food and beverage containers including glass bottles and tin cans.
>
> Domestic: Articles and furnishings such as tableware, flatware, stemware, storage vessels, lamp parts, clocks and furniture.
>
> Ecofacts: Animal bones, shells, and seeds.
>
> Indefinite: Items with multiple functions, items too fragmentary to identify, and materials whose function could not be determined.
>
> Personal: Materials such as clothing parts, jewelry, shoes, personal hygiene and medicinal items, smoking pipes, pocket knives, and watches.
>
> Structural: Construction materials, hardware, and major appliances such as fasteners (i.e. nails), bricks, pipes, wiring, hinges, stove parts, and locks.

Catalog codes were assigned for artifact material, class, and group to enable easier analysis. The spatial distribution of artifacts was analyzed in a Geographic Information System (ArcGIS 10.2.2), using the G.P.S. data that was recorded in the field. Artifacts were classified in an attribute table in ArcMap 10.2.2, so that the spatial distribution of different artifact classes could be examined in maps generated from that data.

To sum up, the methodology for this project is grounded in the standard research methods used in historical archaeological analysis. Historical and archaeological data was employed to help address the research themes outlined above. The use of metal detectors in historical archaeological survey is gaining popularity, and it was thought they might be helpful in locating artifacts in a site as densely vegetated as Hogback Camp. Overall, the fieldwork phases of this investigation were carefully thought out with the aim of narrowing down the most productive areas to conduct archaeological data recovery.

CHAPTER VII

DATA PRESENTATION AND ANALYSIS

Two primary datasets were utilized in the analysis and interpretation of Hogback Camp: 1) archival and historical documents, and 2) the archaeological remains of the site. The research themes presented in the previous chapter are evaluated here through the synthesis of both of these datasets. The archaeological data and results from the last three phases of fieldwork conducted at Hogback Camp are presented, including the results of the metal detector survey, testing and excavation of the site, as well as an analysis of the cultural material. The G.P.S. data gathered during the first phase of archaeological fieldwork is utilized in the analysis of the spatial distribution of cultural material. This is followed by a discussion of each research theme employing the historical and archaeological data gathered.

Archaeological Data

Phase II: Non-invasive Metal Detector Survey of Hogback Camp

The metal detector survey of Hogback Camp revealed the site had a dense concentration of metal material throughout the site. A majority of the artifacts discovered through metal detecting were simply photographed, recorded with a G.P.S. unit, and returned to their original location. Metal detecting resulted in the discovery of several artifacts including four metal clothing rivets, three shell buttons (two four-hole buttons and one two-hole button), a pair of metal boot heels with intact cut iron heel nails, a tubular kerosene lantern, a brown glass whiskey bottle shard embossed with "…EH…CLUB WHISKEY", a sun-colored amethyst glass whiskey bottle top (with cork) embossed with "The Waldorf…FRANCISCO & LOS ANGELE…ECKER BROS. IN…". The four metal clothing rivets, all embossed with "B-L/CO.", were found in a

cluster suggesting they came from the same piece of clothing (Figure 7.1). The three shell buttons were photographed, recorded with a G.P.S. unit, and collected for curation and further analysis.

Figure 7.1 Metal clothing rivets found during metal detecting (Photo by author, 2016)

Phase III: Subsurface Testing of Hogback Camp

Subsurface testing of Hogback Camp through the excavation of ten shovel test units revealed that the site had a sparse, low density subsurface deposit with a maximum depth of 30 cm. Most artifacts found in the units were exposed at depths of 0 to 15 cm. The most significant material was recovered from Shovel Test Unit 6, where the backing of a pocket watch was found on the surface along with three pocket watch gears exposed at various depths between 10 and 25 cm in the unit. The locations of shovel test units are included in Figure 7.2. The cultural material recovered from each shovel test unit is summarized in Table 7.1.

Table 7.1 Cultural material recovered in shovel test units

Shovel Test Unit #	Area of Site	UTM coordinates (NAD83, Zone 11)	Depth (cm)	Diameter (approximate width of shovel head in cm)	Cultural Material Recovered and Approximate Depth
1	Terrace 1	360671 mE / 3822929 mN	30 cm	23 cm	None
2	Terrace 1	360671 mE / 3822935 mN	30 cm	23 cm	C-shaped metal piece (at 10 to 20 cm)
3	Terrace 2	360662 mE / 3822920 mN	30 cm	23 cm	Cloth piece (possible tent canvas) and one nail
4	Terrace 2	360661 mE / 3822928 mN	30 cm	23 cm	One clear glass shard (at 0 to 10 cm)
5	Terrace 3	360651 mE / 3822921 mN	30 cm	23 cm	Two brown glass shards (at 10 to 20 cm)
6	Terrace 3	360649 mE / 3822933 mN	30 cm	23 cm	Backing of pocket watch (on surface); three pocket watch gears (at 10 to 25 cm); SCA glass shard
7	Terrace 4	360636 mE / 3822935 mN	15 cm	23 cm	None
8	Terrace 4	360639 mE / 3822913 mN	15 cm	23 cm	Tobacco tin (at 10 cm)
9	Terrace 5	360623 mE / 3822913 mN	15 cm	23 cm	Tobacco tin (at 5 to 10 cm)
10	Terrace 5	360625 mE / 3822934 mN	20 cm	23 cm	Brown, green, and clear glass shards (at 0 to 10 cm)

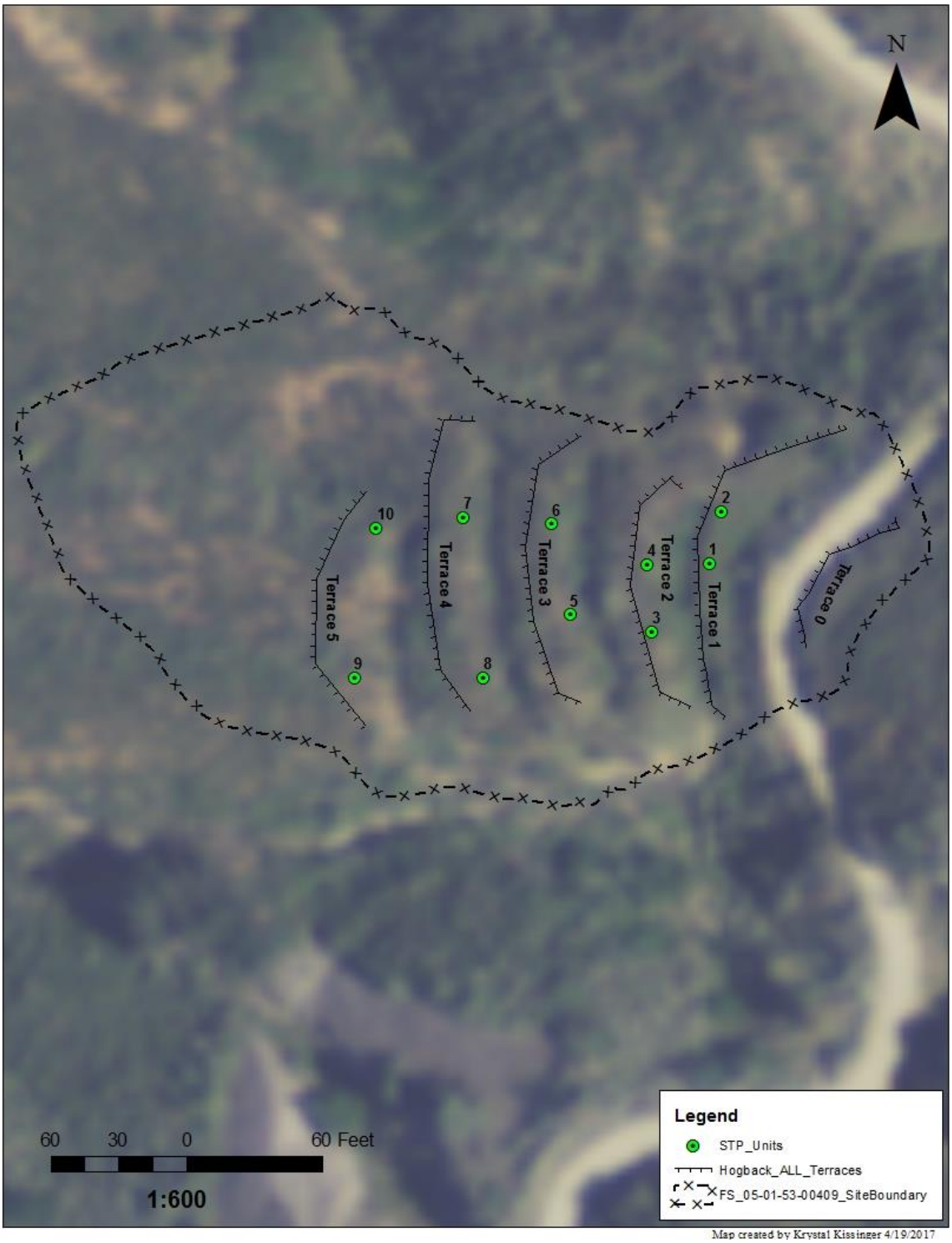


FIGURE 7.2 Map of shovel test units

Phase IV: Systematic Excavation of Hogback Camp

A total of three units were selectively placed and systematically excavated at Hogback Camp (Table 7.2; Figure 7.3).

Table 7.2 Summary of excavation units

Excavation Unit #	**Area within site**	**UTM Coordinates**	**Unit Size (m)**	**Excavated Depth (cm)**
1	Privy	360619 mE / 3822961 mN	1 x 1 m	40 cm
2A/2B	Terrace 5	360620 mE / 3822928 mN	2 x 1 m	10 cm
3A/3B	Terrace 2	360662 mE / 3822930 mN	2 x 1 m	20 cm (3A) 30 cm (3B)

Unit 1 was placed in the center of the depression believed to be the location of the privy, which can be seen in the northern side of the camp in the 1912 historic photograph of the camp. The unit was excavated in three arbitrary levels: Level 1 (0 to 20 cm), Level 2 (20 to 30 cm), and Level 3 (30 to 40 cm). Level 1 consisted of soft, moist dark brown (Munsell 7.5 YR, 3/4 value/chroma), while Levels 2 and 3 consisted of clay-like brown soil (Munsell 7.5 YR, 4/4 value/chroma) (Table 7.3). Only two nails were recovered from Levels 1 and 2. The north wall of the unit exposed a charcoal/ash deposit present in all three levels, and was also visible in the floor of the unit at 24.5 cm below surface (Figure 7.4). An additional 20 cm by 20 cm section in the south wall of Unit 1 was excavated at the 30 to 40 cm level in order to expose a metal wire that was protruding from the wall. The additional 20 cm by 20 cm section excavated from the south wall fully exposed the metal wire and two nails. In sum, this unit produced a total of four nails and a tangled metal wire.

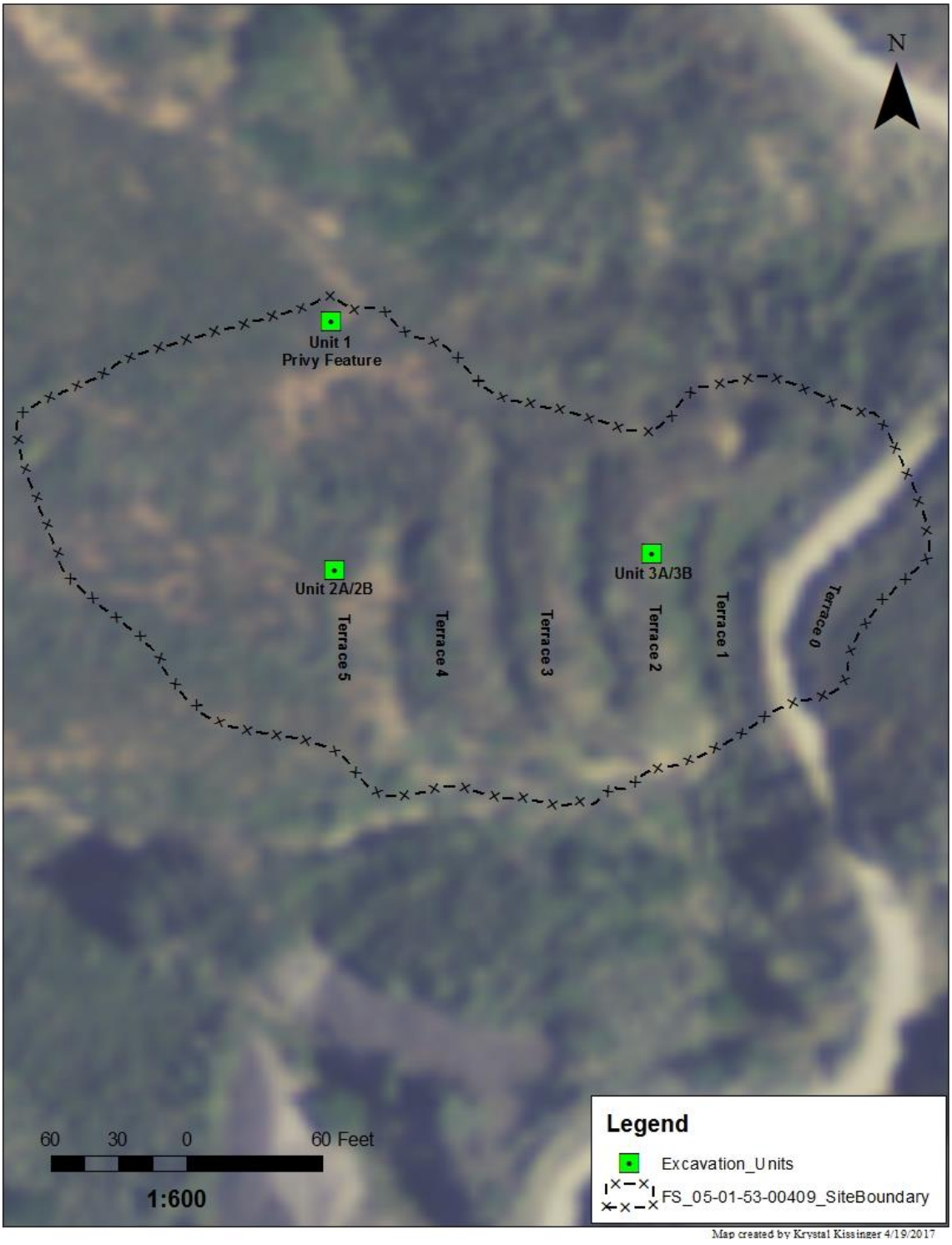


FIGURE 7.3 Map of excavation units

Table 7.3 Unit 1 (privy) excavation by level

Level (cm)	Munsell Soil Description	Cultural Material Recovered
Surface	Munsell 7.5 YR 3/4 Dark Brown	None
Level 1 (0-20 cm)	Munsell 7.5 YR 3/4 Dark Brown	One nail
Level 2 (20-30 cm)	Munsell 7.5 YR 4/4 Brown	One nail
Level 3 (30-40 cm)	Munsell 7.5YR 4/4 Brown	Metal wire and two nails

FIGURE 7.4 Unit 1 (30-40 cm) with charcoal/ash deposit visible in north wall (Photo by author, 2016)

Units 2A (north 1 x 1 meter unit) and 2B (south 1 x 1 meter) made up a single 2 x 1 meter unit located on Terrace 5. The site of Units 2A and 2B was selected in order to get a sample from the workers' residential area on the lowest terrace of the site. In

addition, this locality was chosen because of the dense surface concentration of artifacts. Prior to the start of excavation, the artifacts present on the surface level of the unit were mapped, photographed, and collected, including a clothing button embossed with “*B.N. & L.* L.A.", one spike, one porcelain sherd that resembled dishware, and eight nails of various sizes. A bullet was also discovered near the northwest corner of Unit 2A and collected.

Units 2A and 2B were excavated to a depth of approximately 10 cm below surface. Level 1 (0-10 cm) of Units 2A and 2B consisted of dry, compact brown soil (Munsell 7.5 YR 5/4 Brown). A total of four artifacts were discovered in Units 2A and 2B at the 0-10 cm level. Level 1 of Unit 2A revealed a clothing rivet (front) embossed with "B-L CO", a clothing button embossed with “B-L CO”, and a thick piece of pencil lead. Level 1 of Unit 2B revealed only one nail (3 1/8" length with a flat, rounded-head). No artifacts were recovered beyond the 0 to 10 cm level (end of level is depicted in Figure 7.5). Units 2A and 2B are summarized in Tables 7.4 and 7.5.

Table 7.4 Unit 2A excavation by level

Level (cm)	**Munsell Soil Description**	**Cultural Material Recovered**
Surface	Munsell 7.5 YR 5/3 Brown	One nail
Level 1 (0-10 cm)	Munsell 7.5 YR 5/4 Brown	One clothing rivet (front), one clothing button, and pencil lead

Table 7.5 Unit 2B excavation by level

Level (cm)	Munsell Soil Description	Cultural Material Recovered
Surface	Munsell 7.5 YR 5/3 Brown	One clothing button, one spike, one porcelain sherd, and eight nails of various sizes
Level 1 (0-10 cm)	Munsell 7.5 YR 5/4 Brown	One nail

FIGURE 7.5 End of Levels (at 10 cm) for Units 2A/2B (Photo by author, 2016)

Units 3A (north 1 x 1 meter unit) and 3B (south 1 x 1 meter) made up a single 2 x 1 meter unit located on Terrace 2. The site of Units 3A and 3B was selected in order to get a sample from what appeared to be the supervisors' residential area located on the

highest terrace of the living quarters and the closest to where the mess hall and second privy were located. The location of Units 3A and 3B was also carefully selected with the intention of capturing the space within and between two tent houses (a berm clearly delineated where these structures once stood). The only artifact present on the surface level of Units 3A and 3B was a fragment of tobacco tin in Unit 3B. Level 1 (0-10 cm) did not yield any cultural material in either Unit 3A or 3B. Level 2 of Unit 3A revealed a single aqua glass shard. Level 2 of Unit 3B revealed a clear glass homeopathic medicine vial, one spike, decomposing metal fragments, and clear and sun-colored amethyst glass shards of various thicknesses. Due to a lack of material, Unit 3A was not excavated beyond a depth of 20 cm. However, Unit 3B was excavated to the end of Level 3 (20 to 30 cm) with no additional cultural materials discovered (end of level is depicted in Figure 7.6). Units 3A and 3B are summarized in Tables 7.6 and 7.7.

FIGURE 7.6 End of levels for Units 3A/3B (Photo by Allison Hill, 2016)

Table 7.6 Unit 3A excavation by level

Level (cm)	Munsell Soil Description	Cultural Material Recovered
Surface	Munsell 10 YR 4/2 Dark Grayish Brown	None
Level 1 (0-10 cm)	Munsell 10 YR 4/3 Brown	None
Level 2 (10-20 cm)	Munsell 10 YR 5/3 Brown	Aqua glass shard

Table 7.7 Unit 3B excavation by level

Level (cm)	Munsell Soil Description	Cultural Material Recovered
Surface	Munsell 10 YR 4/2 Dark Grayish Brown	Tobacco tin fragment
Level 1 (0-10 cm)	Munsell 10 YR 4/3 Brown	None
Level 2 (10-20 cm)	Munsell 10 YR 5/3 Brown	Clear and SCA glass shards, clear glass vial, one spike, and metal fragments
Level 3 (20-30 cm)	Munsell 10YR 5/4 Yellowish Brown	None

Analysis of Cultural Material

Approximately 120 items and artifact fragments were recovered during the archaeological fieldwork phase of this investigation. The assemblage is made up of all artifacts that were discovered in shovel test units and excavation units, as well as artifacts that were sample collected from the surface when additional analysis was deemed necessary. Artifacts that could be fully documented in the field were left in their original location, as were artifacts where a similar artifact was already collected. All documented artifacts, whether collected or left on site, were classified by the functional classification

scheme outlined in Chapter VI. Maps showing the spatial distribution of cultural material include both collected items and items left on site.

Overall, the assemblage of collected items was made up of personal items (36%); structural materials (34%); materials from specialized activities, including modified items (7%); containers, including food and beverage containers (10%); domestic items (4%); and materials of uncertain use (9%) (Figure 7.7). The following discussion will focus on the broad artifact classes discovered within the site and will include a description of the various artifact types, their distribution within the site, and what they suggest about the operation and occupants of Hogback Camp.

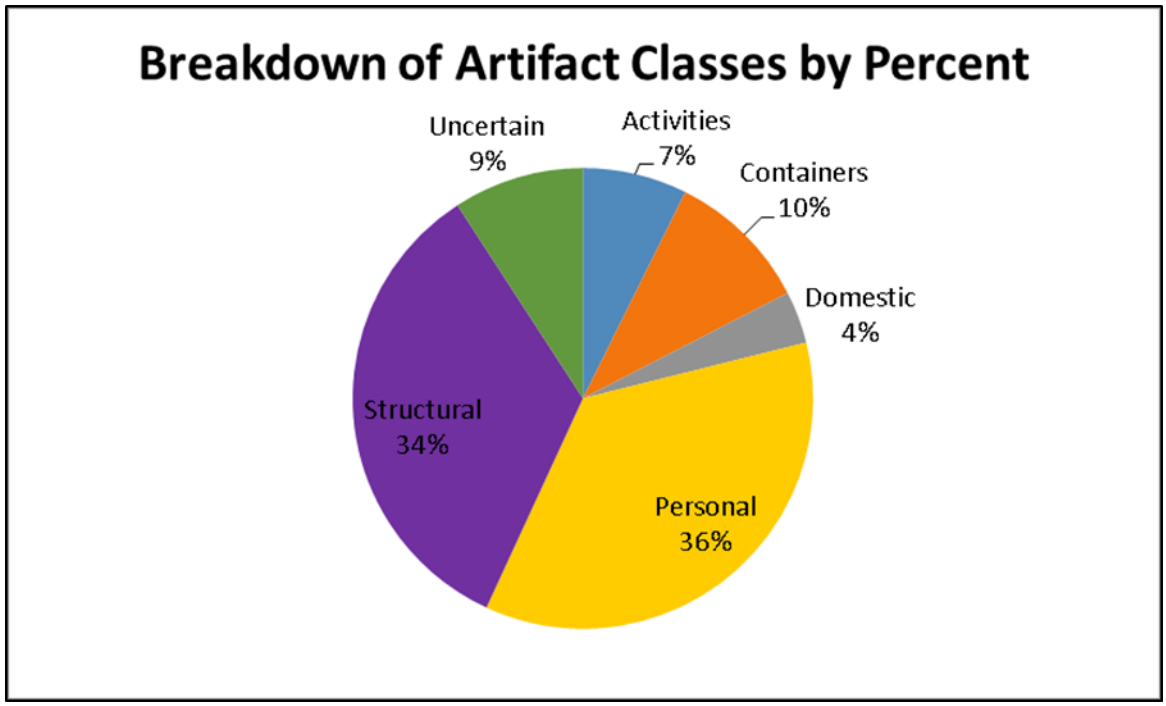


FIGURE 7.7 Recovered items by artifact class

Personal Items

Personal items represent one of the largest artifact classes found at Hogback Camp and include items such as clothing parts, footwear, accoutrements, tobacco tins, trunk suitcase parts and medicine containers (Figure 7.8). These items were concentrated

in the residential area on the three lowest terraces of the site (Figure 7.9). Surface collection of artifacts was targeted toward personal items, of which clothing fasteners made up a large majority. Personal items are broken down into their assigned artifact group and discussed below.

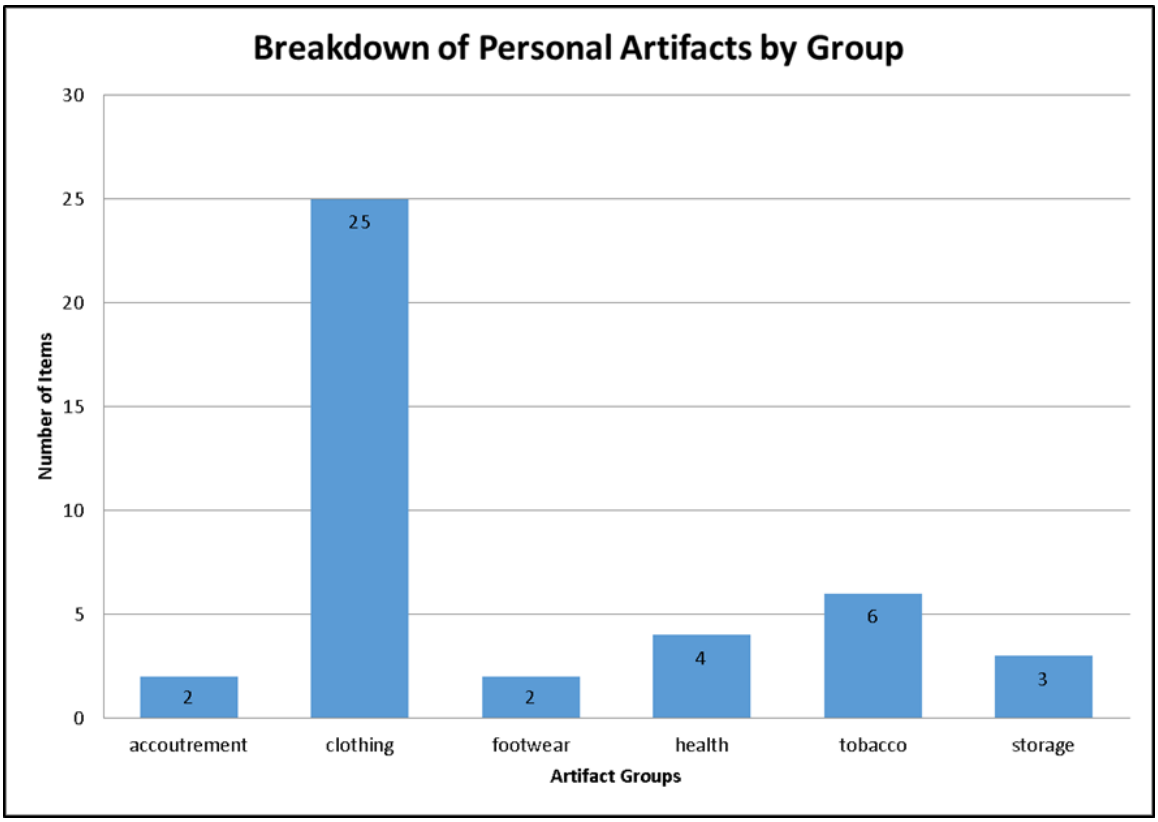


FIGURE 7.8 Breakdown of personal artifacts in assemblage

Clothing items were the most prevalent personal artifact class discovered at Hogback Camp, and were mainly concentrated on Terraces 4 and 5. Clothing fasteners such as buttons, rivets, suspender buckles, hose support buckles, and belt buckles were the most common clothing part found. A total of nine shell buttons and five metal buttons were collected. The shell buttons are all sew-through and include two (possibly three) four-hole buttons and five two-hole buttons—one shell button was too fragmented to identify as two- or four- holed (Figure 7.10). The shell buttons vary in size from

approximately 10.0 to 12.5 mm, but all are within range of typical shirt-size buttons used to fasten shirts, night clothes, and undergarments (Van Bueren et al. 1999:98).

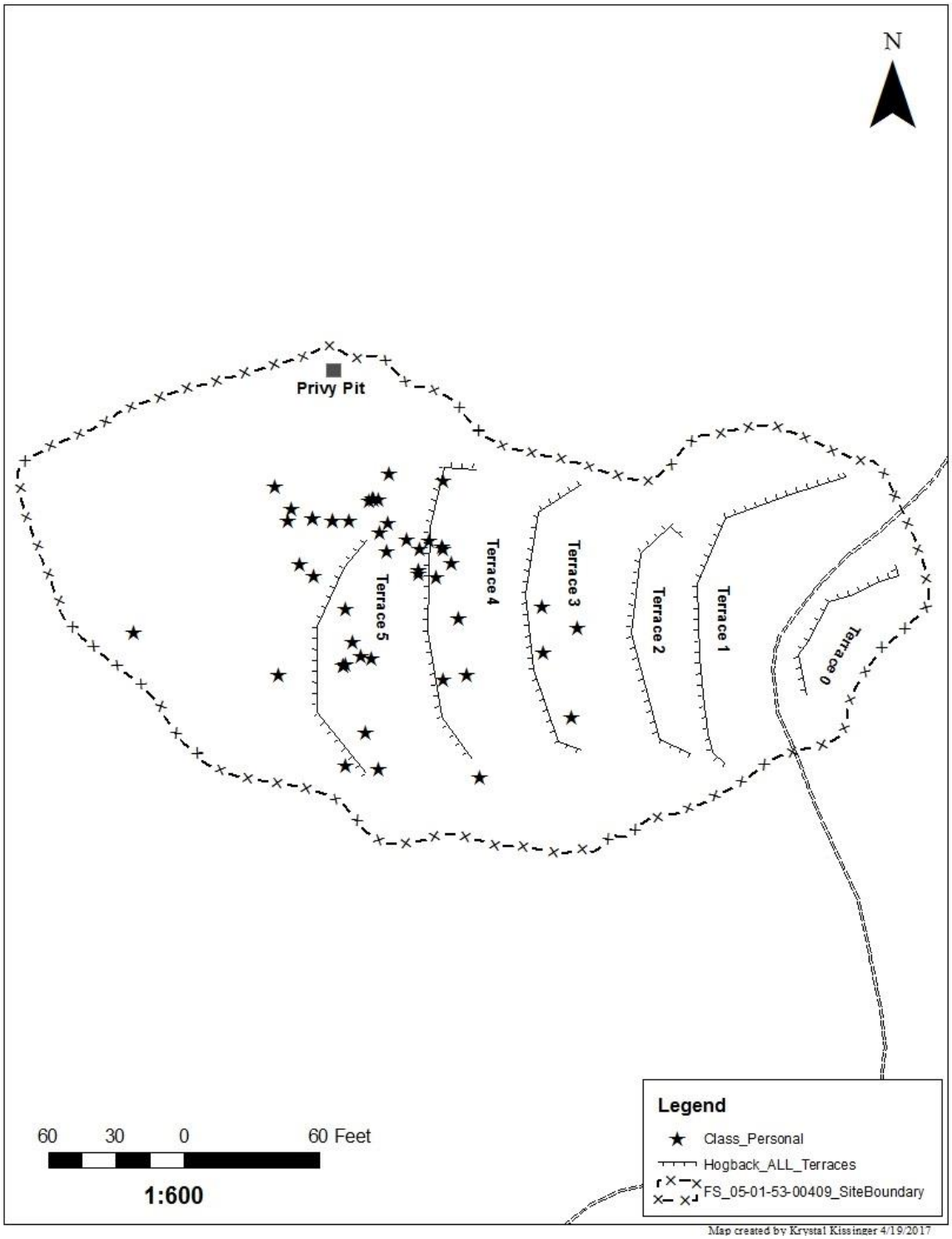


FIGURE 7.9 Spatial distribution of personal items

FIGURE 7.10 Shell buttons recovered from Hogback Camp (Photo by author, 2016)

Of the five metal buttons, three are embossed, one is plain, and the other is decorated, but not marked (Figures 7.11). The embossed buttons represent two different companies: the Brownstein, Newmark, and Louis Company, which became the Brownstein-Louis Company (based in Los Angeles, California) in 1911, and the Heynemann Company, which became the Eloesser-Heynemann Company (based in San Francisco, California) in 1910 (Los Angeles City Directory 1906: 264; Los Angeles City Directory 1911:222; Crocker-Langley San Francisco Directory 1910:599). The button embossed "B.N. & L./(star)L.A.(star)" (second from the right in Figure 7.11) has a narrow date range of 1906 to 1910, while the other button embossed "B-L/CO" (third from the right in Figure 7.12) had to have been manufactured in 1911 (or later) when the Brownstein, Newmark, and Louis Company became the Brownstein-Louis Company. In addition, six metal clothing rivets embossed "B-L/CO" were identified at Hogback Camp

(only two were collected) (Figure 7.12). The button embossed with “BOSS OF THE ROAD” (third from the right in Figure 7.11) was manufactured by the Heynemann or Eloesser-Heynemann Company, and dates to between 1878 and 1948.

FIGURE 7.11 Metal buttons recovered from Hogback Camp (Photo by author, 2016)

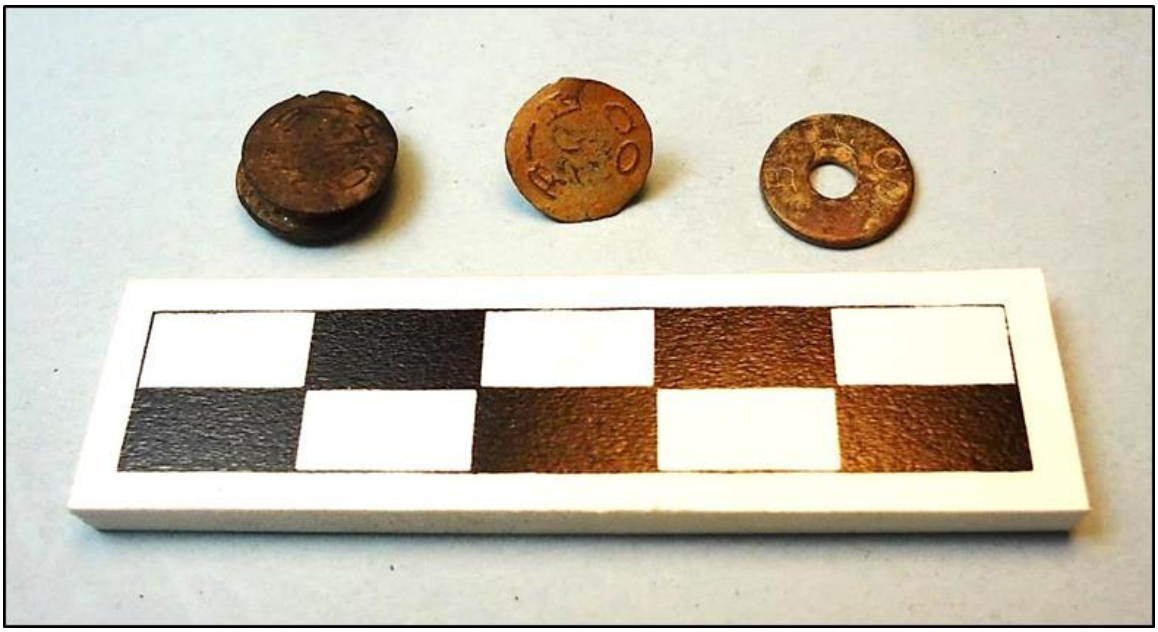
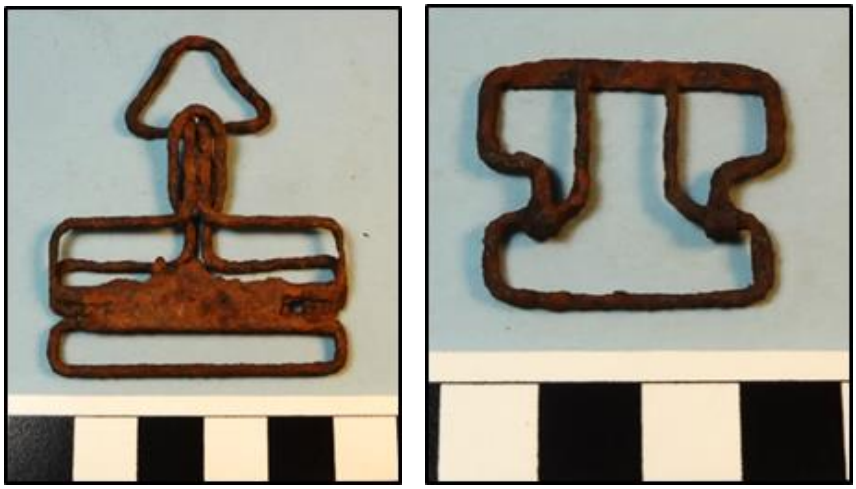


FIGURE 7.12 Clothing rivets and button manufactured by the Brownstein-Louis Company (Photo by author, 2016)

Suspender buckles, hose support buckles, and belt buckles were another commonly found clothing part at Hogback Camp (Figures 7.13a, 7.13b, 7.13c). One suspender buckle embossed “SHIRLEY PRESIDENT” dates to around 1900 and was manufactured by the C.A. Edgarton Manufacturing Company (based in Shirley, Massachusetts), which produced their President Suspenders brand for both men and women (Figures 7.14a, 7.14b, 7.14c) (Marcinkewicz 2001; SportsAntiques.com 2009). The hose support buckle stamped “VELVET GRIP” (Figures 7.15a and 7.15b) was manufactured by the George Frost Company (based in Boston, Massachusetts), which acquired a trademark for hose supporters in 1905 (United States Patent Office 1905).

Overall, the clothing items found at Hogback Camp demonstrate that aqueduct workers wore clothing that was advertised to be comfortable, but also durable enough to withstand the rough wear that went along with hard labor. Typical attire of Hogback Camp workers included denim jeans, suspenders, overalls, belts, and buckles used to hold up socks. Although it is a relatively small sample, the buttons and rivets from Hogback Camp indicate that workers preferred the same brand name clothing that was popular amongst workers at other Los Angeles Aqueduct Camps (Psota 2002).



(a) (b)

(c)

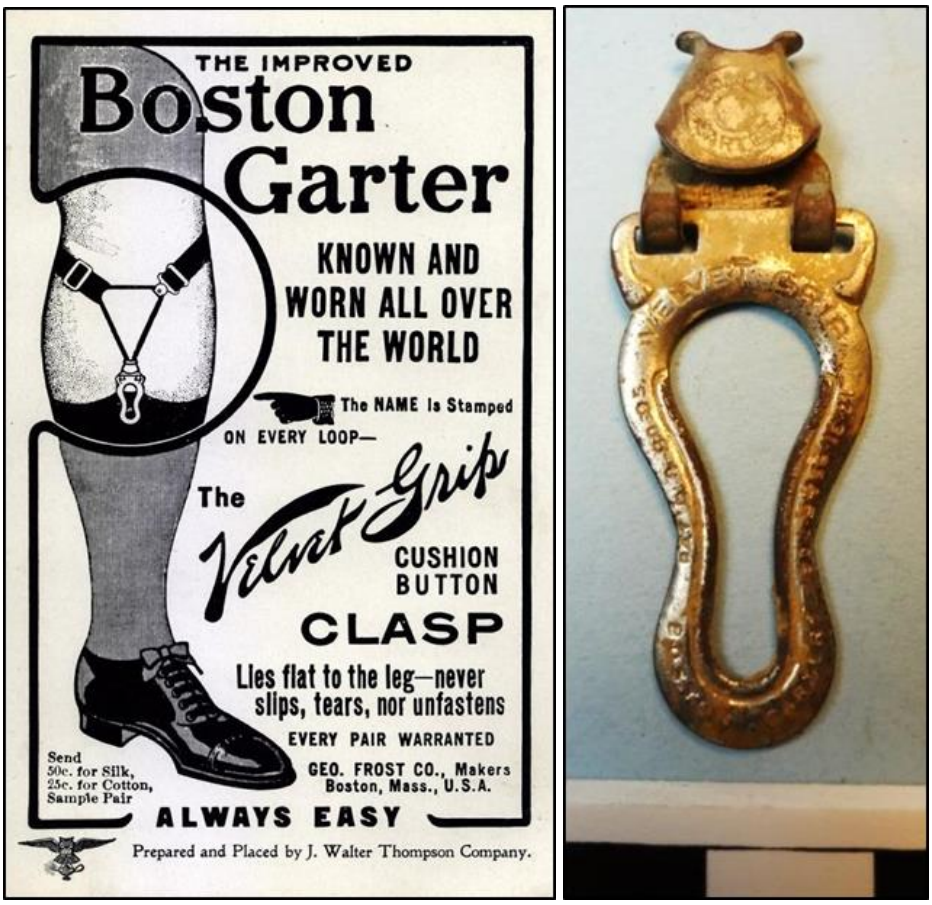
FIGURE 7.13 Assortment of clothing buckles recovered from Hogback Camp; (a) suspender buckle and (b) brace or hose support buckle and (c) belt buckles

(a)

(b)

(c)

FIGURE 7.14 (a) Advertisement for men's President Suspenders; (b) Shirley President suspender buckle from Hogback Camp; (c) Advertisement for women's Shirley President suspenders



(a) (b)

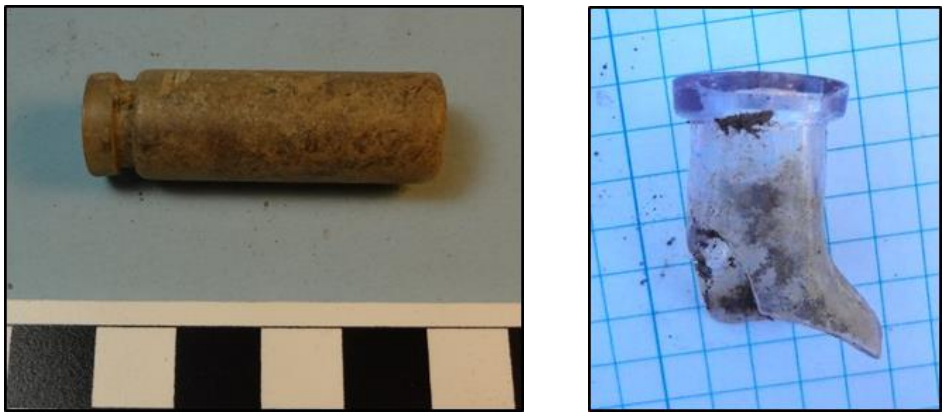
FIGURE 7.15 (a) Advertisement for Velvet Grip Hose Support Buckle and (b) Velvet Grip Buckle from Hogback Camp

In addition to clothing, a few other items of personal attire found at Hogback Camp were footwear and accessories. The metal heels of a pair of boots (Figure 7.16a) were discovered during metal detecting, while leather insoles from a pair of shoes were recovered during survey. Metal detecting and shovel testing also resulted in the recovery of two pocket watches (Figure 7.16b) from Terraces 3 and 4 of the residential area. Suitcase trunk frames and latches were another type of personal belonging found on the lower terraces of the camp.

(a) (b)

FIGURE 7.16 (a) Metal heels from a pair of boots and (b) pocket watch pieces recovered from Shovel Test Unit 6

Personal health items, such as medicine bottles and homeopathic medicine vials, were mainly concentrated on the lowest terrace (Terrace 5) of the camp's residential area (Figure 7.18). The medicine bottles were all sun-colored amethyst glass (Figure 7.17b), with the exception of a probable bitters bottle made of thick, black glass (Lindsey 2010). Unfortunately, none of the medicine bottles had identifiable product line markings, so it is unclear exactly what kind of medicines or remedies they held. However, the two glass vials, one with patent finish (Figure 7.17a) and the other with external thread finish and metal screw cap, likely held homeopathic remedies (Lindsey 2010).



(a) (b)

FIGURE 7.17 (a) Homeopathic medicine vial and (b) flared finish type medicine bottle

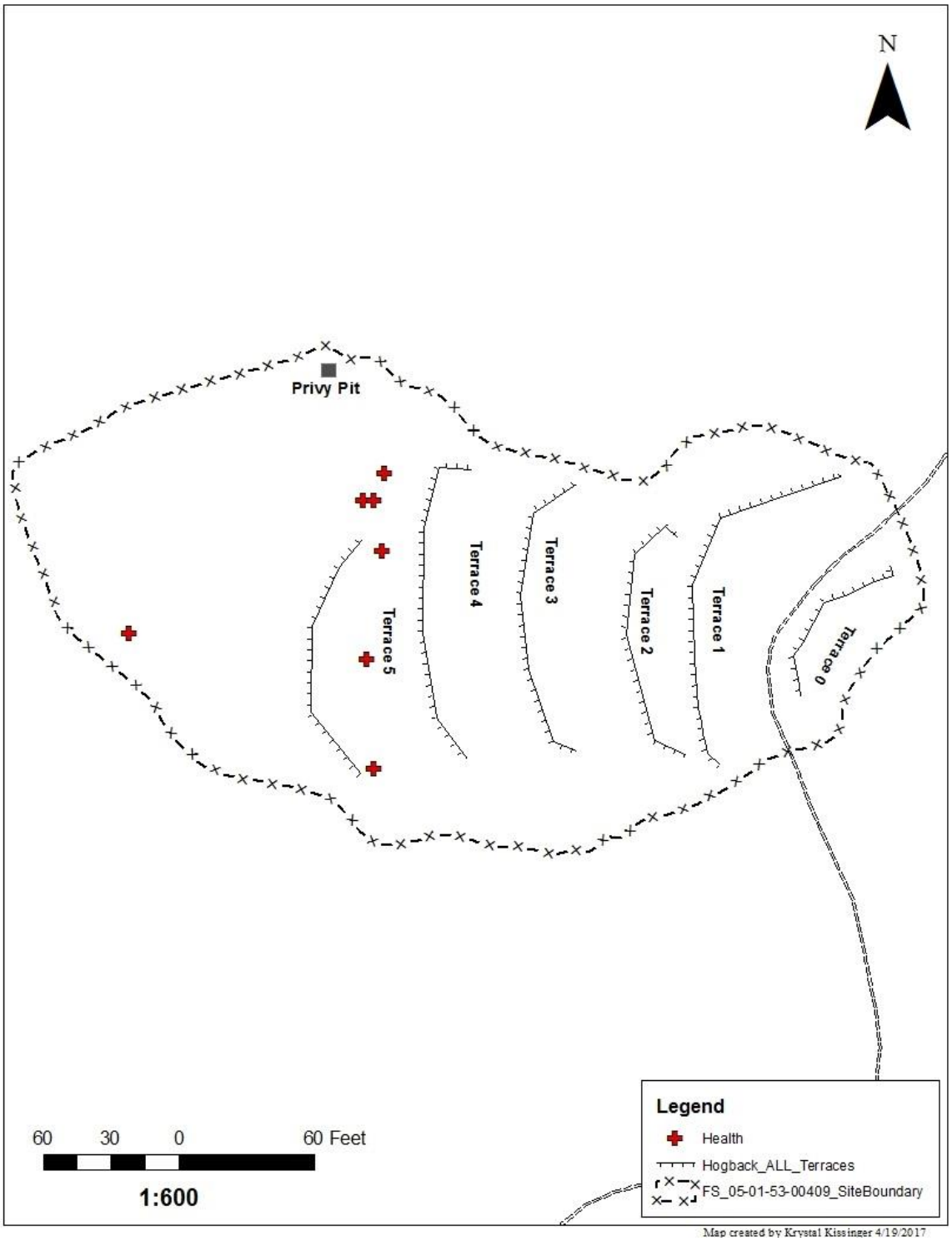


FIGURE 7.18 Spatial distribution of personal health items

Tobacco tins and tin fragments were one of the most prevalent artifacts found at Hogback Camp and, like the other personal items, were concentrated in the residential area on the three lowest terraces (Figure 7.20). Tobacco tins consisted of hinged lid and rectangular pocket types (Figures 7.19a and 7.19b). Only one tobacco tin at Hogback Camp had a label that was still visible and read "OLD ENGLISH/CURVE CUT/PIPE TOBACCO…" This tobacco brand was manufactured by The American Tobacco Company, which went on to produce the popular brand of "Lucky Strike" cigarettes (Carter 2006). With the exception of one rectangular pocket tobacco tin, all collected tins were found in shovel test or excavation units. The remaining tobacco tins at Hogback Camp were noted for their type, recorded with a G.P.S. unit, and left in their original location.

(a) (b)

FIGURE 7.19 (a) Rectangular pocket and (b) hinged lid tobacco tins

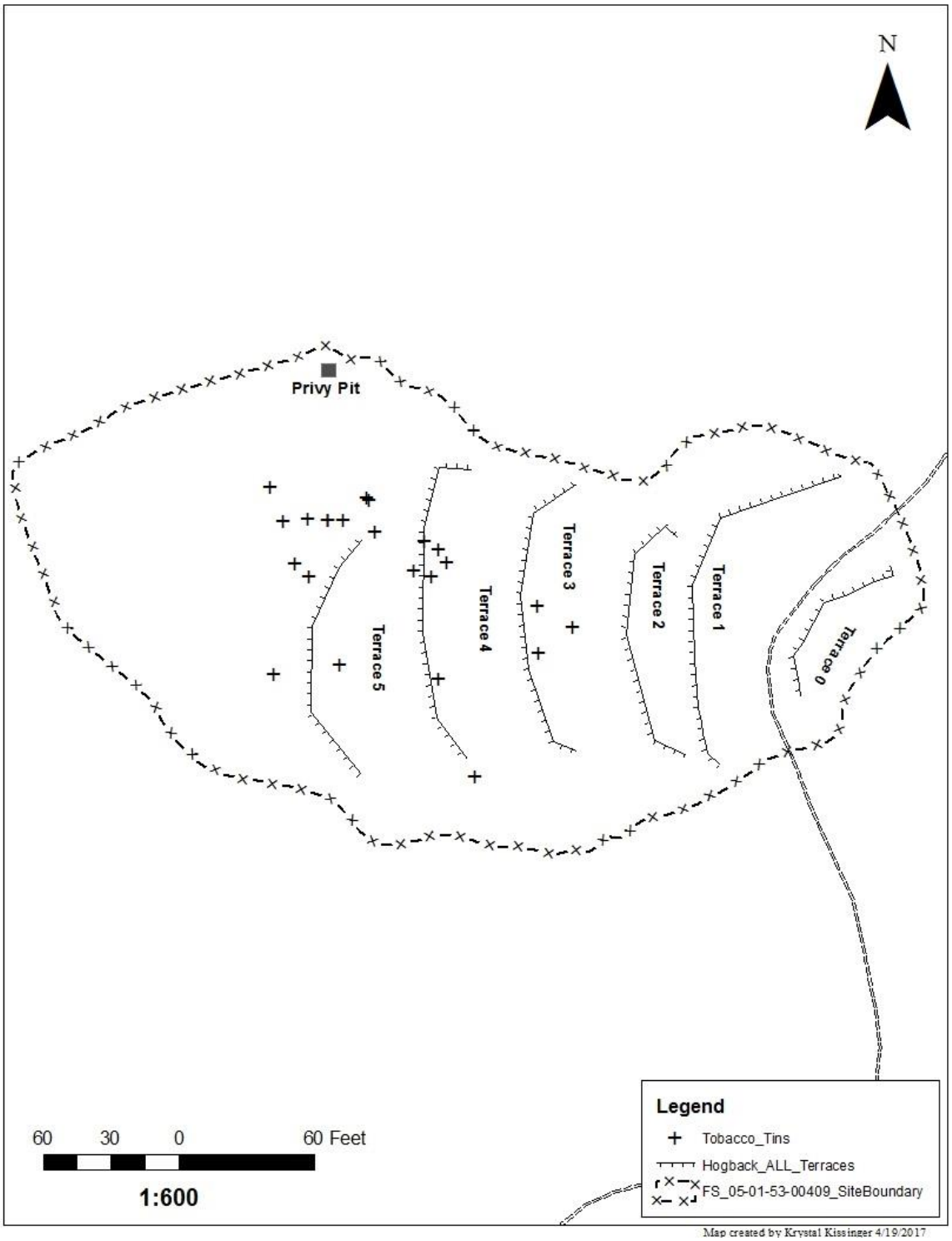


FIGURE 7.20 Spatial Distribution of tobacco tins

Structural Materials

Structural materials were the most prevalent artifact type found at Hogback Camp, although few of these items were collected. The structural materials in the assemblage are dominated by hardware (i.e. nails) and electrical insulators used for heating and/or lighting (Figure 7.21). Structural materials found at the site include fasteners such as nails, bolts, and spikes; brick building material; insulators; and plumbing materials such as pipes and pipe fittings. These materials reveal important information about the electrical, heating, plumbing, and telephone systems used at Hogback Camp.

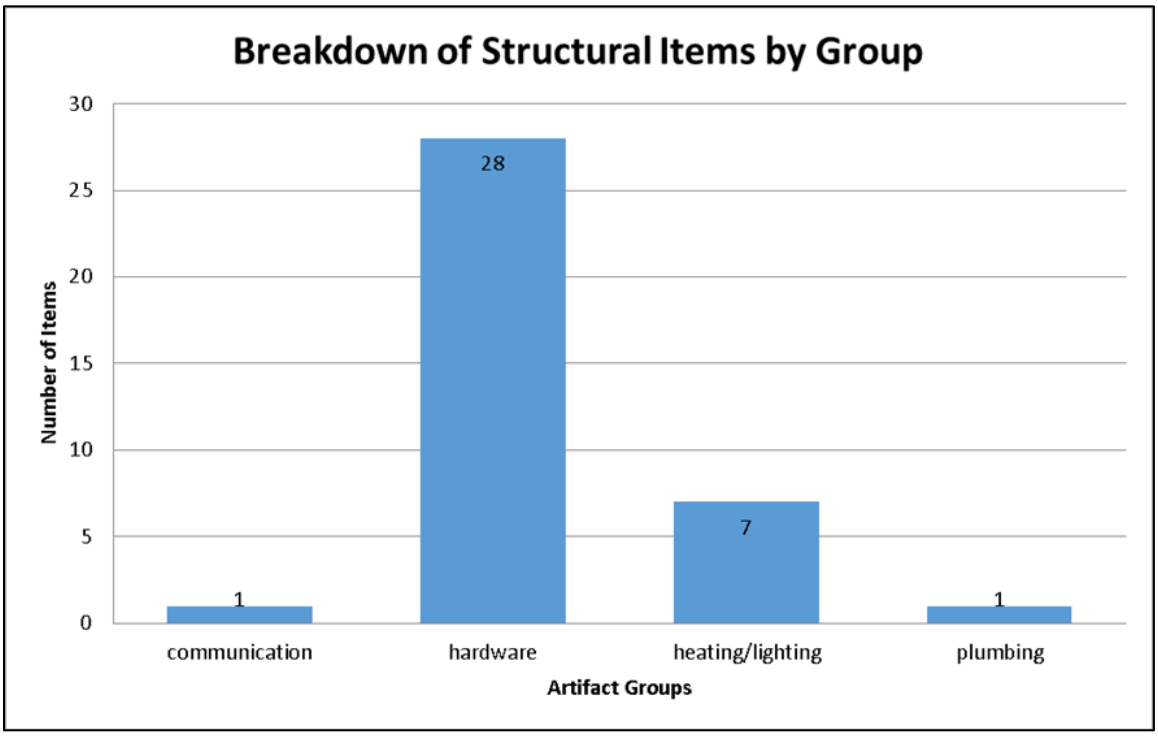


FIGURE 7.21 Breakdown of structural items in assemblage

The only remains of the tent structures that once stood in Hogback Camp include an assortment of nails, bolts, spikes, and brick fragments. If not for the historic photo of the camp, it would be difficult to tell that any structures ever existed there. However,

from the historic photo (Figure 5.4), we can see that at least 25 structures (at least 21 tent frame houses, one tent frame cookhouse, one wood frame mess hall, and two privies) were erected at the camp. In addition, nail scatters were found on every terrace of the site. The nails in the assemblage include wire nails and spiral nails of various sizes. These nails would have been used in the construction of wood floors and frames for the tent houses, which are visible in the historic photo.

Structural materials related to electricity include a variety of porcelain, ceramic, and glass insulators, which provide clear evidence that the camp had electrical lighting (Figure 7.23a, 7.23b, 7.23c, 7.23d). This was also inferred from the historic photo, which shows overhead power lines strung from east to west over the camp. Insulators were distributed throughout the site, which suggests that most, if not all, structures had electrical lighting (Figure 7.22). Although the camp had electrical lighting, there is no archaeological evidence that suggests heating was available in the residential tent structures. On the other hand, the presence of a ceramic telephone pole insulator (Figure 7.23d) manufactured by the R. Thomas & Sons Company, which operated in East Liverpool and Lisbon, Ohio from 1884 to 1957, indicates the camp had at least one telephone, although it is not clear where it would have been located within the camp (East Liverpool Historical Society 2016).

The distribution of pipes and pipe fittings related to plumbing confirms that the camp had running water piped along the northern boundary of the camp (Figure 7.22). Two buried water pipes were observed sticking out from the slope on the north side of the camp. In addition, threaded pipe fittings were found scattered along the northern boundary. Although it is unclear where the source of water for the camp came from, it is

possible that it came from a natural spring or creek near the camp, which could have then been piped into the camp and stored in a water tank. Alternatively, the water could have been delivered to the camp by truck.

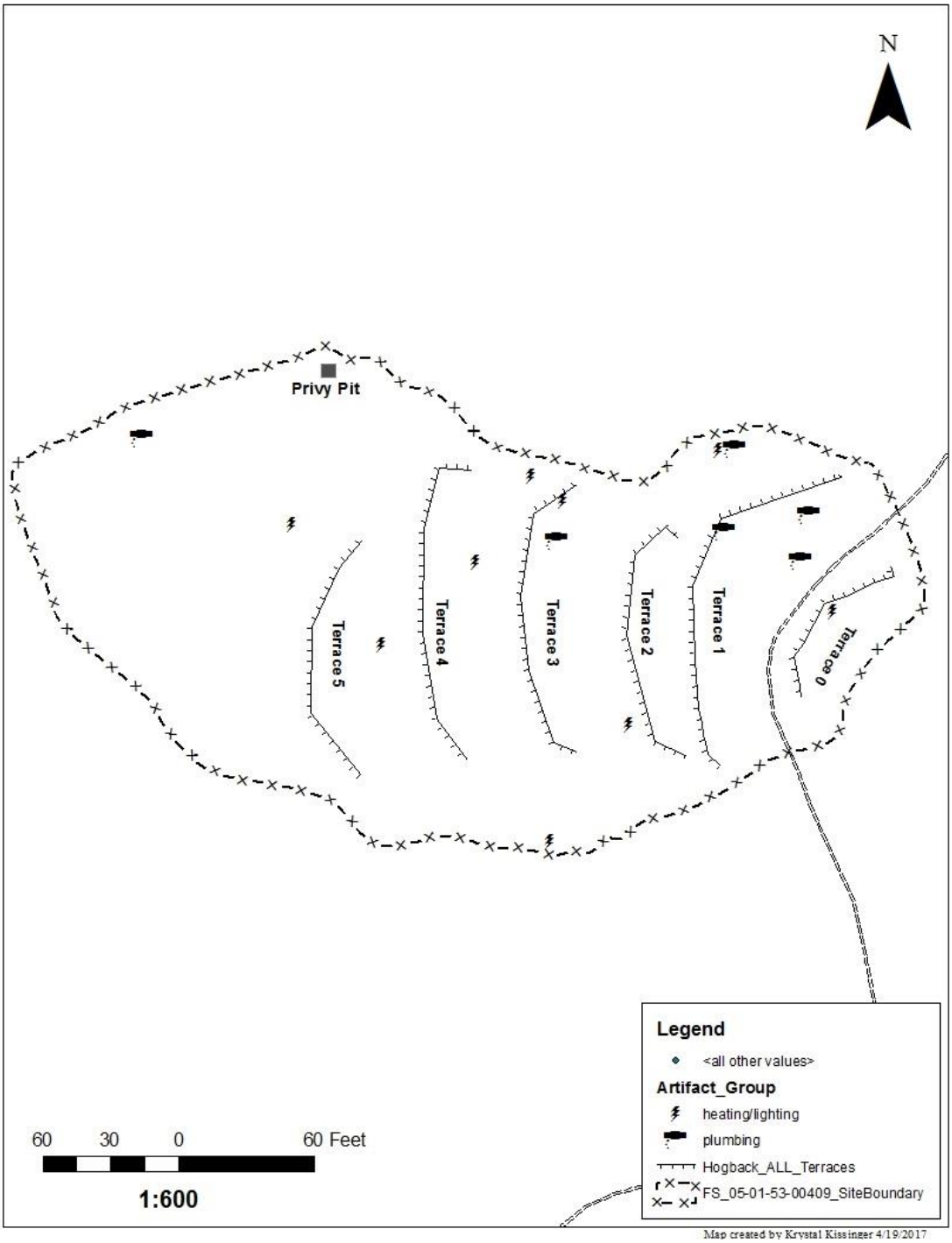


FIGURE 7.22 Spatial distribution of materials related to heating/lighting and plumbing

FIGURE 7.23 Variety of structural materials related to electrical systems, including (a) light fixture, (b) porcelain insulator, (c) glass insulator, and (d) telephone wire insulator

Containers

Can and bottle containers together made up approximately ten percent of the assemblage. More cans were recorded in the field than were collected; however, cans did not have as large a presence as one would expect. There were no can dumps or concentrations, and the cans were sparsely scattered throughout the site. It is also curious that cans were not found on Terrace 1, which is where the cookhouse and mess hall were located, rather, cans were only present in residential areas of the camp (Figure 7.25). The

can types found at Hogback Camp included No. 2, No. 2 ½, No. 3, and No. 10 hole-in-cap and sanitary cans. Based on the types and sizes, a majority of the cans would have held fruit or vegetable contents (Rock 1989).

Beverage containers at Hogback Camp were limited to glass bottles, most of which were alcohol bottles. Even so, the total number of alcohol bottles was considerably low and distribution was rather sparse (Figure 7.26). Despite the low density and sparse distribution, it is interesting to note that alcohol bottles were found on every terrace, except for Terrace 1 (cookhouse/mess hall area) and Terrace 2 (the presumed supervisors' residential area). Although it is not known what kind of facilities or workers' housing were located on Terrace 0 (above the road), it is worth noting that one green wine bottle finish was found on that terrace. The remaining alcohol bottles found on the lower terraces (Terraces 3, 4, and 5) consisted of beer (Figure 7.24a) and whiskey bottle (Figure 7.24b) fragments.

(a) (b)

FIGURE 7.24 (a) Beer bottle tops with crown finish and (b) "CLUB WHISKEY" bottle

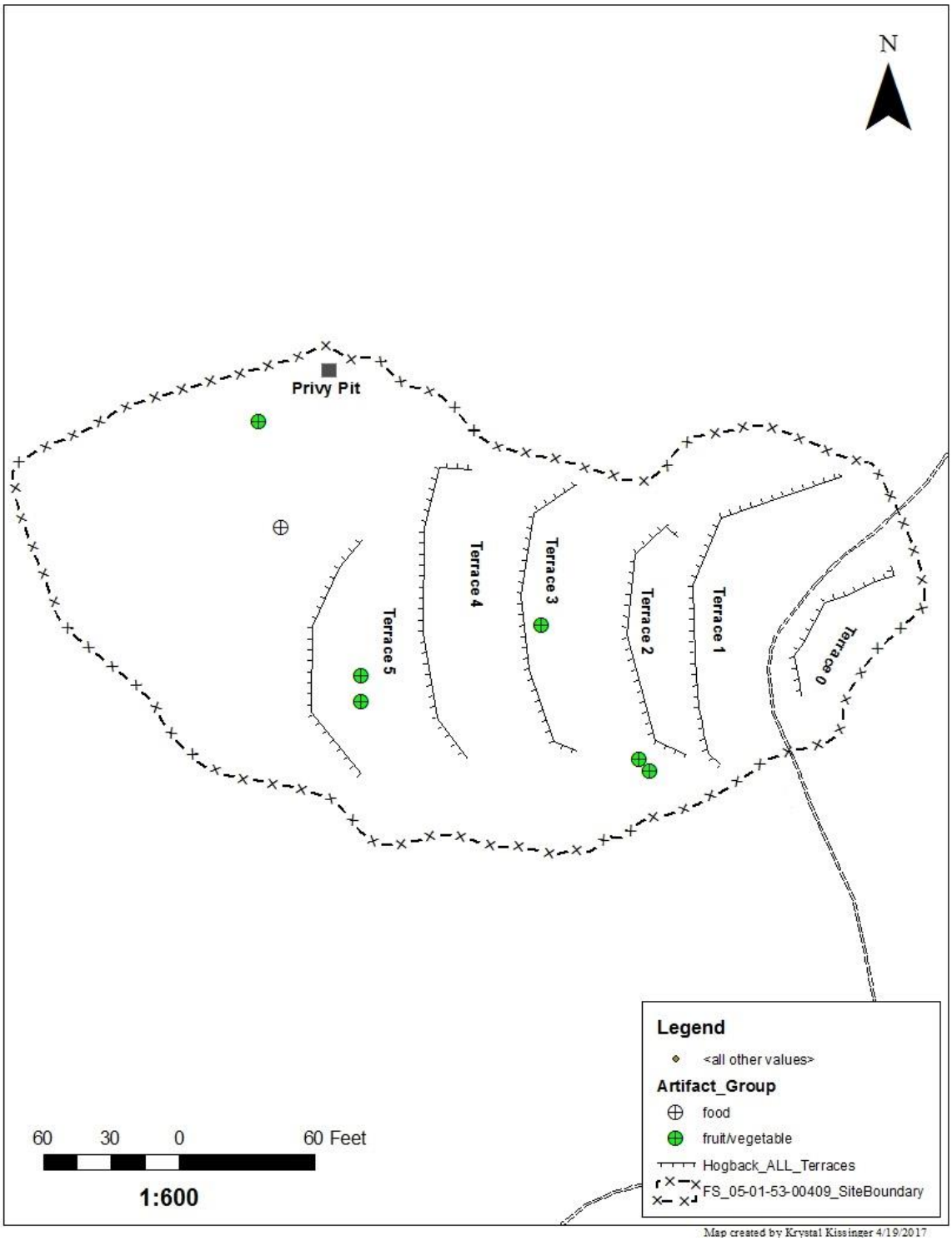


FIGURE 7.25 Spatial distribution of fruit/vegetable and other food cans

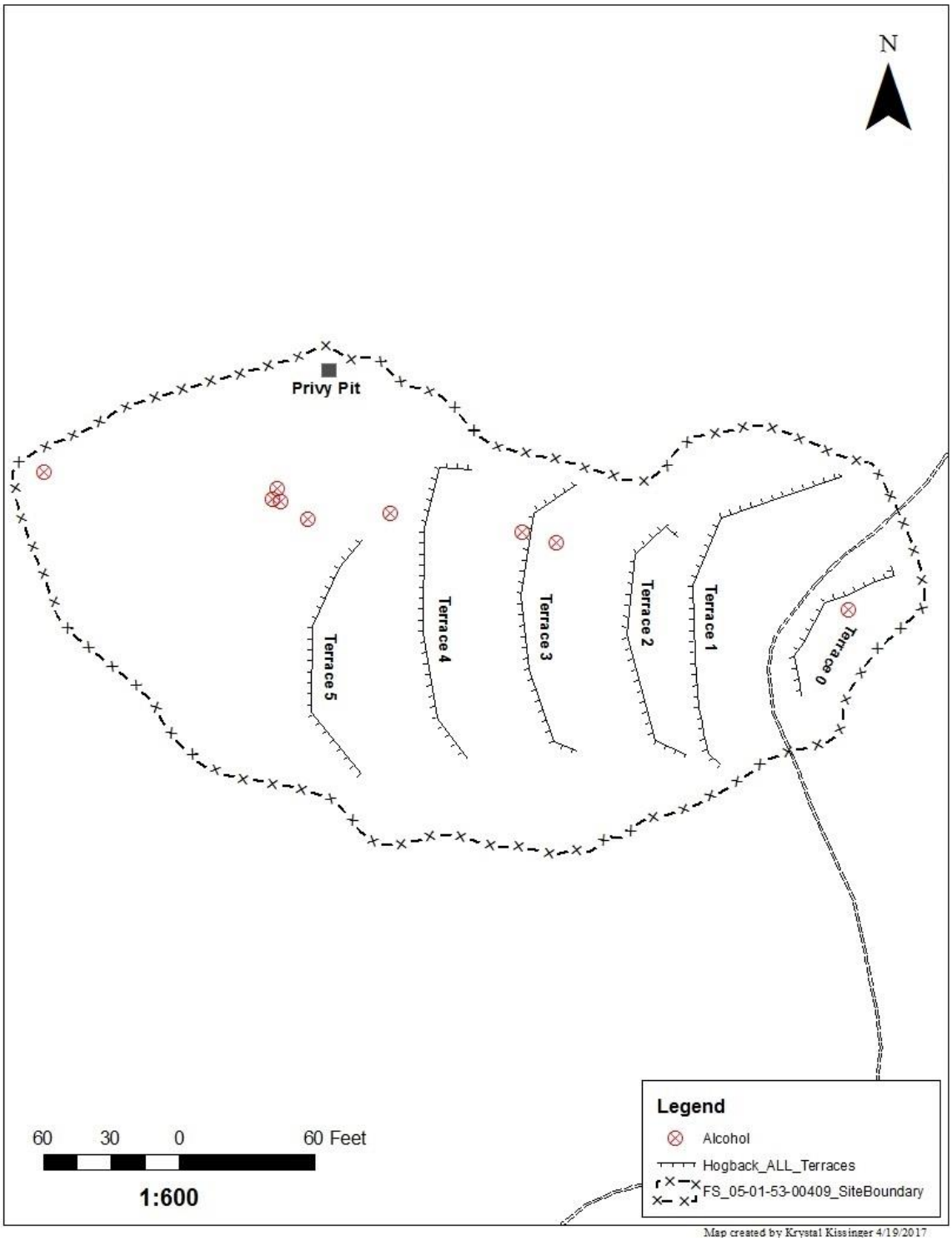


FIGURE 7.26 Spatial distribution of alcohol bottles

Domestic Items

Domestic items made up a small component of the artifacts found at Hogback Camp. Culinary and furniture items represent the only domestic artifacts at the site, and were concentrated below Terrace 5 and on the slope between Terrace 4 and 5, with exception of one furniture leg that was found on Terrace 0 (Figure 7.28). The remaining furniture items were mattress springs. None of the furniture items were collected. The culinary items in the assemblage include three spoons of the same design (Figure 7.27). The fact that all the spoons were matching suggests they likely belonged to the same set and may have been taken from the mess hall.

FIGURE 7.27 Matching spoons recovered from residential area on Terrace 5

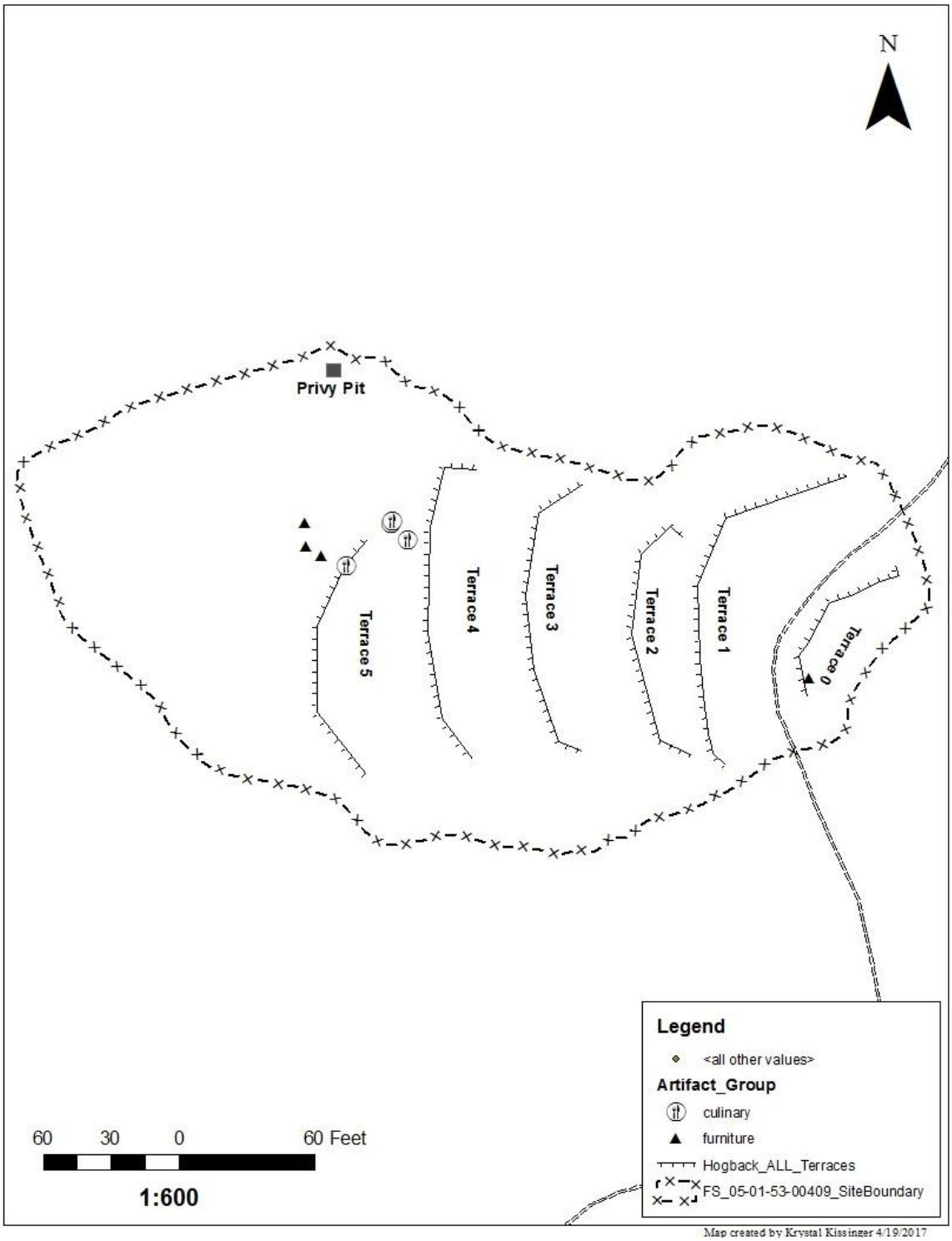


FIGURE 7.28 Spatial distribution of domestic items

Items Related to Activities and Uncertain Use

Items related to activities at Hogback Camp included modified cans and barrel hoops, tools, bullets, and a piece of pencil lead. A total of two bullets (spent and unspent) were recovered from Terraces 2 and 5. The only tool that could be positively identified was a file tool, although other possible tools and unidentifiable equipment parts were present. Some of the most intriguing items in the assemblage were those objects that were modified or repurposed. The spatial distribution of these modified objects was limited to the residential area on Terraces 4 and 5 (Figure 7.30). Some of the reformed tin cans and buckets appear to have been repurposed into possible household accessories and other gadgets. For instance, a tin bucket with various sized holes punched through the bottom looks like it would have been used as a strainer of some kind (Figure 7.29a). The functions of other modified items are more difficult to determine, and leave us only guessing (Figures 7.29b and 7.29c).

(a) (b) (c)

FIGURE 7.29 Modified objects

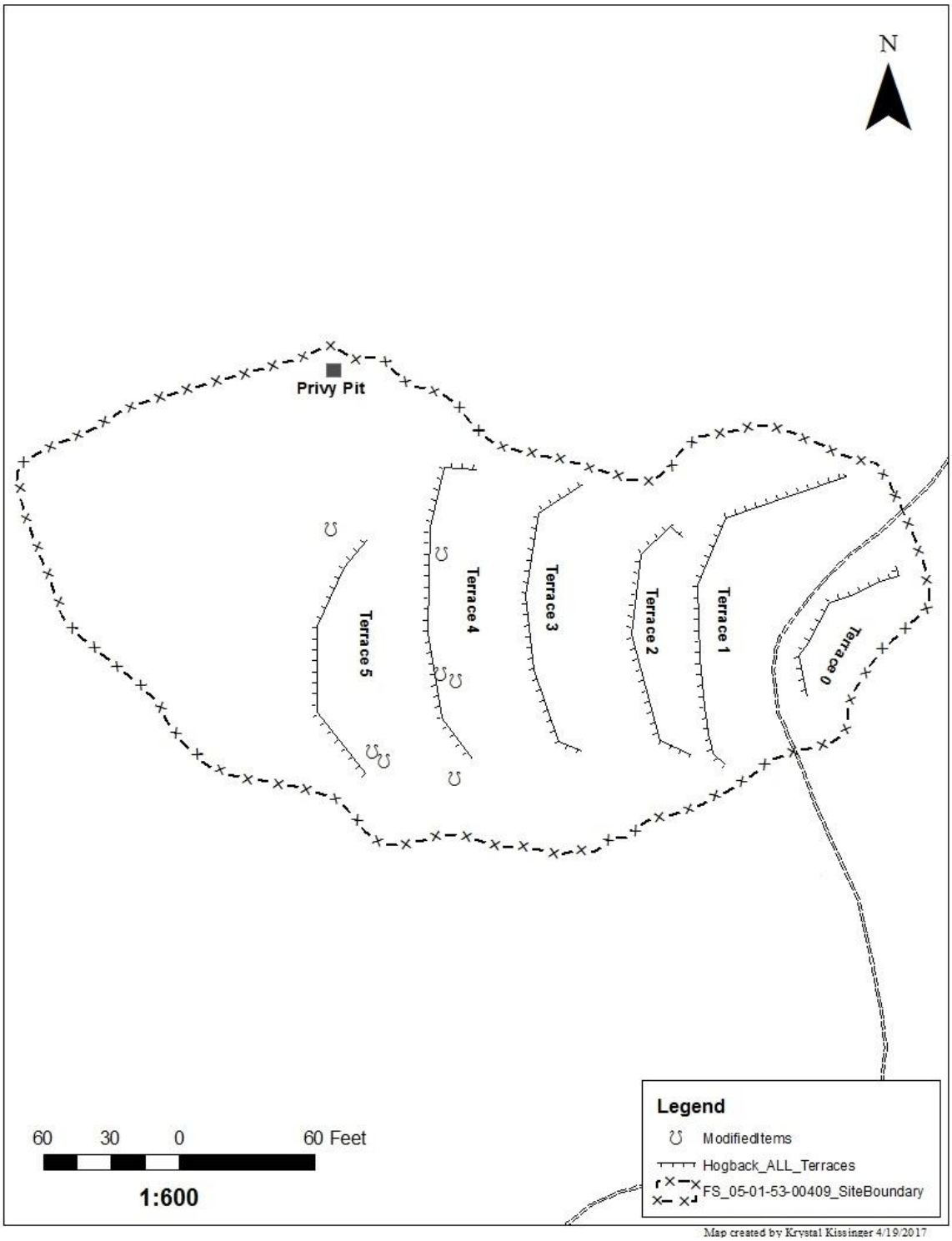


FIGURE 7.30 Spatial distribution of modified objects

Spatial Distribution of Cultural Material

The locations of Units 2A/2B and 3A/3B in two distinct residential areas (Terraces 2 and 5) were selected with the aim of comparing findings between the material culture of supervisors and common laborers; however, the lack of recovered cultural material makes this difficult to accomplish. Nevertheless, a distinct pattern can be seen in the overall spatial distribution of cultural material, which shows artifact density increases with each descending terrace (Figure 7.31). The uppermost terrace (Terrace 1), where the mess hall was located, yielded the fewest surface and subsurface artifacts of any terrace—only one small, c-shaped metal piece of uncertain function was recovered during subsurface testing. In contrast, the residential area on the lowest terrace (Terrace 5) had the densest surface and subsurface artifact concentration of all the terraces.

This spatial patterning could be a result of recent and/or past human activity, natural processes or, most likely, a combination of the two. The site is located on a very steep hillside (with an approximate slope of 39 percent), and it is very likely that artifacts have been deposited further down the slope by natural processes such as rain and erosion since the camp was abandoned over one hundred years ago. Erosion of the terraces is evident in comparison of the historic camp photo with what the site looks like today (Figures 5.4 and 5.5). However, the spatial patterning demonstrated by the increase in artifact density as the terraces descend away from the road and farther down the steep hillside can probably be primarily attributed to human activity.

We know from the historic photograph that the first terrace below the road (Terrace 1) was a community area where the mess hall and cookhouse were located. Consequently, there was probably more of an effort to keep common areas (especially areas of food preparation) clean and clear of garbage for sanitation reasons. In

comparison, workers' residential areas were probably not as neat and orderly, and not held to the same standard of sanitation and cleanliness as community areas; as a result, more refuse would accumulate and more things would likely be left behind when the camp was abandoned. Archival records also indicate that camps were periodically "cleaned up" and might have also been picked up prior to abandonment. A 1913 report from the medical department states, "The sanitary conditions are satisfactory for this time of year, but some of the old camps are getting pretty badly run down and if they are continued on into the summer it will be necessary to thoroughly clean them up" (LADWPRC WP19-3). Still, it appears another kind of human activity has heavily contributed to this pattern of distribution—looting. The terraces just above and below the road (Terrace 0 and Terrace 1) can be easily accessed by anyone traveling along the U.S. Forest Service road, while it would take more time, effort, and bushwhacking to access and peruse the lower terraces. Hence, the upper terraces have been more heavily impacted by looting than the lower terraces, although the entire site has probably been subjected to looting.

Since privy excavation is often touted as contributing some of the most valuable information on the lifeways of nineteenth and twentieth century people, it was expected that the privy at Hogback Camp would reveal the most significant data related to diet, health, economic status, consumer access and behavior (Genheimer 2003). This expectation proved false. There are at least a couple plausible explanations as to why the privy was so "clean", so to speak. One explanation is that the residents of Hogback Camp had another area designated for trash disposal, and regularly removed garbage to an area outside of camp. However, one would still expect to find some evidence of disposed

items because of the private and secretive nature of this method of disposal. As noted by Genheimer (2003:145), “Privies are different from trash pits and other analogous disposal features in that the user could be assured that no one was going to examine the contents”. Why then, would this privy be so lacking in its contents? Although I am not entirely convinced, based on the lack of cultural material and information disclosed by a former LADWP employee, I believe that the privy (like the upper terraces) could have been looted. This explanation was corroborated by the former employee of the LADWP, who informed me that the site had been picked over and that the bottles taken from the privy are now incorporated in a fence belonging to another former LADWP employee.

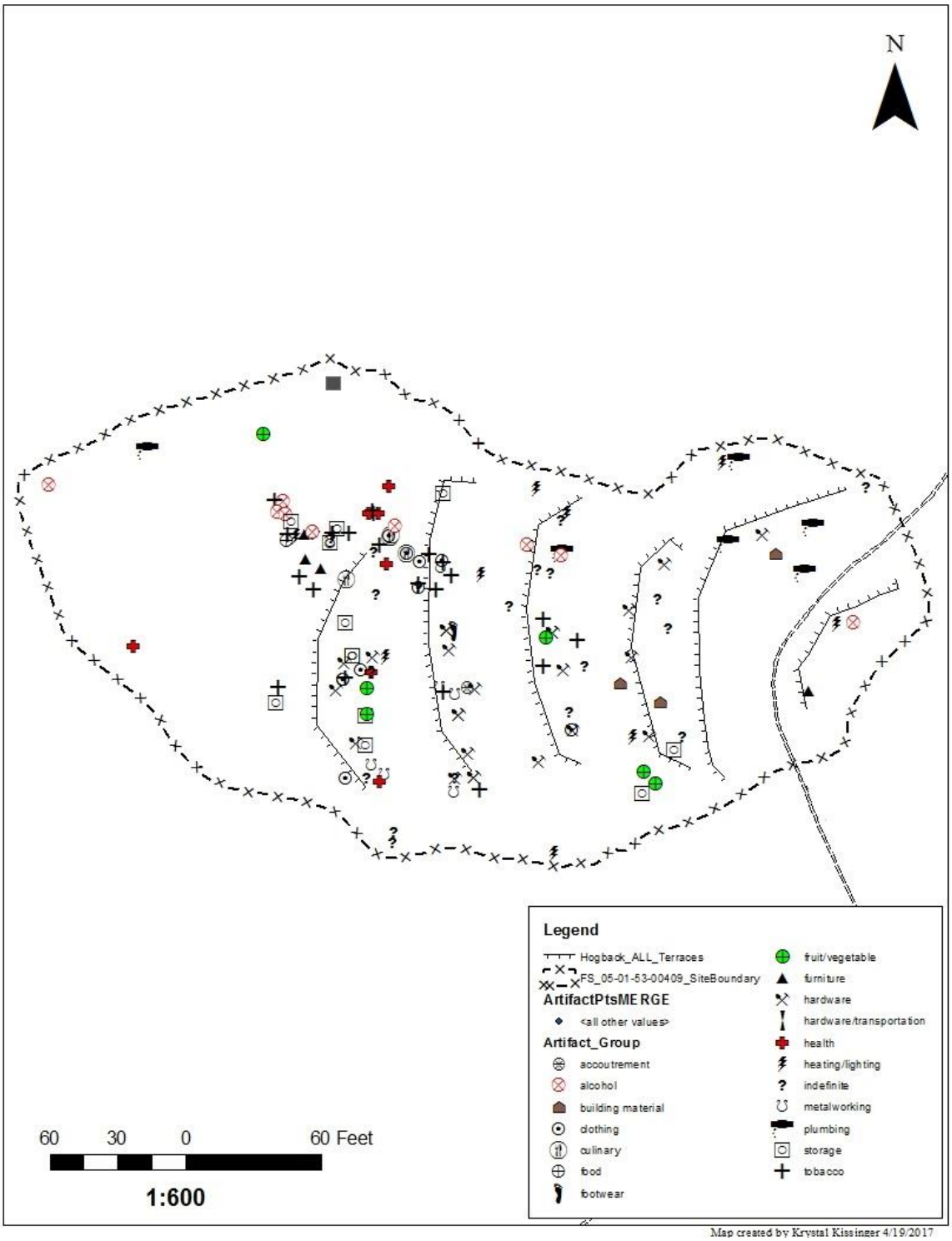


FIGURE 7.31 Spatial distribution of all artifacts (collected and non-collected)

Archival Documents

The archival documents examined in this investigation offer valuable insights on the experiences, living and working conditions of aqueduct workers. Numerous files from the LADWP Records Center (LADWPRC) were reviewed for this research, including medical reports, legal documents, and commissary purchasing supply lists (Table 7.8). The "Reports to the Board of Public Works from Dr. Raymond Taylor, Chief of the Medical Department" give unique insights on the health care of the aqueduct workers. In addition, these records contain valuable notes on the sanitary conditions of the camps throughout the period of construction. These official medical reports include information such as the number of patients treated each month (and listed by camp), the number of surgeries conducted and medical cases treated each month (and listed by camp), and narrative reports that detail the illnesses, injuries, and deaths suffered by workers each month, as well as the sanitary conditions at several camps (Figures 7.38 and 7.39).

The "Reports to the Board of Public Works from Chief Counsel, W.B. Mathews" contain information on worker injury claims and payouts, worker deaths, and various other lawsuits that the Water Department was entangled in. Many of the worker injury claims include details such as where and how workers were injured or killed while on the job. Some of the claims describe requests for compensation by family members of workers killed or requests to pay for funeral expenses. Other legal matters such as claims for damaged property, including mules, are also included in Mathews' files. Additional correspondence discusses more mundane legal matters, such as property leases by the City.

The “Ten Day Progress Reports on Progress and Men Employed”, included vital information such as the population aqueduct camps This information was compiled by Stansell (2016) into an excel spreadsheet that could be sorted by dates of occupation, camp supervisor names, camp names and alternative camp names, camp divisions, and camp population. This spreadsheet greatly facilitated analysis of camp data.

Newspapers researched on the University of California, Riverside, California Digital Newspaper Collection, The Los Angeles Aqueduct Digital Platform Archives, and the Eastern California Museum include: The *Los Angeles Herald* (LAH), The *Los Angeles Times* (LAT), The *Los Angeles Express* (LAE), *Hollywood Citizen* (HC), and the *Inyo Independent*. These records revealed unique information that could not be found in official records. These articles discussed a variety of issues related to aqueduct labor, including hiring of workers, ethnicities of workers, instances of labor strike and discontent, deaths of workers, regulation of alcohol in or near aqueduct camps, and world records achieved by aqueduct workers (e.g. Elizabeth Tunnel). This nuanced information was vital in gaining a more complete picture of aqueduct labor issues and struggles.

Together these documents fill in several of the gaps existing in the archaeological record. While specific information about the workers at Hogback Camp is somewhat sparse, the remaining documents help in providing an overall view of life along the aqueduct line. In addition, numerous photographs taken throughout the period of construction offer a visual record of the workers’ experiences on the job and in camp.

Table 7.8 Files reviewed at LADWP Records Center (LADWPRC)

LADWP File No.	Document
WP19-3:2	Los Angeles Aqueduct Construction Records, Reports to the Board of Public Works, Dr. Raymond Taylor, Medical Department, May 1907-November 1913
WP19-2:1 through WP19-2:13	Los Angeles Aqueduct Construction Records, Reports to the Board of Public Works, Chief Counsel W.B. Mathews, November 1907-September 1913
WP19-5	Los Angeles Aqueduct Construction Records, Progress Reports, Ten-Day Reports on Progress and New Employed, February 1, 1909-July 1, 1910 and September 21, 1910-September 1912
WP19-3:3 through WP19-3:7	Los Angeles Aqueduct Construction Records, Reports to the Board of Public Works, Purchasing and Stores, September 1907 -January 1913
WP34-43	Old Los Angeles Aqueduct Photos, 1909-1914
WP05-72:10	Ephemera Collection-Series II, Power System Records, Aqueduct Power Plants-Correspondence, July 1909-March 1917
WP05-85:2	Historical Items-Series I, Los Angeles Aqueduct Records, Manual of Instructions-Accounting Department Book, undated

Results: Synthesis of Archaeological and Historical Data

Camp Planning

Much like other early twentieth century work camps of the American West, it appears that careful planning and consideration went into the organization and layout of Hogback Camp. The historic photograph of Hogback Camp gives a very clear view of the layout of the camp, although unfortunately it does not depict the uppermost terrace (Terrace 0) that was discovered during archaeological survey of the site. In any case, the photograph shows the camp is organized in a similar fashion to many of the other aqueduct camps along the line with neat, even rows of tent houses situated atop terraces cut into a steep hillside.

The historic photograph (Figure 5.4) shows a privy, mess hall, and cookhouse on the top terrace (Terrace 1), four to five large tent frame houses (with door frames) on Terrace 2, seven tent frame houses (without door frames) on Terrace 3, six to seven tent frame houses (without door frames) on Terrace 4, four tent frame houses on Terrace 5, and a privy just below and to the north of Terrace 5. Presumably, the larger housing structures with door frames belonged to employees with higher paid or supervisory positions, while the smaller tent houses belonged to "common" laborers. This arrangement of structures appears to reflect the hierarchical structure of the work force, with the supervisors being purposely situated on the uppermost terrace of the worker's residential area (literally and figuratively "above" the common laborers), as well as conveniently located nearest the mess hall and kitchen facilities.

Interestingly, the distribution of archaeological evidence did not provide support for this interpretation. Differences between residents of the different terraces were not evident in associated artifacts. Whether this is a result of formation processes or a misinterpretation of the photographic evidence is not clear.

The presence and spatial distribution of certain structural materials at Hogback Camp provided archaeological evidence that the camp had plumbing, electrical lighting, and a telephone system. Evidence of electrical lighting is corroborated by the historical record, which in the Los Angeles Aqueduct Bureau "Manual of the Accounting Department" stated that houses and framed tents could be electrically lighted with two lights for $1.00 per month or four to six lights for $2.00 per month, while no unfloored or unframed tents would be electrically lighted (LADWPRC WP05-85:2). All of the tent houses at Hogback Camp appear to have wood floor platforms, and thus, would have

been electrically lighted. There is no archaeological or historical evidence that tent houses like those at Hogback Camp would have had heating.

Archaeological evidence from Hogback Camp indicated that water was piped along the northern boundary of the camp. While the archaeological data did not reveal where the source of the water was or how it was stored, a historic photo of Los Angeles Aqueduct Power Camp No. 5 located along the same U.S. Forest Service road as Hogback Camp reveals that water was probably stored in a large water tank and then distributed through pipes. The photo shows a large water storage tank placed next

FIGURE 7.32 Photograph of L.A.A. Power Camp No. 5 with large water storage tank

to the mess hall, which is located on the uppermost terrace of the site (Figure 7.32). This placement of the water tank would have allowed water to flow by gravity through the pipes that distributed water to the residential area of the camp. Furthermore, placement of

the water tank near the road would have made it more accessible to fill if water was delivered to the camp by truck. It is likely that Hogback Camp had a similar set up, although unfortunately the uppermost terrace of Hogback Camp (where the tank was probably located) is not visible in the historic photograph.

According to the Third Annual Report of the Los Angeles Aqueduct Bureau (City of Los Angeles, BLAA 1908:43), tent houses for the workers had two men to each room, each of which had an outside window. However, this does not appear to be the case at Hogback Camp. The historic photograph shows that the camp had a maximum of 23 housing structures and supposing that the terrace above the road (not visible in the photo) had a maximum of seven tent houses, brings the total number of housing structures to 30. Assuming there were two rooms to each tent house (making 60 rooms total), it would not be possible to house more than 120 men at the camp with only two men to each room. Given this information, we can infer that during times when the camp's population exceeded 120 men, which was the case from February 1912 to August 1912, there would have been more than two men to each room. This would have resulted in very cramped (and likely less pleasant) living quarters for the workers at Hogback Camp.

The layout of Hogback Camp is one of the strongest forms of evidence that scientific management strategies were employed as a means of maximizing the efficiency of the work force. The way in which the tent houses were laid out into uniform, evenly spaced rows—despite the extremely steep, rough terrain—would have taken a lot of effort, which says something about the importance of this precise arrangement to camp management. By laying out the camp in such a systematic, almost militaristic arrangement, the management was likely making an effort to promote an ideology of

discipline and orderliness among the workers. To a certain extent, this layout also communicated to the workers that they were essentially replaceable (Nilsson et al. 2006:93; Van Bueren et al. 1999:174).

Demography

The archaeological data gathered from Hogback Camp was not able to provide much insight on the demographic composition of the camp. However, archival data contained in the "Ten Day Reports on Progress and Men" provided the population of Hogback Camp for October 1911 to August 1912 (Figure 7.33). By looking at changes in the trend of population from month to month, it is possible to correlate how certain events (such as instances of labor shortage or discontent) could have had an impact on the camp's population.

The most notable shift in Hogback's population occurred from the period of October 1st-10th, 1911 to October 11th-20th, 1911 when the population plummeted from 76 men to 15 men, then sharply increased to 109 men in the next period of October 21st-31st. Since this drastic change is anomalous in the recorded history of the camp, attributing it to labor shortage or strike is an interesting possibility. Regardless, it appears that increases in the population of Hogback Camp correlated with the final push to finish the power tunnels by the end of 1912, so as not to delay the opening of the aqueduct.

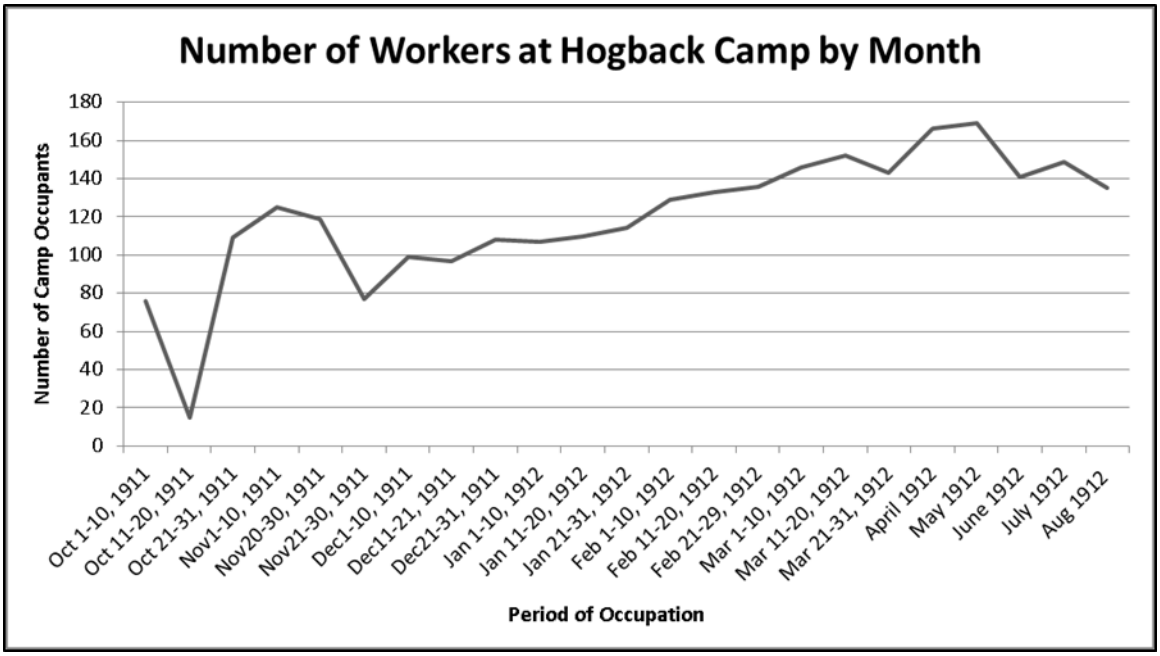


FIGURE 7.33 Population of Hogback Camp from October 1911 to August 1912

Ethnicity and Gender

The archaeological data from Hogback Camp did not provide any clear evidence regarding the ethnicities or genders of its residents. No cultural material recovered from the camp gave any clue of workers' ethnicities, nor could any artifacts be positively associated with women or children living at the camp. The archival record is also mute on the ethnicities and genders of Hogback Camp's occupants. However, the historical record does reveal some general information regarding the ethnic make-up of the work force and the presence of women and children in aqueduct camps.

It is well-documented that the aqueduct work force was diverse with workers from all over the United States, and countries such as Canada, Mexico, Ireland, England, Scotland, Germany, Austria, Hungary, Italy, Slavonia, Serbia, Bulgaria, Greece, and Spain (Cross 1968; Nelson 1971; Taylor 1982). Despite this diversity, certain ethnic groups were prohibited from being hired. According to one *Los Angeles Times* article, the

hiring of Chinese and Japanese workers by the Board of Public Works was strictly prohibited, although oddly enough, the 1910 United States manuscript population census enumerates dozens of single Chinese men in the aqueduct camps of Inyo County (LAT, 1907 May 28; Van Bueren 1999:180). Another article in the *Los Angeles Times* dated May 29th, 1907 states:

> The State law and the City Charter positively forbid the employment in public work of any persons except citizens of the United States. If any attempt should be made to employ Asiatics, imported European laborers or cholos from Mexico, the law could be invoked to frustrate it, and if any city official should violate the law, he could be removed from office. Besides the guarantee afforded by the law, there is the record of the water department, which shows that no Asiatic ever has been employed, and that preference always has been given to citizens of Los Angeles.

Other newspaper articles reviewed were found to give occasional reference to the ethnicities of aqueduct workers. For instance, in 1912, newspapers reported a delay in the completion of aqueduct conduit to the Haiwee Reservoir caused by the desertion of numerous Serbian and Greek laborers who were at work on the concrete mixers, but had to return to their native countries to fight in the Balkan Wars (LAH, Issue 71, December 23, 1912).

Although there was no evidence of women or children at Hogback Camp, the historical record shows that families lived in many aqueduct camps. In his memoir, Dr. Raymond Taylor (1982:59) mentions a Mrs. Thornberry, the wife of a hospital steward at the Sand Canyon Camp, who worked alongside her husband as a practical nurse and cook at the camp. Mrs. Thornberry was paid a salary for her work as Dr. Taylor (1982:59) notes, "…of course I put her on the salary list". Thus, while historical information confirms that women were indeed present at several aqueduct construction camps, little is known about their day to day lives at the camps or the extent of their involvement in

aqueduct construction efforts. Despite the lack of evidence of children at Hogback, there is a photo that depicts children at one of the other aqueduct camps in San Francisquito Canyon (Figure 7.34).

FIGURE 7.34 Commissary workers and children in San Francsiquito Canyon (Kelly and Bledsoe 1913)

Subsistence

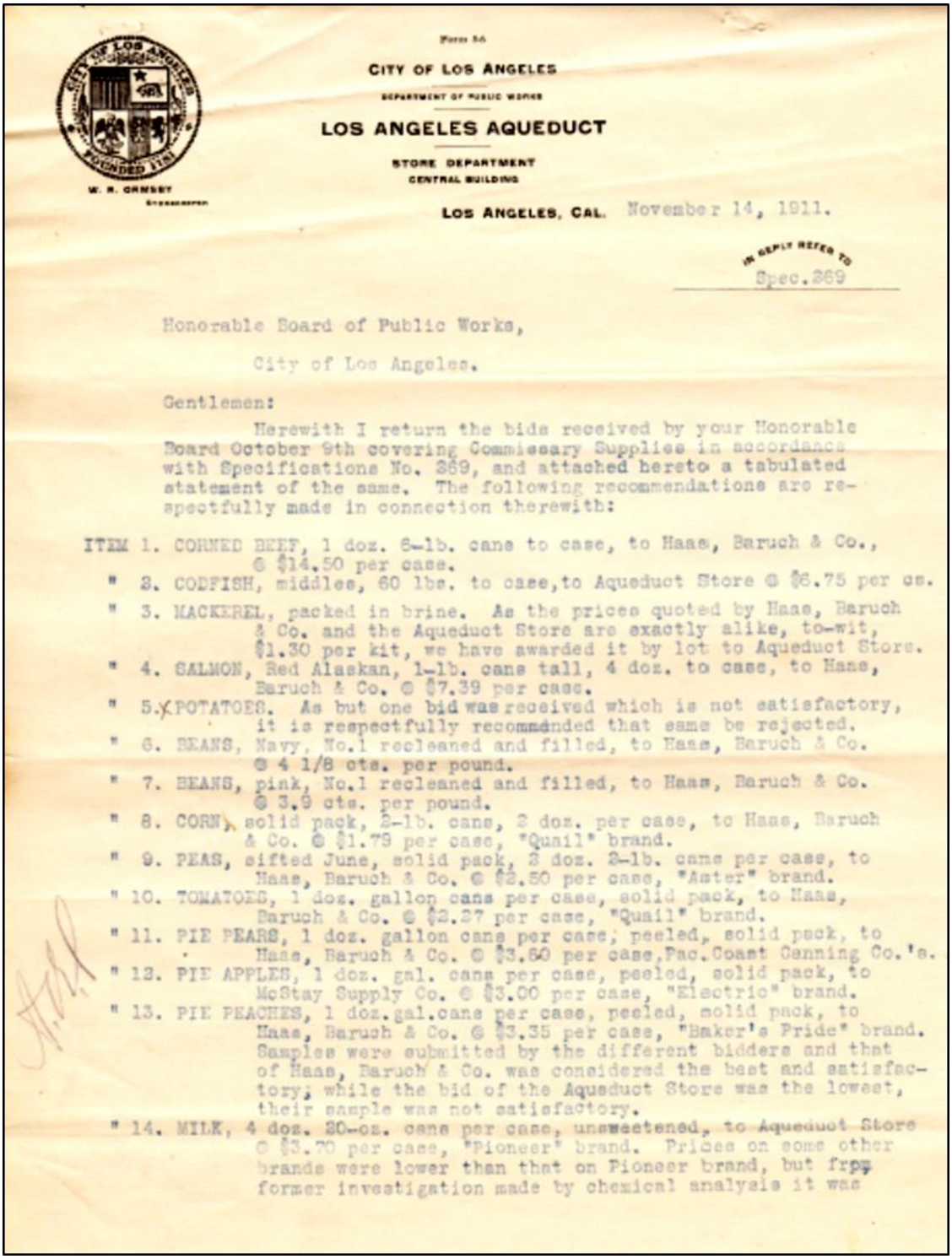
The cultural material related to subsistence at Hogback Camp was limited to a small number of food cans. For the most part, these cans would have had fruit or vegetable contents. None of these cans were actually found on the terrace where the mess hall and cookhouse were located, which suggests that these items were probably removed or taken from the camp commissary. Itemized lists of supplies purchased for the camp commissaries show canned fruits and vegetables were kept in large supply (Figure 7.35). Some of the canned fruits purchased by the camp commissary included pears, peaches,

apples, prunes, apricots, and blackberries, while canned vegetables included corn, peas, tomatoes, and potatoes. Other food items included in these supply lists are corned beef, beans, raisins, tapioca, rice, barley, macaroni, rolled oats, cream of wheat, mustard, catsup, chocolate, molasses, syrup, apple butter, pickles, sauerkraut, cheese, milk, tea, and coffee.

Numerous historical records make reference to the poor quality of food provided to aqueduct workers. Food served at all aqueduct camps was supplied by a private contractor, Daniel Joseph "D.J." Desmond, at the initial cost of 25 cents per meal, but was raised to 30 cents per meal in 1910 (Van Bueren et al. 1999:40). Although there had already been voiced discontent by workers over the dreadful food they were forced to purchase, tensions reached a boiling point when the cost of food was raised to 30 cents per meal without a concurrent increase in wages (C. Mulholland 2000:189; Nilsson et al. 2006:95-96; Van Bueren et al. 1999:40,183). This eventually led the workers to strike, which is further detailed below.

A newspaper article in the Hollywood Citizen (n.d.) titled, "Aqueduct Grub" detailed another instance of dissatisfaction with the camp food when a group of aqueduct workers actually hired an attorney to investigate the unacceptable quality of the food after they were prohibited from eating anywhere else than the camp mess hall (John Randolph Haynes Papers, UCLA Library Special Collections). If workers really were prohibited from eating anywhere other than the camp's mess hall, then it is curious the only cans and eating utensils found at Hogback Camp were located in residential areas. Conceivably, this could be interpreted as an act of defiance or resistance, although it

cannot be confirmed without knowing in fact whether workers at Hogback Camp were prohibited from eating outside of the mess hall.



Form 5A

CITY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

LOS ANGELES AQUEDUCT

STORE DEPARTMENT
CENTRAL BUILDING

W. R. ORNSBY
Superintendent

LOS ANGELES, CAL. November 14, 1911.

IN REPLY REFER TO
Spec. 369

Honorable Board of Public Works,

City of Los Angeles.

Gentlemen:

Herewith I return the bids received by your Honorable Board October 9th covering Commissary Supplies in accordance with Specifications No. 369, and attached hereto a tabulated statement of the same. The following recommendations are respectfully made in connection therewith:

ITEM 1. CORNED BEEF, 1 doz. 6-lb. cans to case, to Haas, Baruch & Co., @ $14.50 per case.

" 2. CODFISH, middles, 60 lbs. to case, to Aqueduct Store @ $6.75 per cs.

" 3. MACKEREL, packed in brine. As the prices quoted by Haas, Baruch & Co. and the Aqueduct Store are exactly alike, to-wit, $1.30 per kit, we have awarded it by lot to Aqueduct Store.

" 4. SALMON, Red Alaskan, 1-lb. cans tall, 4 doz. to case, to Haas, Baruch & Co. @ $7.39 per case.

" 5. POTATOES. As but one bid was received which is not satisfactory, it is respectfully recommended that same be rejected.

" 6. BEANS, Navy, No.1 recleaned and filled, to Haas, Baruch & Co. @ 4 1/8 cts. per pound.

" 7. BEANS, pink, No.1 recleaned and filled, to Haas, Baruch & Co. @ 3.9 cts. per pound.

" 8. CORN, solid pack, 2-lb. cans, 2 doz. per case, to Haas, Baruch & Co. @ $1.79 per case, "Quail" brand.

" 9. PEAS, sifted June, solid pack, 2 doz. 2-lb. cans per case, to Haas, Baruch & Co. @ $2.50 per case, "Aster" brand.

" 10. TOMATOES, 1 doz. gallon cans per case, solid pack, to Haas, Baruch & Co. @ $2.27 per case, "Quail" brand.

" 11. PIE PEARS, 1 doz. gallon cans per case, peeled, solid pack, to Haas, Baruch & Co. @ $3.60 per case, Pac. Coast Canning Co.'s.

" 12. PIE APPLES, 1 doz. gal. cans per case, peeled, solid pack, to McStay Supply Co. @ $3.00 per case, "Electric" brand.

" 13. PIE PEACHES, 1 doz. gal. cans per case, peeled, solid pack, to Haas, Baruch & Co. @ $3.35 per case, "Baker's Pride" brand. Samples were submitted by the different bidders and that of Haas, Baruch & Co. was considered the best and satisfactory, while the bid of the Aqueduct Store was the lowest, their sample was not satisfactory.

" 14. MILK, 4 doz. 20-oz. cans per case, unsweetened, to Aqueduct Store @ $3.70 per case, "Pioneer" brand. Prices on some other brands were lower than that on Pioneer brand, but from former investigation made by chemical analysis it was

FIGURE 7.35 Purchase list of supplies for camp commissaries (LADWPRC WP19-3)

Alcohol and Tobacco Use

Alcohol consumption by aqueduct workers was a major concern to management of the City of Los Angeles, as evidenced by the proposal to ban the granting of licenses to saloons located within four miles of any aqueduct camp. Nevertheless, excessive drinking was common amongst aqueduct workers and due to a shortage in labor during certain times, aqueduct project managers did not have much choice other than to turn a blind eye to behaviors they did not necessarily approve of. As Dr. Taylor (1982) mentions in his account, hiring managers were even known to rehire workers who had deserted their job to go out on a drinking binge. Furthermore, in the archaeological investigation of the Alabama Gates Camp, Van Bueren et al. (1999:188) found alcohol bottles and containers in both residential and work areas, suggesting that supervisors either could not or did not attempt to enforce company policy, which specifically prohibited drinking on the job. Ultimately, Van Bueren et al. (1999:46,188-189) suggest this behavior by aqueduct workers can be construed as an act of resistance against the dominant ideology and values of the time.

Even before construction on the aqueduct commenced, aqueduct management anticipated that the drinking habits of workers would be an issue and looked for ways to deal with the "alcohol problem". On August 12th, 1907, the *Los Angeles Express* reported that William Mulholland and W.B. Mathews appeared before the Los Angeles Board of Supervisors to "protest against the granting of license for saloons outside incorporated cities or any point within four miles of any camp containing more than fifty of those employed." Although the Los Angeles Board of Supervisors initially denied the request of Mulholland and the Aqueduct Bureau on the grounds that denying liquor licenses

would be considered special or class legislation and would be unconstitutional, they continued to debate the issue. Meanwhile, the citizens of Los Angeles and Inyo counties made their opposing views on the ban known by publishing opinion pieces in their local papers. A letter published in the *Inyo Independent* proclaimed:

> The idea of a great and flourishing city, after taking the water away from a hardworking and law-abiding community, having already commenced resoluting the saloons of our fair valley into oblivion. When the Federal Government took a hand in delivering the waters of Owens Valley into the hands of the Philistines—and has now promised to deliver the goods—we felt as though the avaricious Los Angeleno would have been satisfied. But, no, now they want to add insult to injury by depriving us of the privilege of getting our morning's morning, just because we happen to be living within four miles of the ditch [Inyo Independent, 16 August 1907].

Conversely, the vast majority of Los Angeles residents opposed saloons and the sale of liquor near aqueduct camps for both financial and moral reasons, which they cited in several newspaper articles:

> The request which the aqueduct bureau has made is a very simple one. That a majority of the board of supervisors has refused to grant the request is to their eternal and everlasting disgrace…While there is a moral issue involved, there also is a financial or business one. If saloons are located along the line of the aqueduct, the inevitable result will be a diminution of the efficiency of the workers employed by the city….The duty of the board of supervisors is to help, not hinder, this work. In no way can it strike a more severe blow at the people's interest, do more to hamper and retard the work and add to the cost and annoyance than by licensing saloons near camps where large bodies of men are employed…Back of this request is the united sentiment of every man who cast his vote in favor of the Owens river bonds, or whose property is being taxed in payment for the construction of the aqueduct. The people do not desire that additional burdens be thrust upon them merely in order that a few saloonkeepers may profit by preying upon the weaknesses of the men employed in the construction of the aqueduct [Los Angeles Express, 19 August 1907].

> The results to be expected should saloons have been provided as an auxiliary department in the construction of the Owens river aqueduct were graphically presented in a cartoon published on this page last Friday. Murder, robbery, idleness and delays were some of the pictured consequences. That such crimes and evil disorders, pregnant with loss, would be the inevitable attendants upon the

> saloon feature of the great work needs no testimony other than that offered by common observation of all within the city itself…War, famine and pestilence have not cost the human race so much in human life and gathered treasure and sore heartache as liquor's constant curse [Los Angeles Express, 5 September 1907].

> …the situation has become desperate. Statistics gathered from various sources, mainly large contracting companies, show that the efficiency of men is impaired 20 per cent when working in sections lined by saloons or other liquor places. This data coincides with the estimate made by Superintendent William Mulholland of the water department who figures that "booze" will cost the city $1,500,000 in impairment of crews during the construction of the great aqueduct [Los Angeles Express, 28 August 1907].

The controversial ban on saloons within four miles of any aqueduct camp was the subject of heated discussion in at least seventeen newspaper articles published in Inyo and Los Angeles counties between August and October 1907—clearly, the alcohol problem was an important and contentious issue. The Aqueduct Bureau, including William Mulholland, W.B. Mathews, and engineer, J.B. Lippincott continued to fight for a ban of liquor sales within four miles of any aqueduct camp (regardless of how many men were in camp), arguing that it would greatly reduce efficiency of the work force, in addition to being a danger to the men working in the hot desert climate. To no avail, they also requested a revocation of two liquor licenses already granted at Elizabeth Lake and Neenach; nevertheless, a saloon ended up being built practically right in camp at Elizabeth Lake (Figure 7.36). Ultimately, it was decided that saloons in those districts where residents voted "wet" would be permitted operating licenses—regardless of their proximity to the aqueduct. In districts where residents voted "dry", no saloons would be granted licenses. However, the fact that the citizenry of Los Angeles and Inyo counties had such conflicting opinions on permitting saloons near aqueduct work camps raises

questions about how these opposing views on alcohol use might manifest in the archaeological remains of camps located in Los Angeles versus Inyo County.

CANTEEN TALK IS UNPOPULAR

Doubt Whether Such a Proposition Would Even Be Considered for Los Angeles Aqueduct Construction Camps

There is considerable doubt as to whether a proposition to establish canteens in the construction camps of the Los Angeles aqueduct would be considered by the members of the board of public works and the aqueduct officials.

Chairman Anderson of the board of public works said this morning that the report that such a movement had been started came as a surprise to him, and he expressed the opinion that no serious effort along that line was likely to be made.

He said he was opposed to the sale of liquor in the construction camps, either through a canteen organization or by an open saloon, and he believed the other members of the board took the same view of the case.

As is wellknown, the board of public works and the aqueduct commission has been making a hard fight against the establishment of saloons within four miles of any construction camp. The aim is to prohibit the sale of liquor, not to control the traffic.

Experience has shown that liquor destroys the efficiency of the men, and for that reason it is desired to keep the camps as free from it as possible.

OCT 18 1907

CITY URGES FORWARD ITS CEMENT MACHINERY

TUESDAY, OCTOBER 8, 1907.

SALOON ADJOINING ELIZABETH LAKE CAMP

OCT 8 1907

AQUEDUCT CAMP AND SALOON BUILDING AT ELIZABETH LAKE
1. Aqueduct Camp. 2. Saloon Building Under Construction. 3. Elizabeth Lake.

All doubts as to the source from which the holder of the saloon license at Elizabeth Lake expects to derive his principal revenue are entirely removed by a glance at the accompanying picture. The building, which now is in course of construction, will be seen to have been located immediately adjoining the Los Angeles aqueduct camp, and almost within its limits.

For the next four or five years several hundred men will be employed at this camp, driving the big tunnel, and the owner of the saloon license granted by the three "machine" members of the board of supervisors has placed his shack at a point which will enable him to take full advantage of the drinking propensities of many of these men.

Elizabeth Lake is a popular resort and no saloon man would think of depending upon its fixed population for his trade. With the location of a big aqueduct camp at that point, however, conditions in this respect have changed greatly.

A saloon license at that point at once assumed a new value, and Los Angeles brewing interests lost no time in taking advantage of their opportunity. With the help of Supervisors Patterson, Eldridge and Wilson they obtained a license in the face of a strong protest on the part of the aqueduct officials.

W. H. Mathews and others of the Los Angeles aqueduct have not given up the fight for the revocation of this license and the establishment of a dry zone along the line of the aqueduct. It is expected that the matter will come before the board of supervisors for final settlement next Monday.

FIGURE 7.36 Newspaper article with photograph of the saloon at Elizabeth Lake camp (LAT 1907 October 8)

Despite the best efforts of the Aqueduct Bureau to reduce worker access to alcohol through the ban on saloons, the strategy did little to quell the consumption of alcohol by aqueduct workers as evidenced by numerous accounts that describe excessive drinking throughout the construction period.

Although alcohol containers were recorded at Hogback Camp, there was not as large a presence as one might have expected, especially when considered against the frequent historical references made to excessive alcohol consumption by the workers. One explanation for the lack of alcohol containers at Hogback Camp could be that workers did not consume as much alcohol at this particular camp because it was

prohibited or frowned upon by camp management. In this case “absence” reflects the degree of scrutiny experienced by the camp residents. It may be relevant to note that the only places in camp where evidence for alcohol was completely absent was the residential terrace (Terrace 2) where it is presumed that supervisory or higher paid employees lived and the terrace where the mess hall and cookhouse were located (Terrace 1)(Figure 7.37).

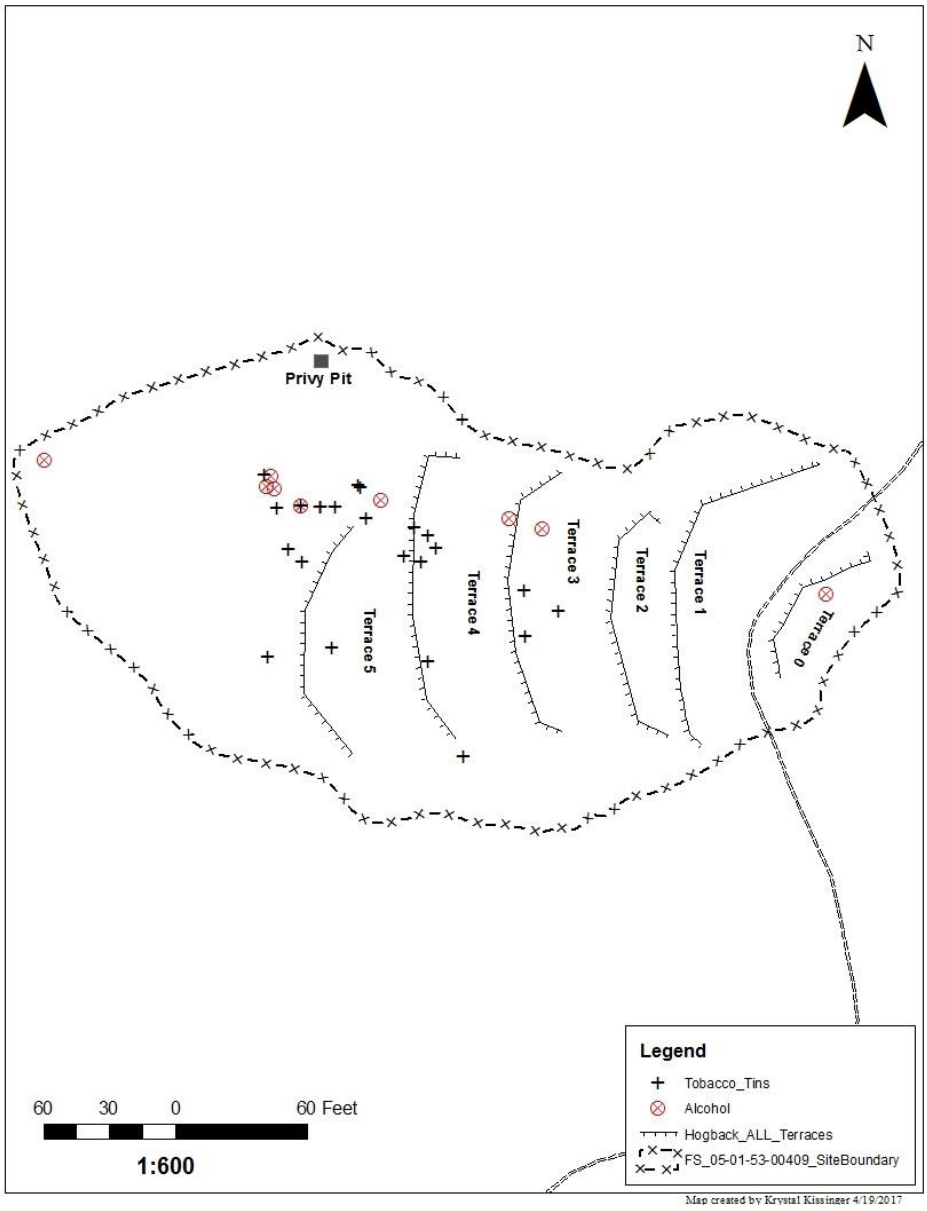


FIGURE 7.37 Spatial distribution of alcohol versus tobacco containers

Another possible reason for this discrepancy between the historical and archaeological data could be the result of looting of alcohol containers by bottle collectors, especially since Terraces 1 and 2 are more exposed than the other terraces. The spatial distribution of tobacco tins was similar to that of alcohol, although there were significantly more tobacco tins than alcohol containers (Figure 7.37). The higher number of tobacco tins versus alcohol bottles could also be because bottles are a more desirable item to collectors than old, rusted tobacco tins.

Health and Sanitation

Information on the health of workers and sanitary conditions of Hogback Camp are mainly derived from archival records, although some archaeological evidence regarding these issues was also discovered. Workers were required to pay a monthly deduction from their paycheck to cover the cost of medical services (City of Los Angeles 1916:255). Workers who made more than $40.00 per month had to pay a $1.00 deduction for medical services, while those that made less than $40.00 per month paid a $0.50 cent deduction (City of Los Angeles 1916:255). Monthly medical reports from the period of Hogback Camp's occupation provide specific information about the illnesses, injuries, and deaths suffered by the individuals who were at work on the power tunnels in San Francisquito Canyon, and while not every report specifies which camp the individuals were from, it is safe to assume several would have lived at Hogback Camp.

In the April 1912 medical report, Dr. Taylor noted, "the tunnel work at present furnishes most of the accidents…" referring to the tunneling work on the Power Division in San Francisquito Canyon and, judging by the reports, work on this particular division was extremely dangerous. Reports from January 1912 to August 1912 referring to work

on the power tunnels describe injuries including, compound fractures of the leg from a tunnel cave-in; a fractured pelvis sustained in a tunnel car accident; and a broken back from being hit with a pile of muck which resulted in the man's death 48 hours later. They also describe instances where workers were killed on the job, such as the instantaneous death of a man from the cave-in of a tunnel and the deaths of three men killed by a powder explosion in a tunnel. In the same month that the three men were killed in the powder explosion in San Francisquito Canyon, Dr. Taylor wrote that June of 1912 was "by far the largest number of fatalities had in any one month since the organization of this department over four years ago" (Figure 7.38). Again in August 1912, Dr. Taylor makes note of "several serious accidents on the power work, two of which resulted in death." In the two accidents resulting in death, one man contracted gangrene from a crushed leg and the other man broke his back and died within a few hours.

The illnesses described in the medical reports include pneumonia, typhoid fever, "para-typhoid fever", mumps, and tubercular peritonitis. It was noted that some of the men contracted these illnesses in the San Francisquito camps, while others contracted the illnesses before employment or from traveling. The sanitary conditions of the camps vary by month and are usually only described as generally "fair", "satisfactory" or "good". Although sometimes specific adjustments to improve sanitation are also described, such as in the report from March 1912, when Dr. Raymond Taylor states, "The sanitary conditions are good for this time of year and most of the camps have been cleaned up preparatory to the fly season and warm weather." Thus, it appears that the sanitary conditions of the camps were partially dependent on the weather, with warmer months making it harder to keep the sanitary conditions of the camps up to par.

It does not appear that there was a field hospital at Hogback camp, and the fact that all of the medicine bottles were concentrated in the residential area of the camp below Terrace 4 indicates that workers were treating their own illnesses and ailments with personally bought pharmaceuticals. The two recovered glass vials would have held homeopathic remedies believed to cure certain health conditions. Thus, the archaeological evidence demonstrates that Hogback's residents probably treated themselves for minor illnesses such as a colds, headaches, etcetera, but would have had access to professional medical services should they need them.

MEDICAL DEPARTMENT
LOS ANGELES AQUEDUCT
OFFICE, 234 BRADBURY BLDG.
LOS ANGELES, CAL.

July 9, 1912.

To the Honorable Board of Public Works,
City of Los Angeles, City.

Gentlemen:-

I have the honor to submit herewith a brief summary of the work done by the Medical Department of the Los Angeles, for the month of June , 1912.

During this month there has been practically no serious illness. There was, however, one death from disease, a Mexican at Steam Shovel No.2, being taken with acute obstruction of the bowels, and dying a few hours later.

There were the usual number of small accidents, and four accidents in which six men lost their lives. Two teamsters, one near Cinco and one near Brown were thrown under their wagons and run over, both dying almost instantly. One man on the Power work received a broken back by being hit by a pile of muck. He died about 48 hours later. Three men were instantly killed in a powder explosion on the Power Work.

This is by far the largest number of fatalities had in any one month since the organization of this department over four years ago.

The general health is very good, and sanitary conditions are, in the main, satisfactory.

Very truly yours,

MEDICAL DEPARTMENT OF THE
LOS ANGELES AQUEDUCT.

By Raymond G Taylor

FIGURE 7.38 Report of the Medical Department to the Board of Public Works, June 1912 (WP19-3:2)

MEDICAL DEPARTMENT
LOS ANGELES AQUEDUCT
OFFICE, 234 BRADBURY BLDG.
LOS ANGELES, CAL.

July 10, 1912.

Monthly Report of the Medical Department
of the Los Angeles Aqueduct.

Following is a condensed summary of the patients treated during the month of June, 1912.

Camps	Ambulatory Patients				Hospital Patients			
	Surg.	Med.	Total	No. Times Seen	Surg.	Med.	Total	Days in Hospital
Saugus	19	4	23	73	Sent to Los Angeles			
Le Brun	73	88	161	309	12	3	15	134
Lancaster	1		1	1				
Mojave	9	12	21	21	2	1	3	6
Monolith	12	27	39	39	4	1	5	42
Sand Canon	13	38	51	55	Sent to Haiwee Hospital			
Haiwee	8	51	59	63	5	12	17	86
Lone Pine	9	16	25	34	Sent to Haiwee Hospital			
Los Angeles	19	12	31	58	8	1	9	101
Totals	163	248	411	653	31	18	49	369

No. Ambulatory Cases 411
No. Hospital Cases 49
Total No. Cases 460
Total Times Treated 1022

Inspection Trips

June 16-17-18-19 Line of Aqueduct to Haiwee
June 22-23-24-25-26 " " " " Lone Pine

FIGURE 7.39 Report of the Medical Department to the Board of Public Works, June 1912 (Note the number of patients at Le Brun Camp as compared to the other camps)

Labor Relations and Resistance

While the archaeological record is virtually silent when it comes to examining labor relations and resistance at Hogback Camp, the archival record contains several references to these issues in other aqueduct camps.

It appears that interactions and relations between coworkers were largely dependent on job class. Chief Engineer William Mulholland alluded to relations between differing job classes of the aqueduct workforce stating, "In fact, it is to be regretted that those in the upper class of executive charge have had very little time for semi-social contact with their co-laborers in the lesser positions" (City of Los Angeles, BLAA 1908:8). Many additional references in the archival record point to the fact that workers were separated by job class, and probably kept to socializing with coworkers in their same class. Divisions between job classes were evidently derived from the hierarchical job classification structure of the Los Angeles Board of Public Works, which in 1911 had 93 job classifications with as many as 13 pay steps (Van Bueren 2002:29; Figure 7.40). In addition, certain classes of employees were required to take Civil Service Examinations while others such as laborers, rock drillers, and carpenters, were not. This also probably contributed to certain classes of workers being perceived as superior to others.

An examination of the "Ten Day Reports of Progress and Men Employed" for the aqueduct camps occupied from 1909 to 1912 revealed that camp supervisors were frequently replaced and moved from camp to camp. Additionally, supervisors were often assigned the responsibility of overseeing several camps at one time. For example, the supervisory personnel at Hogback Camp changed four times: from October 1911 to

November 1911, the Supervisor was Mr. Mason; from November 1911 to March 1912, the Supervisor was Mr. Blankenship; in April 1912, the Supervisor was Mr. Louis Gray; and lastly from May 1912 to August 1912, the supervisor was Mr. Elledge (LADWPRC WP19-5). One has to wonder what kind of impact these frequent changes in leadership would have had on the workforce—though with constantly shifting management styles, it might have made it more difficult for workers to build a rapport with supervisors.

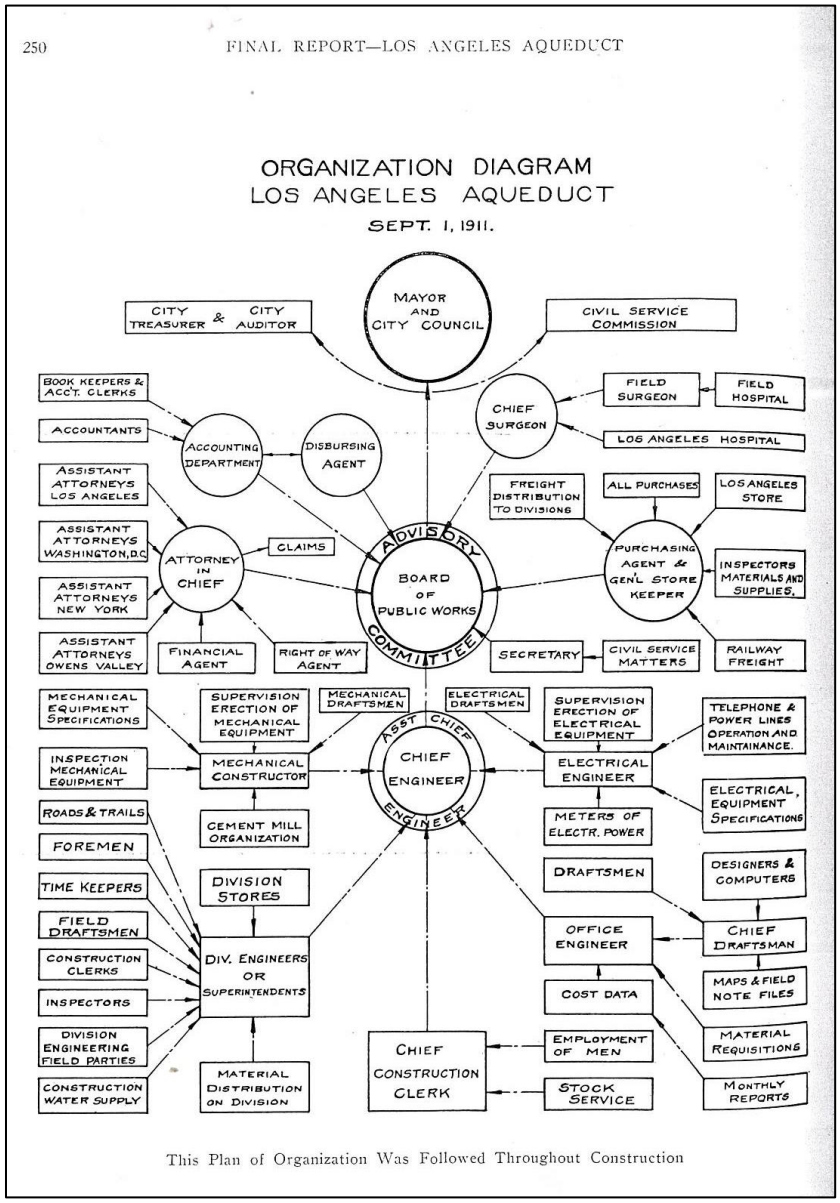


FIGURE 7.40 Diagram of the organization of aqueduct employees

The injury claims of workers are another interesting source of information on labor relations and the hardships faced by aqueduct workers. During the period of aqueduct construction, workers injured on the job could not receive compensation for their injuries unless they decided to pursue it via the legal process. However, in 1910 New York became the first state to approve legislation mandating workers' compensation laws, with 21 more states enacting similar laws between 1911 and 1913 (Wiebe 1967:205). When viewed in this larger historical context, the historic records of the Bureau of the Los Angeles Aqueduct legal department offer a fascinating look at how injury claims by aqueduct workers were handled during this transformative era of progressive labor reform. These records reveal the degree of fairness with which the workers were treated, as well as the monetary value that their employer assigned to them. One 1912 letter of correspondence from the aqueduct's Chief Counsel, W.B. Mathews, to Chief Electrical Engineer, E.F. Scattergood, describes the case of Abe Burman, a worker injured at Hogback Camp, who applied to receive half pay while he recovered from injuries:

> This is a case where the family is in destitute circumstances, and while awaiting the action of the Board of Public Works upon this half pay, the Associated Charities have come to his assistance twice. You will note that already five days have elapsed since this application was submitted to you, and as there are some five approvals necessary on said application, if the time already elapsed since the same has been submitted to you for your approval is necessary for the other approvals, it would take twenty-five days to get the same, and possibly ten days to get a voucher…In cases where parties are injured they are usually in urgent need of assistance, and I will thank you to give this your immediate attention, and in future to give all requests for your approval immediate action [LADWPRC, WP05-72:10].

This letter highlights the tedious legal process that workers and their families would have to go through in order to be compensated for work-sustained injuries. Furthermore, the way in which worker injury claims such as this were handled speaks volumes about the seemingly detached nature of the relationship between aqueduct workers and their employer, the City of Los Angeles.

In the Sixth (1911) and Seventh (1912) Annual Reports of the Bureau of the Los Angeles Aqueduct, William Mulholland discusses delays in construction caused by shortages of labor, as well as labor discontent. Newspaper accounts of labor discontent and strike corroborate this information. The denied increase in wages following the raise in cost of aqueduct meals, which led to strike, is detailed in the *Los Angeles Herald* (1911 Feb 10):

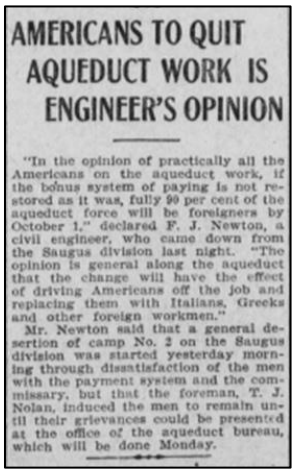
> The advisory committee of the aqueduct has again refused to increase the wages of the miners and machinists and other skilled laborers on the aqueduct…The reason given for the refusal is that the men employed on the aqueduct already receive more for their services than do those employed in private enterprises in the vicinity of aqueduct operations…The action of the advisory committee was in response to a communication sent by the mayor in which the complaints of the miners was treated.

Other instances of aqueduct worker's strike in 1911 discovered in *Los Angeles Herald* newspaper articles indicate that workers were quite displeased with working conditions that year. On February 16, 1911, fifty steam shovel men went on strike in support of an ongoing miners' strike, although it did not seem to have much of an impact on construction progress. Mulholland gave the following quote on the strike:

> We were prepared for it and had men all along the line ready to take the strikers' places. They did not want to go out, but they were affiliated with the striking miners and were called out by a delegate from Chicago. The miners' strike is not bothering us, either. We are getting along just as if there was no strike on the

> aqueduct at any point and in fact we do not know there is except by the fact that there are now men at work in the place of strikers [LAH, 16 February 1911].

One 1909 article even discusses a desertion of workers at San Francisquito Canyon Camp No. 2 triggered by "dissatisfaction of the men with the payment system and commissary" (Figure 7.41). Apparently, the foreman was able to convince the men to stay on the job until they could confront the Aqueduct Bureau with their complaints.



AMERICANS TO QUIT AQUEDUCT WORK IS ENGINEER'S OPINION

"In the opinion of practically all the Americans on the aqueduct work, if the bonus system of paying is not restored as it was, fully 99 per cent of the aqueduct force will be foreigners by October 1," declared F. J. Newton, a civil engineer, who came down from the Saugus division last night. "The opinion is general along the aqueduct that the change will have the effect of driving Americans off the job and replacing them with Italians, Greeks and other foreign workmen."

Mr. Newton said that a general desertion of camp No. 2 on the Saugus division was started yesterday morning through dissatisfaction of the men with the payment system and the commissary, but that the foreman, T. J. Nolan, induced the men to remain until their grievances could be presented at the office of the aqueduct bureau, which will be done Monday.

FIGURE 7.41 *Los Angeles Herald* article discussing desertion of workers at San Francisquito Canyon Camp No. 2 (1909 June 6)

In conclusion, while archaeological data from Hogback Camp was more forthright on topics such as the workers' clothing, food, alcohol and tobacco use, and utilities available at the camp, more abstract and complex social issues were not able to be addressed. Disparities in the archaeology of Hogback Camp were addressed by historical and archival data, which were able to speak to more complex issues of worker identity, health and sanitation, labor relations and resistance. This demonstrates the advantages of utilizing both archaeological and historical data versus either one alone.

CHAPTER VIII

DISCUSSION

Overview of Results

This thesis was aimed at exploring the experiences and working and living conditions of aqueduct laborers through the historical archaeological investigation of Hogback Camp (FS Site No. 05-01-53-409). Archaeological data recovered through survey, documentation, and excavation of the site was used to address research themes including camp planning, demography, ethnicity and gender, subsistence, alcohol and tobacco use, health and sanitation, as well as labor relations and resistance. The addition of historical data to discuss these research themes gave a more complete picture and fuller understanding of worker experiences in Hogback Camp and other Los Angeles Aqueduct camps.

Comparison to other Los Angeles Aqueduct Camp Studies

This thesis proposed that the archaeological signature of Hogback Camp might differ from other previously studied Los Angeles Aqueduct camps on the basis of its location, size, period of occupation, and function, and thus might reflect different worker experiences as well. The synthesis of archaeological and historical data proved some differences existed, but overall the material culture of the camp was quite similar to the camps studied by Van Bueren et al. 199, Faull (1995) and Hangan (2003), and Nilsson et al. 2006. The data on Hogback Camp demonstrated differences such as the number and type of worker injuries sustained, subsistence, levels of alcohol consumption, and the gender of the camp's occupants.

It appears workers at Hogback sustained significantly higher and more serious injuries than most of the other camps engaged in less hazardous work. The Alabama

Gates Camp study found clear evidence that aqueduct workers supplemented their meals by hunting and fishing (Van Bueren et al. 1999:140, 161-164). No such evidence was discovered at Hogback Camp. Furthermore, no faunal remains were found at Hogback, which could indicate a heavier reliance on canned goods than fresh meat. Compared to the Alabama Gates, Hogback Camp had a much lower presence of alcohol, which might suggest greater scrutiny of workers by camp management. Archaeological evidence at the Dove Springs Camp revealed that women and children were among the camp's occupants, while recovery of archaeological material at the Alabama Gates Camp uncovered evidence that at least two women likely lived at the camp—though others probably visited (Hangan 2003; Nilsson et al. 2006:95; Van Bueren et al. 1999:181). No evidence of women or children was discovered in the archaeological or historical data at Hogback Camp.

Implications for the Historical Archaeology of Capitalism and Resistance

This research attempted to examine the relationship between labor (i.e. aqueduct workers) and capital (i.e. the City of Los Angeles) by synthesizing archaeological data recovered from Hogback Camp and historical data on Los Angeles Aqueduct construction camps. When I first set out to do this research, I expected to find archaeological evidence that would demonstrate in what ways aqueduct laborers resisted against the hegemony of their employer. The historical documents, which reflected unfair treatment of aqueduct workers by their employer, as well as described the various ways in which workers resisted against those practices which they found unjust, led me to believe that I would be able to find evidence of resistance in the archaeological remains of Hogback Camp. As it turns out, although resistance is readily identified in the

historical record, it is not so easily discovered when it comes to the archaeological record. What would clues would this kind of event leave in the archaeological signature of a site? Since instances of resistance such as strike are usually a short-lived event, and unless they are on the scale of an incident like that which occurred at the Ludlow Massacre, they do not manifest well in the archaeological record. Although there is no doubt that resistance acts were carried out by aqueduct workers, the archaeological evidence does not readily demonstrate this.

The archaeological data from Hogback Camp provided only weak evidence to support the possibility of resistance by workers. As previously mentioned, the only eating utensils discovered at the site were found in the residential area located the furthest distance from the mess hall and kitchen area. These utilitarian style utensils might have been taken from the camp's mess hall. To interpret this as an act of resistance would be a stretch; however, it may indicate a disregard or a lack of loyalty to the employer. This interpretation could also be, as one colleague likes to say, "Making much ado' about one artifact". Nevertheless, the historical and archival research carried out for this project provided clear evidence that the capital-labor relationship between the City of Los Angeles and the aqueduct workers was often contentious. Newspaper articles describe several instances in which laborers were upset with working conditions and went on strike.

The Impacts of Looting at Hogback Camp

One of the issues highlighted by this archaeological investigation of Hogback Camp is the damage to archaeological sites resulting from the illicit practice of looting. If this site had been left in its original state, it might have been able to address some of the

more significant research questions posed by this investigation. By comparing this looted aqueduct camp with other aqueduct camps that have remained intact, we can learn and draw attention to the kind of information that is forever lost when people feel the need to take ownership of a part of history that does not belong to them. I believe many people that take up collecting as a hobby are unaware of the laws that protect historic properties on federal lands and the irreparable damage they cause by the seemingly harmless act of picking up an old bottle. Thus, an unanticipated consequence of this archaeological investigation is that it derives some of its value from its ability to demonstrate the diminished data potential caused by looting.

One comparative case that can be used to demonstrate the kind of higher order questions that might have been answered from the archaeological evidence at Hogback Camp if it were left completely intact is that of another aqueduct camp that was occupied during the construction of the Mono Basin Tunnel from 1934 to 1940. Long protected by large, dense coverage of sagebrush, the Mono Basin Tunnel Shaft 2 camp was exposed in the 2016 Clark Fire that spread through 2,819 acres of the Inyo National Forest near Mammoth Lakes, California. Immediately following the fire, the Heritage Program staff of the Inyo National Forest (including myself) recorded the site. Having been shielded from public view for so many years, the site was in exceptional condition: the surface density of cultural remains and features at this site were overwhelming. Even more astonishing were the classes of artifacts left behind by the occupants of the camp—children's toys; complete alcohol, medicine, and perfume bottles; kitchen appliances; a Springfield Armory rifle dating to 1899; LADWP coins used to make purchases at the camp commissary; decorated plates, bowls and cups; and the list goes on and on.

Conclusion

While the historic ties between the Los Angeles Aqueduct and the California Water Wars tend to overshadow the aqueduct workers part of the story, in some ways it also mirrors it. In both cases, the group that held the most power fared better than the other. In both cases, there were winners and there were those who got the short end of the stick. The capitalist enterprises who strategically annexed the land and waters of the Owens Valley, and whose pocketbooks have benefitted from water exportation to Los Angeles via the aqueduct have regularly been viewed as the victor. Although as some people see it, the Owens Valley might be a much different, more crowded place if the aqueduct had never been built. Instead, it remains in what many refer to as a "frozen" state of natural beauty. With respect to aqueduct labor, workers that held higher-ranked and paid positions didn't have it quite as rough as the "common" laborers. While supervisors and engineers could afford to live in nicer wood-framed housing, common workers like muckers and ditch diggers were often crammed into tents. To this day, the tension between the Owens Valley and Los Angeles continues, as does the conflict between labor and capital.

Future Research

Future researchers can add to the value of this study by conducting further research on the Los Angeles Aqueduct Camps of San Francisquito Canyon. There is more work to be done in correlating the historical and archaeological record of the canyon. I would also propose that future researchers investigating the living and working conditions, as well as the overall experiences of laborers occupying Los Angeles Aqueduct Camps should shift their attention to the camps or settlements that were

occupied during the two later construction projects on the Los Angeles Aqueduct system—the Mono Basin Project and the Second Los Angeles Aqueduct. By comparing the archaeology of work camps from the construction of the First Los Angeles Aqueduct (from 1907-1913) to the camps occupied during the Mono Basin Project (from 1934 to 1940) to settlements such as the Shangri-La community in Ridgecrest, CA, which was built to provide temporary housing for the workers on the Second Los Angeles Aqueduct (from 1965 to 1970), it would be possible to examine how working conditions and worker's experiences have changed throughout the course of time. Furthermore, it would be possible to explore how the tenets of industrial capitalism have changed or solidified from the early twentieth century to the present. Thus, through the lens of these three major aqueduct projects, we would be able to trace the change and/or progression of health and sanitary conditions, worker behaviors, labor relations, improvement of working conditions, construction methods, etc.

REFERENCES

Baxter, R. Scott
1996 Life in a Twentieth Century Petroleum Work Camp. *California Archaeology* Vol. 9, pp. 183-188.

Bevill, Russ
2002 Archaeological Site Record—S 1/2 (FS No. 05-01-53-254), USDA Forest Service, Angeles National Forest, Arcadia, California.

Bevill, Russ and Craig Hauer
2002 Archaeological Site Record—D-3 (FS No. 05-01-53-238), USDA Forest Service, Angeles National Forest, Arcadia, California.

2002 Archaeological Site Record—D-4 (FS No. 05-01-53-239), USDA Forest Service, Angeles National Forest, Arcadia, California.

Buckles, William G.
1983 Models for Railroad Construction Related Sites in the West. In Forgotten Places and Things, edited by Albert E. Ward, pp. 213-223. Center for Anthropological Studies, Albuquerque.

Carle, David
2016 *Water and the California Dream: Historic Choices for Shaping the Future.* Counterpoint, Berkeley, California.

Carter, Robert W., Jr.
2006 American Tobacco Company in *Encyclopedia of North Carolina*. Electronic document, accessed April 23, 2017.

City of Los Angeles
1916 *Complete Report on Construction of the Los Angeles Aqueduct, with Introductory Historical Sketch.* Department of Public Services, Los Angeles, California.

City of Los Angeles, Bureau of the Los Angeles Aqueduct (BLAA)
1908 *Third Annual Report of the Bureau of the Los Angeles Aqueduct.* Department of Public Works, Los Angeles, California.

1909 *Fourth Annual Report of the Bureau of the Los Angeles Aqueduct.* Department of Public Works, Los Angeles, California.

1910 *Fifth Annual Report of the Bureau of the Los Angeles Aqueduct.* Department of Public Works, Los Angeles, California.

1911 *Sixth Annual Report of the Bureau of the Los Angeles Aqueduct.* Department of Public Works, Los Angeles, California.

1912 *Seventh Annual Report of the Bureau of the Los Angeles Aqueduct.* Department of Public Works, Los Angeles, California.

City of Los Angeles, Bureau of Los Angeles Aqueduct Power (BLAAP)
1910 *First Annual Report of the Bureau of Los Angeles Aqueduct Power to the Board of Public Works.* Department of Public Works, Los Angeles, California.

Crocker-Langley San Francisco Directory
1910 San Francisco Directory, San Francisco Public Library. Electronic document, https://archive.org/details/crockerlangleysa1910sanf, accessed April 22, 2017.

Cross, Frederick C.
1968 My Days on the Jawbone. *Westways* LX: 3-6

Delle, James A., Stephen A. Mrozowski, and Robert Paynter (editors)
2000 *Lines That Divide: Historical Archaeologies of Race, Class, and Gender.* The University of Tennessee Press, Knoxville.

East Liverpool Historical Society
2016 The Thomas Family and Pottery. Electronic document, http://www.eastliverpoolhistoricalsociety.org/thomasfampottery1.htm, accessed May 6, 2016.

Faull, Mark
1995 Dove Springs: A Los Angeles-Owens River Aqueduct Camp in Kern County from the Early Twentieth Century. Paper presented at the annual meeting of the Society for California Archaeology in Eureka.

Foster, John M., Roberta S. Greenwood, and Anne Q. Duffield
1988 *Work Camps in the Upper Santa Ana River Canyon*. Submitted to U.S. Army Corps of Engineers, Los Angeles District, Los Angeles.

Franzen, John G.
1992 Northern Michigan Logging Camps: Material Culture and Worker Adaptation on the Industrial Frontier. *Historical Archaeology* 26(2):74-98.

Genheimer, Robert A
2003 Digging the Necessary: Privy Archaeology in the Central Ohio Valley. Ohio Valley Historical Society 18:143-151.

Gillespie, William B., and Mary M. Farrell
2002 Work Camp Settlement Patterns: Landscape-Scale Comparisons of Two Mining Camps in Southeastern Arizona. *Historical Archaeology* 36(3): 59-68.

Gramsci, Antonio
1971 Selections from the Prison Notebooks. Translated by Q. Hoare and G.N. Smith. International Publishers, New York.

Hangan, Margaret
2003 Snapshot in Time: Life at the Dove Springs Aqueduct Construction Camp. Master's thesis, Department of Anthropology, California State University, Bakersfield.

Hardesty, Donald L.
1988 *The Archaeology of Mining and Miners: A View from the Silver State*. Society for Historical Archaeology Special Publication Series 6.

1994 Class, Gender, and Material Culture in the Mining West. *Those of Little Note*, ed. E. Scott, 129-145. The University of Arizona Press, Tucson.

2002 Commentary: Interpreting Variability and Change in Western Work Camps. *Historical Archaeology* 36(3):94-98.

Heeb, Michele
1984 Archaeological Site Record—Chinaman Flat (CA-LAN-1455H), USDA Forest Service, Angeles National Forest, Arcadia, California.

Hodder, Ian
1986 Reading the Past: Current Approaches to Interpretation in Archaeology. 2nd edition Cambridge [England]: Cambridge University Press.

Hoffman, Abraham
1981 *Vision or Villainy: Origins of the Owens Valley—Los Angeles water Controversy*. Texas A&M University Press.

Hollywood Citizen [Los Angeles, California]
No Date. Aqueduct Grub. John Randolph Haynes Papers (Collection 1241). UCLA Special Collections, Charles E. Young Research Library.

Huckabee, Joanna
2006 Archaeological Site Record—Saloon Point (FS No. 05-01-53-334), USDA Forest Service, Angeles National Forest, Arcadia, California.

Inyo Independent [Independence, California]
1907 No Saloons Along Owens River Aqueduct. 16 August. Independence, California.

Johnson, Matthew
1999 Historical, Archaeology, Capitalism. In *Historical Archaeologies of Capitalism*, edited by Mark P. Leone and Parker B. Potter, Jr., pp.51-79. Plenum Publishers, New York.

Kahrl, William
1982 *Water and Power*. University of California Press, Berkeley and Los Angeles.

Kelly, Allen with photos by Bledsoe
1913 *Historical Sketch of the Los Angeles Aqueduct with Map Profile and Illustrations*. Times-Mirror Printing and Binding House.

Kelly, Tim
2010 High Wire and Hard Rock: Adaptation and Abandonment at Two Mines in the Sierra Nevada. Master's thesis, Department of Anthropology, California State University, Bakersfield.

Larkin, Karin and Randall H. McGuire, eds.
2009 *The Archaeology of Class War.* The University Press of Colorado, Boulder.

Leone, Mark P., and Parker B. Potter, Jr., eds.
1988 The Relationship Between Archaeological Data and the Documentary Record: 18th Century Gardens in Annapolis, Maryland. *Historical Archaeology* 22(1):29-35.

1999 Historical Archaeologies of Capitalism. New York: Kluwer Academic/ Plenum Publishers.

Lindsey, Bill
2010 Medicinal/Chemical/Druggist Bottles. In *Historic Glass Bottle Identification & Information Website*. Electronic document, accessed May 6, 2016.

Little, Barbara J.
2007 *Historical Archaeology: Why the Past Matters.* Left Coast Press, Walnut Creek, California.

Los Angeles City Directory Co, Inc.
1906 Los Angeles City Directory, Los Angeles Public Library. Electronic document, http://rescarta.lapl.org/ResCarta-Web/jsp/RcWebBrowse.jsp, accessed April 22, 2017.

1911 Los Angeles City Directory, Los Angeles Public Library. Electronic document, http://rescarta.lapl.org/ResCarta-Web/jsp/RcWebBrowse.jsp, accessed April 22, 2017.

Los Angeles Express (LAE) [Los Angeles, California]
1907 Don't Want Saloons Near Aqueduct Work. 12 August. Los Angeles.

1907 Saloons and the Aqueduct. 19 August. Los Angeles.

1907 Entering Wedge by Breweries. 28 August. Los Angeles.

1907 Stand Firm and True. 5 September. Los Angeles.

Los Angeles Herald (LAH) [Los Angeles, California]
1909 Americans to Quit Aqueduct Work is Engineer's Opinion. 6 June 1909. Los Angeles.

1911 Laborers on Aqueduct Denied Wage Increase: Advisory Committee Contends Miners Receive More Than Private Enterprises Pay. 10 February 1911. Los Angeles.

1911 Steam Shovel Men Go on Strike. 16 February 1911. Los Angeles.

1912 Balkan War to Delay Turning Aqueduct Water. 23 December:71. Los Angeles.

1915 Pleads Not Guilty on Murder Charge. 27 September:1. Los Angeles.

Los Angeles Times (LAT) [Los Angeles, California]
1905 Titanic Project to Give City a River. 29 July:1. Los Angeles.

1907 Labor on the Aqueduct. 28 May. Los Angeles.

1907 Opposition to Bonds Waning: Two Power Companies Give Up the Fight and Fall into Line—Bondholders Fail to Bully the City—Labor on the Aqueduct. 29 May. Los Angeles.

1907 Seeking Jobs on Aqueduct. 25 June. Los Angeles.

Maniery, Mary L.
2002 Health, Sanitation, and Diet in a Twentieth-Century Dam Construction Camp: A View from Butt Valley, California. *Historical Archaeology* 36(3): 69-84.

Marcinkewicz, Meredith
2001 Shirley Historical Society. Electronic document, http://www.shirleyhistory.org/timeline.htm, accessed April 18, 2017.

Matthews, Christopher N.
2002 The Political Economy of Archaeological Cultures: Marxism and American Historical Archaeology. Journal of Social Archaeology 2(1):109-134.

McGuire, Randall H.
1992 A Marxist Archaeology. San Diego: Academic Press, Inc.

McGuire, Randall H., and Karin Larkin, eds.
2009 The Archaeology of Class War: The Colorado Coalfield Strike of 1913-1914. Boulder: University Press of Colorado.

Milburn, Douglas H.
1998 San Francisquito Fire Suppression Archaeological Reconnaissance Report, USDA Forest Service, Angeles National Forest, Heritage Resources Section, Arcadia, California.

Milburn, D., K. Brasket, and D. Vance
2006 Archaeological Site Record—Chinaman Flat (CA-LAN-1455H), USDA Forest Service, Angeles National Forest, Arcadia, California.

Mulholland, Catherine
2000 *William Mulholland and the Rise of Los Angeles*. University of California Press, Berkeley and Los Angeles, California.

Mulholland, William
1907 *First Annual Report: Chief Engineer of the Los Angeles Aqueduct to the Board of Public Works*. Department of Public Works, Los Angeles, California.

National Insulator Association
2016 Insulator ID. Electronic document, http://www.nia.org/#tab3, accessed May 6, 2016.

2016 Insulator History. Electronic document, http://www.nia.org/#tab4, accessed May 6, 2016.

Nelson, Dick
1971 Transcript of interview with Emil and Mamie Breitkreutz, May 18, 1971. On file, Los Angeles Department of Water and Power Records Center, Los Angeles.

Nilsson, Elena and Melinda Button
2011 *Cultural Resources Monitoring and Evaluation Report for the San Francisquito Power Plant No. 2 Tailings Remediation Project, Los Angeles County, California*. Prepared by URS Corporation for Los Angeles Department of Water and Power, Los Angeles, California.

Nilsson, Elena with contributions by Bruno Texier
2008 *Cultural Resources Inventory and Evaluation of the San Francisquito Canyon Power Plant No. 2 Emergency Slide Removal, Los Angeles County, California*. Prepared by URS Corporation for Los Angeles Department of Water and Power, Los Angeles, California.

Nilsson, Elena, Russell Bevill, and M.S. Kelly
2006 *Archaeological Inventory of the First and Second Los Angeles Aqueducts and Selected Access Roads, Kern, Inyo, and Los Angeles Counties, California*. Prepared by URS Corporation for Los Angeles Department of Water and Power, Los Angeles, California and USDI, Bureau of Land Management, Ridgecrest, California.

Orser, Jr., Charles E.
1996 A Historical Archaeology of the Modern World. Plenum Press, New York.

1999 Archaeology and the Challenges of Capitalist Farm Tenancy in America. In *Historical Archaeologies of Capitalism*, edited by Mark P. Leone and Parker B. Potter, Jr., pp.51-79. Plenum Publishers, New York.

Palus, Matthew M., Mark P. Leone, and Matthew D. Cochran
2006 Critical Archaeology: Politics Past and Present. In *Historical Archaeology*, edited by Martin Hall and Stephen Silliman, pp. 84-104. Blackwell Publishing. Oxford, UK.

Potter, Jr., Parker B.
1999 Historical Archaeology and Identity in Modern America. In *Historical Archaeologies of Capitalism*, edited by Mark P. Leone and Parker B. Potter, Jr., pp.51-79. Plenum Publishers, New York.

Psota, Sunshine
2002 Boss of the Road: Early-20th-Century Consumer Selections of Work Clothing from Alabama Gates Work Camp, Owens Valley, California. Historical Archaeology 36(4): 111-128.

Reisner, Marc
1993 *Cadillac Desert*: *The American West and its Disappearing Water.* Penguin Books, New York.

Robinson, John W.
1990 *Mines of the San Gabriels*. La Siesta Press, Glendale California.

Rock, Jim
1989 Tin Cannisters: Their Identification. Manuscript on file at the U.S. Forest Service, Inyo National Forest, Bishop, California.

Rogge, A.E., D. Lorne McWatters, Melissa Keane, and Richard P. Emanuel
1995 *Raising Arizona's Dams: Daily Life, Danger, and Discrimination in the Dam Construction Camps of Central Arizona, 1890s-1940s*. University of Arizona Press, Tucson.

Scott, James C.
1985 Weapons of the Weak: Everyday Forms of Peasant Resistance. New Haven: Yale University Press.

Shackel, Paul A.
2009 *The Archaeology of American Labor and Working-Class Life.* The University Press of Florida, Gainesville, Florida.

Shanks, Michael, and Christopher Tilley
1987 Social Theory and Archaeology. Polity Press, Cambridge.

1991 Re-Constructing Archaeology: Theory and Practice. Routledge, London.

Sivaramakrishnan, K.
2005 Some Intellectual Genealogies for the Concept of Everyday Resistance. American Anthropologist 107 (3): 346–355.

Sports.Antiques.com
2009 Sports Antique of the Week. Electronic document, http://www.sportsantiques.com/shirleypressusp.htm, accessed April 18, 2017.

Stansell, Ann
2017 Personal Communication. May 5, 2017.

2014 Memorialization and Memory of Southern California's St. Francis Dam Disaster of 1928. Master's thesis, Department of Anthropology, California State University, Northridge.

South, Stanley
1977 *Method and Theory in Historical Archaeology*. Academic Press, Michigan.

Taylor, Raymond G.
1982 *Men, Medicine and Water: The Building of the Los Angeles Aqueduct, 1908-1913, A Physician's Recollections*. Edited by Doyce B. Nunis, Jr. Friends of the Los Angeles County Medical Association Library and Los Angeles Department of Water and Power.

Toulouse, Julian Harrison
2001 [1971] *Bottle Makers and Their Marks*. Blackburn Press, New Jersey.

Tucker, Robert C., ed.
1978 The Marx-Engels Reader. 2nd edition. New York: W.W. Norton & Company, Inc.

United States Patent Office
1905 George Frost Company, of Boston Massachusetts, Trade-mark for Hose-Supporters, Statement and Declaration of Trade-mark No. 44,547, registered July 11, 1905.

Van Bueren, Thad M., Judith Marvin, Sunshine Psota, and Michael Stoyka
1999 Building the Los Angeles Aqueduct: Archaeological Data Recovery at the Alabama Gates Construction Camp. Fresno: California Department of Transportation.

Van Bueren, Thad M.
2002 Struggling with Class Relations at a Los Angeles Aqueduct Construction Camp. *Historical Archaeology* 36(3): 28-43.

Walton, John
1992 *Western Times and Water Wars: State, Culture, and Rebellion in California*. University of California Press, Berkeley and Los Angeles.

Wiebe, Robert H.
1967 *The Search for Order 1877-1920*. Harper Collins Canada Ltd.

Wolf, Eric R.
2001 Pathways of Power: Building an Anthropology of the Modern World. Berkeley: University of California Press.

Worster, Donald
2001 *A River Running West: The Life of John Wesley Powell.* Oxford University Press, New York.

APPENDIX A

CATALOG CODES

Catalog Codes for Materials

Material	Catalog Code
carbon	CAR
fabric	FAB
glass	GLS
lead	LED
leather	LTH
metal	MET
porcelain	POR
rubber	RUB
shell	SHL
wood	WOO

Catalog Codes for Artifact Classes

Artifact Class	Catalog Code
activities	ACT
container	CON
domestic	DOM
personal	PER
structural	STR
uncertain	UNC

Catalog Codes for Artifact Groups

Artifact Group	**Catalog Code**
accoutrement	ACC
alcohol	ALC
clothing	CLOTH
communication	COMM
culinary	CUL
firearms	FRM
footwear	FTWR
hardware	HRDW
health	HEAL
heating/lighting	HTLT
indefinite	INDF
machinery	MACH
material	MATL
metalworking	MTWK
plumbing	PLMB
storage	STRG
tobacco	TOB

APPENDIX B

ARTIFACT CATALOG

Cat #	Material	Class	Group	Functional Category	Artifact	Markings/ Maker/ Origin	Unit	Level	Comments	References Cited
1	POR	STR	COMM	electric	insulator	"Thomas; 2021" (bottom)/R. Thomas & Sons Company/East Liverpool, Ohio		surface	likely for telephone wire	National Insulator Association (http://www.nia.org); East Liverpool Historical Society (http://www.eastliverpoolhistoricalsociety.org/thomasfampottery1.htm)
2									NOT INCLUDED	
3	MET	PER	CLOTH	fastener	suspender buckle	"Shirley President" (front); "PAT AUG 23 82; Shirley" (back)		surface		Marcinkewicz 2001
4A	SHL	PER	CLOTH	fastener	button			surface	four-hole	
4B	SHL	PER	CLOTH	fastener	button			surface	four-hole	
4C	SHL	PER	CLOTH	fastener	button			surface	two-hole	
4D	SHL	PER	CLOTH	fastener	button			surface	incomplete	
5	MET	ACT	MACH	hardware	rectangular shaped equipment part			surface	very heavy	
6	GLS	STR	HTLT	electric	clear glass insulator			surface		

Cat #	Material	Class	Group	Functional Category	Artifact	Markings/ Maker/ Origin	Unit	Level	Comments	References Cited
7	GLS	CON	INDF	indefinite	purple bottle glass base & shards	"B" (base)/Brock way Glass Co.(?)/Brock way, PA		surface		Toulouse 1971:58-59
8	MET	UNC	INDF	indefinite	c-shaped metal piece		STP 2	15 cm		
9	FAB	UNC	MATL	clothing or tent canvas	cloth piece with button		STP 3	0-10 cm		
10	GLS	UNC	INDF	indefinite	clear glass shard		STP 4	0-10 cm		
11	POR	STR	HTLT	electric	insulator		STP 5	surface	incomplete	
12	GLS	CON	ALC	container	brown glass beer bottle base & shards	"587; IPGCo (in diamond)" (base)/Illino is Pacific Glass Co.	STP 5	surface		Lindsey 2010; Toulouse 1971:268-269
13	rock								NOT INCLUDED	
14	GLS	CON	ALC	container	brown glass beer bottle shards		STP 5	1-10 cm		
15	MET	STR	HRDW	fastener	nail		STP 3	30 cm		
16	MET	PER	STRG	container	tobacco tin		STP 6	surface	incomplete	

References Cited										
Comments								not bagged	rectangular pocket, incomplete	incomplete
Level	surface	1-5 cm	1-5 cm	20-25 cm	20-30 cm	20-30 cm	20-30 cm	0-5 cm	10 cm	10 cm
Unit	STP 6	STP 6	STP 6	STP 6	STP 6	STP 6	STP 6	STP 7	STP 8	STP 8
Markings/ Maker/ Origin										
Artifact	pocket watch face	clock gear	purple glass shard	clock gear	purple glass	metal fragment	charcoal	barrel hoop	tobacco tin	tobacco tin lid
Functional Category	Time-keeping	Time-keeping	indefinite	Time-keeping	indefinite	indefinite	indefinite	container	container	container
Group	ACC	ACC	INDF	ACC	INDF	INDF	INDF	STRG	STRG	STRG
Class	PER	PER	CON	PER	CON	UNC	UNC	UNC	PER	PER
Material	MET	MET	GLS	MET	GLS	MET	CAR	MET	MET	MET
Cat #	17	18	19	20	21A	21B	21C	22	23A	23B

References Cited										
Comments	incomplete									two-hole
Level	0-10 cm	0-10 cm	0-10 cm	surface	surface	surface	surface	surface	surface	surface
Unit	STP 9	STP 10	STP 10							
Markings/ Maker/ Origin										
Artifact	tobacco tin fragments	clear glass shards	brown glass bottle shards	belt buckle	cloth piece	pocket watch	spoon	spoon	button	button fragment
Functional Category	container	indefinite	container	fastener	clothing or tent canvas	Time-keeping	flatware	flatware	fastener	fastener
Group	STRG	INDF	INDF	CLOTH	MATL	ACC	CUL	CUL	CLOTH	CLOTH
Class	PER	UNC	CON	PER	UNC	PER	DOM	DOM	PER	PER
Material	MET	GLS	GLS	MET	FAB	MET	MET	MET	SHL	SHL
Cat #	24	25A	25B	26	27	28	29A	29B	30A	30B

References Cited										
Comments	incomplete	two-hole	two-hole							
Level	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Unit										
Markings/ Maker/ Origin						"P&S PATD NO 703" (front); "60W250V" (back)/Pass and Seymour/New York				
Artifact	button	button	button	friction lid	button	light fixture	cloth button	buckle	button	rivet or button backing
Functional Category	fastener	fastener	fastener	closure	fastener	electric	clothing or tent canvas	fastener	fastener	fastener
Group	CLOTH	CLOTH	CLOTH	STRG	CLOTH	HTLT	MATL	CLOTH	CLOTH	CLOTH
Class	PER	PER	PER	UNC	PER	STR	UNC	PER	PER	PER
Material	SHL	SHL	SHL	MET	MET	POR, MET	FAB	MET	MET	MET
Cat #	31A	31B	31C	32A	32B	33	34	35	36A	36B

References Cited			Crocker-Langley San Francisco Directory 1910					Van Bueren 1999:87		
Comments							broken shards			
Level	surface	surface	surface	surface	surface	surface	surface	surface	surface	surface
Unit										
Markings/ Maker/ Origin			"BOSS OF THE ROAD" (front)							
Artifact	spoon	key	button	trunk hardware	suspender buckle	suspender buckle part (triangular-shaped)	insulator	tubular kerosene lantern part	boot heel with nails	boot heel
Functional Category	flatware	security	fastener	trunk	fastener	fastener	electric	lamp	boot	boot
Group	CUL	HRDW	CLOTH	STRG	CLOTH	CLOTH	HTLT	HTLT	FTWR	FTWR
Class	DOM	UNC	PER	PER	PER	PER	STR	STR	PER	PER
Material	MET	MET	MET	MET	MET	MET	GLS	MET	MET	MET
Cat #	37	38	39A	39B	39C	39D	40	41	42A	42B

Cat #	Material	Class	Group	Functional Category	Artifact	Markings/ Maker/ Origin	Unit	Level	Comments	References Cited
43	MET	ACT	MTWK	container	modified can			surface	lapped seam, punched holes; height=8 6/16", diam=6"	
44	MET	STR	PLMB	pipe	pipe fitting with threading			surface	length=3", diameter= 4"	
45	MET	STR	HRDW	fastener	nail		Unit 1	0-20 cm		
46	WOO	UNC	MATL	indefinite	wood piece		Unit 1	0-20 cm	looks polished	
47	MET	ACT	MTWK	tools	file tool			surface		
48	MET	PER	CLOTH	fastener	rivet	"B-L CO"/Brownstein -Louis Company/Los Angeles, California		surface		Los Angeles City Directory 1911
49	MET	PER	STRG	container	tobacco tin			surface	rectangular pocket	
50	MET	PER	CLOTH	fastener	hose support buckle	"Velvet Grip; PAT D. 4-?0-95.; Boston Garter; 12-31-95 & ?-7-04"/George Frost Company/ Boston, Massachusetts		surface		United States Patent Office 1905 Trademark No. 44,547
51	MET	PER	STRG	trunk	trunk latch			surface		

Cat #	Material	Class	Group	Functional Category	Artifact	Markings/ Maker/ Origin	Unit	Level	Comments	References Cited
52	GLS, MET	PER	HEAL	container	medicine vial with threading & cap			surface	homeopathic vial	
53	MET	STR	HRDW	fastener	nails			surface	length=1 1/4"	
54	MET	STR	HRDW	fastener	brads			surface		
55	MET	STR	HRDW	fastener	nails			surface	length=3/4", rounded-head	
56	MET	STR	HRDW	fastener	nails			surface	length=3/4"; flat, rounded-head	
57	GLS	PER	HEAL	container	base of purple glass kidney shaped	"2318" on base		surface		
58	GLS	PER	HEAL	container	base of square-shaped black glass	"773" with line between "5A"(base) "...SS" (body)		surface	thick walled	Lindsey 2010
59	GLS	CON	ALC	container	brown glass bottle body shards	"EH...CLUB WHISKEY" on body		surface		
60	MET	STR	HRDW	fastener	spike		Unit 2B	surface		
61	MET	PER	CLOTH	fastener	button (front & backing)	"*B.N. & L.* L.A."/Brownstein-Louis Company/Los Angeles, California	Unit 2B	surface		Los Angeles City Directory 1906

Cat #	Material	Class	Group	Functional Category	Artifact	Markings/ Maker/ Origin	Unit	Level	Comments	References Cited
62	POR	DOM	INDF	indefinite	white porcelain sherd		Unit 2B	surface	looks like dishware	
63	MET	STR	HRDW	fastener	nail		Unit 2B	surface	5 1/8" length with 1/2" diameter flat, rounded-head	
64	MET	STR	HRDW	fastener	nails		Unit 2B	surface	2 5/8" length with flat, rounded-head	
65	MET	STR	HRDW	fastener	nails		Unit 2B	surface	2 9/16" length with flat, rounded-head	
66	MET	STR	HRDW	fastener	nails		Unit 2B	surface	bent nails-cannot be measured	
67	MET	STR	HRDW	fastener	nail		Unit 2B	surface	2 3/8" length with flat, rounded-head	
68	MET	STR	HRDW	fastener	nail		Unit 2A	surface	9/16" length with rounded-head	
69	LED	ACT	COMM	writing	pencil lead		Unit 2A	0-10 cm		
70a	MET	PER	CLOTH	fastener	rivet (front)	"B-L CO"/Brownstein -Louis Company/Los Angeles, California	Unit 2A	0-10 cm		Los Angeles City Directory 1911

References Cited	Los Angeles City Directory 1911									
Comments		3 1/8" length with flat, rounded-head		One end crushed			unknown function	2 9/16" length with flat, rounded-head		2 1/4" length with flat, rounded-head
Level	0-10 cm	0-10 cm	surface	surface	surface	surface	surface	20-30 cm	30-40 cm	30-40 cm
Unit	Unit 2A	Unit 2B						Unit 1	Unit 1	Unit 1
Markings/ Maker/ Origin	"B-L CO"/Brownstein -Louis Company/Los Angeles, California				"SOLID RUBBER"					
Artifact	button	nail	bullet	bullet (spent)	rubber tube	belt buckle	modified barrel hoop with four nails	nail	nail	nail
Functional Category	fastener	fastener	ammo	ammo	indefinite	fastener	indefinite	fastener	fastener	fastener
Group	CLOTH	HRDW	FRM	FRM	MATL	CLOTH	MTWK	HRDW	HRDW	HRDW
Class	PER	STR	ACT	ACT	UNC	PER	ACT	STR	STR	STR
Material	MET	MET	LED	LED	RUB	MET	MET	MET	MET	MET
Cat #	70b	71	72	73	74	75	76	77	78	79

References Cited									
Comments	2 1/4" length with 1/2" diameter flat, rounded-head	tangled	complete		uneven line between base and body; suction scars on base			crown finish	crown finish
Level	30-40 cm	30-40 cm	surface	surface	surface	surface	surface	surface	surface
Unit	Unit 1	Unit 1							
Markings/ Maker/ Origin					"82C" on body just above the base. No makers mark on base, but suction scar visible				
Artifact	nail	wire	insulator	flue pipe parts	brown glass bottle base & body shards	modified barrel hoop bent into the shape of a	shoe insoles	brown glass bottle neck & lip fragments	brown glass bottle neck & lip
Functional Category	fastener	indefinite	electric	stove	container	indefinite	footwear	container	container
Group	HRDW	MATL	HTLT	HTLT	ALC	MTWK	FTWR	ALC	ALC
Class	STR	UNC	STR	STR	CON	ACT	PER	CON	CON
Material	MET	MET	POR	MET	GLS	MET	LTH	GLS	GLS
Cat #	80	81	82	83	84	85	86	87	88

Cat #	Material	Class	Group	Functional Category	Artifact	Markings/ Maker/ Origin	Unit	Level	Comments	References Cited
89	MET	PER	STRG	trunk	trunk handle & latch			surface		
90	MET	PER	CLOTH	fastener	hose or brace support buckle			surface		
91	MET	PER	STRG	container	tobacco tin		Unit 3B	surface	incomplete	
92	MET	STR	HRDW	fastener	spike		Unit 3B	10-20 cm	metal fragments too fragmented to count	
93	GLS	PER	HEAL	container	clear glass vial		Unit 3B	10-20 cm	Homeopath -ic vial	Lindsey 2010
94	GLS	CON	INDF	indefinite	purple & clear glass shards		Unit 3B	10-20 cm	varying thickness	
95	GLS	CON	INDF	indefinite	aqua glass shards		Unit 3A	10-20 cm		