The Archeology of Somewhere...
It had the makings of a good little town at one time.

Eighty percent of everything ever built in America has been built in the last fifty years, and most of it is depressing, brutal, unhealthy, and spiritually degrading ... it is a landscape of scary places, the geography of nowhere, that has simply ceased to be a credible human habitat.
James Howard Kunstler, *The Geography of Nowhere*, 1993
Project Summary

WACC Project Number: MANZ 1997 D.
Type of Project: Archeological testing.
Field Director: Jeff Burton.
Volunteers: Caven Clark, Lynne Gardner, Nancy Hopkins, Dick and Florence Lord, Paula Sutton, and George Voyta
Field work Dates: October 14 through November 1, 1997, and February 27 through March 6, 1998.
Person Days in Field: 110
Project Location: Manzanar National Historic Site and vicinity.
Project Scope: 23 sites, loci, and features tested.
National Register Status: Manzanar Relocation Center listed July 30, 1979.

Cover Art by Lynne Gardner
Abstract

The National Park Service conducted archaeological investigations at 23 sites, features, and loci along U.S. Highway 395 within and around the Manzanar National Historic Site in Inyo County, California. Caltrans has proposed upgrading the current two-lane highway in the vicinity of the National Historic Site to a four-lane divided highway. The archaeological work was deemed necessary to determine the research potential of the cultural resources and to make recommendations about how the resources should be managed. Archaeological field work included mapping, artifact inventory and collection, and subsurface testing. Most of the investigated sites are associated with the town of Manzanar and date to between 1910 and the early 1930s. Two of the sites have earlier historical components and three have prehistoric components. Six are associated with the World War II Manzanar Relocation Center and nine are more recent (post 1945). Most of the Relocation Center features in the project area are significant, three of the town-era sites are significant for their information potential, and the one single-component prehistoric site tested may be significant, depending upon whether there are substantial subsurface cultural deposits in addition to those found during these investigations. All of the significant or potentially significant sites or features are located west of the existing highway and would not be physically affected by the proposed highway widening. However, the highway itself is part of the historic Relocation Center-era landscape. It is recommended that its two-lane character be retained as a frontage road, and that the new divided highway be located to the east.
Acknowledgments

Many people contributed to the completion of this report. The project would not have been possible without the tireless efforts of Manzanar National Historic Site superintendent Ross Hopkins. He not only conceived the project, he also provided much needed support and all important funding. Caltrans archeologists Don Laylander, Martha Proctor, Paula Sutton, and Judy Tordoff provided initial direction and suggestions for research. Paula also arranged for a replacement backhoe and operator on short notice.

The crew for this project consisted of WACC archeologists Ron Beckwith, Jill Mayo, and Stacie Reutter. In addition, archeologists Jennifer Bybee, Chuck Bouscaren, Steve Harvey, Mark Hintzman, Carol Schultze, and Stephen Wenzell were hired through Death Valley National Park’s cooperative agreement with the Archeological Research Unit, University of California, Riverside. We also had the assistance of Caven Clark and George Voyta from Death Valley National Park, Caltrans archeologist Paula Sutton, and volunteers Lynne Gardner, Nancy Hopkins, and Dick and Florence Lord. I am again indebted to volunteers Dick and Florence Lord, who contributed their time, expertise, equipment, and supplies to take and process the field photographs this project required.

Bill Michael and Beth Porter at the Eastern California Museum and Nancy Wills at the LADWP Northern Field Office provided information and access to their files. Ron Beckwith drafted the maps and figures. Dick and Florence Lord produced the artifact photographs and prints used in this report. Special analyses were preformed by Lynn Rogers, Richard Hughes, Tom Origer, and Jenny Waters. Hank Baron, Tina Spengler, Angela Nava, and Sue Wells took care of administrative chores at WACC and Kay White handled administrative tasks at the ARU. George Teague helped in artifact identification, and as project supervisor provided invaluable support and encouragement. The report was edited by Bill Gillespie.

To these, and as always to my life editor Mary and son Daniel, many thanks.
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Introduction

In 1997 and 1998 the National Park Service conducted archeological investigations along U.S. Highway 395 at Manzanar National Historic Site. The testing is considered an agency undertaking under Section 110 of the National Historic Preservation Act (NHPA) because the archeological work could provide information useful in interpreting the full range of history at Manzanar National Historic Site. Many of the tested sites and loci are within the National Historic Site boundaries; surface evidence suggested most were directly related to either the World War II Manzanar Relocation Center or the 1910-1930s town of Manzanar.

The archeological work focused on 22 historical sites, loci, and features and one prehistoric site. These were selected for investigation because they are located within the California Department of Transportation’s (Caltrans) identified Area of Potential Effects (APE) for a proposed highway widening project which borders the eastern boundary of Manzanar National Historic Site (Table 1.1, Figures 1.1-1.3). The cultural resources had been recorded during surveys conducted for the road project (Laylander 1997; Reno and Palmer 1996) and inventories at Manzanar National Historic Site (Burton 1996). One goal of the archeological work was to provide information useful in evaluating the National Register eligibility of these sites. However, Section 106 compliance for the highway project will be completed by Caltrans. Testing at three prehistoric sites and at the prehistoric component of two dual-component sites within the APE, but outside of the National Historic Site, will be completed by Caltrans’s on-call cultural resources contractor.

Figure 1.1. U.S. Highway 395 in the vicinity of the Manzanar National Historic Site (view towards north, the relocation center entrance is to the left).
Table 1.1. Sites Investigated for this Project.

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<th>Common Name</th>
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<th>Town of Manzanar (1910-ca.1930)</th>
<th>Relocation Center (1942-1945)</th>
<th>Post Relocation Center</th>
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* listed from north to south
† recorded as part of CA-INY-3802-H
Figure 1.2. Locations of investigated sites.
Nine of the investigated sites, loci, and features are on the east side of U.S. Highway 395, 13 are located on the west side of the highway, and one straddles the highway. Thirteen are within the National Historic Site; the rest are on City of Los Angeles land administered by the Department of Water and Power.

Preliminary Caltrans plans called for the existing highway to be improved and used for southbound traffic and two new northbound lanes to be added to the east side of the existing highway. Subsequently the Manzanar General Management Plan identified several visitor safety and historic landscape concerns and recommended that the four-lane highway be moved farther east and the existing highway be retained as a frontage road.

The widening project begins approximately 2.4 miles south of the Historic Site and extends north for a total of 6.8 miles. Although ground disturbance is not expected within the entire APE, in general, the APE extends 300 feet east and 100 feet west of the existing highway. In the vicinity of the National Historic Site the APE extends an additional 100 feet east (for a total of 400 feet on the east side) so that the NPS-recommended adjustments in the alignment and scope of the project can be considered.

Environmental and Cultural Background

For detailed information on the environmental and cultural background the reader is referred to Burton (1996) and Reno and Palmer (1996). The project area is in the Owens Valley, 5 miles south of the town of Independence, and 210 miles north of Los Angeles. Owens Valley is a deep fault graben between the Sierra Nevada, on the west, and the White-Inyo Range, to the east. At about 3800 feet elevation, the Manzanar National Historic Site is located where the gently sloping lower bajada of the Sierra Nevada meets the alluvial sediments of the valley floor. In the current project area, along the eastern edge of the Historic Site, vegetation is dominated by desert scrub and disturbance species.

Manzanar National Historic Site was established by Congress on March 3, 1992, and is administered by the National Park Service. The Manzanar War Relocation Center was listed on the National Register of Historic Places on July 30, 1979 for its association with events that have made a significant contribution to the broad patterns of our history, specifically the internment of Japanese-Americans during World War II. Manzanar was one of ten camps at which Japanese-American citizens and Japanese immigrants were interned during World War II. Construction of the camp at Manzanar began in March 1942; it remained in operation until late in 1945. At its peak, Manzanar held a population of about 10,000. Manzanar was less than 50 years old at the time it was listed on the National Register, but it was deemed to be of exceptional importance. Many archeological features and deposits related to the Japanese American internment have been identified during previous archeological investigations (Burton 1996). The identification of additional relocation center-related features outside the originally authorized National Historic Site boundary led to its expansion by Congress in 1997.

In addition, there is archeological evidence of earlier use of the Manzanar area. Results of archeological testing within the original National Historic Site boundary indicate Native American Indians used the area from 3500 B.C. into the historical period with most intensive occupation between A.D. 600 and 1300 (Burton 1996). Euroamerican settlement in the vicinity began in the early 1860s, with the establishment of the Kispert and Shepherd ranches.
Between 1910 and the early 1930s Manzanar was a thriving agricultural settlement. Apples, pears, peaches, potatoes, and alfalfa were grown on nearly 5,000 acres surrounding the settlement. In 1914 roads were laid out and graded and by 1919 the town boasted a general store, post office, town hall, and a two-room school house. Shortly after the town of Manzanar was founded, the Los Angeles Department of Water and Power (LADWP) began acquiring water rights in the Owens Valley and the Los Angeles aqueduct was completed in 1913. By 1929 Los Angeles had purchased outright all Manzanar properties and by 1934 the town was completely abandoned.

From the information obtained during initial recording, most of the sites considered in this report appeared to date to the town-era or relocation center use. Some obviously post-dated the relocation center and several were multi- or dual-component, with evidence of use from prehistoric times to the present.

Report Structure
Research objectives and methods are reviewed in Chapter 2. Archeological work at each of the six major town-era sites investigated is described in chapters 2 through 8. The results of work at the smaller town-era sites, loci, and features are described in Chapter 9. Chapter 10 considers the archeology of relocation center and post-relocation center sites and features, and Chapter 11 discusses the Native American Indian sites and artifacts. Conclusions and recommendations are provided in Chapter 12. The results of technical analyses are included as appendices.
Figure 1.3. Historical photograph of the town of Manzanar showing the locations of major town-era sites investigated for this project; A. Anton homestead, B. Hawthorne homesite, C. Downtown, D. Strohmeyer homesite, E. Bogart homesite (ca. 1930, Geography Department Archives, UCLA).
The majority of the archeological field work conducted by the National Park Service in anticipation of the U.S. Highway 395 widening took place between October 14 and November 1, 1997. That work was adequate to gather field data for most of the historic sites in the project area, but it was discovered that more work was needed at one site which was more complex than originally recorded. This site, the Strohmeyer homesite (ARS Locus 8), was the only potentially eligible site of those tested by the National Park Service that would be adversely affected by the highway widening. The additional work needed to clarify its eligibility for the National Register was conducted between February 27 and March 6, 1998.

Research Objectives and Methods

The objectives of the investigations were to gather sufficient data to assess the research potential of the cultural resources within Caltrans’ Area of Potential Effects (APE) and make informed recommendations regarding future management of these resources. A third objective was to acquire information useful in interpreting the full history of the Manzanar area. Specifically, the work was designed to:

1. Ascertain the horizontal and vertical extent of the resources, in order to provide accurate dimensions for management and to discern any culturally-derived patterning. Horizontal extent was determined by closely examining the site for the distribution of surface artifacts and features. Mechanical- and hand-excavated units were used to determine the depth of the cultural deposits.

2. Investigate site structure and assess integrity, as manifest in soil stratification, the horizontal and vertical distribution of time-sensitive artifacts, soil profiles, and surface indications.

3. Identify and determine the age of occupation. Time-sensitive artifacts recovered were cross-dated with established regional chronologies. Obsidian hydration analysis was also used on specimens from Native American Indian sites and components to help determine their age.

4. Define the quantity and quality of data categories present and assess each site’s research potential. Identified research questions relevant to the proposed work area are discussed in Burton (1996) and Reno and Palmer (1996).
Field Methods

Field work included mapping, photography, surface inventory, and subsurface testing (Table 2.1). All units were judgementally placed to maximize the yield of comparative and quantitative data for analysis. English units of measurement were employed in descriptions of historical features and artifacts. Metric units were used for measurements of the archeological work such as excavation units, so that the density of artifacts, volume of earth excavated, etc. could be more easily compared with other work.

Each site and locus was mapped using differentially-corrected GPS (Global Positioning System) satellite data. In addition, detailed maps were made of portions of four complex sites using a plane-table and alidade and of a fifth site using a compass and pacing. Map information was transferred to available 2-ft-contour interval maps of the National Historic Site and the Caltrans APE. Features were also drawn to scale. Photography included overviews of the sites as well as close-ups of features and artifacts, and bipod aerial photographs were taken where deemed useful.

Surface inventory included tabulation of artifacts within 5 m by 5 m surface count units (SCU) and collection or recording of all diagnostic artifacts observed on the surface of the site. Surface inventory was augmented by 1 m by 2 m surface scrape units (SSU) where the top 10 cm of soil and duff was removed by trowel, and all encountered materials collected.

Subsurface testing included the excavation of 1 m by 1 m excavation units (EU), 50 cm by 50 cm subsurface exploratory excavation units (SEEU), 25 cm by 25 cm shovel test units (STU), mechanical and hand-dug trenches, and exposure of features. For the EUs and SEEUs, sediments were excavated in 10 cm levels and sifted through 1/4-inch mesh screen. If feasible, excavation was continued at least 20 cm below the last recovered artifact. Sidewall profiles of selected 1 m by 1 m excavation units and features were drawn and photographed. Time markers (usually 1997 and 1998 pennies) were placed at the bottom of each unit prior to backfilling.

The feature clearing was done by pick, shovel, and smaller hand tools. The excavated soil was not screened, but was shovel-broadcast to reveal artifacts, all of which were collected or recorded. An exception to this occurred at Feature 4 at CA-INY-3782/H, where excavated sediments were screened through 1/4-inch mesh screen.

Mechanical trenches, excavated by rubber-tired backhoe, were used to examine soil stratigraphy and to search for features. These trenches were placed along arbitrarily chosen lines where landforms, historical photographs, and other evidence suggested the former locations of structures. Trench excavation was terminated at compact sterile subsoil. At most of the sites a National Park Service backhoe with a 60-cm-wide bucket was used. However, during the additional testing at the Strohmeyer homesite trench numbers 2 through 5 were excavated by a larger Caltrans backhoe with a 1-m-wide bucket. Trenching was monitored by one or two archeologists for cultural materials and structural remains, and all material seen was collected or recorded. Sediments were not screened.

Shovel tests were used only to delineate a subsurface pipeline at the Strohmeyer Homesite (ARS Locus 8). Soil from these 25 cm by 25 cm units was excavated as a single level and shovel-broadcast, to examine it for artifacts.
Analysis

Historical artifacts were classified and analyzed by function following a system devised by Blee (1987) and Rhodes (1988). These classes include structural artifacts, domestic artifacts, personal artifacts, artifacts associated with other activities, and unclassified artifacts. Within each of these functional groups artifacts are further subdivided into more specific classes.

Structural artifacts are items associated with the physical presence of a building or other structure. They may have been used in its construction, use, or repair, or resulted from its demolition. Included in this group are structural materials, window glass, hardware, nails, and artifacts associated with utilities. The structural materials class includes brick, mortar, lumber, tile, flashing, roofing material, and other similar items. The hardware class includes construction hardware, door and window hardware, cabinet hardware, and miscellaneous fasteners and fittings. Artifacts classified under utilities would include electrical porcelain, electrical wire, light bulbs, water and sewer pipe, and fragments of bathroom fixtures.

Domestic artifacts are those that result from the daily routine operation of a household, and that tend to have been owned and used by members of a household. These include items used for the storage, preparation, serving, and consumption of food and beverages. Household furnishings and pharmaceutical items are also included here. Color, shape, and other attributes were used to assign bottle function (Jones and Sullivan 1989; Lorrain 1968). All nonidentifiable curved glass fragments are included in the domestic artifact group and are classified based solely on color (cf. Rhodes 1988:204; Teague and Shenk 1977:114); black, green, and brown glass are included under beverage storage, while clear and aqua glass are included under food storage.

The beverage storage class includes items used in the storage of beverages, such as alcohol and soda bottles. The food storage category includes both metal fragments from items such as cans, lids, and caps, and glass fragments from colorless glass jars and bottles that were commonly used for condiments. Aqua glass, generally used in milk bottles, is also included here. Food preparation artifacts are those items associated with the making of food, such as frying pans and other cook wear. Food serving artifacts are those generally associated with the serving and eating of food, including table service items such as plates, bowls, glasses, cups, and utensils. Pressed, etched, and cut glass fragments are assumed to be part of this class unless they can be identified as otherwise. The furnishings class includes household furnishings and housekeeping items, such as stove parts, bed parts, parts of other furniture, clothing irons, clothes hangers, and clothes pins. Pharmaceutical items include drug and syrup bottles and fragments of blue and white glass.

Personal artifacts are items that were most likely to have been individually owned and may have been carried around on one's person. This includes clothing, jewelry, grooming and hygiene items, and money. The clothing class includes cloth and leather fragments, buttons, rivets, buckles, and safety pins. Grooming and hygiene items include perfume bottles, razors, razor blades, toothbrushes, toothpaste and lipstick tubes, and shampoo containers.

Activities group artifacts include those that might have been used in specialized activities. Examples include military buttons, ammunition, toys, writing and printing equipment, harness fittings, miscellaneous tools, and artifacts associated with leisure activities. Examples of artifacts associated with leisure activities include phonograph record fragments, lantern parts and other camping equipment, and tobacco tins.
Unclassified artifacts include unidentified artifacts as well as artifacts with potentially multiple functions (such as smooth wire) which hindered placing them in a particular category, and artifacts too fragmentary or altered to further classify.


Prehistoric artifacts were classified following the analytical procedures and nomenclature used by other researchers in the Owens Valley (e.g., Basgall and McGuire 1988; Bettinger 1989; Delacorte and McGuire 1993). Artifacts were first divided into categories based on gross morphology and presumed function. Subsequent analyses varied by artifact category, but included determination of material type, metric attributes, and condition and classification using established Great Basin typologies. Analysis of debitage was comparable to other work in the region, using flake morphology to suggest the types of lithic production or other activities that occurred at the sites (see Burton 1996).

Lithics were first sorted by material type: cryptocrystalline (chert), basalt/igneous, or obsidian. Obsidian was further differentiated to source based on the criteria in Bettinger et al. (1984), Burton (1990, 1996), and Clay and Hall (1988). Obsidian, by far the most common flaked stone material at prehistoric sites in the Owens Valley, is available at several locations in the region. The closest sources to the Manzanar area include Fish Springs, 23 miles north, and the Coso Volcanic field, 50 miles south. Other obsidian sources commonly represented at sites in the Owens Valley include Casa Diablo (75 miles northwest of Manzanar), Mono Glass Mountain (75 miles north-northwest), Queen (85 miles north), and “Queen Imposter” (from a presently unknown location).
Processing of materials was undertaken at the Western Archeological and Conservation Center in Tucson, Arizona. Selected obsidian specimens were sent to Richard Hughes (Geochemical Research Laboratory) for x-ray fluorescence sourcing and to Tom Origer (Anthropological Studies Center, Sonoma State University) for obsidian hydration dating. Buttons were sent to Lynne Rogers (Archaeological Research Services, Carson City, Nevada) for identification. Faunal remains were analyzed by Jenny Waters (Desert Archaeology, Tucson, Arizona). Curated artifacts and specimens are housed at the WACC Museum Collection Repository (Accession Number 01162). Photographic materials are curated in the WACC library (Accession Number 98:15). Field and analysis notes are located in the WACC Division of Archeology archives (Project Number 1997 D).
### Table 2.1. Field Work Completed.

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* Listed from north to south.

** Subsurface Testing: EU = 1 m by 1 m excavation unit; SEEU = 50 cm by 50 cm subsurface exploratory excavation unit; STU = 25 cm by 25 cm shovel test unit; Trench = mechanical or hand-dug trench; Fea. = cleared or partially cleared feature.

† Surface Inventory: SCU = 5 m by 5 m surface collection/inventory unit, SSU = 1 m by 2 m surface scrape unit; Other = a. diagnostic artifacts collected or photographed b. all cans, lids, and caps tabulated, described and measured, c. complete surface collection.

‡ Mapping: GPS = mapped using hand-held global positioning system unit; P/A = mapped using plane-table and alidade; C/P = mapped using compass and pacing.
Anton Homestead
(CA-INY-4657-H)

The Anton Homestead, on the east side of U.S. Highway 395 approximately two miles north of the Manzanar National Historic Site, was initially recorded as consisting of six features and an associated artifact scatter covering 2,600 square meters entirely within the APE (Reno and Palmer 1986). Three of the recorded features appeared to be associated with an early-twentieth-century homestead. The remaining three features appeared to be more recent. During the present work the boundaries of the site were expanded eastward to encompass 3 acres (12,560 square meters). This area includes a sparse scatter of historical artifacts and concrete rubble mostly to the east of the APE, several tree stumps, a wood stake and small rock pile, a shallow ditch with two check dams made of rocks and sand bags, and a road trace (Figure 3.1).

Historical Background
In their survey report, Reno and Palmer (1996) outline the ownership history of the Anton homestead, summarized here as it relates to the archaeological remains. Reno and Palmer's archival research discovered that the homestead originally consisted of 160 acres located between Manzanar and Independence. Action leading to this patent, and perhaps occupation and construction of improvements, was initiated by Clarence R. Anton late in 1910. In 1914 the land was valued at $2,400, with improvements worth $200. However, by 1918 Anton was recorded as living in Independence. In 1919 he sold 120 acres of the homestead, which includes site CA-INY-4657-H, to Mr. and Mrs. Mike Anton, also residents of Independence, in exchange for lots in Independence. The remaining 40 acres were sold to the Owens Valley Improvement Company, founders of the town of Manzanar. In 1927 Mike Anton sold his portion of the property to LADWP; 1929 LADWP records show no improvements on the property. Two ditches through the site are part of an extensive system of ditches and levees constructed around 1967 by the LADWP for flood control and groundwater recharge.

Results
The three historical features within the APE include a dirt-filled concrete- and cobble-walled cellar (Feature 4), a small concrete foundation (Feature 1), and what was originally recorded as a possible privy pit (Feature 6). As mentioned above, two ditches through the site (Features 2 and 3) are recent, as is Feature 5, a camp fire ring. During this testing Feature 1 was completely exposed, about half of the Feature 4 cellar was excavated, and a 1 m by 1 m unit (Excavation Unit 3) was excavated within Feature 6. In addition, three 1 m by 1 m excavation units, four 50 cm by 50 cm SEEUs, and a hand-dug trench.
were excavated at the site. Two of the 1 m by 1 m units were placed within artifact concentrations and one was placed at a small concrete rubble concentration. Surface inventory included the tabulation of artifacts within the cellar before it was excavated and within two 5 m by 5m units, an inventory of all cans, lids, and can and bottle closures, and the completion of a 1 m by 2 m surface scrape.

Feature 1 (small foundation)
This feature was completely cleared and a scale drawing was prepared. However, rather than being related to habitation as originally postulated by Reno and Palmer (1996), it turned out to be a concrete irrigation
diversion box (Figures 3.2-3.4). Measuring 6½ by 4 by 5 ¾ feet deep, the box includes two chambers, an opening through the partition wall, and three outlets connected to concrete irrigation pipes. There is no evidence of a cover. Artifacts collected from the loose sandy fill inside the box included a condensed milk can (knife-slit opened, 2¾ by 2½ inches), an aluminum top pull ring can embossed with “LIFT RING/3 FL/PULL OPEN,” eleven fragments of a sanitary seal coffee can, six 10d wire nails, two nail fragments, and a 16-inch-long U-shaped bolt.

Feature 4 (cellar)
The cellar entry and steps and two portions of the cellar were cleared to below the base of the walls (Figures 3.5-3.7). There was no prepared floor; the floor level was marked by a thin layer of fine sandy silt at the same depth as the base of the cellar walls. Three major strata were identified within the cellar (Figure 3.8). Stratum 1, from the surface to about 16 cm deep, consisted of loose grayish brown (10YR 5/2) coarse sand and fine silt, with some concrete rubble and small boulders and abundant charcoal. Stratum 2, from about 16 to 52 cm depth, consisted of light brownish gray (10YR 6/2) coarse sand and fine silt, with some charcoal. Within this stratum are four thin layers of pale brown (10YR 6/3) to very pale brown (10YR 7/3) clayey silt. Strata 1 and 2 are the cellar fill, and Stratum 2 extends to the base of the cellar wall. Below the cellar wall base is the final stratum encountered (Stratum 3), consisting of culturally-sterile light gray (10YR 7/2) fine sand and silt.

The cellar, about 10-foot-square, is constructed of mortared rock base walls about 4 foot high and hypothesized to be about 2 foot thick. This substantial base is topped with 1-foot-thick concrete walls which bring the total height of the cellar walls to 5 feet. A gabled wooden roof is indicated by the angle of concrete roof supports atop the east and west walls. The concrete stairs extend from the dirt cellar floor through the south wall to the ground surface. At the base of the steps is a wooden threshold.

All artifacts on the surface within the cellar were collected and tabulated prior to excavation. Mostly recent, these consisted primarily of beverage cans, a few other cans and glass fragments, some bed springs, and a few other items. Artifacts associated with beverages include 22 church-key-opened steel cans (4¾ by 21¾ inches; post 1935), a church-key-opened condensed milk can (3¾ by 21¾ inches), an amber 2½-inch-diameter round bottle base (embossed with “c” on the bottom and “N B B G CO” on the side (North Baltimore Bottle Co., 1885-1930), an amber crown cap finish bottle lip fragment, nine other amber glass fragments, and two olive green wine bottle body fragments.

Items associated with food storage from the surface include two roller-opened sanitary seal cans (one 4½ by 3 inches with “J 20” embossed on the base and the other 4 by 2½ inches), a key-opened sanitary seal can (3¾ by 5 inches), an oval roller-opened sanitary seal can, a key-opened rectangular can (6¾ by 2¼ by 4¾ inches), two fragmentary sanitary seal cans, a sanitary seal can fragment, a 2½-inch-diameter friction lid, three can lid fragments, a 2½-inch-diameter aluminum lid embossed with “TO OPEN PUNCTURE THIS THIN ALUMINUM,” and a “Wheat Thins” box.

Recovered structural remains from the surface of the cellar include five pieces of window glass, a stove pipe flashing with a 5½-inch-diameter hole, and six ½-inch-mesh window screen fragments. Furnishings include eight bedsprings, a connecting hook and connecting spring, and three pieces of carpet tack strip. Personal items and tools include a round 1½-inch-diameter lens (possibly from binoculars), a roofing tar brush head (Figure 3.9a), and a 5-inch-diameter paint can lid.
Artifacts recovered from the cellar fill were similar to those items collected from the surface of the cellar, with the addition of some structural remains and a few potentially older items such as mason jar fragments and condensed milk cans. Artifacts associated with beverages include seven steel church-key opened cans like those on the surface, an amber bottle base fragment embossed on the side with "I. P. C. co. 1.10" (Illinois Pacific Glass Co., San Francisco, 1902-1925), nine other amber glass fragments, a green glass fragment, two knife-slit opened condensed milk cans (3½ by 2¹⁵⁄₁₆ inches; 1917-1929 [Simonis n.d.]), and a 2-inch-diameter condensed milk can top. Food storage artifacts include a 4¾ by 2½ inch sanitary seal can with a 2-inch-diameter pry-off opening, 29 can fragments, a 2¾-inch-diameter can lid, a 3¾-inch-diameter can lid, two can lid fragments, and two aqua glass fragments likely from mason jars. Recovered structural artifacts include a 7d and a 5d wire nail and five pieces of lumber from the fill, and
two 20d wire nails and a nail fragment from a wood threshold at the base of the concrete steps. Three of the lumber fragments are burned and one has red paint on one face. Other recovered items consist of a bird bone fragment, five bedsprings, and a bicycle front wheel fork.

Other Newly Recorded Features
Feature 7 is the remains of a rock pile and a wood stake at the northeast corner of the Anton property. The scattered rocks were covered by brush and the stake is very desiccated (Figure 3.10). Ten stumps and fallen trees and an old road trace to the east of the site (Figure 3.11) also appear to be associated with the historical occupation of the site.

Stratigraphy
Outside of the excavated features two strata were identified. Within Trench 1 and the test units cultural material was generally restricted to the upper 10 to 20 cm. Stratum 1, from the surface to a maximum depth of 30 cm, consists of brown (10YR 5/3) to light brownish gray (10YR 6/2) gravelly silty sand becoming slightly compact and less gravelly with depth. Below Stratum 1, Stratum 2 consists of culturally sterile compact to very compact light yellowish brown (10YR 6/4) silty sand.

Trench 1
This trench, 30 cm wide by 50 cm deep by 18 m long, was hand-dug in a general east-west line south of the cellar to see if any residence remains could be found. Sediments consisted of a thin layer of loose gravelly silty sand overlying compact sterile soil. No features were noted and only a few scattered artifacts, all from the upper 5 cm, were encountered. Structural artifacts include two window glass fragments, a heavily water-worn red brick fragment approximately 2 1/4 inches thick, and eight wire nails. The wire nails include one 30d nail, two 20d nails, three 8d nails, and two 5d nails. Other recovered items include a white ware plate base fragment, a white ware rim fragment, two white ware body fragments, an iron gear fragment, a 1/2-inch-diameter metal ball, two metal buckle parts, a leather fragment, an animal bone, and three fragments of a brown glazed ceramic insulator, likely from a nearby power line.

Excavation Unit 1
This 1 m by 1 m unit was excavated within a small (4 m by 8 m) artifact concentration located north of the cellar. The concentration was basically a surface deposit; no artifacts were recovered from below 10
cm. Most of the artifacts recovered from the unit are associated with processed foods and home canning. Home canning is represented by eight $2^{11/16}$-inch-diameter flat canning jar lids (two embossed with "KERR/WIDE MOUTH/MASON/JAR/FAT 8-31-15"), two fragments of $2^{3/4}$-inch-diameter canning jar lids (embossed...
Figure 3.8. Sidewall profile, NE Excavation Unit, Feature 4, CA-INY-4657-H.

Figure 3.9. Large artifacts from CA-INY-4657-H; a. roofing tar brush (FN-764), b. enamelware bowl (FN-789).

with “KERR [MA]SON”), two canning jar metal ring band fragments, six clear glass body fragments with embossed lettering (portions of “Kerr” logo), a clear round 3¼-inch-diameter jar base (embossed with “KERR GLASS MFG CO/PAT/AUG 31/1915/SAND SPRINGS OKLA”), and 31 clear jar fragments with embossed web-like design. Processed foods are represented by the top of a hole-in-cap rectangular meat can (3¼ by 2½
inches, cap 1⅛ inch diameter), a clear round base (3½ inch diameter) embossed with “BEST FOODS REGISTERED,” a clear rectangular bottle base fragment embossed with “6[O]7” (Owens Bottle Company, 1927) and 54 clear glass fragments.

Recovered artifacts associated with beverages consist of seven crown caps (some with cork liners), 19 amber glass fragments, a green glass fragment, and a 5-inch-diameter key-opened coffee can lid. Other recovered items include fragments of a blue willow saucer manufactured by Globe Pottery Ltd (ca. 1914-1932 [Cushion 1996:121]; Figure 3.12a), a black and brown porcelain figurine fragment, an oval-base talcum power can (4¾ by 2½ by 1 inch) with sprinkle top, a pocket tobacco can friction lid (3 by 7/8 inch), and a pocket tobacco can with hinged lid (4¾ by 3¾ inches). The tobacco can had a red-on-silver foil “Lucky Strike” cigarette package inside it (post 1960, Greg Fox, personal communication, 1998).

Excavation Unit 2

This unit was placed within a 3 m by 4 m artifact concentration located northeast of the cellar. No artifacts were recovered from below 10 cm, however a possible base of an in situ post was encountered in the east sidewall between 15 and 45 cm (Figures 3.13 and 3.14).

Recovered artifacts include nails, lumber fragments, glass fragments (including a piece of sun-colored amethyst glass), cans and can fragments, and a few other items. The nails include 61 wire nails, a 60d spike, two finishing nails (1¾ and 1½ inches long), thirteen ¾-inch staples, two 1-inch staples, five 1¼-inch staples, five 1-inch-long casing nails, a ½-inch-long upholstery nail, two 1½-inch-long cut flooring nails, and one 1-inch-long cut flooring nail. The wire nails consist of one 12d nail, one 10d nail, two 9d nails, seven 8d nails, seven 7d nails, four 6d nails, sixteen 5d nails, sixteen 4d nails, three 3d nails, and four 2d nails. The sizes and types of nails suggest shingles, siding, and flooring (finish work) rather than framing.
Figure 3.12. Ceramics from CA-INY-4657-H; a. Blue willow design saucer with Globe Pottery Company backstamp (FN-758, -771, -774), b. partial Johnson Brothers Backstamp (FN-755), c. partial Johnson Brothers backstamp (FN-740).
Food storage items from Excavation Unit 2 include a sanitary seal can (4\(\frac{1}{8}\) by 3\(\frac{3}{8}\) inches) with a cut open top, two sanitary seal can fragments, a melted aqua glass fragment embossed with “KERR,” an aqua bottle base fragment embossed with “L...,” seven other aqua glass fragments, and two burned sun-colored amethyst glass fragments. Furnishings recovered include a glazed white ceramic drawer pull (1 by \(\frac{3}{4}\) inches), a coil bedspring, two bedspring hooks, and two lamp or lightbulb fragments (one slightly sun-colored amethyst). Other recovered items include four animal bones, a safety pin (Figure 3.15a), a braided chain watch bob (see Figure 3.15c), and a 14-inch-long piece of smooth wire.

Excavation Unit 3 (Feature 6, Well)

This unit was placed within a 3-m-diameter depression (Feature 6) considered a possible privy pit during initial site recording. Recovered from the upper 65 cm (removed as a single level) of the excavation unit were some recent roadside litter, such as aluminum cans, and a few small pieces of burned lumber. At 65 cm the amount and diversity of artifacts increased so excavation was continued in 10 cm levels. Excavation was halted at 108 cm where an 18-cm-diameter in situ steel well pipe, a wooden post, and lumber framing were encountered (Figure 3.16). A weighted line dropped down the well pipe went down 12 m before stopping. Artifacts recovered between 65 and 108 cm include an enamelware bowl (see Figure 3.9b), can fragments, barbed wire, wire nails, and abundant burned lumber fragments. It is not clear how high or deep this well cribbing (if that is what the lumber indeed represents) originally extended. The soil changes at 65 cm below the surface with the layer of wood debris, from light yellowish brown (10YR 6/4) to yellowish brown (10YR 5/4). At the termination of the excavation unit the soil is loose brown (10YR 5/3) silty sand with gravels throughout.

Most of the artifacts, especially those recovered from below 65 cm, were very corroded and fragmentary. Complete items include a 7\(\frac{3}{4}\)-inch-diameter enamelware bowl, two steel beverage cans (4\(\frac{3}{4}\) by 2\(\frac{1}{16}\) inches and 6\(\frac{1}{4}\) by 2\(\frac{11}{16}\) inches), a crown cap, and a steel motor oil can (5\(\frac{5}{8}\) by 4 inches with a single church key-oil spout opening) embossed with “TRITON/S.A.E./30” on the top and TRITON on the bottom. A total of 161 nails or nail fragments was recovered, but only one, a 6d wire nail, was complete enough to measure. Other fragmentary items recovered include 154 small can fragments, 23 barbed wire fragments (the longest 16 inches), four fragments of smooth wire, 12 bits of tin foil, and three fragments of a 1\(\frac{1}{4}\)-inch-diameter cork cap liner. Recovered food remains were limited to three peach pit fragments, a walnut shell half, and an animal bone. The trash was apparently washed in or thrown into the well after it was abandoned.
Figure 3.15. Miscellaneous small metal artifacts from CA-INY-4657-H; a-b. Safety pins (FN-777, -738), c. watch bob (FN-780), d-e. clothing buckles (FN-761, -812), f-j. suspender buckles (FN-761, -761), k. suspender buckle (FN-812).

Excavation Unit 4
This unit was excavated at a small concentration of concrete rubble 2 m by 3 m in size approximately 30 m east of the cellar. No artifacts or additional rubble were encountered.
Subsurface Exploratory Excavation Units

Four 50 cm by 50 cm SEEUs were excavated at the site outside of artifact concentrations to test for subsurface materials in other areas of the site.

SEEU 1 was placed 7 m southwest of the well depression (Feature 6). Seven glass fragments were recovered from the surface, seven glass fragments and an animal bone fragment from the 0-10 cm level, and one glass fragment from the 10-20 cm level of this unit. No artifacts were found in the 20-40 cm levels. All of the glass was light aqua in color and likely came from the same jar. One piece is an octagon base fragment. Embossed lettering includes "...rugh & co." and "...ottled ..."

SEEU 2 was placed 25 m southeast of the cellar (Feature 4) within a sparse scatter of artifacts. A smashed 4 3/8 inch by 3-inch-diameter condensed milk can and an aqua bottle glass fragment were recovered from the surface of this unit, excavated to 40 cm deep.

SEEU 3 was placed within a sparse scatter of artifacts in the south central portion of the site. A sun-colored amethyst glass fragment, an eroded amber glass fragment, and an indeterminate white ware ceramic body fragment were recovered from the surface and three small animal bone fragments were recovered from the 0-20 cm levels. No artifacts were recovered from the 20-40 cm levels.

SEEU 4 was placed 4 m east of Feature 4 in an area of relatively few surface artifacts. Two animal bones, a burned peach pit fragment, a battery core, a window glass fragment, a metal shoe eyelet, a 2 1/2-inch-long flat head screw, and 74 nails were recovered from the 0-30 cm levels of this unit. Most of the artifacts were from the 0-10 cm level. No artifacts were recovered from the 30-50 cm levels.

Wire nails recovered from SEEU 4 include one 40d, one 30d, one 20d, two 10d, two 9d, two 8d, four 7d, nine 6d, two 5d, three 4d, one 3d, one 2d, and 40 fragments. Other nails recovered include a 2 1/2-inch-long cut nail, a cut nail fragment, a 1 1/2-inch-long horseshoe nail, a 3/4-inch long carpet tack, and a 3/4-inch staple. The abundance of nails in this unit and nearby Excavation Unit 2 suggests that the wood superstructure of the cellar was burned or dismantled in this area.

Figure 3.16. Plan view at 110 cm BD and east sidewall profile, Excavation Unit 3, Feature 6, CA-INY-4657-H.
Surface Scrape Unit 1

This 1 m by 2 m surface scrape unit was placed adjacent to Trench 1 where a buckle was recovered from the trench and another was found on the surface. Recovered from the surface scrape were two “Imperial Union SCOVILL MFG CO” buckles, parts of four other buckles, an “Imperial Union” rivet, seven “Ls & Co s.p.” rivets, two different sized “LEVI STRAUSS & CO ★” buttons, and three other clothing rivets (see Figure 3.15d-k; see Appendix A).

Surface Count Unit 1

The 5 m by 5 m surface count units were placed in areas of moderate artifact density, since the areas of dense artifacts were small enough that the excavation units provided an adequate sample. Eighty-one items, including 73 glass fragments, were tabulated within Surface Count Unit 1, placed 6 m southeast of the cellar (Feature 4). The glass included 36 sun-colored amethyst fragments, a thick clear round base fragment embossed with “2 $\diamond$ 7/5” (Owens-Illinois Bottle Co., post 1932), 36 other clear fragments, and one green bottle neck fragment. Non-glass artifacts included a burned animal bone, two refitting white ware plate fragments with a molded design and a wavy rim, a 2½-inch-long piece of smooth wire, a small can fragment, and three pieces of concrete rubble.

Surface Count Unit 2

Forty-two items, including 25 fragments of an amber whiskey bottle, were tabulated within this 5 m by 5 m unit placed in the central portion of the site near Excavation Unit 4. The whiskey bottle fragments include a twist-off cap finish lip and an oval base embossed with “J 23/ $\diamond$ 165-45” (Owens-Illinois Bottle Co., post 1932). Other artifacts included a sun-colored amethyst glass fragment, a pocket tobacco can and lid fragments (4½ by 3 by ¾ inches), a stovepipe fragment, a 9d wire nail, two 2½-inch-long finishing nails, four can fragments, a wire lard or paint bucket handle, a 12½ by 6 inch piece of sheet metal with two open holes and two rivets, a piece of concrete rubble, a small wood fragment, plastic cap fragments likely from the whiskey bottle, and abundant charcoal.

Surface Collection and Inventory

A selection of functionally or temporally diagnostic artifacts from throughout the site were collected, including food and beverage containers, clothing remains, and ceramics (Table 3.1, Figure 3.15c and Figure 3.17). Most intriguing of the collected artifacts are two fragments of an electrical porcelain wiring knob found 4 m north of the cellar. These fragments offer some of the most tangible evidence of a residence at the site.

In addition to the surface-collected material, all other cans, lids, and caps at the site (n=159) were recorded. Although the cans were not found in any concentrations, they constituted the most abundant artifact class (metal containers and lids) at the site. Twenty-six percent are standard sanitary seal food cans, 13 percent are condensed milk cans, 19 percent are beverage cans, 4 percent are meat cans, and 5 percent are pocket tobacco cans. Other recorded items include paint, spice, oil, fuel, and coffee cans, a lard bucket, crown caps, can lid and end fragments, and canning jar lids.

There are 43 sanitary seal food cans; the 19 measurable cans include 13 sizes (Table 3.2). Thirty-one beverage cans recorded include 16 all steel church-key-opened cans (post 1935) and 15 completely or partially aluminum cans (post 1965), likely roadside litter. The 21 condensed milk cans include 13
measurable cans, of six sizes (Table 3.3). The only dateable size listed in Simonis (n.d.) is 27\(\frac{1}{16}\) by 2\(\frac{1}{2}\) inches which dates to between 1920 and 1931. The seven rectangular meat cans recorded at the site include four key-opened, one cut open, one ripped open, and one hole-in-cap can. Embossments include “NORVEGE,” “KIPPERED HERRINGS PACKAGED IN NORWAY,” “LIBBY’S VEAL LOAF,” and “PORK AND MEAT BY PRODUCTS US INSPECTED...” Other cans include two Schillings baking powder cans, four coffee cans (“MJB” and “Maxwell House”), two spice/extract cans, and two lard buckets.
Table 3.1. Surface collected Artifacts from CA-INY-4567-H.

<table>
<thead>
<tr>
<th>Map Ref.</th>
<th>FN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>736</td>
<td>Condensed milk can, knife slit opened, 4⅛ by 3 inches</td>
</tr>
<tr>
<td></td>
<td>758</td>
<td>Two small glazed electrical porcelain solid knob fragments</td>
</tr>
<tr>
<td>2</td>
<td>737</td>
<td>Clear bottle base, 3⅛-inch diameter, embossed with &quot;2/ 7/5&quot; (Owens-Illinois Bottle Co., post 1932).</td>
</tr>
<tr>
<td>3</td>
<td>738</td>
<td>Safety pin(Figure 3.15b)</td>
</tr>
<tr>
<td>4</td>
<td>739</td>
<td>Metal buckle embossed with &quot;S IH...&quot;</td>
</tr>
<tr>
<td>5</td>
<td>740</td>
<td>Indeterminate ceramic base fragment with portion of Johnson Bros backstamp (post 1913; Figure 3.12b)</td>
</tr>
<tr>
<td>6</td>
<td>741</td>
<td>Melted sun-colored amethyst bottle with applied lip</td>
</tr>
<tr>
<td>7</td>
<td>742</td>
<td>MJB coffee can, 6½ by 5 inches (post 1922)</td>
</tr>
<tr>
<td>8</td>
<td>743</td>
<td>Maxwell House coffee can, 6¾ by 4⅛ inches (post 1928; Figure 3.17a)</td>
</tr>
<tr>
<td>9</td>
<td>744</td>
<td>Nail and cap (for canvas or roofing)</td>
</tr>
<tr>
<td>10</td>
<td>745</td>
<td>Clear-green tint round bottle base, 2⅝-inch diameter, no marks</td>
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<tr>
<td>11</td>
<td>746</td>
<td>Can lid, 2¾-inch diameter with central nail (?) hole</td>
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<tr>
<td>12</td>
<td>747a</td>
<td>Friction lid can, 5⅛ by 3¼ inches, lid embossed with &quot;SCHILLINGS/BEST/16 oz&quot; (Figure 3.17b)</td>
</tr>
<tr>
<td></td>
<td>747b</td>
<td>Sanitary seal can, 4⅛ by 3⅛ inches, ¾ opened with P-38-type opener and folded back, embossed on bottom with &quot;7BA26&quot;</td>
</tr>
<tr>
<td>13</td>
<td>748</td>
<td>4⅛-inch-long metal strap</td>
</tr>
<tr>
<td>14</td>
<td>749</td>
<td>Smashed pocket tobacco can, 4 by 3½ by 3⅞ inches, embossed on front and back with &quot;FOUR ROSES SMOKING TOBACCO&quot; and rose design (see Figure 3.17c)</td>
</tr>
<tr>
<td>15</td>
<td>750</td>
<td>Light agua glass canning jar fragment embossed with “[K]ER[R]...” (1914-1946)</td>
</tr>
<tr>
<td>16</td>
<td>751</td>
<td>Rectangular can with threaded cap, low flow pour-able opening, 4½ by 2⅝ by 1⅜ inches (Figure 3.17d)</td>
</tr>
<tr>
<td>17</td>
<td>752</td>
<td>3⅛-inch diameter round light agua canning jar base embossed with “KERR GLASS MFG CO/PAT/A...31/1915/SAND SPRINGS OKLA,” (1913-1946)</td>
</tr>
<tr>
<td></td>
<td>758</td>
<td>Two fragments of a “blue willow” plate (refits with fragments from Excavation Unit 1)</td>
</tr>
<tr>
<td>18</td>
<td>753</td>
<td>Flat canning jar lid embossed with “Kerr/MASON/PAT/8<em>31</em>15” (1913-1946)</td>
</tr>
<tr>
<td>19</td>
<td>754</td>
<td>Metal tag embossed with “bb/10/ro...bling”</td>
</tr>
<tr>
<td>20</td>
<td>755</td>
<td>Indeterminate white ware base fragments with portion of the Johnson Bros. backstamp (post 1913; see Figure 3.12c)</td>
</tr>
<tr>
<td>21</td>
<td>756</td>
<td>Flat canning jar lid embossed with “Kerr/SELF SEALING/MASON/PAT/8<em>31</em>15” (1913-1946)</td>
</tr>
<tr>
<td>22</td>
<td>735</td>
<td>Shell button</td>
</tr>
</tbody>
</table>
Other cans at the site include eight 3\(\frac{3}{4}\)- to 4\(\frac{3}{8}\)-inch-high tobacco cans, all with hinged lids, a one-gallon paint can, oil motor oil cans (one embossed with "SAE 30" and two embossed with "Quaker State"), a sterno can and lid (embossed with "Stern/Canned Heat/Made in USA"), and six smashed or fragmentary rectangular fuel cans. Closures include six "Kerr" canning jar lids, five can ends, two pry-off lids, one key-removed top, two bottle caps, three crown caps, and a friction lid. Eight miscellaneous can fragments at the site could not be further classified.

Other metal artifacts noted at the site were stove pipe, a galvanized bucket, a barrel hoop, an enamelware bowl, and a wire mesh calf weaner.

**Discussion**

CA-INY-4657-H appears to contain about equal portions of materials related to the Anton homestead, a 1940-50s camping event, and more recent roadside litter (Table 3.4, Figure 3.18). The artifacts near the highway are mostly beverage, leisure, and automobile related. The majority of artifacts in the fill of the cellar as well as some scattered elsewhere in the site appear are beverage containers apparently from camping or hunting in the late 1940s or early 1950s. The fire ring (Feature 5) just southwest of the cellar may also be from that event.

Other domestic artifacts and structural remains are associated with the historical occupation of the site. The Anton homestead shows up in archaeological evidence of two occupations, the first by Clarence Anton in the early 1910s to apparently satisfy homestead requirements, and the second in the mid to late 1920s probably coinciding with Mr. and Mrs. Mike Anton’s ownership.

There is little that can be definitely attributed to the first occupation, other than some fragments of sun-colored amethyst glass. The cellar may be the improvement listed in the patent claim. Indeed, it is possible that the cellar was the only structure constructed to satisfy homestead requirements. No

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**Table 3.2. Measurable Sanitary Seal Cans in Surface Inventory at CA-INY-4657.**

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**Table 3.3. Measurable Condensed Milk Cans in Surface Inventory at CA-INY-4657.**

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<td>2(\frac{1}{2})&quot;</td>
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</table>
information on any buildings present at the site was found in LADWP and Eastern California Museum files. Reno and Palmer (1996) deduced from the archival record and their archaeological survey results that the land was acquired primarily for its real estate value, not to establish a subsistence farm. The paucity of early features and artifacts recovered during testing corroborates their interpretation. There is no evidence the cellar was originally used for anything but storage; artifacts near the floor are restricted to a few canning jar and tin fragments.

There is more evidence of use during mid to late 1920s, with food storage and home canning artifacts. But cultural material is still sparse, suggesting a short-lived or part-time occupation with the farm or grazing land managed from Independence. The most substantial evidence that the homestead ever amounted to much are the well and tree stumps, since the trees must have been planted. The irrigation box, the farthest north feature recorded of the town of Manzanar irrigation system shows the extent of the Manzanar infrastructure put in by the town’s developers.
Table 3.4. Artifacts and Ecofacts in Excavation and Surface Count Units at CA-INY-4657.

<table>
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<th>OBJECT CLASSIFICATION</th>
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<tr>
<td>Structural Materials</td>
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<td>Grooming and Hygiene</td>
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<td>Miscellaneous Tools</td>
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<tr>
<td><strong>Unclassified</strong></td>
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Bogart Homesite
(CA-INY-4883-H; MANZ 1993 A-23)

This site, northwest of the entrance to the National Historic Site, encompasses a portion of the town-era Bogart homesite (Lot 125). Bordered on the east by U.S. Highway 395, the site includes two historical features and a sparse scatter of historical and prehistoric artifacts covering 2,800 square meters. The prehistoric component at the site is discussed in Chapter 11. No building remains associated with the Bogart Farm were identified during initial site recording, and the identification of the two features recorded was unclear. Feature 1 was initially recorded as a partially buried concrete weir box. Feature 2 consists of scattered brick and concrete fragments exposed during the installation of a buried fiber optics line. A 30-foot-diameter historical artifact concentration around a lone tree (CA-INY-4882-H, MANZ 1993 A-24) 50 m west of CA-INY-4883-H is also likely associated with the Bogart Homesite. However, this trash deposit was not tested since it is located well outside the APE.

Historical Background
LADWP records indicate that the Bogart property included nine structures, a 10-acre apple orchard, and a 10-acre alfalfa field. The structures included a four-room residence, a tent sleeping house, a garage, a cellar, a shelter, a corn crib, a pig sty, a stable, and a chicken house (Table 4.1; Figures 4.1-4.9). The residence is noted as having a concrete foundation, indoor plumbing, and electrical wiring. The total assessed value of the structures in 1929 was $1,660.00. No information was located about Bogart’s initial purchase of the property or his development of the farm, but its configuration and location indicate the farm was one of the town lots, and therefore settled after the town was subdivided in 1910. In 1927 W.V. Bogart sold his holdings to LADWP for $8,000. On May 14, 1934, LADWP recommended that the buildings be salvaged and on November 7, 1934, they were sold for removal for $250.00.

Results
Subsurface testing at the site included the excavation of three 1 m by 1 m and five 50 cm by 50 cm excavation units. In addition, the two features were exposed (Figure 4.10). In the absence of artifact concentrations, the test units were generally placed along an arbitrary north-south alignment across the eastern portion of the site (within the APE). Surface artifacts within the APE were so sparse that general surface collection was used rather than surface count units. Collected artifacts were point-provenienced. Also noted within the site boundary were a few obsidian flakes and an obsidian projectile point, and six flakes were recovered from the excavation units (see Chapter 11). Contrary to the initial interpretations, upon excavation Feature 1 was discovered to be a septic tank, not an irrigation feature. Excavation units 1 and 3, east of the septic tank, encountered remains of the Bogart residence foundation. The second f
Figure 4.1. Residence at the Bogart homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 4.2. Tent sleeping house at the Bogart homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 4.3. Storeroom and garage at the Bogart homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 4.4. Corn crib at the Bogart homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 4.5. Pig sty at the Bogart homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 4.6. Shelter at the Bogart homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).
Figure 4.7. Stable at the Bogart homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 4.8. Chicken House at the Bogart homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 4.9. Cellar at the Bogart homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Feature at the site, the concrete and brick fragments, proved to be a relocation center manhole damaged by the installation of a buried fiber optics cable. It is described in Chapter 10.

Feature 1 (septic tank)
This feature, a partially buried concrete box and cover, was exposed to reveal a septic tank. The tank measures 5 feet by 9 feet and has four broken and partially collapsed 3½-inch-thick concrete slab covers with looped metal handles (Figure 4.11 and 4.12). The tank and covers were originally bonded (sealed) with cement mortar and two of the covers have impressed dog paw prints. The concrete covers were not removed for inspection, but from what can be seen the interior of the tank is similar to a septic tank discovered at the Strohmeyer residence (see Chapter 8). Inlet and outlet pipes are 5-inch-diameter salt-glazed ceramic pipes. The pipes were followed by hand-trenching. The outlet pipe extended 25 feet west to a corrugated metal cover that likely covers a seepage pit similar to one connected to the septic system at the Strohmeyer residence. The inlet pipe extended 10 feet east where it abruptly ended.
Table 4.1. Building Information from 1929 LADWP Valuation of Improvements Record for the Bogart Homesite (Lot 125, Owens Valley Improvement Company Subdivision No. 2).

<table>
<thead>
<tr>
<th>Bldg. No.</th>
<th>Type and Use</th>
<th>Sq. Feet Floor Area</th>
<th>Value</th>
<th>Condition</th>
<th>Remarks</th>
</tr>
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<tr>
<td>BR 139</td>
<td>Rustic Frame Residence</td>
<td>892</td>
<td>$1595</td>
<td>Excel.</td>
<td>Concrete foundation, shingle roof, interior finish wallboard, 1&quot; by 2½&quot; floors, four rooms, wired and plumbing</td>
</tr>
<tr>
<td>BT 107</td>
<td>Frame Tent Sleeping House</td>
<td>168</td>
<td>–</td>
<td>Poor</td>
<td>Shingle roof, 1&quot; by 12&quot; floor</td>
</tr>
<tr>
<td>BS 111</td>
<td>Calif. Storeroom and Garage</td>
<td>240</td>
<td>$27</td>
<td>Poor</td>
<td>Shingle roof, 1&quot; by 12&quot; floor and dirt</td>
</tr>
<tr>
<td>BC 83</td>
<td>Calif. Corn Crib</td>
<td>128</td>
<td>–</td>
<td>Fair</td>
<td>1&quot; by 12&quot; floor, no roof</td>
</tr>
<tr>
<td>BS 174</td>
<td>Scrap Pig Stye</td>
<td>171</td>
<td>–</td>
<td>Fair</td>
<td>Patented roof</td>
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<tr>
<td>BS 176</td>
<td>Scrap Shelter</td>
<td>70</td>
<td>–</td>
<td>Fair</td>
<td>Tar paper roof</td>
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<tr>
<td>BB 58</td>
<td>Calif. Stable</td>
<td>368</td>
<td>$36</td>
<td>Poor</td>
<td>Tar paper roof</td>
</tr>
<tr>
<td>BC 84</td>
<td>Scrap Chicken House</td>
<td>120</td>
<td>–</td>
<td>Poor</td>
<td>Tar paper roof</td>
</tr>
<tr>
<td>BC 85</td>
<td>Excavated Box Cellar</td>
<td>84</td>
<td>–</td>
<td>Bad</td>
<td>Dirt roof</td>
</tr>
</tbody>
</table>

No artifacts were recovered during the trenching of the septic tank outflow pipe. A small but varied collection of artifacts was recovered during the trenching of the inlet pipe. Artifacts associated with structural remains include a 1-inch-diameter sink faucet aerator and ten linoleum tile flooring fragments (Figure 4.13). Food storage related artifacts include a partial key-opened meat can (2 by 3 by 2½ inches), seven can fragments, and a 1¾-inch-square clear extract bottle (Figure 4.14a; 4⅛ inches high including the cap, embossed on the base with “6[O]9,” Owens Bottle Company, 1929). Other food-related items include a clear drinking glass rim fragment, a ¼-inch-thick cream-colored glazed stoneware rim fragment, and a peach pit. Also recovered were a melted multiple-dose serum bottle, a small oil can (Figure 4.14i; 3⅛-inches diameter base by 1½ inches high with a 1½-inch spout), a small artist’s paint brush fragment (Figure 4.14e), and four unidentified metal fragments.

**Stratigraphy**
Four strata were identified during excavation of the units and features (Figures 4.15-4.17). Stratum 1 is a very loose brown to dark brown (10YR 5/3-4/3) silty sand occurring from the surface to 5-10 cm depth. Stratum 2 is a loose brown (10YR 5/3) sand with some gravel 50 cm thick below Stratum 1. This stratum included the foundation rubble found in Excavation Units 1 and 3. Below Strata 1 and 2 sediments were
culturally sterile. Stratum 3, up to 70 cm thick, consists of alternating layers of very loose yellowish brown (10YR 5/4) sandy gravel and slightly compact fine yellowish brown (10YR 5/6) sandy silt. Stratum 4 is dark brown to dark yellowish brown (10YR 5/3-4/6) sand with gravel, beginning at about 85 cm depth.
Excavation Unit 1
This excavation unit was placed near the end of the inlet sewer pipe from the septic tank. Recovered from the 0-40 cm levels of this unit were structural remains, four light aqua jar fragments, a light bulb glass fragment, four peach pit fragments, a 1¼ by 7/8 by ¼-inch-thick carbon(?) bar, an animal bone, and an obsidian flake. The recovered structural remains include a screw fragment, four 10d wire nails, four 8d wire nails, two 6d wire nails, 22 wire nail fragments, a ¾-inch roofing nail, a roofing nail fragment, a 2½-inch finishing nail, a 1¾-inch staple, lumber fragments, six cement mortar fragments, a large chunk of mortar, and three linoleum tile flooring fragments. A screw fragment was recovered from the 40-50 cm level and two obsidian flakes were recovered from the 50-60 cm level. The 60-80 cm levels were sterile. Concrete rubble in the northeast corner at 10-45 cm depth is likely the disturbed remains of the Bogart residence foundation.

Excavation Unit 2
This excavation unit, located 17 m south of Excavation Unit 1, yielded 16 artifacts, several peach and cherry pits, and pumpkin seeds in the 0-10 cm level and a nail fragment in the 20-30 cm level. Artifacts
from the 0-10 cm level included two 10d wire nails, one 6d wire nail, two 5d wire nails, one nail fragment, a 1½-inch-square cut nail, a ¾-inch staple, two sun-colored amethyst lamp glass fragments, a metal rivet for leather or upholstery (Figure 4.14d), a garter belt clip (Figure 4.14f), a button hook (?) fragment, a rolled up paste tube painted with white vertical stripes and "MADE IN USA" (Figure 4.14b), a melted lead (?) glob, and a piece of smooth wire.

**Excavation Unit 3**

This unit was placed catty-corner to Excavation Unit 1 to expose more of the concrete rubble encountered in that unit. Concrete rubble was present in the southeast half of the unit between 5 and 50 cm depth. Artifacts recovered in the 0-50 cm levels include glass fragments, metal fragments, nails, a screw, plastic fragments, animal bone, eggshell, a walnut shell, a peach pit, wood fragments, and two obsidian flakes. Wood bits and a very corroded inverted coffee can, approximately 5 by 4½ inches, were recovered from the 50-60 cm level. Wood, likely from decaying tree roots, was recovered from the 60-70 cm level. Structural artifacts from this unit include two window glass fragments, a 2¼-inch flathead screw, one 8d wire nail, one 5d wire nail, three 4d wire nails, a 3-inch finishing nail, a ¾-
Figure 4.14. Miscellaneous Artifacts from CA-INY-4883-H; a. Extract bottle with Owens Bottle Company basemark (FN-345), b. paste tube fragment (FN-365), c. nickel (FN-333), d. rivet (FN-365), e. artist’s brush fragment (FN-343), f. grater belt buckle (FN-365), g. brass hinge (FN-331), h. pruning shears blade (FN-335), i. oil can (FN-341), j. key (FN-330).

Figure 4.15. North sidewall, Excavation Unit 1, CA-INY-4883-H.

Figure 4.16. South sidewall, Excavation Unit 5, CA-INY-4883-H.

inch staple, two ¾-inch small-head roofing nails, 21 wire nail fragments, and a square nail fragment. Other items recovered include a clear glass fragment, three can fragments, three animal bone fragments, a walnut shell fragment, a peach pit, and a small piece of rubber shoe sole.
Subsurface Exploratory Excavation Units

The five 50 cm by 50 cm SEEUs excavated at the site were placed in roughly a north-south alignment in the eastern portion of the site. West of U.S. Highway 395, the right-of-way fence, and a buried fiber optics cable, this portion of the site was thought to have the best potential for undisturbed deposits within the APE.

Recorded from the 0-10 cm level of SEEU 1 were a Levi’s clothing rivet, a piece of smooth wire, a melted clear glass fragment, and an animal bone. No artifacts were recovered from below 10 cm.

Recorded from the 0-10 cm level of SEEU 2 were six nail fragments, a thin \( \frac{3}{4} \)-inch-wide metal band, and a peach pit. Recovered from the 0-20 cm level were two nail fragments and an animal bone.

The only artifact recovered from SEEU 3 was an obsidian flake from the 0-10 cm level.

SEEU 4 yielded a .22 cartridge case, a 2½-inch finishing nail, a \( \frac{3}{4} \)-inch tack, a \( \frac{5}{8} \)-inch corrugated fastener fragment, three whole peach pits, and 30 peach pit fragments from the 0-10 cm level and one whole peach pit and seven peach pit fragments from the 10-40 cm levels.

One peach pit fragment was recovered from the 0-10 cm level of SEEU 5.

Surface Collection

Thirteen prehistoric and 19 historical artifacts were collected from various areas of the site (Table 4.x). The prehistoric artifacts are discussed in Chapter 11. The historical artifacts include six cartridge cases, a bullet, four buttons, three ceramic fragments, a key, a 1924 nickel, a marble trophy base, a pruning shears blade, and a hinge (see Figure 4.14).

Discussion

The Bogart residence was apparently situated closer to U.S. Highway 395 than anticipated – excavation units 1 and 3 are likely near the back of the house. Assuming that the house was 30 to 40 feet long (as suggested by the LADWP square footage records and photographs), the front of the house was probably

Figure 4.17. South sidewall profile, Excavation Unit 3.
between the current highway right-of-way fence and the highway. The historical photograph in Figure 4.1 was probably taken from Independence Avenue (today’s U.S. Highway 395).

There might not be much left of the front of the house. The back can be pinpointed only because of the location of the septic tank and buried sewer pipes. No evidence remains of the large trees depicted in historical photographs, and the foundation rubble is not in place. There has been even more extensive disturbance closer to the highway. LADWP (or perhaps later relocation center use) seems to have done a thorough job of obliterating evidence of the homesite after the buildings were removed. However, remnants of other deeper features, such as the detached cellar known to have been at the homesite, may still be present.

The architectural debris found corroborates the location of the structure indicated by the sewer pipes. Note too, that it corroborates the salvage of the structure: the finishing and roofing nails and other small-dimension nails found are consistent with construction loss remnants, rather than destruction or demolition, which ought to produce larger nails suitable for framing.

The state-of-the-art septic system, when such features were just coming into vogue, indicates a prosperous farm. Bogart likely had peach trees in addition to the apple orchard listed in LADWP records, but the predominance of peach pits at the site probably reflects the fact that peach pits are more likely to be recovered than apple seeds.

Most of the artifacts recovered could date to the known historical period of occupation, 1910-1930 (Figure 4.18), and are probably associated with the Bogart farm. Indeed most of the artifacts, such as clothes buttons from overalls and the pruning shears blade, fit with farm life. A possible exception may be the shotgun shells, which might have been left from the subsequent quail hunting in the area that was common up until the National Historic Site was established.

<table>
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<th>Artifact Type</th>
<th>Dates</th>
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<tr>
<td>REM-UMC</td>
<td>1910-1930</td>
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<tr>
<td>Owens Bottle Co.</td>
<td>1920-1930</td>
</tr>
<tr>
<td>&quot;Red Diamond&quot; button</td>
<td>1920-1930</td>
</tr>
<tr>
<td>Winchester No 12 Leader</td>
<td>1920-1930</td>
</tr>
<tr>
<td>sanitary seal cans</td>
<td>1920-1930</td>
</tr>
<tr>
<td>1901 No 12 Repeater</td>
<td>1920-1930</td>
</tr>
<tr>
<td>&quot;Stronghold Steve&quot; button</td>
<td>1920-1930</td>
</tr>
<tr>
<td>&quot;Sanito&quot; button</td>
<td>1920-1930</td>
</tr>
<tr>
<td>wire nails</td>
<td>1920-1930</td>
</tr>
<tr>
<td>Peters No 16 League</td>
<td>1920-1930</td>
</tr>
<tr>
<td>Levi Strauss</td>
<td>1920-1930</td>
</tr>
<tr>
<td>.22 long (&quot;U&quot;)</td>
<td>1920-1930</td>
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Table 4.2. Surface Collected Artifacts from CA-INY-4567-H.

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<td>332</td>
<td>Metal “Levi” button</td>
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<tr>
<td>2</td>
<td>328</td>
<td>Two shotgun shell bases: “WINCHESTER/NO. 12/LEADER”</td>
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<td>3</td>
<td>332</td>
<td>Metal “Red Diamond” button</td>
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<td>4</td>
<td>328</td>
<td>Shotgun shell base: “PETERS/No 16/LEAGUE”</td>
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<td>5</td>
<td>340</td>
<td>Obsidian flake</td>
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<td>6</td>
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<td>Obsidian flake</td>
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<td>7</td>
<td>328</td>
<td>Metal “Sanito” button</td>
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<td>8</td>
<td>336</td>
<td>Obsidian biface retouch flake</td>
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<tr>
<td>9</td>
<td>340</td>
<td>Obsidian flake</td>
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<td>10</td>
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<td>Metal “Levi” button</td>
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<td>11</td>
<td>337</td>
<td>Obsidian retouched flake</td>
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<td>12</td>
<td>330</td>
<td>Metal lock key embossed with “FRANCIS KEIL/★ &amp; SON ★/NEW YORK//2B” (Figure 4.14j)</td>
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<td>Obsidian flake</td>
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<td>325</td>
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<td>Obsidian flake</td>
</tr>
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<td>16</td>
<td>340</td>
<td>Obsidian flake</td>
</tr>
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<td>17</td>
<td>326</td>
<td>Porcelain plate rim, interior blue geometric design transfer print, Japanese</td>
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<td>340</td>
<td>Obsidian flake</td>
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<td>340</td>
<td>Obsidian core fragment</td>
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<td>21</td>
<td>327</td>
<td>Porcelain bowl rim, hand-painted interior and exterior blue geometric design</td>
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<td>22</td>
<td>328</td>
<td>.22 cartridge casing with “U” headstamp.</td>
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<td>Half of an ornate brass hinge (Figure 4.14g)</td>
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<td>Bullet</td>
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<td>1924 S nickel (Figure 4.14c)</td>
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<td>334</td>
<td>Marble trophy base, 4½ inch square by 15/16 inch thick slab with a central recessed hole</td>
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<td>338</td>
<td>Obsidian projectile point</td>
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<td>335</td>
<td>Pruning shears blade (Figure 4.14h)</td>
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<td>31</td>
<td>329</td>
<td>Shotgun shell base “REMINGTON/UMC/No 12/NITRO CLUB”</td>
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Table 4.3. Artifacts and Ecofacts in Excavation Units at CA-INY-4883-H.

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<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Jewelry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grooming and Hygiene</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Money</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ammunition</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leisure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automobile</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous Tools</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toys</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unclassified</td>
<td>9</td>
<td></td>
<td></td>
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</tbody>
</table>
Downtown Manzanar

(CA-INY-4876-H; MANZ 1993 A-16)

This 15-acre site, straddling Highway 395 and partially within the Manzanar National Historic Site, comprises the central portion of the town of Manzanar and the adjacent Lacey Homesite. Included within this area were a store, garage, two-story community hall and packing house, two homes, and numerous other smaller buildings, such as latrines, sheds, and chicken houses. The portion of the site on the east side of U.S. Highway 395 (the location of the garage) was not included in the present testing project, since it had been previously determined to be ineligible for the National Register based on surface evidence (Reno and Palmer 1996).

Historical Background

Four of the former town lots encompassed by CA-INY-4876-H had improvements listed in the 1929 LADWP Valuation: Lots 103, 116, 143, and 234. Lot 116 is at the northwest corner of the intersection of Francis Street (now the Manzanar-Reward Road) and Independence Avenue (now U.S. Highway 395). Listed on that lot are a store with a basement or addition, a six-room residence with a concrete foundation, a garage, a shed with a concrete floor and plumbing, and two chicken houses (Tables 5.1, Figures 5.1-5.5). The store and residence were wired for electricity. The total assessed value of the structures was given as $2,944.00. Built in 1911 or 1912, the store also served as the post office and housed the town’s only telephone. Originally owned by Ira Hatfield, it was purchased in 1918 by the Bandhauer family, who owned it until 1924 when the property was purchased by LADWP. The residence, garage, and shed were sold and moved to Independence in July 1934. The store and chicken houses were removed in May 1935.

Lot 143, at the southwest corner of Francis Street and Independence Avenue, included the town hall, a small shed, and two latrines (Table 5.2, Figures 5.6-5.9). The town hall had two large meeting rooms, four offices, and a landing platform at the rear. The total assessed value of the structures was given as $2,369.00. All were noted as salvaged by LADWP with the materials stored in the Independence Warehouse as of September 1936.

At Lot 234, at the northeast corner of the intersection of Francis Street and Independence Avenue, improvements noted include a garage, two latrines with concrete floors and plumbing, and a small shed (Table 5.3, Figures 5.10-5.13). The total assessed value of structures was $1,000.00. All were salvaged by LADWP on June 22, 1934.

Located on the north side of Francis Street west of the Manzanar Store was the Tom Lacey Place, Lot 103.
Figure 5.1. Store owners’ residence (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 5.2. Manzanar store (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 5.3. Garage at the Manzanar store (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 5.4. Shed at the Manzanar store (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 5.5. Chicken coop at the Manzanar store (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 5.6. Manzanar community hall (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).
Table 5.1. Building Information from 1929 LADWP Valuation of Improvements Record for the Manzanar Store (Lot 116, Town of Manzanar).

<table>
<thead>
<tr>
<th>Bldg. No.</th>
<th>Type and Use</th>
<th>Sq. Feet Floor Area</th>
<th>Value</th>
<th>Condition</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR 185</td>
<td>Frame Residence</td>
<td>1139</td>
<td>$1709</td>
<td>Good</td>
<td>Concrete foundation, shingle, interior walls plastered, 4&quot; O.P. floors, six rooms, wired</td>
</tr>
<tr>
<td>BS 132</td>
<td>Frame Store</td>
<td>390 1455</td>
<td>$1188</td>
<td>Fair</td>
<td>4&quot; O.P. floors, wired 3 phase, tar paper flat roof</td>
</tr>
<tr>
<td>BG 134</td>
<td>Box Garage</td>
<td>221</td>
<td>$47</td>
<td>Poor</td>
<td>Shingle roof</td>
</tr>
<tr>
<td>BS 134</td>
<td>Calif. Shed</td>
<td>256</td>
<td>–</td>
<td>Bad</td>
<td>Concrete floor, plumbing</td>
</tr>
<tr>
<td>BC 87</td>
<td>Calif. Chicken House</td>
<td>136</td>
<td>–</td>
<td>Bad</td>
<td>Scrap roof</td>
</tr>
</tbody>
</table>

Table 5.2. Building Information from 1929 LADWP Valuation of Improvements Record for Manzanar Town Hall (Lot 143, Town of Manzanar).

<table>
<thead>
<tr>
<th>Bldg. No.</th>
<th>Type and Use</th>
<th>Sq. Feet Floor Area</th>
<th>Value</th>
<th>Condition</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH 125</td>
<td>Frame Town Hall</td>
<td>4000</td>
<td>$2322</td>
<td>Good</td>
<td>4&quot; O.P. floors, concrete foundation, two halls and four office rooms, interior walls plastered, 14' landing platform on one side, 19½' platform on rear</td>
</tr>
<tr>
<td>BS 133</td>
<td>Calif. Lumber Shed</td>
<td>416</td>
<td>$47</td>
<td>Poor</td>
<td>Wired, 1&quot; by 12&quot; floor, 6' platform, tar paper roof</td>
</tr>
<tr>
<td>BL 57</td>
<td>Calif. Latrine</td>
<td>26</td>
<td>–</td>
<td>Bad</td>
<td>1&quot; by 12&quot; floor, shingle roof</td>
</tr>
<tr>
<td>BL 58</td>
<td>Calif. Latrine</td>
<td>19</td>
<td>–</td>
<td>Bad</td>
<td>1&quot; by 12&quot; floor, turned over shingle roof</td>
</tr>
</tbody>
</table>
Figure 5.7. Shed at the Manzanar community hall (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 5.8. Latrine at the Manzanar community hall (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 5.9. Latrine at the Manzanar community hall (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 5.10. Manzanar garage (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 5.11. Latrine at the Manzanar garage (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 5.12. Latrine at the Manzanar garage (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).
Table 5.3. Building Information from 1929 LADWP Valuation of Improvements Record for Manzanar Garage (Lot 234, Town of Manzanar).

<table>
<thead>
<tr>
<th>Bldg. No.</th>
<th>Type and Use</th>
<th>Sq. Feet Floor Area</th>
<th>Value</th>
<th>Condition</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>BG 133</td>
<td>Concrete Block Garage</td>
<td>26,400 cu. ft.</td>
<td>$1000</td>
<td>Fair</td>
<td>Concrete floor, wired, 8'6&quot; concrete walk, building badly cracked, four rooms, 4&quot; O.P. floors, interior walls plaster board</td>
</tr>
<tr>
<td>BL 119</td>
<td>Calif. Latrine</td>
<td>50</td>
<td>-</td>
<td>Bad</td>
<td>Concrete floor, plumbing</td>
</tr>
<tr>
<td>BL 120</td>
<td>Calif. Latrine</td>
<td>50</td>
<td>-</td>
<td>Bad</td>
<td>Concrete floor, plumbing</td>
</tr>
<tr>
<td>BC 86</td>
<td>Scrape Conf. Std.</td>
<td>93</td>
<td>-</td>
<td>Bad</td>
<td>Tar paper roof</td>
</tr>
</tbody>
</table>
Table 5.4. Building Information from 1929 LADWP Valuation of Improvements Record for Tom Lacy Place (Lot 103, Town of Manzanar).

<table>
<thead>
<tr>
<th>Bldg. No.</th>
<th>Type and Use</th>
<th>Sq. Feet</th>
<th>Value</th>
<th>Condition</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR 152</td>
<td>Frame Residence</td>
<td>888</td>
<td>$1075</td>
<td>Good</td>
<td>Concrete foundation, wall board interior finish, shingle roof, 4&quot; O.P. floors, five rooms, wired</td>
</tr>
<tr>
<td>BG 115</td>
<td>Box Stable</td>
<td>230</td>
<td>–</td>
<td>Bad</td>
<td>Tar paper roof</td>
</tr>
<tr>
<td>BL 113</td>
<td>Scrap Latrine</td>
<td>20</td>
<td>–</td>
<td>Bad</td>
<td>Tar paper roof, 1&quot; by 12&quot; floor</td>
</tr>
</tbody>
</table>

of the Manzanar townsite. Improvements listed in the LADWP valuation include a 888-square-foot five-room residence, a latrine, a stable, and a cellar (Table 5.4, Figures 5.14-5.16). The residence had an assessed value of $1,075.00; no value was given to the other structures. The stable had been removed prior to May 1934, when the remaining structures were recommended for salvage. All were sold in March 1935 for an unknown amount.

Previous Research
Archeological remains previously recorded within the site include seven artifact concentrations (Loci A-G) and the remains of three structures (Features 1-3). A fourth feature, a small depression thought to be a privy pit, was designated during the present project. Feature 1 consists of the scattered concrete fragments and rock remains of the community hall foundation. Feature 2 is the rubble-filled concrete basement of the Manzanar store. Feature 3, east of the highway at the garage, consists of a decayed concrete floor with some porcelain toilet bowl or sink fragments.

The seven trash concentrations range in size from 15 to 1,700 square meters. Most contain hundreds, if not thousands, of artifacts. Two of the artifact concentrations (Loci B and D) have been previously tested (Burton 1996). A 1 m by 1 m test unit within Locus B, located north of (behind) the approximate location of the Lacey Home, revealed a cultural deposit 55 cm deep, although most artifacts were from above 20 cm. A total of 465 historical artifacts was recovered, many burned or melted. The majority (72 percent) of the recovered remains can be characterized as domestic; of these, most are glass food storage and food remains. A 1 m by 1 m test at Locus D was excavated to a depth of 50 cm. A total of 513 historical artifacts was recovered, many burned or melted and most (95%) from the upper 30 cm. Again, most (83 percent) of the remains are domestic, mostly fragments of glass food storage containers.

Results
For the present work, subsurface testing consisted of the exposure of Feature 1, the community hall foundation, and the excavation of five 1 m by 1 m units and three trenches (Figure 5.17). Excavation Unit 1 was placed to the rear of Feature 2, the Manzanar store basement. Unit 2 was placed within Locus E,
Figure 5.17. Map of CA-INY-4876-H.
a small artifact concentration 12 m west of the store basement. The remaining units (3-5) were placed within Locus F, an artifact concentration north of the store location. Two of the three trenches were placed west of the highway and east of the right-of-way fence to search for additional portions of the community hall and store foundations. The third trench was placed west of the right-of-way fence to try to determine the location of outbuildings behind the community hall. Other work at the site included the completion of three 1 m by 2 m surface scrape units north of Feature 1 and the tabulation of artifacts in two 5 m by 5 m surface count units. One count unit was placed within the APE within Locus F and the other was placed just west of the APE outside of any identified locus.

**Feature 1 (community hall foundation)**

Based on historical photographs Feature 1 is located where the rear foundation of the Community Hall would have been, and the remains, including an alignment of broken concrete and other structural debris, support this ascription. The foundation has been disturbed by the burial of a fiber optics cable parallel to U.S. Highway 395 through the site.

An area of approximately 45 square meters around Feature 1 was scraped by hand to compact subsoil
Artifacts found during this work are mostly architectural, and include fragments of plaster and lath, electrical porcelain for knob and tube wiring, a 1 1/2-inch-long flathead screw, a 16 gauge bolt fragment, a 3-foot-long 1/4-inch-diameter copper grounding wire, three 20d wire nails, one 8d wire nail, three window glass fragments, and a glass brick fragment. The electrical porcelain includes an unglazed wall tube, a glazed split knob fragment, a rosette lamp socket fragment embossed with "...3W 250V," a burned split wiring knob base embossed with "...BU...," and an unglazed cap for a split wiring knob embossed with "KNOX NAIL IT."

Seven white ware ceramics were collected from Feature 1: a plate footring with a purple transfer print design, a plate body fragment with a brown floral transfer print design, the rim of a "flow blue" floral design bowl, two indeterminate body fragments with a brown glaze and gold overglaze accents and a molded design, a plain plate rim, and a plain indeterminate footring. Other recovered artifacts include an amber bottle fragment embossed on the base with "P 141... /H" and the side with "NOT TO BE REFILLED..." (Obear-Nester Glass Co., post 1915), a 1 1/2-inch-diameter household oil can, a cast iron fragment, and two unidentified metal parts. One prehistoric artifact, an abrader made of light volcanic rock, was also recovered during the feature clearing.

**Stratigraphy**

Soils at CA-INY-4876-H consist of alluvially-deposited sands and gravels. Of the five strata discerned at the site, only the two uppermost strata, Stratum 1 and Stratum 2, contained cultural material (Figure 5.20). Stratum 1 consists of loose brown to dark brown (10YR 4/3) silty sand with gravels. It occurs from the surface to as much as 20 cm deep, although it is generally less than 10 cm thick. Stratum 2, consisting of very dark grayish brown (10YR 3/2) silty sand with some gravel, is between 5 and 10 cm deep. For the most part, Stratum 2 is loose and unconsolidated. Two sub-strata were identified in Excavation Unit 2 and a portion of Trench 3. Stratum 2a differs from Stratum 2 only in that it is slightly compact. Within Trench 3 Stratum 2a contained a lot of construction (or more accurately destruction) debris. Stratum 2b, within a trash-filled pit within Excavation Unit 2, appears to be the same general soil, discolored by rust.
to a dark reddish brown (5YR 3/2) and heavily churned by rodents.

Stratum 3, found in four excavation units (EU 1, 3, 4, and 5), contained no artifacts. It consists of unconsolidated brown (10YR 5/3) sand and gravel approximately 10 cm thick. Stratum 4 was encountered only in Excavation Unit 3 below Stratum 3. Only 2-cm-thick and consisting of a slightly compact light brownish gray silty sand, it appears to be just an isolated lens, although it may occur in unexcavated areas of the site. Stratum 5 consists of compact to very compact fine-grained sand, yellowish brown (10YR 5/4) in color. It was encountered in all units and trenches excavated below 50 cm; the trash-filled pit discovered in Excavation Unit 2 was dug into this stratum.

**Trench 1**
This backhoe-excavated trench, 60 cm wide by 60 cm deep by 22 m long, was placed west of (behind) the Community Hall location in an attempt to discover outbuildings depicted in the 1929 LADWP and other historical photographs. A few scattered artifacts were recovered, but no sign of foundations or structures was encountered. Depth to compact sterile soil varied from 11 cm to 42 cm below the ground surface. Recovered structural artifacts and furnishings were limited to nine window glass fragments, two 20d wire nails, a glazed reversible wiring knob half, embossed with the Illinois Electrical Porcelain Company hallmark ("Δ", Tod 1977), and a clear lamp globe fragment. Food storage artifacts included a 3-inch-diameter key-opened can top, a clear jelly jar base embossed with "NO 72/PATENTED/DEC 22 1903/JULY 17 1903/M 22," a thick amber round bottle base fragment, two clear mason jar fragments, and a sun-colored amethyst glass fragment. Food serving artifacts included a smashed white and blue enamelware cup and 19 white ware ceramics.

The ceramics include a saucer footing with a gold overglaze floral design, two refitting plate rim fragments with a gold overglaze floral and abstract design and a wavy rim, and a cup rim fragment and ten bowl rim (three refitting), body, and footing fragments all apparently from the same set. The cup has two exterior gold bands and the bowls have a single interior gold band just below rim. Other ceramics from Trench 1 were a bowl rim fragment with a light blue, gold, and gray decal band design and gold overglaze borders and lip, and indeterminate white ware pieces including a plain rim with a molded design, a plain footing, and a plain body fragment.

**Trench 2**
This backhoe trench, 60 cm wide by 70 cm deep by 6 m long, was placed to intersect the perimeter of the community hall. Structural debris, including plaster and lath fragments, was encountered, and a soil distinction suggesting the boundary between the interior and exterior of the structure, was noted (Figure 5.21). Some of the wall plaster was painted light yellow. There was no evidence of a perimeter foundation as was found at the rear of the building. Beyond plaster and lath fragments the only artifacts recovered from Trench 2 were two window glass fragments and a clear round bottle base fragment embossed with "...4."

**Trench 3**
This backhoe trench, 60 cm wide by 70 cm deep by 7 m long, was placed to find the store foundation. Although no intact foundation was encountered, the trench revealed an *in situ* water pipe (Figures 5.22 and 5.23), tarpaper material, lumber fragments (some with traces of white paint), foundation rubble, a
Figure 5.21. East sidewall profile, Trench 2, CA-INY-4876-H.

Figure 5.22. Plan view and east sidewall profile, Trench 3, CA-INY-4876-H.
small 3/4-inch-thick sidewalk (?) fragment, a small fragment of unglazed sewer pipe, and several complete artifacts including a painted metal sign advertising “Camel” cigarettes (Figure 5.24). Other recovered structural remains include six window glass fragments (up to 2 1/2 inches in size), a 1 1/4-inch-diameter nail cap and 1 1/4-inch-long nail, and a 3/4-inch-long large-head roofing nail. Artifacts associated with beverages include a small clear bottle with crown cap finish lip (5 3/4 by 2-inch diameter; Figure 5.25) embossed with “F 1” (possibly the Fairmont Glass Works hallmark, 1930-1945), a clear crown cap finish bottle neck fragment, an amber crown cap finish bottle lip fragment, an amber bottle glass fragment, a crown cap with a cork liner, and a steel beverage can with an interlocking side seam (4 3/4 by 2 1/2 inches) painted orange and green over a white base coat with “ORANGE DRINK/PAR T PAC/CONTENTS.../CALI.../OR.../D.../CONTAINS ARTIF.../98-A” (post-1935 manufacture). Other recovered artifacts include a clear extract bottle base fragment (1 1/8 by 7/8 inches) embossed with “987,” three clear and two aqua glass fragments, a white ware cup handle fragment with a molded pattern (apparently from the same set as pieces recovered from Excavation Unit 2), a clear side panel fragment from a patent medicine bottle, and a boot sole fragment.

Figure 5.23. Water pipe exposed in Trench 3, CA-INY-4876-H.

Figure 5.24. Metal advertising sign recovered from Trench 3 (approx. 12 by 36 inches; FN-263).
Excavation Unit 1
From this excavation unit, placed directly behind (west) of the store, 92 historical artifacts and an obsidian bifacial tool fragment were recovered. Most artifacts were found in the first 20 cm of the deposit, but a few were found as deep as 40 cm.

Structural artifacts consist of 32 nails, a \(\frac{7}{16}\)-inch-square flat nut, and four window glass fragments. The nails include 23 common wire nails (one 12d, one 10d, one 9d, one 8d, two 5d, three 4d, one 2d, and 13 fragments), two finishing nails (1¼ inch and 2½ inch), four roofing nails (one \(\frac{3}{4}\)-inch-long small-head, one 1-inch-long small-head, and one \(\frac{3}{4}\)-inch-long large-head), and four staples (three 1-inch and one 1\(\frac{3}{4}\)-inch).

Beverage and food related artifacts include three clear “Mission” soda bottle fragments, three other clear glass fragments, two green glass fragments, 38 sanitary seal can fragments, and a white ware ceramic base fragment with a partial “Homer Laughlin” hallmark which dates to between 1903 and 1920 (Figure 5.26).

Other artifacts and ecofacts recovered include a lamp glass fragment, two light bulb glass fragments, a terra cotta flower pot fragment, a metal shoe eyelet, a \(\frac{1}{2}\)-inch cardboard staple, a piece of smooth wire, two small fragments of coal, and four animal bones.

Excavation Unit 2 (Locus E)
Excavation of this unit, placed within a small depression west of the store basement, revealed a 100-cm-deep trash-filled pit (Figure 5.27 and 5.28). The artifact density varied from level to level; in all 1,214 artifacts were recovered. Items recovered range from glass and can fragments to nails and personal items. Most of the metal objects were badly corroded.

Structural remains include 791 complete and fragmentary common wire nails, 18 other nails, 13 window glass fragments, three firebrick fragments, a \(\frac{3}{4}\)-inch-square flat nut, and a \(\frac{7}{16}\)-inch-square flat nut. The firebricks are yellowish brown, 4\(\frac{1}{2}\) inches wide by 2\(\frac{1}{2}\) inch thick, and impressed with “[co]wen” (Ca. 1890-1947, Gurcke 1989). The common wire nails include one 20d, one 18d, twelve 10d, twenty 8d, six 6d, sixteen 4d, fourteen 5d, one 4d, two 3d, two 2d, and 716 nail fragments. Other recovered nails include four finishing nails (1\(\frac{1}{2}\)-inch, 2-inch, 2\(\frac{1}{2}\)-inch, and 3-inch), four staples (two \(\frac{3}{4}\)-inch, one 1\(\frac{1}{4}\)-inch, and one 1\(\frac{1}{2}\)-inch), nine roofing nails (seven \(\frac{3}{4}\)-inch small-head and two \(\frac{3}{4}\)-inch large-head), and a \(\frac{1}{2}\)-inch tack.

The only potential beverage storage remains found in Excavation Unit 2 are 27 amber glass fragments and a nearly complete church-key-opened steel beverage can (4\(\frac{9}{16}\) by 3\(\frac{3}{8}\) inches) from the 0-10 cm level. Food storage artifacts are much more plentiful and include 103 sanitary seal can fragments, a zinc canning jar lid and glass liner embossed with “GENUINE BOYD CAP FOR MASON JARS,” three fragments of a metal friction...
Figure 5.26. Ceramics from CA-INY-4876-H; a. Homer Laughlin backstamp (FN-158), b-f. gold overglaze (FN-245), g. gold overglaze decal (FN-257), h-j. flow blue transfer prints (FN-174, -152, -194).

lid, a clear side panel fragment embossed with "A.S. HINDS/PORTLA...,” two clear extract bottle fragments, and six other clear glass fragments. Actual food remains were rather rare but included four animal bones, five peach pit fragments, and three walnut shell fragments.
Food serving artifacts include a small spoon or fork handle embossed on the back with "GERMANY ALUMINIUM" (Figure 5.29a) and three white ware ceramics. The ceramics include two bowl or cup rim fragments with a flow blue floral design (one from the 10-20 cm level and the other from the 60-70 cm level) and a cup handle fragment with a molded design similar to a piece recovered from Trench 3. Recovered furnishings include a picture-hanging hook, 11 light bulb glass fragments, and three lamp glass fragments.

Clothing-related artifacts include four metal shoe eyelets, three brass shoe eyelets, a shoe lace hook, a shoe sole fragment, a metal button fragment, and a safety pin fragment. Activities are represented by a pen/pencil shirt clip, newspaper bits, a tobacco can fragment, the plastic part of a cigarette filter, and a stainless steel tire valve stem cover/remover. Unclassified artifacts include a metal clip, two paper fragments, three pieces of bailing wire, six pieces of smooth wire, and 209 lumps of rusted metal (most likely once nails or cans).

**Excavation Unit 3 (Locus F)**

A total of 43 items were recovered from this excavation unit, placed within Locus F along the highway right-of-way fence about 10 m north of Feature 2. Nails, glass, metal, animal bone, cement, and other artifacts were recovered from the first 20 cm of this excavation unit. A few animal bone fragments and a nail were recovered from the 20-30 cm level and an obsidian projectile point base was recovered from the 30-40 cm level. No artifacts were recovered from below 40 cm.
Figure 5.29. Miscellaneous small artifacts from CA-INY-4876-H; a. spoon handle (FN-172), b. perfume bottle cap (FN-207), c. eisen glass disk (FN-207), d. brass ornament (FN-143).

Figure 5.30. 1934 automobile licence plate from CA-INY-4876-H (FN-146).

Structural artifacts include eight common wire nails (one 20d, one 10d, one 8d, three 6d, one 4d, and one fragment), a 2½-inch-long finishing nail, wall plaster bits, a blob of mortar, and a window glass fragment. Food and beverage storage is represented by a melted clear extract bottle neck, a clear bottle neck fragment, ten other clear glass fragments, eight amber glass fragments, and two aqua glass fragments. Recovered ceramics include two plain refitting bowl rim fragments, two plain indeterminate rim and body fragments, and a multi-color Mexican bowl body fragment (¾-inch-thick). Other items from Unit 3 include six animal bone fragments, a clear cut glass perfume bottle cap/applicator (Figure 5.29b), and a ½-inch-diameter metal-edged eisen glass disk (Figure 5.29c).

Excavation Unit 4 (Locus F)
This excavation unit was placed within Locus F between the right-of-way fence and the highway. A total of 100 items, including structural remains, window and bottle glass, food remains, and a bead, were recovered from the first 20 cm of the deposit.
Structural remains include 49 nails, a ½-inch-diameter flat washer, a ⅜-inch hex nut, two caps for holding canvas or tarpaper, a door latch reinforcement piece, and nine window glass fragments. Recovered nails include 44 common wire nails (one 10d, six 8d, one 5d, one 2d, and 33 fragments), five finishing nails (one 2-inch, one 2½-inch, and three 2¾-inch), a ¾-inch staple, and a ¾-inch-long large-head roofing nail.

Food and beverage storage items include a glass canning jar lid fragment, seven clear glass fragments, three aqua glass fragments, two can fragments, and a 1-inch-diameter pry-off bottle cap. Food serving artifacts include four small indeterminate white ware body fragments (one with gold overglaze accents), and a cup fragment with a light green air spray coloring and a gold overglaze. One animal bone was recovered. Furnishings include four clear lamp glass fragments, a sun-colored amethyst lamp globe fragment, and three light bulb glass fragments. Clothing is represented by a brass collar stud and an ornate glass button (see Appendix A). Activities are represented by a small brass wiring nut and a brass paper fastener. Unclassified remains included five unidentified metal fragments.

**Excavation Unit 5 (Locus F)**

Forty-three artifacts were recovered from the 0-10 cm level of this unit and one window glass fragment and a 1½-inch-long horseshoe nail were recovered from the 10-20 cm level. Structural remains include a cap and nail for canvas or tarpaper, a 16d common wire nail, four 8d common wire nails, two 3½-inch-long large-head roofing nails, a ¾-inch-long small-head roofing nail, and 15 window glass fragments. Domestic artifacts include ten amber, five clear, and a sun-colored amethyst glass fragment, a very small white ware body fragment, and a light bulb glass fragment. Activities are represented by a shaft fragment of pen nib embossed with “10,” a ½-inch-diameter ball bearing, and the horseshoe nail. One animal bone was recovered.

**Surface Count Unit 1**

A total of 107 items were tabulated in this 5 m by 5 m unit, located outside of any designated loci, west of the highway right-of-way (relocation center) fence and northwest of the store basement.

Structural remains included 17 nails, six window glass fragments, three small pieces of particle board, a piece of burned brick, and seven pieces of concrete. The nails include 14 common wire nails (one 8d, one 7d, one 5d, three 4d, one 3d, one 2d, and six fragments) and three ¾-inch staples.

Food and beverage storage is represented by a crown cap, two sanitary seal cans, a can lid, two can lid fragments, 12 clear glass fragments, and eight amber glass fragments.

The 13 ceramics tabulated include ten white ware fragments and three porcelain fragments. The white ware includes a saucer rim with a molded design and a wavy rim, four plain indeterminate rim fragments, and five plain indeterminate body fragments. The porcelain includes a cup handle fragment with a molded design and a trace of a green and brown floral design, a saucer rim with a green band and black line around the rim (possibly same set as the cup handle fragment), and an indeterminate porcelain rim fragment with a black geometric design.

Floral and faunal remains tabulated include two peach pits, a burned animal bone, and nine small fragments of marine shell.
Other artifacts consist of seven terra cotta flower pot fragments, three cobalt glass fragments, a glass bead, two unidentified metal fragments, and a piece of smooth wire.

**Surface Count Unit 2 (Locus F)**
A total of 122 artifacts were tabulated in this 5 m by 5 m unit, placed within Locus F between the highway right-of-way fence and the highway in an area that would have been between the store and the storeowners' residence. Tabulated structural remains include nine nail caps and nails for roofing, twenty-nine 8d common wire nails, one 3d common wire nail, ten 1 1/4-inch-long finishing nails, two tacks, two flathead screws, five window glass fragments, a piece of lath, and a piece of concrete. Food and beverage storage is represented by a crown cap, a sanitary seal can fragment, a piece of aluminum foil, 33 clear glass fragments (including one embossed with "4/5"), one amber glass fragment, and five sun-colored amethyst glass fragments. Other recovered artifacts include a white ware rim fragment with a gold band, a plain porcelain rim fragment, three peach pit fragments, three pieces of burned animal bone, a clothespin spring, six terra cotta flower pot fragments, a white glass fragment, a piece of bailing wire, a fragment of a black plastic comb, and three unidentified metal fragments.

**Surface Scrape Units**
SSU 1 was placed at a small concentration of concrete rubble and rock just north of Feature 1. No additional rubble or rock was encountered, and the only artifact recovered from this 1 m by 2 m unit was a fragment of a "Mission" soda bottle. No artifacts or features were encountered in SSU 2, placed north of Feature 1 and west of SSU 1. SSU 3 was placed between the Feature 2 exposure and the relocation center fence. No artifacts or features were encountered.

**Surface Collection**
Collected from the surface west of the highway were a 1931 California automobile license plate (Figure 5.30), an ornate plastic cigar tube cap, a metal ornament, and two obsidian biface fragments. A 1948 D penny and the base of a hobbleskirt "Coke" bottle from Reno, Nevada, were collected from east of the highway within Locus G.

**Table 5.5. Surface Collected Artifacts from CA-INY-4876-H.**

<table>
<thead>
<tr>
<th>Map Ref.</th>
<th>FN</th>
<th>Description</th>
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<tr>
<td>1</td>
<td>146</td>
<td>1931 California automobile license plate (Figure 5.30)</td>
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<td>2</td>
<td>140</td>
<td>Obsidian biface fragment</td>
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<tr>
<td>3</td>
<td>141</td>
<td>Obsidian biface fragment</td>
</tr>
<tr>
<td>4</td>
<td>145</td>
<td>1948 D penny</td>
</tr>
<tr>
<td>5</td>
<td>144</td>
<td>hobbleskirt &quot;Coke&quot; bottle base embossed with &quot;RENO/NEV/#&quot; (Maywood Glass Co., post 1940)</td>
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<td>6</td>
<td>142</td>
<td>Ornate plastic cigar tube cap</td>
</tr>
<tr>
<td>7</td>
<td>143</td>
<td>Metal ornament (Figure 5.29d)</td>
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</table>
Discussion

Artifact dates encompass the town occupation well, with many dating to between 1910 and 1930. Later materials, dominated by beverage containers, are likely roadside trash (Figure 5.31). In spite of extensive disturbance, there remains quite a lot of information in the archaeological record. For one thing, the archaeological results combined with the historic records and photographs help determine the original locations of several of the downtown Manzanar buildings. Road traces along with plat maps suggest the historic lot property lines, which in turn help corroborate building locations suggested by the archaeological remains and photographs (Figure 5.32).

For example, it was clear that the Feature 2 basement was related to the store, but it was not known if it had been located beneath the store, or even separate from it, like many of the cellars in the town. Although the photographs of the store show a large flat-roofed section with a smaller attached shed-roofed structure at the back, no basement is visible in the photographs (see Figure 5.2). The LADWP valuation records list two square footage figures for the store, “390” and “1455.” These figures are presumed to be for the two differently-roofed parts of the same building, rather than for the main and an unattached building, since the LADWP records consistently appear to list each individual structure separately, down to the smallest latrine.
Measurement of the Feature 2 basement indicates it had about the same square footage as the smaller figure listed in the valuation records, suggesting it had been located beneath it. Since the photograph shows the south facades of both the main structure and the attached shed on the same plane, this provided a hypothetical width for the store as a whole. Using the valuation record's total square footage to calculate the length (24 by 64 feet), and the road traces and plat maps to estimate the location of the property lines, the store is situated with its length neatly between the lot side boundaries and with its front facade almost at the front property line. Such a layout is consistent with the time period, and with the photograph.

With the location of the store thus estimated, it is possible to place the location of the adjacent store owners' residence visible in LADWP and other historical photographs (see Burton 1996). In the photographs the house is to the north of the store and set back farther from the road, as would be expected with a residential structure. Precise dimensions of the Bandhauer home are available because this structure had been moved to Independence, where it still stands (Figure 5.33). Too wide (29½ by 41 feet) to fit on a single lot, the house probably straddled two lots, even though only the adjacent store lot is listed in the LADWP valuation records. Remains of a large, old tree establish the back limit of the house.
The location and approximate width of the community hall were indicated by the foundation along the rear, the evidence from trenching, and historical photographs. With the square footage in the valuation records (adjusted by about one-third to account for a partial second story) this yields a size of 66 by 68 feet. Attached loading docks were shown in historical photographs and listed in LADWP records. The Manzanar garage/service station is assumed to have the same setbacks as the other commercial buildings at the intersection.

Other structures can be estimated based on their assumed relationship to the main buildings and by the location and nature of trash scatters. Primary trash (e.g., casually tossed bottle caps and lost coins) and nails, window glass, and other structural debris may occur at a building location. Secondary, purposefully deposited, types of trash (small dumps and scatters of domestic or activity remains) are likely to be located away from building sites.

In fact, previously tested Loci B and D do appear to be secondary trash deposits, away from buildings. The artifacts were mostly domestic trash, and were mostly burned or melted, probably the result of people burning the trash in their backyards. Locus F, near the highway and spread over much of the area between the store and the store owner’s residence, contains mostly smaller artifacts related to personal and domestic activities, probably incidentally lost or broken during occupation. Mixed in with this “primary” refuse is more recent roadside trash (thrown out of the windows of vehicles driving by on U.S. Highway 395), as well as demolition debris from the removal of the structures (Table 5.6). Some of the beverage bottles in Locus F do date to the town period, however, and are no doubt related to visits to the store. Besides the early beverage and the structural remains, the only other obviously store-related artifact is the “Camel” cigarette sign recovered from Trench 3.

Locus E, behind the store’s garage, contained a trash-filled pit, indicating more purposeful trash disposal. Over half the artifacts from the present testing at the site came from the single excavation unit in that pit, and the wide range of activities represented (food serving, food storage, food remains, furnishings, leisure activities, work, and automotive) suggests it served as the general disposal area for the long-term inhabitants of the store, the Bandhauers (Table 5.7). If so, Bandhauers’ European heritage might be reflected in the small (possibly heirloom) utensil made in Germany.

The potential for other intact features at CA-INY-4876-H appears good outside the APE – there are at least three privies on the west side of the highway in LADWP photographs, there may be other buried trash pits such as that found at Locus E, and there has not been as much disturbance at the Lacy house, as at the community buildings, besides the initial removal of structures.
Table 5.6. Artifacts and Ecofacts in Trenches, Excavation Units 1, 3, 4, and 5, and Surface Count Units at CA-INY4876-H.

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Table 5.7. Artifacts and Ecofacts in Excavation Unit 2 at CA-INY4876-H.

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<tr>
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<td>2</td>
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The Hawthorne Homesite, west of U.S. Highway 395 in the northeast corner of the Manzanar National Historic Site, consists of scattered artifacts covering 6,600 square meters (approximately 1½ acres) and two discreet town-era trash concentrations (Loci A and B) separated by a post-1946 dirt road. According to 1929 LADWP records, four structures were located within the site area. However, prior to the present work the only feature noted at the site was the small depression (Feature 1) thought to be from a bottle collector (Burton 1996). During the present work the site boundary was refined, an alignment of small rocks (Feature 2) was cleared, and the depression was investigated.

Historical Background
CA-INY-4875-H is located within Lots 37 and 38 of the Manzanar Townsite. Lots 1-5 and 37-40 are shown as owned by Hawthorne on the 1910 Town of Manzanar plat map, but in the 1929 LADWP valuation records Lot 37 is designated “Wicks Place.” Structures noted there in the LADWP valuation include a four-room residence with electrical wiring and a sill foundation, a 60-square-foot cellar, a garage, and a latrine (Table 6.1, Figures 6.1-6.4). The total assessed value of the structures was listed as $521.00. The structures look dilapidated in the LADWP photographs; apparently the homesite had been abandoned for some time. An undated hand-written note added to the valuation indicates all buildings were removed from the premises, with their disposition unknown.

Previous Research
Previously some surface collection and artifact tabulation had been conducted at the two loci for the Manzanar General Management Plan (Burton 1996). In the previous archeological work, artifacts in three contiguous 2 m by 2 m units at each locus were tabulated, with representative artifacts collected or measured (Burton 1996). Locus A, on the west side of the dirt road, covers 95 square meters. In the three units previously tabulated at this locus, 376 artifacts were counted, yielding an average surface density of about 30 artifacts per square meter. Seventy-five percent of the artifacts were metal and 90 percent were domestic (mostly cans and can fragments). Locus B on the east side of the dirt road covers 470 square meters on both sides of the highway right-of-way fence. It also encompasses a shallow depression originally thought to be the result of illicit digging. Previously, 404 artifacts were tabulated in the three 2 m by 2 m units in this locus, for an average surface density of about 34 artifacts per square meter. Fifty-
Figure 6.1. Residence at Hawthorne homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 6.2. Cellar at Hawthorne homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 6.3. Garage at Hawthorne homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 6.4. Latrine at Hawthorne homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Table 6.1. Building Information from 1929 LADWP Valuation of Improvements Record for Hawthorne/Wicks Place (Lot 37, Town of Manzanar).

<table>
<thead>
<tr>
<th>Bldg. No.</th>
<th>Type and Use</th>
<th>Sq. Feet</th>
<th>Value</th>
<th>Condition</th>
<th>Remarks</th>
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</thead>
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<tr>
<td>BR 186</td>
<td>Frame Residence</td>
<td>590</td>
<td>$509</td>
<td>Good</td>
<td>Sill foundation, wall board interior finish, tar and shingle roof, 4&quot; O.P. floors, four rooms, wired</td>
</tr>
<tr>
<td>BC 68</td>
<td>Excavated Box Cellar</td>
<td>60</td>
<td>$12</td>
<td>Fair</td>
<td>Tar roof</td>
</tr>
<tr>
<td>BG 32</td>
<td>Scrap Shelter Garage</td>
<td>166</td>
<td>–</td>
<td>Bad</td>
<td>1&quot; by 6&quot; roof</td>
</tr>
<tr>
<td>BL 56</td>
<td>Calif. Latrine</td>
<td>14</td>
<td>–</td>
<td>Poor</td>
<td>B &amp; B roof, 1&quot; by 12&quot; floor</td>
</tr>
</tbody>
</table>
two percent were metal and 99 percent were domestic (mostly can fragments and clear glass). Other items noted at this locus included a hot water bottle, a toy wheel, a shoe eyelet, a trailer hitch, a cut glass bowl fragment, and a vase fragment.

Results
The present archeological work at the site included the excavation of five 1 m by 1 m units, exposure of a rock alignment (Feature 2), and tabulation of artifacts in one 5 m by 5 m unit (Figure 6.5). One of the excavation units was placed within the Feature 1 depression, the other excavation units were all placed judgmentally in areas of dense surface material where subsurface material appeared most likely. The surface count unit was placed between the right-of-way fence and U.S. Highway 395, since that area had not been previously surface collected, even though artifacts in this area are much sparser than in the site as a whole.

Feature 2 (rock alignment)
A 3.5-m-long alignment of granite cobbles located between the fence and Highway 395 was exposed with a 16-square-meter surface scrape (Figure 6.6). Imbedded into the compact subsoil, the cobbles are too small to be foundation remnants. The artifacts from the surface scrape unit, however, do suggest a structure was likely present in this area; the rocks may have been from a flower garden or walkway border. Rocks are visible in front of the residence in the 1929 photograph (see Figure 6.1).

Structural artifacts recovered include electrical porcelain knob-and-tube wiring fixtures, two sewer pipe fragments, a 3-inch foundation bolt, three 8d common wire nails, one 6d common wire nail, a 1 1/4-inch staple, a small piece of window glazing, and four window glass fragments. The electrical porcelain includes a complete glazed split knob (base, cap, and nail) with no markings, two split knob bases with nails, a split knob cap embossed with “FPATD” (Findley Electric Porcelain Company, Findley, Ohio, 1910-1955 [Tod 1977]), and two unidentified fragments. Other recovered artifacts were a few can fragments, a glass canning jar liner fragment, a cut cow bone, a light bulb base, a shell button, a flashlight or dashboard light bulb, a shotgun shell base (headstamp: “REM-UMC/NO. 16/NITRO CLUB” [post-1911]) and an 11-inch by 7/16-inch by 3/4-inch-thick metal strap.

Stratigraphy
Feature 1 stratigraphy is discussed below, under Excavation Unit 4. Outside of the Feature 1 depression, five strata were distinguished (Figure 6.7). The first two strata were in all four units. Stratum 1, the uppermost strata, consists of a 5- to 10-cm-thick layer of loose pale brown (10YR 6/3) silty sand. Stratum 2, 15 to 20 cm thick, is a layer of slightly compact pale brown fine silty sand. Stratum 3 is a 2- to 15-cm thick layer of very loose light brownish gray (10YR 6/2) to grayish brown (10YR 5/2) silty sand. It was encountered at around 20 cm depth in Excavation Units 1 and 2. Stratum 4 consists very compact light yellowish brown (10YR 6/4) silty sand with gravels. It was encountered within Unit 1 beginning at about 38 cm below the surface to 60 cm where excavation was terminated, and within Excavation Unit 2, from 26 cm to 38 cm BD. Stratum 5, only encountered in Excavation Unit 2, begins between 38 to 46 cm BD and extends to at least 50 cm where excavation was terminated. It consists of loose brown (10YR 5/3) sandy gravel.
Excavation Unit 1
Glass, metal, ceramics, and bone were recovered from this 1 m by 1 m excavation unit, located along the relocation center fence in the southern portion of the site. Most artifacts were recovered from 0 to 40 cm depth, but a few items were recovered as deep as 50 cm.

Structural artifacts recovered include three window glass fragments, 32 common wire nails, a 1¾-inch-long roofing nail, a 1¼-inch staple, a 3-inch-long machine bolt, two pieces of electrical porcelain, and a short...
piece of thin electrical wire. The common nails include one 60d, one 30d, two 20d, one 12d, two 10d, three 8d, two 5d, one 4d, two 3d, two 2d, and 15 fragments.

The electrical porcelain pieces include about one-half of a porcelain fuse block (another portion of the same block was found on the surface 15 m to the north-west) and a wiring cleat (Figure 6.8). The fuse block was manufactured by the Trumbull Electric Manufacturing Company (Tod 1977 [no dates given in citation]); the top of the fuse block is embossed with "...AMP. 125 V. /...M. CO." and the base is embossed with "... 01-721/9-17/PATENTED/7-8-1917./T.E.M. CO./PLAINVILLE CONN/U.S.A." The wiring cleat is a glazed top cleat with grooves, it is embossed on the top with "G P CO." (General Porcelain Company, Parkersburg, West Virginia, 1913-1927 [Tod 1977]).

Beverage storage is represented by an amber 2¾-inch-diameter bottle base, an amber round bottle base fragment, and a clear oval whiskey bottle fragment. Food storage is represented by four sanitary seal can fragments, 19 other can fragments, a clear extract bottle base fragment embossed with "2", a clear stopper lip bottle fragment, two clear round jar base fragments, 12 other clear glass fragments, a 2-inch-diameter aqua mason jar base, an aqua body fragment embossed with "[MAS]ON"), eight other aqua glass fragments,
Figure 6.8. Electrical porcelain artifacts from CA-INY-4875-H; a. fuse block (FN-18, -4), b- c. split wiring knobs (FN-13), d. wiring top cleat (FN-18), e. solid wiring knob (FN-92), f-g. split wiring knobs (FN-13).

and a glass canning jar liner fragment embossed with "...UE BOYD CAP. (Illinois Pacific Glass Co., post 1915).

Food serving items include a clear drinking glass base fragment and nine white ware ceramic fragments. The ceramics include four bowl rims, a handled cup rim fragment, two indeterminate rim fragments, and two indeterminate body fragments. Decorations include a plain gold band and an ornate decal band. The same decal pattern was recovered from Units 2 and 4.

Food remains include a black walnut shell fragment and 26 animal bones (see Appendix B).

Furnishings include a light bulb base and an upholstery rivet. Other possible furnishings include an amber bottle neck with a stopper lip (disinfectant?) and eight amber glass fragments likely from the same bottle. Personal items were limited to a metal shoe eyelet.

Activities are represented by a metal canvas snap and hook (embossed on one face with “LIFT THIS SIDE”), possibly from a canteen cover, and a 1-inch-long pencil lead. Unclassified items include a 4½-inch-long corroded railroad spike, a small fragment of bakelite, five pieces of smooth wire, two twisted wires, and two metal objects.

**Excavation Unit 2**

This unit was placed west of the Feature 1 depression. Recovered were bottle glass, ceramic fragments, cut and wire nails, and a garter belt clip. All but one glass fragment were from above 12 cm depth.
Figure 6.9. Miscellaneous metal artifacts from CA-INY-4875-H; a. grater belt buckle (FN-37), b. reinforcing end for belt or strap (FN-46), c. pen nib (FN-37), d. mouse trap spring (FN-46), e. reinforcing end for belt or strap (FN-37), f. tire valve stem (FN-46), g. engine valve (FN-46), h. glue tube stopper (FN-46), i. invisible clothing hook and catch (FN-105, -99), j. suspender clip (FN-43), k. safety pin (FN-84), l. pocket watch rim (FN-2), m. brass trouser buckle (FN-7).
Recovered structural remains from Excavation Unit 2 include nine window glass fragments, 39 common wire nails, a 2-inch-long finishing nail, a 1½-inch-long roofing nail, and two square nail fragments. The common nails include at least 11 sizes (one 50d, two 40d, four 30d, three 20d, two 16d, two 12d, six 10d, six 8d, four 6d, three 5d, one 2d, and five fragments).

Beverage storage is represented by a “Coke” bottle lip fragment, seven other “Coke” bottle fragments, and four amber glass fragments. Food storage remains include a can fragment, a 1½-inch-diameter clear glass bottle base, a clear stopper lip (1-inch outside diameter) bottle fragment, 16 clear glass fragments, 20 aqua glass fragments, five soft-colored amethyst glass fragments, an aqua side panel of an extract bottle embossed with “W.T. RA...,” (W.T. Rawleigh Co., 1925-1936) and fragments of two canning jar lid liners (both with portions of the word “BOYD”). The aqua glass fragments include pieces with a continuous thread lip and some with portions of the “Ball” canning jar logo; most, if not all appear to be from the same jar.

The five ceramics from this excavation unit include a bowl rim, a bowl footring, and three indeterminate body fragments. The bowl rim has an abstract red and green design decal of the same pattern recovered from excavation units 1 and 4 (Figure 6.10).

Food remains are represented by three peach pit fragments and four animal bones.

Furnishings are represented by four fragments of light bulb glass. Personal items include a metal snap, a garter belt clip (Figure 6.9a), a metal reinforcing end for a strap or small belt (Figure 6.9b), a corroded metal button, and a white cold cream jar fragment. Activities are represented by a "REM-UMC/18" shotgun shell base, roughly one-quarter of a stone poker chip (1½-inch diameter by ½-inch thick), a hack saw blade fragment, and a pen nib (Figure 6.9c). Unclassified items include three blobs of melted lead and a rubber fragment.

**Excavation Unit 3**

This unit was placed in an artifact concentration west of the dirt road that bisects the site. It yielded abundant cans, can fragments, glass, ceramic fragments, egg shell, and bone. Most of the material was recovered from above 20 cm depth. Sediments in this unit consisted of fine silt and coarse sand, with sparse gravel throughout the uniform deposit to termination. The unit was terminated at 40 cm below the surface.

Structural remains include 19 window glass fragments, 37 tar paper fragments, a floor tile fragment, numerous stove pipe fragments (the largest piece is 9 inches long by 6 inches in diameter), a small fragment of window screen, a small portion of an electrical fixture, a ⅛-inch-diameter flat washer, 62 common wire nails, four 2½-inch finishing nails, and a cut nail fragment. At least 11 different sizes of wire nails were recovered (one 40d, two 20d, two 12d, four 10d, four 8d, one 7d, two 6d, two 5d, fourteen 4d, seven 3d, one 2d, and 22 fragments).

Beverage storage is represented by three fragments of at least two amber beer bottles, ten other amber glass fragments, a clear glass milk bottle lip and neck fragment, and four condensed milk can fragments.

Other beverage and food storage is represented by six partial sanitary seal cans (Table 6.2), 74 sanitary seal can fragments, a partial hole-in-cap can, 685 miscellaneous can fragments (some of these are possibly stove

Pipe fragments), three friction can cap fragments, six metal canning jar lid fragments, a threaded 1\5\6-inch-diameter bottle cap, 61 clear glass fragments (one embossed with “T.M. REG”), five sun-colored amethyst glass fragments, and six aluminum foil bits.

Serving items include a clear drinking glass rim fragment and five white ware ceramic fragments. The ceramics include a bowl rim fragment with an interior light blue band bordered by gold bands, three plain body fragments, and a plain footring fragment. Furnishings include nine light bulb glass fragments and

73
a large mousetrap spring (Figure 6.9d). Possible pharmaceutical items consist of two complete and two fragmentary 1 inch by \(\frac{3}{4}\)-inch-diameter corks and three light blue glass fragments.

Personal items include a plastic toothpaste tube cap, a metal end reinforcement for a strap or belt (Figure 6.9e), a metal clinch button, a shoe sole fragment with three nails, 24 leather shoe fragments, and a metal shoe eyelet. Activities and automobiles are represented by a shotgun shell base ("NITRO CLUB"), a tire valve stem (Figure 6.9f), and an automobile engine valve (Figure 6.9g). Unclassified items include two plastic fragments, a small piece of burlap, a small wad of newspaper, a 1 inch by \(\frac{3}{4}\) inch sheet metal piece, two barbed wire pieces, ten smooth wire pieces, 13 pieces of twisted wire, a rubber fragment, and a cloth fragment. One metal item is a small stopper for a 1 oz. glue tube (Figure 6.9h). It is embossed on both sides with "LEPAGE'S/•R.C.CO./• SIGNET" (Russia Cement Co.). A similar item is illustrated in the 1927 Sears Roebuck catalog (p. 646).

**Table 6.2. Measurable Sanitary Seal Cans from Excavation Unit 3 at CA-INY-4875-H.**

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<tbody>
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<tr>
<td>1</td>
<td>?</td>
<td>4&quot;</td>
</tr>
<tr>
<td>1</td>
<td>?</td>
<td>2(\frac{3}{4})&quot;</td>
</tr>
</tbody>
</table>

**Excavation Unit 4 (Feature 1)**

This unit, placed within the Feature 1 depression, was excavated to a depth of 120 cm. Abundant metal, glass, ceramic fragments, bone, egg shell, and burned lumber were recovered to a depth of 100 cm. Five strata were discerned in this unit (Figure 6.11).

Stratum 1, the uppermost stratum, consists of loose to very loose grayish brown (10YR 4/2) to pale brown (10YR 6/3) silty sand and gravels. It extended from the surface to about 40 to 75 cm deep. This stratum appears disturbed to at least 50 cm depth where two recent artifacts, a pull-top aluminum "Coors" beer can and a composite paper, foil, and aluminum "Planters" nut can, were recovered.

Between Stratum 1 and Stratum 2, visible in the west half of the south wall, was a thin charcoal layer. Stratum 2 consists of an 8- to 15-cm-thick layer of slightly compact light yellowish brown (10YR 6/4) silty sand. The base of Stratum 2 is marked by a thin discontinuous lens of white material, possibly paint, and a thicker continuous layer of charcoal and burned wood in a sandy matrix.

Below the charcoal lens vertical charred boards were revealed extending from 55 to 105 cm depth (Figure 6.12). At 90 cm below the ground surface, horizontal boards abut the vertical boards at about 15 cm above the bottom of the vertical boards. This lumber framework is likely the in situ remains of the wooden cellar shown in the 1929 LADWP photographs. No connections, such as nails or fasteners or dadoed joints, were noted between the vertical and horizontal boards; the wood may have been an expedient, rather than formally constructed, lining for the cellar.

Within the area formed by the boards and under the paint and charcoal layers at the base of Stratum 2 is Stratum 3. It includes two thin layers of silty sand, light yellowish brown (10YR 6/4) and brown (10YR 5/4), and a 20-cm-thick deposit of mottled brown (10YR 5/3) to dark gray (10YR 4/1) silty sand. Stratum
Stratum 4, 18-cm-thick, consists of pale brown (10YR 6/3) compact sand with gravels. It begins at 90 cm depth, under the horizontal boards. There is a marked decline in artifact counts in Stratum 4 compared to the levels above. That, along with its compaction and its horizontal layering, indicate it has been mostly undisturbed and corroborates the inference that the horizontal boards above it formed some kind of floor.

Stratum 5, below Stratum 4, begins at 105 to 110 cm depth. It consists of culturally sterile compact sand with gravels, pale yellow (2.5Y 7/4) in color. This stratum appears to be natural, undisturbed substrate.

In addition to abundant burned wood, over 750 other artifacts and ecofacts were recovered from Excavation Unit 4. Structural artifacts recovered include 142 nails, two fuses, three pieces of electrical wire, a solid electrical porcelain wiring knob, ten stove pipe fragments, a fragment of clay sewer pipe, nine linoleum fragments, and abundant charred wood and tar paper roofing. The nails include 136 common nails, two 1-inch-long ring nails, a 1-inch-long finishing nail, a 3/4-inch-long roofing nail, a cut nail fragment, and a cinched 3-inch-long cut nail. The common nails include one 40d, three 16d, one 12d, one 10d, one 9d, eight 8d, one 7d, two 6d, one 5d, three 4d, two 2d, and 112 nail fragments. The wiring knob is embossed with "©," the trademark of Thomas and Sons, 1892-1957 (Tod 1977).
Beverage storage is represented by a round 2.6-inch-diameter green "7-Up" bottle base embossed with "29 $" (post 1928; Bates et al. 1990), two clear round 2.7-inch-diameter bottle bases both embossed with "*[O] 34" (Owens Bottle Company, 1911-1929; Figure 6.13a), two green glass fragments, seven amber glass fragments, two crown caps, a bottle cap fragment, and an aluminum beer can.

Artifacts associated with food storage include a rectangular 3¼ inch by 2½ inch meat can, a 2½-inch-diameter sanitary seal can, nine sanitary seal can fragments, 105 other can fragments, a canning jar ring cap, 115 clear glass fragments, 15 aqua glass fragments, and a recent "Planter’s" nuts can with a UPC code.

The clear glass fragments include canning (mason) jar fragments, ketchup bottle fragments, octagon base bottle fragments, and round base bottle fragments, one embossed with "\text{\underline{TG} /12}" (Illinois Pacific Glass Company, 1929-1930; Figure 6.13b).

Items associated with food serving include nine white ware ceramic cup, bowl and plate fragments. Decorative motifs include a blue band, a gold-outlined blue band, and a floral decal design (which was also present in Excavation Unit 2). A plate base had a partial backstamp which reads "...K./...-V/...CHINA/...E.K." (Knowles, Taylor, and Knowles, East Liverpool, Ohio, ca. 1914-1926, possibly 1925 [Debolt 1994:74-75]).

Recovered food remains include seven peach pits, numerous egg shell fragments, and 67 animal bones (see Appendix B).

Furnishings were limited to seven light bulb glass fragments. Pharmaceutical related items include a blue glass bottle side panel embossed with "JOHN WY..." (Figure 6.13c) and possibly a cobalt glass fragment.

Personal artifacts include a belt buckle, an "invisible" clothing hook and catch (Figure 6.9i), a suspender clip (Figure 6.9j), two metal shoe eyelets, a safety pin (Figure 6.9k), and a white glass cold cream jar fragment. Specialized activities are represented by two very corroded shotgun shell bases and a pocket tobacco can (4¼ by 3¼ by 1 inches). Unclassified items include 10 pieces of barbed wire, 11 pieces of smooth wire, two pieces of twisted wire, a 1½-inch-diameter aluminum ring friction cap, 32 miscellaneous corroded metal objects, and a small fragment of marine shell.
Excavation Unit 5
Nails, window glass, can fragments, ceramic fragments, and bone were recovered from this shallow deposit: only two artifacts, a nail and a small wire, were recovered from below 10 cm. Artifacts recovered include three window glass fragments, 12 wire nails, two tops to 2½-inch-diameter sanitary seal cans (removed with a key), a can key, four can fragments, a bottle cap, two peach pit fragments, six animal bones, five white ware ceramics, and a small smooth wire. The nails include one 7d common wire nail, one 4d common wire nail, three 3d common wire nails, two 2d common wire nails, and five wire nail fragments.

The ceramics include three bowl fragments with a wavy edge, all apparently from the same vessel or set (two refit), a plate fragment, and an indeterminate footring fragment. The plate fragment, which refits with a piece collected from the surface 5 m to the southwest, has a portion of a Homer Laughlin backstamp which dates to between 1903 and 1920 (Debolt 1994:79).

Surface Count Unit 1
Since portions of both loci at the site had been previously surface collected, this 5 m by 5 m unit was placed well within the APE in the northern portion of the site between the buried fiber optics cable and U.S. Highway 395. Twelve artifacts were tabulated in this unit including five ceramics, three window glass fragments, a sanitary seal can fragment, and three ½-inch-thick phonograph record fragments. The ceramics included a bowl rim fragment with a decal design also found on ceramics from Excavation Units 1, 2, and 4, a bowl rim fragment with a gold overglaze band, and three plain indeterminate body fragments.

Surface Collection
Collected from the surface of this site were a “Kerr” canning jar base, an electrical porcelain part (refits with piece from surface of Unit 1), a “Homer Laughlin” ceramic base fragment (refits with piece from surface of Unit 5), a shell button, a brass pocket watch rim casing, a brass buckle embossed with “PAT MAR 13, 1888,” and a mano.

Discussion
The abundance and wide range of wire nails sizes represent all stages of construction: 16d and larger are commonly used for framing (19% of the Hawthorne nails), 8-10d for boarding (16%), 6-8d for clapboarding and finish work (37%), and 2-4d for shingles (29%). This, plus other nail types, electrical porcelain, and other structural remains, indicate the residence at the Hawthorne homesite was torn down and destroyed, rather than moved and salvaged.

The line of rocks (Feature 2) was apparently along the side of the house. As at the Bogart homesite, the residence was close to the current highway, which follows the alignment of the original highway. Logically enough the cellar was discovered at the rear of the house. LADWP photographs show the privy to the northwest of the cellar, probably not too far from Excavation Unit 2.
Table 6.3. Surface Collected Artifacts from CA-INY-4875-H.

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<tr>
<th>Map Ref.</th>
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<th>Description</th>
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<td>Clear canning jar base embossed with “KERR GLASS MFG. CO./AUG. 31/ PATENTED/1915/...RINGS, OKLA.”</td>
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<td>2</td>
<td>2</td>
<td>Pocket watch rim (Figure 6.9l)</td>
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<td>3</td>
<td>3</td>
<td>Mano</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Portion of electrical porcelain fuse block (refits with piece from surface of Excavation Unit 4; Figure 6.8a)</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>White ware ceramic plate base fragment with portion of Homer Laughlin backstamp (ca. 1903-1920; Figure 6.10a)</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Shell button</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>Brass buckle embossed with “PAT MAR 3, 1888” (Figure 6.9m)</td>
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![Hawthorne Homesite (CA-INY-4875-H)](image)

Figure 6.14. Temporally diagnostic artifacts from CA-INY-4875-H.
Besides the abundant structural remains, there are lots of artifacts related to domestic activities (beverage, food, furnishings, and pharmaceutical), personal clothing, grooming, hygiene, leisure (poker chip, record fragments, and tobacco), and other activities (writing, camping, and hunting), and even automobile parts. But there is no historical record of an orchard as at other homesites and no archeological evidence of farm tools or even work clothes. Hawthorne (Wicks?) may have had a wage job in town or on a nearby farm or ranch.

Most of the temporally-diagnostic artifacts (other than modern intrusive) date to the known period of town occupation between 1910 and 1930 (Figure 6.14). The fuse block with a 1917 patent date further defines the construction date of the residence. The two 1929 bottle bases at the site were probably left by people tearing down the buildings or passing by on the highway. LADWP brought the property between 1924 and 1927 and the house looks abandoned in the 1929 LADWP photograph. It seems likely that the property could not be rented out, since there was no associated farm or orchard.
Table 6.4. Artifacts and Ecofacts in Excavation and Surface Count Units at CA-INY-4875.

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<td>Nails</td>
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Mulholland Homestead
(CA-INY-3782/H)

This multi-component prehistoric and historical site is located on both sides of Highway 395 approximately one-half mile south of the National Historic Site. CA-INY-3782/H includes a prehistoric lithic scatter, a small historical artifact scatter, and the possible remains of a homestead. Only the possible homestead component, located on the west side of the highway, was tested for this project. The small historical scatter was determined not eligible for the National Register based on surface evidence (Reno and Palmer 1996), and the prehistoric component was tested by Far Western Anthropological Research Group under contract with Caltrans.

The historic homestead component of the site was recorded by Reno and Palmer (1996) as including a large depression thought to be a cellar (Feature 1), a low earthen mound with a concentration of cobbles at one end (Feature 2), an eroded agricultural field (Feature 3), a small concentration of cobbles (Feature 4), a relatively recent shallow unlined ditch (Feature 5), and a 2,400-square-meter trash scatter. LADWP and Eastern California Museum files yielded no information on what buildings might have been present at the site. However, a building is shown in the site area on an early USGS map, and archival research suggested the location is the Mulholland homestead (Reno and Palmer 1996).

In the current work, the historical trash scatter at CA-INY-3784/H was delimited to include 12 separate concentrations of artifacts varying in size from 20 to 160 square meters (average of 60 square meters), to over an area of 2½ acres (9,500 square meters). Another feature, a small rock pile (Feature 6), was also identified.

Historical Background

The reader is referred to Reno and Palmer (1996) for a detailed history of the homestead site; the following summary is extracted from their work. A building is shown at the site location on the 1907 USGS 30' Mt. Whitney quadrangle, as is a road running generally east-west across Section 14. The building may have been standing in the 1930s, since it is shown on the revised 1937 USGS Mt. Whitney map, but this map no longer shows the road, or any other features or roads in the vicinity of the site. The building was apparently gone by the late 1940s, since it is not shown on the USGS Lone Pine 15' map, published in 1951 but based largely on aerial photographs taken in 1947. Again, no related ditches or other features are shown on this map.

In 1886, Charles Mulholland of Independence claimed two adjacent parcels. Site CA-INY-3782/H is on the common boundary between them. The eastern parcel was eventually successfully patented under
provisions of the 1862 Homestead Act by Mary Mulholland, Charles’s wife, in 1895, a year after his death. The western parcel was originally claimed under the Timber Culture Act of 1873, but Mulholland’s attempt to grow trees was unsuccessful. The western property was on the tax rolls under Mulholland’s name only in 1886 and 1887, but that was apparently long enough for Mulholland to choose the site location (at the edge of both parcels) for his residence.

Charles B. Mulholland, a native of Ireland, had served in the Civil War before arriving in the Owens Valley. Reno and Palmer’s research indicated his primary residence was in Independence, where he ran the Independence newspaper, the _Inyo Independent_. Progress on the homestead was first documented in 1889 when it had a value of $200 and improvements valued at $100. This was nearly half of Mulholland’s entire recorded wealth. “Improvements on Unpatented Land at Georges Creek” were assessed at $100 in 1892 and 1893. Charles Mulholland died on July 9, 1894, in Independence, leaving a widow and four children. With the exception of the homestead, which was exempt from attachment for debt under the provisions of the 1862 Homestead Act, all of Charles’s personal property was sold to cover debts. In 1895, the patent was obtained by Charles’s widow, Mary Mulholland. In 1897 tax reports list improvements at $25, possibly the same improvements as were made to satisfy the homestead claim. The property was sold by the Mulholland family to LADWP in 1906.

The portion of the Mulholland property west of the Los Angeles Aqueduct was later sold by LADWP to the Owens Valley Improvement Company and included in their Subdivision No. 3, surveyed in 1919. Five adjoining lots in this area were owned by Orley Johnson. However, the area does not appear to have been actively developed. The western property, which Mulholland had unsuccessfully tried to claim under the Timber Culture Act, was patented by Isabella Jenkins in 1901 and mortgaged in 1905. By 1911 control had been transferred to Birdie Yandell, who then transferred the property to the Owens Valley Improvement Company which included the property in their Subdivision No. 1, surveyed in 1910. Both parcels returned to LADWP ownership in 1924 when LADWP bought the Owens Valley Improvement Company.

**Results**

Field work for this project included the exposure or testing of three features, excavation of five 1 m by 1 m units and four 50 cm by 50 cm SEEU’s, tabulation of artifacts in two 5 m by 5 m surface count units, and the collection or photographing of diagnostic artifacts (Figure 7.1). Four of the five excavation units were placed within artifact concentrations; the fifth unit and the SEEU’s were used to test other portions of the site. Both surface count units were placed within artifact concentrations. Also noted within the historical artifact scatter were scattered obsidian, basalt, and chert flakes, a few pieces of possibly worked glass, an obsidian Cottonwood Triangular projectile point, two Owens Valley Brown Ware sherds, and two blue hexagonal glass beads (see Chapter 11).

**Feature 1 (large depression)**

This feature, a 25-foot-diameter depression surrounded by a low earthen mound, cobbles, and a few small boulders, was originally thought to be the remains of a cellar. A 1 m by 2 m unit was excavated within Feature 1 near its eastern edge. A pit outline was discovered extending to a depth of 140 cm (Figures 7.2 and 7.3). No floor or internal structure could be discerned, and the feature appears to be a silt-filled hole, perhaps first dug as a well.
Only five artifacts, all from the upper 20 cm of the deposit in Stratum 1, were recovered from the feature. These included a window glass fragment, a clear bottle glass fragment, a can fragment, and two refitting white ware ceramic sugar bowl fragments with a molded design. The artifacts were probably washed into the depression along with the Stratum 1 fill sediments from the surface of the site. Seventy-six animal bones recovered from the pit are intrusive, from a single rabbit (see Appendix B).

The fact that the pit is filled predominantly with sterile sediments suggests it was back-filled purposefully, or refilled naturally before the widespread deposition of sheet trash in the near vicinity. The function of
the rocks around the depression and where they came from is not clear. It seems likely that they were brought to the site from elsewhere since very few rocks were encountered during excavation. Perhaps the rocks were intended for use in a well (or cellar) project that was abandoned.

**Feature 2 (low mound and associated rocks)**

This feature is a 1½-foot-high earthen mound, 18 feet east-west by 12 feet north-south, with an associated
Figure 7.4. Feature 2 at CA-INY-3782/H.

Figure 7.5. Feature 4 at CA-INY-3782/H.
rock concentration and a few other rocks (Figure 7.4). No evidence of a structure, such as a foundation or compact dirt, was encountered in the one excavation unit and one SEEU excavated within this feature (see below). However, three of the largest rocks appear to have been purposefully shaped, and the mound is in the general location of the building shown on USGS maps. Nails and a few pieces of window glass may be the only remains of a structure here.

**Feature 4 (rock concentration)**

This rock concentration, located 30 feet south of Feature 2, was completely exposed with a 3 m by 3 m surface scrape (Figures 7.5 and 7.6). From the surface scrape a plow blade (Figure 7.7a), an unidentified metal part (Figure 7.7b), a wire nail, a few can fragments, and a 3/4-inch-diameter mottled dark and light blue ceramic marble were recovered. The rocks at first exposure appeared to have been a scattered fire ring, with the cobbles imbedded in a small area of dark soil and ash. A 1-m-by-1-m unit was placed to
straddle the boundary between the dark soil and the surrounding area (Figure 7.8-7.10). Each half of this unit was excavated separately. All of the recovered artifacts were badly corroded or burned.

Recovered from the 0-50 cm levels of the east half of the unit (within the dark soil) were 424 fragments of a rectangular “lunch-box” tobacco (?) can and a lap-seam coffee can, two blobs of melted can solder, a can lid fragment, nine other metal fragments, an unidentified metal object (Figure 7.7c), eight square-cut nail fragments, four other nail fragments, a 4½-inch-long carriage bolt, a carriage bolt head, a thick flat unidentified metal object, a metal strap, a possible metal button, a window glass fragment, two burned glass marbles, charcoal bits, and a few pieces of cement. Both marbles are \(\frac{11}{16}\)-inch in diameter and very chipped and pitted. One is clear, white, and blue, with one apparent cut-off scar, and the other is clear, purple, and blue.

Recovered from the 10-30 cm levels of the west half of the unit were six can fragments, eight nail fragments, and a few bits of charcoal. No artifacts were recovered from the 30-50 cm levels. Excavation results indicate the dark soil and rocks at Feature 4 mark a small trash pit, where trash was buried or deposited after burning. The pit itself shows no effects of burning.
Excavation Unit 1
This 1 m by 1 m unit, placed within an artifact concentration 10 m west of the Feature 1 depression, yielded 31 glass fragments, nine can fragments, a tin foil bit, a cooking pan handle, four clothing rivets, and a shoe eyelet. All but a few items were from the surface or 0-10 cm level. Nothing was encountered in the 20-40 cm levels. The glass includes four clear bottle fragments, 13 thick light aqua whiskey bottle fragments, three green bottle fragments, and nine aqua canning jar fragments, including one embossed with "MASON" and a round 3\(\frac{3}{4}\)-inch-diameter base embossed on the base with five dots like on dice and on the side with "...58."

Excavation Unit 2
This 1 m by 1 m excavation unit was placed within an artifact concentration in the central portion of the Feature 2 earthen mound. Twenty-three artifacts were recovered from the surface and the 0-10 cm level. The only artifact recovered below 10 cm was a sun-colored amethyst glass fragment from the 10-20 cm level. Structural remains include two 10d wire nails, one 5d wire nail, two wire nail fragments, a square-cut...
Excavation Unit 3
This excavation unit was placed in a small concentration of artifacts about 20 m south of Feature 2. Numerous historical artifacts were recovered from the surface and the 0-10 cm level, along with an exhausted chert core, a siltstone (?) flake, and an obsidian flake. Recovered from the 10-20 cm level were a bottle glass fragment, a can fragment, and two chert flakes. No artifacts were recovered from below 20 cm depth.

Recovered structural artifacts include 16 square-cut nails (one 4½ inches long, two 3 inches long, one 2½ inches long, two 2 inches long, one 1 ¾ inches long, one 1¼ inches long, and eight fragments), 13 wire nails (three 10d, one 6d, and nine fragments), three 2-inch-long staples, and two window glass fragments.

Food-related artifacts include 46 glass fragments, 18 ceramics, seven can fragments, and a peach pit fragment. The glass fragments include 23 aqua (including a side panel fragment embossed with “...Y...”), 12 sun-colored amethyst (embossed pieces include “...GO...” and “...EL...”), six clear (one embossed with “...M...”), three amber, one cobalt, and one green.

Recovered ceramics include 16 white ware fragments and two plain hotel ware bowl fragments. The white ware fragments include four bowl fragments, a plate rim, a cup rim, and ten indeterminate fragments. Recovered items associated with horses include two partial horseshoes, a partial draft horseshoe with a mud calk, a 2½-inch-long horseshoe nail, and a piece of wagon hardware. Other recovered artifacts and ecofacts consist of six animal bones (see Appendix B), a rectangular clear patent medicine bottle base fragment, two clothing rivets, a rubber eraser, two pieces of smooth wire, and six unidentified metal objects (most are likely pieces of wagon hardware; Figure 7.19c).

Excavation Unit 4
This unit, placed within a trash concentration 40 m southeast of Feature 2, yielded a great number and variety of historical artifacts from the surface and 0-10 cm level and a core fragment from the 10-20 cm level.

Structural remains included a part of a strap hinge, 53 square-cut nails, 52 wire nails, a 2-inch-long double pointed wire nail, a 1¾-inch staple, and two possible wrought nail fragments. The measurable square-cut nails include one 3½ inches long, six 3 inches long, eight 2½ inches long, two 2 inches long, one 1½ inches long, one 1¼ inches long. The wire nail sizes include one 20d, fourteen 10d, seven 8d, seven 6d, seven 5d, eight 4d, and eight fragments.

Beverage storage is represented by 31 amber whiskey bottle body fragments, an amber round 3-inch-diameter whiskey bottle base embossed with “R & Co/29” (Figure 7.12h; Roth and Company, 1879-1880), an aqua 3 ½-inch-diameter round bottle base embossed with “1,” an aqua 2-inch-diameter milk bottle lip
Figure 7.12. Glass Artifacts from CA-INY-3782/H; a. Woodbury Glass Company (FN-601), b. alphabet dish fragment (FN-569), c. cap embossed with palm tree and “Los ... Southern Califor...” (FN-885), d. applied-lip wine bottle (FN-600), e. Fredrick Hampson Glass Works (FN-871), f. canning jar fragment (FN-885), g. “Dr. Kennedy’s [Medical Discovery]” (FN-729), h-i. Roth and Company (FN-699, -872).
Figure 7.13. Cans and can lids from CA-INY-3782/H; a-c. hole-in-cap (FN-618, -621, -590), d. lunch box tobacco (FN-567), e. rectangular top (FN-698), f. Royal Baking Powder lid (FN-544).
Artifacts associated with food consist of 20 clear glass fragments, 16 sun-colored amethyst glass fragments (including a melted blob), nine aqua canning jar fragments, including a 2 1/2-inch-diameter, discontinuous thread top sealing jar lip fragment, a white glass canning jar lid liner fragment embossed with “...INE...” and a portion of a “Hero” cross (Hero Fruit Jar Company, 1882-1909), a hole-in-cap can (4 1/2 by 2 15/16 inches) with its bottom missing, a knife-slit opened hole-in-cap can, (4 7/16 by 3 inches), a crushed lap seam can cut open with a knife and folded back (approx. 4 by 3 inches), a hole-in-cap can top fragment, a 5-inch-square can top with a 3-inch-diameter opening, a friction can lid fragment, and 164 other can fragments.

Food serving and furnishings are represented by a sun-colored amethyst glass plate fragment with floral design, two sun-colored amethyst cut glass fragments with floral and geometric designs, and 116 ceramic fragments. The ceramics include an indeterminate porcelain body fragment, five hotel ware fragments, seven semi-vitreous white-bodied earthen ware fragments, 99 non-vitreous white-bodied earthen wares, three glazed yellow ware bowl body fragments, and an indeterminate stone ware base with a brown exterior and a black smudged interior. The hotel ware includes a plain bowl rim fragment and four cup fragments with a brown, green, and blue floral motif and a molded design. The semi-vitreous ceramic fragments include five indeterminate body fragments, a bowl rim, and a cup base with a 2-inch-diameter footring.
The non-vitreous ceramics include fragments of at least eight plates, four bowls, two cups, and two serving platters. The plate fragments are all plain and include five base fragments (two refit) and five rim fragments. Plate back stamps include “J & G MEAKIN” (Figure 7.24a; post 1891), “Powell and Bishop” (Figure 7.23g; 1867-1878) and “Thomas Furnival and Sons” (Figure 7.20d; 1871-1890). The bowl fragments include two plain base fragments (one burned), three plain rim fragments (two refit), and a burned rim fragment with a possible hand-painted floral design. The unburned base fragment has a partial back stamp of a “Staffordshire knot.” Two cup rim fragments were recovered; one is plain and the other has a molded design and a gold overglazed line along the lip. Thirty-three of the 34 serving platter fragments are from a single large vessel with a blue floral transfer print design on the interior and exterior and a “Clementson Brothers” back stamp (Figures 7.22 and 7.23a-c; 1865-1916). The remaining serving platter fragment is a plain rim and footing fragment of a smaller vessel. Indeterminate vessel fragments include 16 plain body and rim fragments apparently from the same set based on thickness (four refit), seven plain rim and body fragments all from different vessels (three burned), a body fragment with a molded design, and 22 very small fragments (eight burned).

Food remains were limited to 13 animal bones (see Appendix B), a peach pit, and five peach pit fragments. Personal items include an umbrella part (Figure 7.16f), a belt buckle, two clothing rivets, and 13 small shoe sole fragments. Other recovered artifacts include a 2½-inch-long horseshoe nail, 14 pieces of smooth wire, two copper wires twisted together, a twisted metal wire, and nine unidentified metal objects.
Figure 7.16. Metal artifacts from CA-INY-3782/H; a. scissors (FN-564, -675), b. brass fly (FN-570), c. hand drill bit (FN-554), d. buckle (FN-651), e. hose or brace supporter buckle (FN-866), f. umbrella part (FN-704), g. match safe (FN-864), h. cartridge shell and aluminum part (FN-868).

Excavation Unit 5
This unit, placed 10 m east of Feature 1, yielded a piece of clear glass, a brick fragment, and charcoal from the 0-10 cm level and nothing in the 10-30 cm levels.

Subsurface Exploratory Excavation Units
Four 50 cm by 50 cm units were excavated. Generally these were placed outside of identified artifact concentrations to test other portions of the site.
SEEU 1 was placed 10 m west of Feature 2. It yielded a 6d wire nail, five wire nail fragments, a 1 1/4-inch-long flat head screw, a can fragment, seven glass fragments (five aqua, one sun-colored amethyst, and one clear), a piece of lead foil possibly from a paste tube, a 1/4-inch-diameter lead shot, a .22 short cartridge with a “US” headstamp, and a split pencil lead from the 0-30 cm levels. A piece of animal bone, likely older than the historical component of the site, was recovered from the 40-50 cm level (see Appendix B).

SEEU 2 was placed 3 m west of Excavation Unit 2 in the central portion of the Feature 2 earthen mound. It yielded two nails from the surface and five nails from the 0-10 cm level. The nails included a 16d wire nail, a 3-inch-long square-cut nail, three 2 1/2-inch-long square-cut nails, and two cut nail fragments.

SEEU 3, 10 m east of Feature 2, was excavated to 20 cm depth. A window glass fragment and an obsidian flake were found on the surface of this unit, but nothing was found subsurface.

SEEU 4 was placed in the eastern portion of the site, 40 m east of Feature 2. Two glass fragments of two different canning jar liners (one with a portion of a “Hero” cross), a broken iron bar (2 1/2 by 2 5/8 by 1/4 inch with two holes), and an obsidian flake were found on the surface. One wire nail fragment was recovered from the 0-10 cm level.

**Surface Count Unit 1**
A total of 164 artifacts was tabulated within this 5 m by 5 m surface count unit, placed within a large artifact concentration 40 m southeast of Feature 2. Structural remains and hardware include an 8d wire nail, a 4d wire nail, a wire nail fragment, a flathead screw, a screw eyelet, a brass tack, and a small piece of sheet metal. Beverage storage is represented by 68 olive green applied-lip wine bottle fragments from at least two different bottles. Food storage is indicated by a hole-in-cap can (3 3/4 by 3 3/16 inches), four can fragments, an amber applied-lip packer with bead finish lip fragment and eight other amber glass fragments, 28 sun-colored amethyst glass fragments, and 30 aqua glass fragments. One of the aqua glass fragments, a bottle base, appears to have been flaked. Food serving is indicated by 11 white ware ceramics.
a porcelain fragment, and a stone ware fragment. Four pieces of smooth wire were also present.

**Surface Count Unit 2**
This count unit was placed within a scatter of possibly older material located 20 m west of the Feature 1 depression and 20 m northeast of Feature 2. Tabulated within this unit were a 2½-inch-long square-cut nail, a cut nail fragment, a rivet, a horseshoe nail fragment, 14 fragments of a thick brown beer bottle, 11 light aqua glass fragments, four sun-colored amethyst glass fragments, eight white ware ceramic fragments (one with a green hand-painted design or glaze), a belt buckle (Figure 7.16d), three green glass fragments, two pieces of smooth wire, a 10-inch-long piece of twisted wire, two obsidian flakes, a chert flake, and an igneous flake. Two of the glass fragments appear to have been flaked (reworked).

**Surface Inventory and Collection**
A total of 280 artifacts were piece-plotted and collected (Table 7.1; see Figures 7.12-7.25). Eleven other
Figure 7.19. Wagon hardware and farm equipment parts from CA-INY-3782/H; a. unidentified part (FN-623), b. chain link (FN-558), c. unidentified part (FN-684), d. carriage bolt (FN-559), e. eye bolt (FN-559), f. spur (FN-559), g. harness ring (FN-559), h. canopy top or shifting rail (FN-883), i. unidentified part (FN-559), j-k. hay mower blade sections (FN-559), l. unidentified part (FN-592), m. unidentified part (FN-732), n. key or knob (FN-549), o-q. unidentified parts (FN-559, -558, -558), r. buggy top bow socket (FN-733), s. reinforcing bar (FN-675).
Figure 7.20. Ceramics from CA-INY-3782; a-c. E & C Challinor (FN-613, -613, -605), d. Thomas Furnival and Sons (FN-706), e. Burgess and Goddard (FN-619), f. Pioneer Pottery Works (FN-884).
Figure 7.22. Blue floral transfer print platter with Clementson Bros. backstamp from CA-INY-3782 (a, c-d. FN-700, b. FN-873).
Figure 7.23. Ceramics from CA-INY-3782; a-c. additional fragments of blue floral transfer print platter with Clementson Bros. backstamp (FN-700), d-f. Knowles, Taylor, and Knowles (FN-630, -874, -648), g. Powell and Bishop (FN-706).
Figure 7.24. Ceramics from CA-INY-3782; a. J & G Meakin (FN-700), b. portion of Staffordshire knot (FN-706), c. impressed C P CO backstamp (FN-645), d-f. unidentified English backstamps (FN-880, -874, -888).
Figure 7.25. Ceramics from CA-INY-3782; a-b. unidentified English backstamps (FN-878, -700), c. brown floral transfer print (FN-581), d. hand-painted floral (FN-731), e. gold overglaze with “230” impressed on base (FN-649), f-g. floral decal with molded design (FN-706), h. floral decal (FN-646).
Table 7.1. Surface Collected Artifacts From the Mulholland Homestead.

<table>
<thead>
<tr>
<th>Map Ref.</th>
<th>FN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>535</td>
<td>Light amber bottle neck fragment</td>
</tr>
</tbody>
</table>
| 2        | 536 | 1) Two aqua bottle base fragments with portion of a side panel, base approx. 3 by 2½ inches, embossed on base with “B/3,” and side with “...A”  
2) Five embossed aqua bottle body fragments embossed with “...CO/...MUL/... & s...” and “...EM...” (Scott's Emulsion Cod Liver Oil, 1870-1947)  
3) Clear whiskey bottle fragment |
| 3        | 537 | Aqua bottle neck fragment |
| 4        | 538 | Mexican? ceramic fragment |
| 5        | 539 | Amber applied lip beer bottle neck with traces of paper label |
| 6        | 540 | Golden round bottle base, 2¼-inch diameter, embossed with “y/x” |
| 7        | 541 | Terra cotta flower pot fragment |
| 8        | 542 | 27 aqua glass fragments of two different Scott’s Emulsion Cod Liver Oil bottles and a cork stopper (1870-1946) |
| 9        | 543 | Harmonica fragment with one nail hole, 2½ by 1½ inches (Figure 7.17d) |
| 10       | 544 | Friction can lid, 3¾ inch diameter, embossed with “FULL WEIGHT/ROYAL BAKING POWDER/ABSOLUTELY PURE” (1869-1934) (Figure 7.13f) |
| 11       | 545 | Five embossed light aqua bottle body fragments embossed with “SCO.../EM... ...O...,” “...O L...,” “...T’s .../...IO...” and “...OD...” (Scott’s Emulsion Cod Liver Oil, 1870-1947) |
| 12       | 546 | Clear bottle neck fragment |
| 13       | 547 | Amber round bottle base fragment embossed with “L. o.../2 ...” |
| 14       | 548 | Aqua bottle neck fragment |
| 15       | 549 | Metal key or knob (Figure 7.19n) |
| 16       | 550 | Half of a horseshoe |
| 17       | 551 | Sun-colored amethyst bottle neck with an applied medicine bottle stopper finish lip |
| 18       | 552 | 1) Clear wine or whiskey bottle base fragment  
2) Embossed clear bottle body fragment embossed with “...ROMA/.../FA...” |
<p>| 19       | 553 | Unidentified metal tool (crescent wrench?) |
| 20       | 554 | ¾-inch hand drill bit (Figure 7.16c) |
| 21       | 555 | Three prong fork embossed with “...M H &amp; CO...” (Figure 7.14d) |
| 22       | 556 | ⅜-inch-square flat nut |
| 23       | 557 | Horseshoe (Figure 7.18e) |</p>
<table>
<thead>
<tr>
<th>Map Ref.</th>
<th>FN</th>
<th>Description</th>
</tr>
</thead>
</table>
| 24      | 558 | 1) Chain link (Figure 7.19b)  
2) Two unidentified metal parts (Figures 7.19p-q) |
| 25      | 559 | 1) Broken spur (Figure 7.19f)  
2) 2-inch-diameter harness ring (Figure 7.19g)  
3) 4½-inch-long carriage bolt (Figure 7.19d)  
4) Eye bolt (Figure 7.19e)  
5) Unidentified metal part (Figure 7.0)  
6) Two hay mower blades (Figures 7.19j-k)  
7) Notched metal bar (Figure 7.19i) |
| 26      | 560 | Sun-colored amethyst base, 1¾ inches square with chamfered corners embossed on base with “[IGCO in diamond]” (Illinois Glass Co., 1900-1916) |
| 27      | 561 | Sun-colored amethyst bottle neck |
| 28      | 562 | Two cut nail fragments |
| 29      | 563 | Glass canning jar liner fragment embossed with “...s GEN...” and portion of a “Hero” cross (Hero Fruit Jar Co., 1884-1909) |
| 30      | 564 | Scissors blade (Figure 7.16a) |
| 31      | 565 | 1) Oil lamp part (Figure 7.15d)  
2) 2-inch-diameter metal disk with two holes  
3) Cartridge casing “WRA CO/ 30 WCF” (1895-1939) |
| 32      | 566 | End piece for sliding dead bolt |
| 33      | 567 | Hinged lunchbox tobacco can, 4 by 6 by 2 inches with four nail holes in the lid and 11 nail holes in the base (Figure 7.13d) |
| 34      | 568 | Aqua bottle neck |
| 35      | 569 | Sun-colored amethyst dish with ornate alphabet and floral design around rim (Figure 7.12d), refits with piece from Excavation Unit 4, 0-10 cm (FN-705) |
| 36      | 570 | Brass toy fly (Figure 7.16b) |
| 37      | 571 | Possible metal button |
| 38      | 572 | Three prong fork (Figure 7.14e) |
| 39      | 573 | Utilized flake |
| 40      | 574 | 1) Two light aqua base, rectangular with chamfered corners, embossed on the base with “8”  
2) Three light aqua body fragments with embossed lettering |
<p>| 41      | 575 | Two thick amber bottle fragments embossed with “...OP” |
| 42      | 576 | Thick amber bottle fragment, possibly flaked |</p>
<table>
<thead>
<tr>
<th>Map Ref.</th>
<th>FN</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>43</td>
<td>577</td>
<td>Obsidian Cottonwood Triangular projectile point</td>
</tr>
</tbody>
</table>
| 44      | 578 | 1) Harness buckle  
2) Horseshoe (Figure 7.18c)  
3) Spoon/fork handle                                                                 |
| 45      | 579 | Pulley (2½ x ¾ inches)                                                                                                                      |
| 46      | 580 | Draft horseshoe with mud calk and reinforcing bar (Figure 7.18a)                                                                        |
| 47      | 581 | White ware bowl body fragment with brown floral transfer print on exterior (Figure 7.25c)                                                 |
| 48      | 582 | Sun-colored amethyst glass fragment, possibly flaked                                                                                         |
| 49      | 583 | 1) Light amber round bottle base, 3-inch diameter, embossed on base with “D.O.C./L4” (D.O. Cunningham Glass Co., Pittsburgh, PA, 1882-1937)  
2) Light amber bottle body fragment, possibly flaked                                                                 |
| 50      | 584 | Sun-colored amethyst neck with applied medicine with bead lip                                                                              |
| 51      | 585 | Stainless steel comb (Figure 7.15e)                                                                                                        |
| 52      | 586 | Clear bottle neck with applied flat with triple bead lip                                                                                      |
| 53      | 587 | Zinc canning jar lid fragment embossed with “GENUINE BOYD CAP/[DESIGN]/FOR MASON ...” (Post 1915)                                           |
| 54      | 588 | Shoulder seal zinc canning jar lid, 2½-inch diameter, embossed with “MASON FRUIT JAR CO/PHIL...ADA. PA [DESIGN]” (1885-1900)               |
| 55      | 589 | Shoulder seal zinc canning jar lid, 2½-inch diameter                                                                                            |
| 56      | 590 | Hole-in-cap can, 4¾ by 21¾ inches, slit open (also cut and folded under)(Figure 7.13c)                                                        |
| 57      | 591 | Shotgun shell base “1901/NO 12/REPEATER” (1900-1938)                                                                                         |
| 58      | 592 | Unidentified metal part (Figure 7.19l)                                                                                                     |
| 59      | 593 | Sun-colored amethyst bottle neck                                                                                                           |
| 60      | 594 | Eight aqua bottle fragments, including an applied stopper lip and embossed body fragments, rectangular with chamfered corners, 1¼-inch-wide base, embossed with “...r's... PROP..., "...ETOR," and “b...” (Atwood's Genuine Bitters) |
| 61      | 595 | Five aqua bottle fragments, base approx. 3 by 4½ inches, embossed with “MED/...CO/...CA.../...V.../...ROXB...” (Dr. Kennedy's Medical Discovery, Roxbury, Mass) |
| 62      | 596 | Shotgun shell base “WINCHESTER/NO 12/LEADER”                                                                                               |
| 63      | 597 | Aqua neck wine (?) bottle with applied lip                                                                                            |
| 64      | 598 | 3½-inch flat hinge and two 1¼-inch-long flat head screws                                                                                 |
| 65      | 599 | Oil lamp part (Figure 7.15c)                                                                                                             |
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</thead>
<tbody>
<tr>
<td>66</td>
<td>600</td>
<td>Complete olive green applied lip wine bottle with no embossments (Figure 7.12d)</td>
</tr>
<tr>
<td>67</td>
<td>601</td>
<td>Aqua round bottle base, 4¼-inch diameter, “WOODBURY GLASS/WORKS/l/ WOODBURY, N.J.” (1882-1916)(Figure 7.12a)</td>
</tr>
<tr>
<td>68</td>
<td>602</td>
<td>Aqua round bottle base fragment embossed with “...ATNO...”</td>
</tr>
<tr>
<td>69</td>
<td>603</td>
<td>Semi-vitreous white ware saucer base/footring with “EDWARD CLARKE/TUNSTALL/TRADE MARK/[SHEILD/...NE CHINA” (ca. 1865-1877) (Figure 7.21e)</td>
</tr>
<tr>
<td>70</td>
<td>604</td>
<td>Glass canning jar liner fragment embossed with “...SON FRUIT JAR ...” (Mason Fruit Jar Co., 1885-1900)</td>
</tr>
<tr>
<td>71</td>
<td>605</td>
<td>White ware ceramic plate base with “STONE CH.../E &amp; C. CHALLIN/ENGLAND”(Figure 7.20c) (E. &amp; C. Challinor, 1862-1891)</td>
</tr>
<tr>
<td>72</td>
<td>606</td>
<td>Stoneware bowl body, interior and exterior glazed light brown/dark brown/gray</td>
</tr>
<tr>
<td>73</td>
<td>607</td>
<td>White ware indeterminate base/footring with “...NE CH.../... DAVIS”(Figure 7.21d) (I. Davis, Trenton, NJ, ca. 1875-1895)</td>
</tr>
<tr>
<td>74</td>
<td>608</td>
<td>Change purse frame (Figure 7.15b)</td>
</tr>
<tr>
<td>75</td>
<td>609</td>
<td>Aqua bottle base and portion of side panel, base approx. 3 by 2¼ inches, no markings on base, embossed on side with “...L/...RY”</td>
</tr>
<tr>
<td>76</td>
<td>610</td>
<td>Hole-in-cap can, 4¾ by 2½ inches with 1½-inch diameter cap, slit open</td>
</tr>
<tr>
<td>77</td>
<td>611</td>
<td>Lap seam syrup can, 5½ by 4 by 2½ inches, embossed on side with “W. P. FULLER &amp; CO/SAN FRANCISCO, CAL.”</td>
</tr>
<tr>
<td>78</td>
<td>612</td>
<td>Friction can lid fragment, ¾-inch-diameter, embossed with “FUL.../ROYAL .../ABSOLUTELY PURE...” (Royal Baking Powder)</td>
</tr>
<tr>
<td>79</td>
<td>613</td>
<td>Five (4 refit) white ware plate base fragments with “[ROYAL COAT OF ARMS] STONE CHINA/ E &amp; C. CHALLINOR/ENGLAND,” impressed on the non-refitting piece is “E &amp; C. CHALLINOR/FENTON” (Figure 7.20a-b) (E. &amp; C. Challinor, 1862-1891)</td>
</tr>
<tr>
<td>80</td>
<td>614</td>
<td>Aqua bottle neck</td>
</tr>
<tr>
<td>81</td>
<td>615</td>
<td>Light aqua bottle side panel fragment embossed with “...MBERL.../...H REM...” (Chamberlin’s Cough Remedy, Des Moines, Iowa, 1892-ca. 1930)</td>
</tr>
<tr>
<td>82</td>
<td>616</td>
<td>Harmonica part with one nail hole, 3½ by 1½ inches (Figure 7.17a)</td>
</tr>
<tr>
<td>83</td>
<td>617</td>
<td>Lap seam can fragment embossed with “.../LARD...O.../OMA...”</td>
</tr>
<tr>
<td>84</td>
<td>618</td>
<td>Hole-in-cap can, 4½ by 2½ inches with ¾-inch-diameter cap, slit open (Figure 7.13a)</td>
</tr>
<tr>
<td>85</td>
<td>619</td>
<td>White ware ceramic fragment with “[ROYAL COAT OF ARMS]...YAL/...RONSTONE/...GODDARD” (Figure 7.20e) (Burgess and Goddard 1870-1891)</td>
</tr>
<tr>
<td>86</td>
<td>620</td>
<td>Horseshoe (Figure 7.18b)</td>
</tr>
</tbody>
</table>
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<tbody>
<tr>
<td>87</td>
<td>621</td>
<td>Hole-in-cap can, 4½ by 3 inches, slit open (Figure 7.13b)</td>
</tr>
<tr>
<td>88</td>
<td>622</td>
<td>Shotgun shell base “NO. 20/U.S./AJAX”</td>
</tr>
<tr>
<td>89</td>
<td>619</td>
<td>1) White ware ceramic plate base with “[ROYAL COAT OF ARMS]/...YAL/...RONSTONE/...GODDARD”</td>
</tr>
<tr>
<td></td>
<td>623</td>
<td>2) Wagon hardware (Figure 7.23a)</td>
</tr>
<tr>
<td>90</td>
<td>624</td>
<td>Shotgun shell base “WINCHESTER/NO 12/LEADER”</td>
</tr>
<tr>
<td>91</td>
<td>625</td>
<td>Sun-colored amethyst bottle neck</td>
</tr>
<tr>
<td>92</td>
<td>626</td>
<td>Button</td>
</tr>
<tr>
<td>93</td>
<td>627</td>
<td>Clothing rivet “LEVI STRAUSS &amp; CO./SF CAL”</td>
</tr>
<tr>
<td>94</td>
<td>628</td>
<td>Blue hexagonal glass bead</td>
</tr>
<tr>
<td>95</td>
<td>629</td>
<td>1) Amber applied lip beer bottle neck with traces of paper label</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Aqua bottle neck with applied packer lip</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Embossed aqua bottle side panel fragment embossed with “WINONA ...”</td>
</tr>
<tr>
<td>96</td>
<td>630</td>
<td>Hotel ware saucer base/foothing with “K. T. &amp; K./[LINE]/CHINA”(Knowles, Taylor, &amp; Knowles, ca. 1890-ca. 1910) (Figure 7.23d)</td>
</tr>
<tr>
<td>97</td>
<td>631</td>
<td>Hotel ware plate base/foothing, with impressed mark “THOMAS HUGHES [LINE DOT LINE]/BUR SLEM/7” (1895-ca. 1910) (Figure 7.21a)</td>
</tr>
<tr>
<td>98</td>
<td>632</td>
<td>Two Owens Valley Brown Ware sherds</td>
</tr>
<tr>
<td>99</td>
<td>633</td>
<td>Core fragment</td>
</tr>
<tr>
<td>100</td>
<td>634</td>
<td>Carpet bag frame (Figure 7.15a)</td>
</tr>
<tr>
<td>101</td>
<td>635</td>
<td>Horseshoe (Figure 7.18f)</td>
</tr>
<tr>
<td>102</td>
<td>636</td>
<td>Harmonica part with one nail hole, 4½ by 1½ inches (Figure 7.17c)</td>
</tr>
<tr>
<td>103</td>
<td>637</td>
<td>Harmonica part with two nail holes, 4½ by 1½ inches (Figure 7.17b)</td>
</tr>
<tr>
<td>104</td>
<td>644</td>
<td>Aqua rectangular bottle base fragment, 2½ inches wide, with portions of front and back panel embossed with “...IN’S/...EDY”</td>
</tr>
<tr>
<td>105</td>
<td>645</td>
<td>Hotel ware plate base with impressed mark “CP.../CO...” (Figure 7.24c)</td>
</tr>
<tr>
<td>106</td>
<td>646</td>
<td>1) Porcelain handled cup rim and two indeterminate porcelain body fragments with green, brown, and blue floral decal design (Figure 7.25g-h)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Porcelain handled saucer rim/foothing fragment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Two porcelain shallow bowl fragments, yellow with vertical gold lines</td>
</tr>
<tr>
<td>107</td>
<td>647</td>
<td>Wood (?) handled knife blade (Figure 7.14a)</td>
</tr>
<tr>
<td>108</td>
<td>648</td>
<td>Hotel ware bowl footring with “K. T. &amp; K./[LINE]/CHINA” (Knowles, Taylor, &amp; Knowles, ca. 1890-ca. 1910) (Figure 7.23f)</td>
</tr>
</tbody>
</table>
Table 7.1. Surface Collected Artifacts From the Mulholland Homestead.

<table>
<thead>
<tr>
<th>Map Ref.</th>
<th>FN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>109</td>
<td>649</td>
<td>Seven refitting porcelain saucer fragments (approx. half of saucer) with yellow band enclosed in gold lines, impressed on base &quot;230&quot; and small portion of a dark green basemark (Figure 7.25e)</td>
</tr>
<tr>
<td>110</td>
<td>728</td>
<td>Semi-vitreous toy plate fragment</td>
</tr>
<tr>
<td>111</td>
<td>729</td>
<td>Clear bottle side panel embossed with &quot;DR KENN...&quot; (Figure 7.12g)</td>
</tr>
<tr>
<td>112</td>
<td>730</td>
<td>Cast iron stove burner lid, 8¼-inch-diameter</td>
</tr>
<tr>
<td>113</td>
<td>731</td>
<td>Indeterminate porcelain body fragment with yellow exterior and brown and gray hand painted floral design on interior (Figure 7.25d) (same set as FN -109)</td>
</tr>
<tr>
<td>114</td>
<td>732</td>
<td>Unidentified metal part (Figure 7.19m)</td>
</tr>
</tbody>
</table>
| 115      | 733 | 1) Regular bow socket for buggy top (wagon hardware) (Figure 7.19r)  
    |     | 2) White ware indeterminate base fragment with "...N & CO G.../[ROYAL COAT OF ARMS]" (Figure 7.21b) (R. Cochran & Co., 1846-1918) |
| 116      | 863 | Rectangular can, 2¼ by 1½ inches, top removed with key, embossed on base with "CON.../NO.../STAR..."                                             |
| 117      | 864 | Half of an aluminum match safe, 1½ by ¾ inches (Figure 7.16g)                                                                                  |
| 118      | 865 | Three embossed amber whiskey bottle body fragments, embossed with "SAN FRANCISCO" (Roth and Co., 1879-1880)                                      |
| 119      | 644 | 1) Button/snap  
    |     | 2) Suspenders buckle (Figure 7.16c)                                                                                                          |
| 120      | 867 | Two refitting ware ceramics with "ROYAL .../[ROYAL COAT OF ARMS]/ A. J. .../E..." (A. J. Wilkinson, 1885-1896) (Figure 7.21c)                    |
| 121      | 640 | Metal clothing rivet                                                                                                                         |
| 122      | 868 | Cartridge shell "wra co/30 wcf" (ca. 1895-1939) with interlocked aluminum part, primer base battered                                            |
| 123      | 869 | Half of an eroded ¾-inch diameter white ceramic marble (1884-ca. 1926)                                                                     |
| 124      | 870 | Knife fragment, embossed on handle with "PATD..." (Figure 7.14b)                                                                           |
| 125      | 871 | Aqua round bottle base, 2½-inch diameter, embossed with "F.H.G.W./20" (Frederick Hampson Glass Works, ca. 1880-1900) (Figure 7.12e)            |
| 126      | 872 | Amber round whiskey bottle base, 3-inch diameter, embossed with "R & CO/6" (Figure 7.12i)                                                   |
| 127      | 873 | 1) White ware serving platter base fragment with blue floral transfer print and "CLEMENTSON .../ENGLAND/"PREMIER" (1865-1916) (Figure 7.22b) (refits with pieces from Excavation Unit 4; FN-700 and 706)  
<pre><code>|     | 2) White ware base fragment with &quot;IRONS.../[ROYAL COAT OF ARMS]&quot;                                                                            |
</code></pre>
<table>
<thead>
<tr>
<th>Map Ref.</th>
<th>FN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>128</td>
<td>874</td>
<td>1) Hotel ware ceramic fragment with “K. T. &amp; .../[LINE]/CHIN...” (Knowles, Taylor, &amp; Knowles, ca. 1890-ca. 1910) (Figure 7.23e)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) White ware ceramic fragment with “IRONSTONE CHINA/[ROYAL COAT OF ARMS]” (Figure 7.24e)</td>
</tr>
<tr>
<td>129</td>
<td>875</td>
<td>Friction cap lid embossed with “FOLGER &amp; CO/CO.../G.../SAN .../WARRANTED” (1890-1919)</td>
</tr>
<tr>
<td>130</td>
<td>641</td>
<td>Metal clothing rivet</td>
</tr>
<tr>
<td>131</td>
<td>876</td>
<td>Ornate sun-colored amethyst lamp glass fragment</td>
</tr>
<tr>
<td>132</td>
<td>877</td>
<td>Cartridge shell “U.S./38 s &amp; w” (United States Cartridge Co., 1877-1936)</td>
</tr>
<tr>
<td>133</td>
<td>878</td>
<td>White ware ceramic fragment with “[ROYAL COAT OF ARMS]/PAT...” (Figure 7.25a)</td>
</tr>
<tr>
<td>134</td>
<td>879</td>
<td>Five indeterminate ceramic body fragments with irregular brown glaze on interior and exterior, possibly Chinese</td>
</tr>
<tr>
<td>135</td>
<td>880</td>
<td>White ware plate base with “[ROYAL COAT OF ARMS]/.i./.../IOR” (Figure 7.24d)</td>
</tr>
<tr>
<td>136</td>
<td>881</td>
<td>Wood-handled (?) three prong fork (Figure 7.14c)</td>
</tr>
<tr>
<td>137</td>
<td>882</td>
<td>Amber applied lip beer bottle neck</td>
</tr>
<tr>
<td>138</td>
<td>642</td>
<td>Button</td>
</tr>
<tr>
<td>139</td>
<td>883</td>
<td>Part of shifting rail or canopy top (wagon hardware) (Figure 7.19h)</td>
</tr>
<tr>
<td>140</td>
<td>884</td>
<td>White ware indeterminate base with blue mark “[eagle within star]” (Pioneer Pottery Works, Wellsville, OH, 1885-1896) (Figure 7.20f)</td>
</tr>
<tr>
<td>141</td>
<td>885</td>
<td>1) Aqua caning jar body fragment embossed with “NOV 30.../1858” (Figure 7.12f)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2) Sun-colored amethyst cap fragment, 2½-inch-diameter, embossed with “SOUTHERN CALIFO.../[PALM TREE]/LOS ...” (Figure 7.12c)</td>
</tr>
<tr>
<td>142</td>
<td>643</td>
<td>Button</td>
</tr>
<tr>
<td>143</td>
<td>886</td>
<td>1) Two aqua bottle side panel fragments embossed with “...A...” and “...IOWA”</td>
</tr>
<tr>
<td>144</td>
<td>887</td>
<td>2) Cast iron stove part</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3) Two 1¼-inch staples</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4) 13 wire nails (one 12d, four 10d, two 8d, two 6d, three 5d, and one 4d)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5) Nine cut nails (one 4”, one 3”, two ¾”, two 2½”, and three fragments)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6) Four 1½-inch-long horseshoe nails</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7) 2-inch-diameter harness ring</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8) 22 short cartridge shell “US” (1869-1936)</td>
</tr>
<tr>
<td>144</td>
<td>888</td>
<td>White ware indeterminate base fragment with “[DESIGN FRAGMENT]/...STON...” (Figure 7.24f)</td>
</tr>
<tr>
<td>145</td>
<td>889</td>
<td>Three prong fork (Figure 7.14f)</td>
</tr>
</tbody>
</table>
Figure 7.26. Large metal artifacts at CA-INY-3782/H; a. shifting rail or canopy top (cf. Fig 7.19h), b. wash basin, c. cooking pan, d. bucket, e-f. lard buckets (all photographed in field).
Table 7.2. Photographed and Piece-plotted Artifacts at the Mulholland Homestead (CA-INY-3782/H).

<table>
<thead>
<tr>
<th>Map Ref.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Unidentified metal object (Figure 7.26a)</td>
</tr>
<tr>
<td>P2</td>
<td>Horseshoe</td>
</tr>
<tr>
<td>P3</td>
<td>Metal wash basin (Figure 7.26b)</td>
</tr>
<tr>
<td>P4</td>
<td>Burner cover from a cast iron stove</td>
</tr>
<tr>
<td>P5</td>
<td>Plain white ware plate base, no basemark</td>
</tr>
<tr>
<td>P6</td>
<td>Cooking pan (Figure 7.26c)</td>
</tr>
<tr>
<td>P7</td>
<td>Galvanized bucket (Figure 7.26d)</td>
</tr>
<tr>
<td>P8</td>
<td>Wagon pole and associated hardware (Figure 7.27)</td>
</tr>
<tr>
<td>P9</td>
<td>Lard bucket (Figure 7.26e)</td>
</tr>
<tr>
<td>P10</td>
<td>Lard bucket (Figure 7.26f)</td>
</tr>
<tr>
<td>P11</td>
<td>Mechanical farm rake (Figure 7.28)</td>
</tr>
</tbody>
</table>

objects were piece-plotted and photographed (Table 7.2; see Figures 7.26-7.28). Also noted in the central portion of the site, but not collected or photographed, were several small fragments of a porcelain doll's head. Surface collection included temporally diagnostic items and uncommon artifacts, as well as artifacts representative of the site assemblage as a whole. Information on basemarks, back stamps, and embossments are included in Table 7.1.

Six of the collected items, a projectile point, two flakes, two sherds, and a glass bead, are associated with the aboriginal use of the site. The remaining artifacts are associated with the historic-period use of the site. Structural related artifacts collected include 13 wire nails, 11 square-cut nails, two staples, a dead bolt part, and a flat hinge. Furnishings and food-serving artifacts consist of five forks, two table knives, 47 ceramics, two cast iron stove parts, a glass alphabet dish fragment, a piece of lamp glass, and two oil lamp bases.

Beverage, food, and pharmaceutical items include a complete wine bottle with an applied lip, 102 bottle and jar fragments, two glass canning jar liners, three zinc canning jar lids, four hole-in-cap cans, three other cans, and three can lids. Identified beverages include beer, wine, whiskey, coffee, and milk.
Identified foods include baking powder, lard, and syrup. Home canning supplies include items from the Hero Fruit Jar Company, the Mason Fruit Jar Company, and the Illinois Pacific Glass Company ("Boyd" trademark). Identified patent medicines include "Scott's Cod Liver Oil Emulsion with Lime and Soda," "Dr. Kennedy's Medical Discovery," and "Chamberlin's Cough Remedy."

Personal items and clothing include a suspender buckle, eight buttons and rivets, a carpet bag frame, and a change purse. Toys include part of a toy plate, a metal fly, and half of a ceramic marble. Other activities are represented by parts of four different harmonicas, a scissors, three hand tools, a "lunch box" tobacco can with holes punched in the bottom and top, part of a match safe, a broken spur, 20 wagon or farm machinery parts, six horseshoes, four horseshoe nails, four cartridges, and four shotgun shell bases.

Discussion

The Mulholland homestead encompasses an extensive scatter of historical artifacts within which there are numerous small concentrations. Excavation results generally suggest a shallow cultural deposit with no significant depth. A wide variety of items was encountered at the site including farm machinery, horseshoes, square-cut and wire nails, eating utensils, harmonica parts, ceramic fragments, bottle and can fragments, and ceramic and glass marbles. Found at a small artifact concentration at Feature 2 were a sewing needle, straight pins, ornate buttons, and parts of scissors. All the temporally diagnostic artifacts could be pre-1905, which indicates the Mulholland site is the oldest historical site investigated for this project (Figure 7.29).

Besides scattered nails and a few pieces of window glass, no definitive evidence of any structures at the site was found during testing. However, the trash does not appear to represent trash disposal from other ranches or farms off-site. First, most of the temporally-diagnostic trash dates to between the 1880s and 1910. This tight clustering and variety of activities represented is consistent with the suspected Mulholland occupation. Second, one would likely go to the trouble of burning and burying trash only if a residence was nearby. Finally, there are no other known houses nearby that could have contributed trash to the site, and trash from houses farther away seems unlikely in the days before automobiles and trucks were common.

The range of artifacts present, representing both farm and domestic activities, suggests the Mulhollands made serious attempts to settle the homestead (Table 7.3). The horse-drawn rake and hay mower blades suggest the growing of forage crops, likely for cattle. There is more evidence of horses at the site, with shoes for both saddle and workhorses. The large excavated pit, Feature 1, appears to have been an attempt to locate a well, or possibly build a cellar. In either case it does not appear to have been used and was quickly refilled.

Artifacts traditionally associated with both male and female activities are present, and marbles, a doll’s head, a child’s dish, a toy plate, and a possible toy fly indicate children also lived at the site. The harmonicas suggest the family spent enough time at the homestead to engage in leisure activities.

So why are there so few structural remains? The structure shown on early USGS maps may have been as insubstantial as the tax records’ low valuation of the parcel’s improvements suggests. It apparently had disappeared by the late 1920s, since LADWP records show no structures on either the former Mulholland
or Jenkins properties.

In fact, it seems likely that the structure was essentially gone by 1910, since only a couple of artifacts that definitely date after that date were found. A standing building at the homestead location would have been visible from the main highway between Lone Pine and Bishop, and would surely have attracted some sort of use, if only by passers-by. The structure was probably dismantled by the Mulhollands themselves or by nearby ranchers, so the hardware and wood could be reused.
The most likely location for the structure is at Feature 2. This low mound not only includes a few apparently purposefully shaped rocks, it has a roughly rectangular shape oriented east-west. If Feature 6, the pile of rocks, truly is a boundary marker as it appears to be, then it may represent the center of Section 24, the dividing line between the “successful” homestead and the unsuccessful Timber Culture Act claim. Differentially corrected Global Positioning System readings suggest the boundary between these two properties lies somewhere between Features 2 and 6. In any event, it appears Feature 2 is located just where the 1907 USGS map places the house. A 12 by 18 foot cabin would fit on the mound between the rocks. Although small by later Manzanar town standards, such a cabin might be assessed at only $25 in 1897. The size also seems consistent with the historical records that suggest the Mulhollands were far from wealthy.

The presence of a wide variety of fine china at the site may seem inconsistent with the struggling homestead picture. But only a few pieces of each pattern were observed on the surface, and there is little subsurface material at the site. It is possible that the Mulhollands had fine things in spite of their financial difficulties, perhaps acquired in more prosperous times. It is also possible they had accumulated different china pieces from different sets as hand-me-downs or heirlooms – some of the ceramics could have been over 20 years old by the 1890s.

Most of the indigenous artifacts at the site (flakes, cores, and projectile points) probably relate to the widespread prehistoric component of the site. However, some artifacts, like the glass beads and flaked glass, suggest Native American Indian use of the area in historic times either after or during the Mulholland occupation. The Mulhollands may have hired Paiutes for wage labor, as did several of the contemporaneous ranchers in the area (see Burton 1996).
Table 7.3. Artifacts and Ecofacts in Excavation and Surface Count Units at CA-INY-3782/H.

<table>
<thead>
<tr>
<th>OBJECT CLASSIFICATION</th>
<th>Glass</th>
<th>Metal</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Materials</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Window Glass</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardware</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nails</td>
<td>187</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beverage Storage</td>
<td>169</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Storage</td>
<td>208</td>
<td>622</td>
<td></td>
</tr>
<tr>
<td>Food Preparation</td>
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<tr>
<td>Food Remains</td>
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</tr>
<tr>
<td>Food Serving</td>
<td>156</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Furnishings</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pharmaceutical</td>
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<td></td>
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<tr>
<td>Clothing</td>
<td>12</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Jewelry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grooming and Hygiene</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Money</td>
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<tr>
<td>Leisure</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Horse and Wagon</td>
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<tr>
<td>Miscellaneous Tools</td>
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<tr>
<td>Toys</td>
<td>2</td>
<td>1</td>
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</tr>
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<td>Writing</td>
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<td>4</td>
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</tr>
<tr>
<td>Unclassified</td>
<td>50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Located on the east side of U.S. Highway 395, this site encompasses the Strohmeyer homesite as shown on 1929 LADWP plat maps. The Strohmeyer holdings (Lots 119 and 120 of the Manzanar Subdivision) would also include ARS Locus 6, a small trash scatter located away from the main homesite, which is discussed in Chapter 9.

Archaeological Research Services (ARS) originally recorded two loci, 7 and 8, which included several historical features and trash scatters at this site (Reno and Palmer 1996). ARS Locus 7 consisted of a scatter of historical artifacts along U.S. Highway 395. ARS Locus 8 was originally recorded as including a rectangular concrete manhole, an underground concrete chamber, a 10-inch-diameter concrete pipeline, a small-diameter vertical copper gas line, an alignment of locust trees along the ditch, a tamarisk thicket, and a scatter of historical artifacts (Figure 8.1). Artifacts are scattered throughout the vicinity and the ARS scope of work was limited to the original 300 foot APE, so the original locus boundaries are somewhat arbitrary. Because of their proximity to each other, and to conform with the historical LADWP plat map, for this testing the two loci were combined into a single site, 270 feet east-west by 540 feet north-south (2.6 acres; Figure 8.2).
Figure 8.2. Map of ARS Locus 7 and 8 (CA-INY-3802-H).
Historical Background

Fritz Strohmeyer and two of his brothers came to the United States from Germany in 1876. In 1885 Fritz became a naturalized citizen and in 1896 homesteaded 240 acres at Georges Creek as a cattle ranch (Great Register of Inyo County 1896). The ranch included not only pasture, but also alfalfa fields, a garden with potatoes and corn, an orchard, chickens, and a milk cow. Strohmeyer ran cattle in the high Sierra during the summer.

On November 13, 1897, at the age of 47, he married Anna Hermann. Born in 1872 in Schnellewalde, Germany, Anna had come to the Owens Valley from San Francisco to be the housekeeper for Mrs. Bert Rhine, who had a grocery store in Lone Pine. Mrs. Rhine wanted a German housekeeper and agreed to pay her fare to Lone Pine in exchange for an agreement to stay on as a housekeeper for 6 months. At the end of the 6 months she married Fritz. They had three children, all born on the ranch, Elsie, William, and Martha.

In January 1917 they bought a Ford automobile (Inyo Independent 2/2/1917). Later that year Fritz died at home, “very early” one Sunday morning at the age of 67 (Inyo Independent 2/2/1917, 3/11/1917). William died in 1918 at the age of 17 of anthrax; he had become infected from a dead cow he had skinned at Monache Meadows and died within a few days (Death Certificate, Inyo County Recorders Office; Gorman 1967).

Anna sold the ranch in 1919 and moved into the town of Manzanar (Lots 119 and 120, where ARS Locus 8 is located). She moved to Lone Pine in 1925, and sold the Manzanar home to LADWP in 1927 for $13,000. The 1929 LADWP valuation records list 13 buildings within Lots 119 and 120. These include a residence, a cellar, a garage, a storeroom, a latrine, a pump house, two granaries, three chicken houses, a shelter, and a pig sty (Table 8.1; Figures 8.3-8.15). Two of the chicken houses were listed as built in 1928. LADWP sold the residence for removal in 1934.

In 1932 Anna moved to Oakland, but returned to Independence in 1940. Anna died in 1959 at her Independence home. Elsie died in February 1990 at the age of 91 at Lone Pine Convalescent Hospital and Martha died in October 1990 at the age of 87 at the Southern Inyo Hospital. They left no immediate family (Inyo Register 2/11/90, 2/14/90, 10/5/90; Owens Valley Citizen 10/4/59; Eastern California Museum files).

Results

Surface inventory included the identification and tabulation of artifacts in four 5 m by 5 m surface count units, the excavation of one 1 m by 2 m surface scrape unit to 10 cm, and the collection of diagnostic surface artifacts throughout the site. Subsurface testing included both mechanical and manual excavation. Five trenches were excavated by backhoe, one by a small NPS backhoe and four by a larger Caltrans backhoe. Manual excavation included exposure of four previously recorded features and the excavation of two 1 m by 1 m excavation units, four 50 cm by 50 cm SEEUs, and seven 25 cm by 25 cm shovel test units. In addition, a previously unrecorded feature, a concrete cellar, was discovered and completely excavated. Other additional features, including a concrete foundation, water pipes, a seepage pit, and a well, were found during trenching. In Excavation Unit 2 another feature, a concrete pipeline, was found. The two excavation units completed at the site were placed within small artifact concentrations, as were three of the four surface count units. The four SEEUs were placed in areas of the site with scattered
Figure 8.3. Residence at the Strohmeyer homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 8.4. Concrete cellar at the Strohmeyer homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 8.5. Garage at the Strohmeyer homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 8.6. Storeroom at the Strohmeyer homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 8.7. Granary at the Strohmeyer homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 8.8. Granary at the Strohmeyer homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).
Figure 8.9. Latrine at the Strohmeyer homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 8.10. Chicken house at the Strohmeyer homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 8.11. Shelter at the Strohmeyer homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 8.12. Pump house at the Strohmeyer homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 8.13. Chicken house at the Strohmeyer homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).

Figure 8.14. Chicken house at the Strohmeyer homesite (1929 LADWP photograph, courtesy of LADWP Northern Field Office, Bishop).
Table 8.1. Building Information from 1929 LADWP Valuation of Improvements Record for the Strohmeyer Homesite (Lots 119 & 120, Owens Valley Improvement Co. Subdivision No. 2).

<table>
<thead>
<tr>
<th>Bldg. No.</th>
<th>Type and Use</th>
<th>Sq. Feet Floor Area</th>
<th>Value</th>
<th>Condition</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR 140</td>
<td>Frame Residence</td>
<td>1064</td>
<td>$1995</td>
<td>Excel.</td>
<td>Concrete foundation, shingle roof, interior finish, ceiling, 4” O.P. floors, five rooms, wired 3 phase</td>
</tr>
<tr>
<td>BC 109</td>
<td>Concrete Cellar</td>
<td>120</td>
<td>$193</td>
<td>Excel.</td>
<td>Concrete floor and walls, wired, shingle roof</td>
</tr>
<tr>
<td>BG 110</td>
<td>Box Garage</td>
<td>199</td>
<td>$66</td>
<td>Good</td>
<td>Shingle roof</td>
</tr>
<tr>
<td>BL 106</td>
<td>Calif. Storeroom</td>
<td>96</td>
<td>$48</td>
<td>Good</td>
<td>Concrete floor, wired, shingle roof</td>
</tr>
<tr>
<td>BG 111</td>
<td>Calif. Granary</td>
<td>240</td>
<td>$29</td>
<td>Poor</td>
<td>1” by 12” floor, part. shingle roof</td>
</tr>
<tr>
<td>BC 110</td>
<td>Calif. Granary</td>
<td>372</td>
<td>-</td>
<td>Fair</td>
<td>Lean-to 4’ by 10’4”</td>
</tr>
<tr>
<td>BL 107</td>
<td>Box Latrine</td>
<td>20</td>
<td>-</td>
<td>Fair</td>
<td>1” by 12” floor</td>
</tr>
<tr>
<td>BS 112</td>
<td>Calif. Chicken House</td>
<td>200</td>
<td>$23</td>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td>BC 111</td>
<td>Calif. Shelter</td>
<td>535</td>
<td>$52</td>
<td>Poor</td>
<td>Floored portable</td>
</tr>
<tr>
<td>BP 111</td>
<td>Calif. Old Pump House</td>
<td>259</td>
<td>$39</td>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td>BC 81</td>
<td>Box Chicken House</td>
<td>720</td>
<td></td>
<td>Excel.</td>
<td>Tarpaper roof, concrete floor, wired, built Jan. 1928</td>
</tr>
<tr>
<td>BC 82</td>
<td>Box Chicken House</td>
<td>2160</td>
<td>$1443</td>
<td>Excel.</td>
<td>Composition roof, G.W. University Type, built Jan. 1928</td>
</tr>
<tr>
<td>BS 89</td>
<td>Scrap Pig Stys</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
Feature 1 (septic tank)

This feature, originally recorded by Reno and Palmer (1996) as a manhole, was exposed as a septic tank. The septic tank is a little less than 4 by 8 feet in plan and 4½ feet deep, with 4-inch-thick concrete walls and floor (Figures 8.16-18). A 4-inch-thick four-part cover with metal handles was mortared onto the top, but one section is missing. The interior is partially divided by three wooden baffles which would have worked to slow the flow (drop sludge) and block the exit of floating scum (Public Health Service 1957).
This system was state-of-the-art for the protection of the soil absorption system, according to contemporary engineering standards. In fact, the Strohmeyer's tank, which could effectively hold about 750 gallons, was considered the appropriate size for a 20-person household in a 1922 USDA publication (Warren 1922). It seems unlikely that 20 people lived in the Strohmeyer's five-room house. The septic system, installed when many people in the Owens Valley were still using outhouses, was probably overdesigned since it was a fairly unfamiliar technology in the region.

The 4-inch-inside-diameter inlet and outlet pipes are of vitrified clay. The inlet pipe is bonded with mortar to a cast iron pipe which turns a 90-degree angle and abruptly ends, apparently below the former house. The outlet pipe was not traced in its entirety, but shovel tests were excavated to estimate its alignment, and it was also exposed in later trenching.

Artifacts recovered during the exposure of the perimeter of the tank and the inlet and outlet pipes included a plain white ware ceramic body fragment, an amber whiskey bottle neck, cast iron sewer pipe fragments, and wood fragments. The 31 animal bones recovered included portions of jackrabbit, domestic cat, chicken, and turkey, suggesting both disturbed burials and secondary trash deposits (see Appendix B).

**Feature 2 (seepage pit)**
This feature, tested with a backhoe, is a rock- and rubble-filled circular hole capped by layers of concrete and sheet metal. It measured approximately 10 feet in diameter (Figure 8.19). The interior of the pit was not excavated. Connected to the outflow of the septic tank by a vitrified clay pipe, the feature is interpreted to be a seepage pit, functionally akin to a leach field.

**Feature 3 (irrigation pipe)**
About 40 m of this partially buried concrete irrigation pipe (18-inch OD) was exposed by hand-trenching so that its alignment within the APE could be mapped. Located in the southern portion of the site, it runs perpendicular to the highway, where the LADWP plat maps depict an irrigation pipeline running parallel to the highway.
Figure 8.20. Feature 5 cellar at ARS Locus 8 (CA-INY-3802-H).

Figure 8.21. Overhead view of Feature 5 cellar at ARS Locus 8 (CA-INY-3802-H).
Feature 4 (grounding wire)
This feature, originally recorded as a gas pipe, was examined by an electrical engineer and determined to be a copper-clad electrical ground wire, probably for the Strohmeyer residence.

Feature 5 (cellar)
Also found during the testing was part of a concrete structure. The feature was exposed, and found to be the floor and wall remnants of the cellar in the LADWP inventory. The cellar is roughly 8 by 10 feet in plan, with a concrete floor and a raised platform and low partition walls (Figure 8.20-22). The exterior concrete walls are currently about 1½ feet high, but the tops are broken and irregular, indicating the walls were broken when the cellar was destroyed. The low interior partition walls, about 1 foot high, appear to be intact and may have served as supports for shelving. Nails and nail holes indicate the raised platform had some kind of superstructure. Another concrete floor feature, with impressions of two imbedded 2 by 4-inch boards, likely supported shelving or cabinets.

Artifacts and ecofacts recovered from the cellar fill included structural remains and hardware, a few domestic items, an automobile part, and food remains. Among the structural remains and hardware are a flathead screw fragment, a 1-inch-diameter galvanized pipe elbow, a 9-inch-long foundation sill anchor bolt with a 2¼-inch-square washer with rounded corners, seven wire nails (one 60d, one 30d, two 8d, one 7d, and two 6d), a ¾-inch-long roofing nail, three ½-inch mesh window screen fragments, a brass gas pipe fitting, 11 window glass fragments, 14 sizeable lumber fragments, and a complete glazed ceramic wiring split knob (with a nail). The split knob is embossed on the top with “PAT. FEB 3 1920 Y3” and on the bottom with “BULLDOG 48” (Illinois Electric Porcelain Company; Tod 1977).
Food and beverage related items include 34 can fragments, most apparently from the same 5-inch-diameter sanitary seal coffee can, a clear round jar base fragment embossed with "[K]ERR GLASS MFG CO./...TEN...," a glass canning jar lid liner fragment, a white ware ceramic rim fragment, six peach pit fragments, a squash seed, and three animal bones.

Other recovered remains include an automobile battery holder, a glass light bulb filament support, a 2 by 4-inch chain clevis, a 5 by 2\(\frac{1}{4}\) inch metal bar, a strap bracket fragment, a piece of smooth wire, three rubber fragments, and numerous charcoal bits.

**Other Features**

A recent ditch at the site was designated Feature 6. The ditch is partially within the alignment of an old town road and likely relates to LADWP water-spreading activities. Five additional features were identified at the site during excavation. Feature 7 consists of water supply pipes discovered within Trench 1. Feature 8 is a concrete slab discovered in Trench 2. Feature 9 is a seepage pit discovered in Trench 4. Feature 10 is a well encountered in Trench 5. Feature 11 is a concrete irrigation pipeline encountered in Excavation Unit 2. These features are described under their respective proveniences below.

**Stratigraphy**

Two soil strata were discerned in the trenches and excavation units at the Strohmeyer homesite and two deeper strata were identified during the excavation of the well (Feature 10) discovered in Trench 5. Artifacts at the site were confined to the uppermost stratum, Stratum 1.

Stratum 1 consists of loose dark brown to dark grayish brown (10YR 3/3-5/2) silty sand with abundant gravels. It varied from 20 to 65 cm deep. Stratum 2 consists of very compact light brownish gray to very pale brown (10YR 6/2-7/3) silty sand with calcium carbonate nodules and iron staining. Within Trench 5 this stratum was 105 cm thick; excavation in the other trenches and excavation units stopped at this stratum. Stratum 3 is a 6 to 10-cm-thick layer of very loose light brownish gray (10YR 6/2) sandy gravel below Stratum 2 in Trench 5. The lowest stratum encountered at the site, Stratum 4, begins at about 160 cm depth in Trench 5. It consists of very compact very pale brown (10YR 7/3) silty sand with gravels.

**Trench 1 (Feature 7)**

A trench 65 cm wide by 19 m long and up to 70 cm deep was excavated by backhoe 5 m west of the Feature 1 septic tank in the vicinity of the Strohmeyer residence as inferred from 1929 LADWP photographs and excavated features.

The trench encountered concrete rubble, apparently from the residence foundation, and crossed a 1\(\frac{1}{2}\)-inch-diameter water main (designated Feature 7), and the Feature 3 concrete irrigation pipe. The few artifacts recovered from the trench include a clear prescription finish applied lip, a clear brandy bottle neck with an applied bead finish lip and a cork stopper, a clear bottle glass body fragment, two pieces of sun-colored amethyst glass, ten white ware ceramic fragments, a 7\(\frac{1}{8}\)-inch-diameter brass canvas grommet, and two animal bones.

The recovered ceramics include three plate fragments, a bowl fragment, two refitting plain handled cup fragments, and four indeterminate fragments. The plate fragments consist of a piece with a wavy rim and...
Figure 8.23. Ceramics from ARS Locus 8 (CA-INY-3802); a. Johnson Bros. (FN-285), b. National China Company (FN-484), c. Homer Laughlin (FN-486), d. Crown Potteries Company (FN-285), e. brown floral transfer print (FN-497), f. alphabet decal (FN-416), g-h. floral decal (FN-506), i. floral decal (FN-433), J. gold overglaze (FN-433), k. floral decal (FN-484), l. flow blue floral transfer print (FN-433), m-o. floral transfer print (FN-449).
Figure 8.24. Feature 7 water pipes at ARS Locus 8 (CA-INY-3802-H).

a molded design and two plain base fragments, one with a Johnson Brothers back stamp (Figure 8.23a; post 1913) and one with a Homer Laughlin “AN AMERICAN BEAUTY” backstamp (Figure 8.23b; 1907-1908). The bowl fragment, a rim sherd, has a purple and green floral decal design, a molded design and a wavy rim (Figure 8.23k). The indeterminate fragments include two footring pieces, a rim piece, and a base piece with a National China Company back stamp (Figure 8.23c; 1911-1923).

The discovered water main was followed by hand trenching towards the suspected location of the Strohmeyer residence. Three pairs of parallel (hot and cold) water pipes were encountered, likely indicating the house location above them. The pipes were exposed in their entirety and mapped (Figure 8.24). Artifacts found while exposing the pipes include a 20d nail, an amber bottle glass fragment, two clear applied-lip bottle necks with stopper finishes (one has a short neck and the other a long neck), two ceramics, a leather shoe, a bone button, and a safety pin (Figure 8.25a). The ceramics included a plain white ware plate base with a Crown Potteries Company back stamp (Figure 8.23d; 1905-1915) and a burned semi-vitreous bowl or vase footing with a molded design.

Trench 2 (Feature 8)

This 1-m-wide backhoe-excavated trench extended 31 m east from the rear of the former residence location, as postulated from historic photographs and evidence encountered during testing at the site. The goal of this trench was to locate intact trash deposits or other features. The only artifact recovered during the trenching was a large portion of a 2 1/4-inch-square white glass cold cream jar. The 1 1/2-inch-diameter water main discovered in Trench 1 was found to run the entire length of the trench. A tee in the pipe led north, toward a concrete slab that was subsequently revealed by Trench 4.

The trench also crossed the edge of a small depression noted during the previous testing. This depression (Feature 8) was revealed to be a 5-foot-diameter rock-filled seepage pit (Figures 8.26 and 8.27). The depth at the edge of the pit within the trench was 4 1/2 feet, but the center of the pit apparently extends deeper. A sewer pipe from the Feature 1 septic tank to the Feature 2 seepage pit (both previously recorded) was bisected by the trenching, as was an apparently earlier abandoned sewer line to the Feature 8 seepage pit. It appears that the much larger Feature 2 pit replaced the Feature 8 pit.
Figure 8.25. Metal artifacts from ARS Locus 8 (CA-INY-3802-H); a. safety pin (FN-487), b. tobacco tag (FN-467), c. lantern part (FN-429), d. enamelware cup (FN-929), e. cultivator blade (FN-519), f. chain hook (FN-419), g. lid (FN-414), h. engine valve (FN-893), i-j. sanitary seal cans opened with church key (FN-423).
East of the trench, approximately 100 feet of the water main was exposed by hand-shoveling. The pipeline turned southeast and then east, paralleling what would have been a town road to the south. No connections were encountered during this work. The only artifact encountered was a complete zinc canning jar lid with a glass liner, embossed with “GENUINE BOYD CAP FOR MASON JARS” (post 1915). Four shovel test units, dug to further delineate the extent of the pipeline, are discussed below.

**Trench 3**
This 1-m-wide by 26-m-long backhoe trench was excavated through the western end of a dense tamarisk thicket. No features were encountered. Collected artifacts included a pocket tobacco can (3 3/4 by 7/8 inches) and a clear 1 1/2-inch-square extract (?) bottle base embossed with “Illinois-Pacific Glass Co., 1929-1930”.

**Trench 4 (Feature 9)**
This 1-m-wide backhoe trench extended 27 m from Trench 1 north through the center of the dense tamarisk thicket. The edge of a concrete slab was encountered during the trenching. The tamarisk overgrowing the slab was cleared using the front loader, and the slab cleared by hand (Figure 8.28). The uncovered slab measured 8 by 12 feet, suggesting it is the remains of a 96-square-foot storeroom with a concrete floor listed in LADWP records for the Strohmeyer residence. The slab consists of a smooth poured concrete floor over a rough concrete foundation (Figures 8.29 and 8.30). The smooth floor was apparently built after the walls; it would have abutted rather than extended under the wall sill. Nails which would have held the 3 1/2-inch-wide wall sill are still embedded along the south and north edge of the slab. A 1 1/2-inch outside diameter iron pipe protrudes from the slab midway along the south edge of the slab. The pipe forms a right angle with the water main exposed in Trench 2, and would intersect it at the tee found in there. Embedded within the floor near the southwest corner of the slab is a 6-inch-diameter metal ring. The ring has a raised 3-inch-diameter central portion with a 3/8-inch-diameter hole (Figure 8.31). The function of the ring is not apparent. It may have served as a support for another object, however the metal is rather thin and would not have been able to hold much weight without bending. Results of a 1-m-by-2-m surface scrape placed adjacent to the south side of the concrete slab are presented below.

**Trench 5 (Feature 10)**
This 1 m wide by 11-m-long backhoe trench was placed along the edge of a large shallow depression, which was revealed to be a wood-lined well, 56-inches square (Figures 8.32 and 8.33). It was constructed with 2-inch by 4-inch corner supports and 9-inch by 1/2-inch-thick redwood boards. The well extended to 7 1/2 feet below the present ground surface. The pit bottom, well defined in the extremely compact soil, was basically flat with a dished 4-inch deep 2-foot-diameter depression in the center. The very loose fill within the well contained abundant barbed wire and other fencing, a wood fence post, lumber fragments (likely from the well itself), several large parts of a wire layout reel, a rectangular amber bottle base fragment, a cream-colored glazed crockery fragment, two abalone shell fragments, and a fish bone.

**Excavation Unit 1**
This unit was placed within a small artifact concentration in the western portion of the locus. Recovered
from the surface and upper 5 cm of the unit were a 1¼-inch staple, a wire nail fragment, a metal drawer pull, five clear bottle glass fragments, ten ceramics, and a few charcoal bits. Five of the ten ceramics refit and all are apparently from the same white ware plate. They include five footring, three rim, and two body fragments with a molded design, a green band below the rim, and a hand-painted floral design in red and green (Figure 8.22m-o).

**Excavation Unit 2**

This unit was placed within the artifact concentration southeast of the original site boundary. Numerous artifacts and ecofacts were recovered from the upper 30 cm of the excavation unit. An *in situ* 18-inch-diameter concrete irrigation pipe was encountered at 40 cm depth. Excavation was halted at 50 cm where the pipeline trench outline was apparent. The pipeline would have been parallel to the southern edge of a town road.

Structural materials recovered from the excavation unit include 58 nails and nail fragments, a 2¼-inch-long round head screw, a 1-inch-long flathead screw, a 5½-inch-long machine bolt, a ½-inch-diameter pipe fragment, an end of a contact cartridge fuse, and two window glass fragments. The nails include a 60d wire nail, a 20d wire nail, two 10d wire nails, four 8d wire nails, a 7d wire nail, four 6d wire nails, two 5d wire nails, six 4d wire nails, a 3d wire nail, 31 wire nail fragments, a ¾-inch-long roofing nail, a 2-inch-
long finishing nail, a 1\(\frac{1}{2}\)-inch staple, and a 3\(\frac{3}{4}\)-inch staple.

Artifacts associated with food storage included 37 can fragments, a twist-on cap fragment, four canning jar lid liner fragments, three canning jar fragments, a piece of sun-colored amethyst glass, 15 clear glass fragments, and two rubber gasket fragments. The canning jar liner fragments include one fragment embossed with "...ORCELAIN" and a portion of a "Hero" cross (Hero Fruit Jar Co., 1882-1909), two refitting fragments embossed with "[BOY]D CAP ...S GENUINE" (post 1915), and a fragment embossed with "...PORCELAIN LINED." The canning jar fragments have portions of the "Ball" script logo (1915-1969).

Other food-related items included eight white ware ceramics, a plain porcelain rim fragment, a small piece of tin foil, three abalone shell fragments, and 214 animal bone fragments. Seventy percent of the bone fragments are chicken. The lack of young chick bones suggests the assemblage does not represent a home flock (see Appendix B). Most of the bone is burned, apparently from trash burning rather than cooking. The ceramics are all fairly small: six are indeterminate body, rim, and footing fragments and two are bowl fragments. The bowl fragments include a burned bowl rim with an interior black band and a black line around the rim and a base fragment with a very small portion of green Homer Laughlin back stamp (ca. 1900-1920).

Furnishings are represented by a clothespin spring, two light bulb glass fragments, and a corrugated fastener fragment; clothing by two shoe eyelets and a small buckle. Other items recovered include a cartridge ("W.C.F..." head stamp), two pieces of coal, a carbon rod from a dry cell battery, 20 pieces of smooth wire, three pieces of twisted wire, and 11 pieces of barbed wire.

Subsurface Exploratory Excavation Units
Five 50 cm by 50 cm SEEUs were excavated at the site in areas of scattered surface artifacts to test for subsurface cultural material.
SEEU 1 yielded nine nails, six clear bottle glass fragments, five amber whiskey bottle fragments, a small can fragment, an animal bone fragment, a lumber fragment, and a charcoal bit. This sparse cultural deposit was up to 20 cm deep. The nails include two 8d wire nails, three 6d wire nails, a 4d wire nail, a 1½-inch-long finishing nail, a wire nail fragment, and a cut nail fragment. The amber whiskey bottle fragments, all from the surface, include a base fragment embossed with “_396/13 /3” (Anchor Hocking Glass Corp., 1937-1977).

Recovered from the surface and upper 10 cm of SEEU 2 were four wire nails (one 8d, one 3d, one 2d, and one fragment), two clear bottle glass fragments, three aqua canning jar fragments (including a base fragment embossed with “3”), two light bulb glass fragments, three lumber fragments, and four animal bones.

SEEU 3 yielded a wire nail fragment, two 1½-inch staples, two amber beer bottle neck fragments, a lamp glass fragment, a metal tobacco tag (Figure 8.25b), a cartridge shell or blasting cap casing fragment, charcoal, an animal bone, and a possible flake, all in the upper 20 cm.

Recovered from the surface and 0-10 cm levels of SEEU 4 were a roofing nail fragment, a ¾-inch-long flathead screw, eight thick amber bottle glass fragments, and a white ware ceramic rim fragment possibly from the same vessel as a fragment found in the Feature 5 fill. An indeterminate porcelain body fragment was recovered from the 10-20 cm level of SEEU 4.

SEEU 5, placed within the large artifact concentration in the eastern portion of the site, yielded a rim fragment and base of a clear jelly jar or drinking glass, nine wire nails, 14 lumber fragments, wood, charcoal, and animal bone, to 30 cm depth. The clear glass base fragment is embossed with “H/S 4” (Hazel-Atlas Glass Co., 1920-1964).

Shovel Test Units
Six 25 cm by 25 cm shovel test units (STU) and one larger shovel test unit were excavated along postulated routes of the sewer and water pipes. No artifacts were encountered in any of the shovel tests. STUs 1-3 were excavated to trace the sewer outflow pipe of the Feature 1 septic tank. The pipe was encountered in STU 1, but not in STU 2 and 3. However, the pipe was found in later excavated trenches.
STUs 4-7 were excavated east of Trench 2. Three 25 cm by 25 cm shovel test units and one larger shovel test unit (50 cm by 150 cm) were excavated along the extrapolated route of the water pipeline encountered in Trench 1. The pipeline was indeed encountered, and discovered to continue at least another 30 feet in the same direction beyond the portion traced by hand shoveling. The alignment would have been parallel to the northern edge of a town road.

**Surface Scrape Unit 1**

This 1 m by 2 m unit was placed adjacent to the south side of the Feature 9 concrete slab. Excavated to a depth of 10 cm, the unit yielded a few tarpaper fragments, a 12-inch-long piece of angle iron, seven wire nails, three can fragments, an automobile engine valve (Figure 8.25h), and four small fragments of glass (2 clear, 1 amber, and 1 white). The nails included two 8d wire nails, two wire nail fragments, a cut nail fragment, a 3/4-inch roofing nail, and a 1-inch tack.
**Surface Count Unit 1**

Thirty-seven artifacts were tabulated in this 5 m by 5 m surface count unit, placed near the residence location. Structural remains included a 16d and a 4d wire nail, a 1½-inch staple, a concrete fragment, and a small piece of sheet metal.

Food and beverage storage is represented by a thick amber glass fragment, a clear glass fragment, and six sun-colored amethyst glass fragments. Food serving items include ten white ware ceramics, a sun-colored amethyst drinking glass fragment, and a clear glass bowl rim fragment. The ceramics include a semi-vitreous bowl rim with a gold overglaze line on the interior rim, two non-vitreous bowl fragments (a rim and body sherd) with a molded design, wavy rim, and gold overglaze accents, and eight indeterminate plain non-vitreous body, footring, and rim fragments. Potential food remains include a burned animal bone fragment and a marine shell fragment. The only other domestic-related item present was a piece of sun-colored amethyst lamp glass with a scalloped edge.

Artifacts associated with activities consist of a friction lid pocket tobacco can (4 by 3 by \( \frac{15}{16} \) inches), a .22 cartridge shell with a “US” headstamp, and an Allen wrench. Unclassified artifacts include a brass rivet and an unidentified metal fragment.

**Surface Count Unit 2**

This surface count unit was placed in an extensive diffuse artifact scatter in the southwestern portion of the site, across a town-era road and off Strohmeyer’s property.

Fifty-seven artifacts were tabulated in this 5 m by 5 m unit. Food and beverage storage is represented by six amber, six sun-colored amethyst, five clear, and three green glass fragments. Home canning is represented by a plain 2\( \frac{1}{2} \)-inch-diameter zinc canning jar lid, a 2\( \frac{15}{16} \)-inch-diameter lid fragment embossed with “...GENUINE...,” 16 aqua jar fragments, and two refitting glass canning jar liner fragments. White wares include two refitting semi-vitreous plate rims with a molded design and gold overglaze accents (Figure 8.23i), two non-vitreous indeterminate body fragments, and one non-vitreous indeterminate footring fragment. Porcelain includes a bowl footring fragment with a blue willow design (Figure 8.23l), and a bowl rim with a gold line along the rim and a purple floral design with applied raised dots (Figure 8.23j). Other recovered items include a 6d wire nail, a clear side panel fragment of a three-in-one oil bottle (post 1907), two melted metal fragments, three other metal fragments, and two pieces of barbed wire.

**Surface Count Unit 3**

This 5 m by 5 m unit was placed within the artifact concentration in the northeastern portion of the site. Eighty items were tabulated.

Structural remains include a \( \frac{9}{16} \)-inch lock washer, a flathead screw, ten 6d wire nails, a \( \frac{3}{4} \)-inch-long barbed wire barb, a 1\( \frac{3}{4} \) long bolt ferrule, 48 lumber fragments, a gray concrete block fragment, and two \( \frac{3}{4} \)-inch-thick red brick fragments. The lumber, 3 to 4 inches wide and about \( \frac{3}{4} \)-inch thick, has traces of red paint.

Beverages are represented by a complete clear whiskey bottle (6\( \frac{14}{16} \) by 3\( \frac{5}{16} \) inches, embossed on the base with “MADE IN/U.S.A./DZ26/70-42/®,” on the front with “HALF PINT,” and on the back with “FEDERAL LAW FORBIDS SALE OR RE-USE OF THIS BOTTLE” [1938-1969; possibly a 1942 date code]; Figure 8.33a) and a condensed milk can fragment. Food storage items include a complete jar (3\( \frac{15}{16} \) by 3\( \frac{1}{4} \) inches, embossed
Figure 8.34. Glass containers from ARS Locus 8 (CA-INY-3802-H); a. whiskey bottle (FN-430), b. H.J. Heinz Company ketchup bottle (FN-499); c. H.J. Heinz Company vinegar bottle (FN-503), d. Kerr Glass Company canning jar base (FN-752).

on the base with “TABLE PRODUCTS/LOS ANGELES/II 8®I” [Latchford Marble Glass Co., 1939-1957]), six sanitary seal can fragments, a $3\frac{1}{16}$-inch-diameter opener-removed can lid, and a jar lid fragment.

Other tabulated items consist of a white enamelware cup with a green rim and handle (Figure 8.25c; 2¼ by 3½ inches), a kerosene lantern part embossed with the word “Eagle” (Figure 8.25d), a piece of baling wire, and a 10¾-inch-long by $\frac{9}{16}$-inch-diameter dowel rod.
Surface Count Unit 4
A total of 33 artifacts were tabulated in this 5 m by 5 m surface count unit placed within a trash concentration in the southeastern portion of the site, across the town road, not on Strohmeyer property. Present were four burned hotel ware ceramics, 21 rusted sheet metal fragments, a zinc canning jar lid and glass liner embossed with "GENUINE BOYD CAP FOR MASON JARS" (post 1915), a glass canning jar lid liner fragment, the metal receptacle from a fuse plug block or lamp holder, portions of an electrical porcelain lamp holder or outlet, and two thin blue glass fragments. Two of the ceramics refit and all are likely from the same oval gravy boat or creamer.

Surface Collection
Artifacts collected from various parts of the site include three cans, a metal lid embossed with "Snap-on Socket Wrench," a metal hook, an insulator, three bottles, two bottle bases, a glass marble, a fragment of a child’s cup, four other ceramics, a 1927 dime, a button, a metal clothing snap, a wood object (possibly furniture or architectural molding), and a metal cultivator blade (Table 8.2). Another button was collected about 25 m south of the site along U.S. Highway 395.

Discussion
Contrary to initial surface indications, the Strohmeyer homesite contains some of the most substantial structural remains of the tested sites. The cellar and storeroom foundations were found as well as remnants of the residence, such as the water supply and septic systems, foundation rubble, and electrical grounding wire. These structural remains, not amenable to moving when the residence was salvaged, provide abundant evidence of the residence's original location. In contrast, there was little evidence of the house's superstructure; the lumber scraps and few nails and other hardware found elsewhere on the site were likely from outbuildings. Historic photographs indicate the garage was located just east of the cellar; other outbuildings, including three chicken houses, appear to have been east of the APE.

The town infrastructure was more extensive than the LADWP records indicate. Two of the three irrigation pipelines at the site, one through the property and one along the road south of the site were not shown on LADWP plat maps. Some of the outbuildings in the LADWP records and photographs were not relocated, in spite of the extensive work conducted within the APE. On the circa 1930 aerial photograph, the Strohmeyer buildings are difficult to see, hidden in trees. It is likely that some of the outbuildings had been located east of the site, and east of the APE, near what are now dead and dying trees.

The Strohmeyers had a variety of supplemental water systems. A well shown on the LADWP plat map at ARS Locus 6 is marked as "Strohmeyers Well;" the Feature 10 well was located closer to the house. In addition, the water lines to the residence appear to come from a municipal water system, and at least three irrigation pipelines abut or cross the property.

The relatively elaborate water system, the modern septic system, and the fairly high number of buildings recorded in the LADWP records and located during the archaeological investigations would seem odd for a homesite originally occupied for only six years, from 1919 to 1925. However, this substantial construction easily could have been financed by the sale of the Strohmeyers' 240-acre ranch, which they held for over twenty years.
There is relatively little trash within the Strohmeyer lots (Table 8.3). Mrs. Strohmeyer likely used their Ford to cart their trash away, maybe to one of the many town-era dumps at the edge of town (Burton 1996). Most of the town-era trash at the site is across the town road from the residence area, on another’s property. This trash probably post-dates the Strohmeyer occupation, since it seems unlikely Mrs. Strohmeyer would have dumped trash on a potential future neighbor’s land. By the time LADWP rented out the Strohmeyer house it was clear the town was destined for abandonment, and trash disposal patterns were undoubtedly more casual. It may have been the last renters/occupants who left the farm equipment and other tools found at the site, too. LADWP records, after all, indicate that two of the three chicken coops were built after Mrs. Strohmeyer moved to Lone Pine.

The diet of the site’s inhabitants was varied: recovered bones included those of chicken, cow, sheep or goat, jackrabbit, fish, dove, deer, and turkey. There is some evidence of cow-butcher ing waste and the use of cheaper, low quality meat cuts. Peach and squash seeds were probably from home-grown fruit and vegetables, and both canning jars and jars and bottles (and a few cans) from store-bought foods were
found. This mix of home-grown or hunted items with a few commercial things is what might be expected at a subsistence farm. Indeed, the Strohmeyer parcels encompass a total of about 20 acres, and Manzanar town lots, with their modern irrigation systems, were designed to allow profitable farming.

The integrity of the site has been compromised by later use (Table 8.34). The densest surface scatter, at the northern portion of the site, dates to the 1940s, and is likely related to the re-use of the auditorium (across the highway) by the VFW after the relocation center was abandoned. The east-west town road along the south side of the Strohmeyer property is now a LADWP-maintained ditch.
Table 8.2. Surface Collected Artifacts for CA-INY-3802-H, ARS Locus 8.

<table>
<thead>
<tr>
<th>Map Ref.</th>
<th>FN</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>413</td>
<td>1927 dime</td>
</tr>
<tr>
<td>2</td>
<td>414</td>
<td>Metal lid “Snap-on/Socket Wrenches” (Figure 8.25g)</td>
</tr>
<tr>
<td>3</td>
<td>415</td>
<td>Amber round beer bottle base “(1)” (Knox Glass Bottle Co., 1932-1953+)</td>
</tr>
<tr>
<td>4</td>
<td>416</td>
<td>Child’s white ware ceramic alphabet cup rim with multicolor decal (Figure 8.23f)</td>
</tr>
<tr>
<td>5</td>
<td>417</td>
<td>Aqua round bottle base “&lt;7&gt;” (American Bottle Co., 1905-1929)</td>
</tr>
<tr>
<td>6</td>
<td>418</td>
<td>Thick amber base, 2½ by 1½ in, “D. 460/57 &lt;6&gt; 7.” (Owens-Illinois, 1937 or 1947)</td>
</tr>
<tr>
<td>7</td>
<td>419</td>
<td>5 by 7-inch iron chain hook (with eye) (Figure 8.25f)</td>
</tr>
<tr>
<td>8</td>
<td>420</td>
<td>Clear round base “KERR GLASS MFG CO/PAT/AUG 31/1935/ SAND SPRINGS OKLA” (Figure 8.34b)</td>
</tr>
<tr>
<td>10</td>
<td>422</td>
<td>Cartridge casing “…co/usa”</td>
</tr>
<tr>
<td>11</td>
<td>424</td>
<td>Talcum power can</td>
</tr>
<tr>
<td>13</td>
<td>423</td>
<td>Sanitary seal can, multiple church key-opened (Figure 8.25i)</td>
</tr>
<tr>
<td>14</td>
<td>423</td>
<td>Sanitary seal can, multiple church key-opened (Figure 8.25j)</td>
</tr>
<tr>
<td>15</td>
<td>495</td>
<td>White and green machine-made glass marble</td>
</tr>
<tr>
<td>16</td>
<td>496</td>
<td>Three (two refit) white ware bowl rim fragments with a molded design</td>
</tr>
<tr>
<td>17</td>
<td>497</td>
<td>Indeterminate white ware ceramic body shed with a brown floral transfer print (Figure 8.23e)</td>
</tr>
<tr>
<td>18</td>
<td>498</td>
<td>White ware ceramic vase base fragment with a pink, brown, and green floral design, impressed on base is “72/0½”</td>
</tr>
<tr>
<td>19</td>
<td>499</td>
<td>Complete ketchup bottle “H.J. HEINZ CO/255/Δ/PATD.” (Heinz Glassworks, 1900-1943) (Figure 8.34c)</td>
</tr>
<tr>
<td>20</td>
<td>503</td>
<td>Complete vinegar bottle “H.J. HEINZ CO./8/211/ PATD” (Hazel-Atlas Glass Co., 1920-1964) (Figure 8.34d)</td>
</tr>
<tr>
<td>21</td>
<td>504</td>
<td>Clear round 1⅛-inch-diameter bottle base embossed with “&lt;” (Illinois Glass Co., 1916-1930)</td>
</tr>
<tr>
<td>22</td>
<td>506</td>
<td>Two indeterminate porcelain rim sherds with a yellow band with hand-painted green and brown floral designs on the interior, traces of a gold line along rim, and raised dots just below rim (Figure 8.23g-h)</td>
</tr>
<tr>
<td>23</td>
<td>516</td>
<td>Wood furniture or architectural detail, 2¾-inch diameter by ½-inch thick</td>
</tr>
<tr>
<td>24</td>
<td>517</td>
<td>Two aqua canning jar body fragments “… s. A. /—/UCKS, E…” and “…WIS…”</td>
</tr>
<tr>
<td>25</td>
<td>518</td>
<td>Coca-Cola bottle base, embossed on front with “Coca-Cola/TRADEMARK REGISTERED/BOTTLE PAT’D DEC. 25, 1933,” on the back with “…MIN CONTENTS 6-FL OZS.,” on the lower side with “24 &lt;6&gt; 37,” and on the base with “LOS ANGELES/CALIF” (Owens-Illinois Bottle Co, 1937)</td>
</tr>
<tr>
<td>26</td>
<td>508</td>
<td>Metal “CAN’T BUST ‘EM” button</td>
</tr>
<tr>
<td>27</td>
<td>519</td>
<td>Cultivator blade (Figure 8.25e)</td>
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Table 8.3. Artifacts and Ecofacts in Trenches, Excavation Units, and Surface Count Units at ARS Locus 8 (CA-INY-3802-H).

<table>
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<td>Beverage Storage</td>
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<td>Food Serving</td>
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<td>43</td>
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<tr>
<td>Furnishings</td>
<td>9</td>
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<td>Jewelry</td>
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<td>Grooming and Hygiene</td>
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<tr>
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</tbody>
</table>

* does not include lumber fragments and wire from Feature 10 (well).
Other Town Era Sites and Features

Besides the more substantial homesites and businesses within the APE discussed in the preceding chapters, seven other town-era sites, loci, or features were investigated. These include five small trash dumps and two enigmatic features. Three of the small trash dumps were recorded by Archaeological Research Services as part of CA-INY-3802-H, the Manzanar Relocation Center (Reno and Palmer 1996). In addition to the site discussed here, ARS Locus 9, 11, and 12 (see Chapter 10) include remnants of a town-era concrete irrigation pipeline parallel to east side of U.S. Highway 395. The pipeline, shown on 1929 LADWP plat maps was likely removed or damaged during highway construction or maintenance.

ARS Locus 4 (Well No. 75)
This location, east of U.S. Highway 395 and 900 feet south of the Manzanar-Reward Road (Frances Street), is depicted on the 1929 LADWP plat map and 1944 WRA blueprints. The LADWP map shows a pipeline from the well towards the Los Angeles Aqueduct to the east. WRA records describe the well as including a 10,000 gallon redwood storage tank, a pumphouse, and a 6-inch cast iron pipeline to the relocation center (see Chapter 10). The site, recorded as Locus 4 by Reno and Palmer (1996), currently includes a modern well pump, a mostly buried square wooden structure, scattered concrete debris and a few artifacts. Reno and Palmer (1996) considered the site ineligible for the National Register of Historic Places.

Since the well appears to be in the same location as one used by the relocation center, it was examined for this project. During this work the partially buried structure was discovered to be connected to a linear wooden feature, hidden by less than 1-5 cm of compact sediment (Figure 9.1). The linear remains appear to be some kind of water distribution feature, and the partially buried wooden feature, consisting of cedar boards outlining a pit 6 by 7 feet in plan and 4 feet deep, may have been a collection crib (Figure 9.2). From the crib a 8-foot-long square “pipe” made of four cedar boards feeds approximately 40 feet of branching inverted trough (Figure 9.3). Each “trough” section is formed by two 1 by 11-inch cedar boards nailed together to form an upside down V. Sections are connected end-to-end simply by a few inches of overlap, with no fasteners apparent (Figure 9.4). The trough is covered with sediments, but interior of the inverted V was apparently empty. The extent of the feature is unknown; hand-trenching exposed the troughs to a break in the boards, but other sections, and other features may be buried.

No structures other than the well are known in this area. Original function and date of construction are unknown. The gradual incline of the trough from crib to end and the use of rot-resistant cedar would
Figure 9.1. Map of ARS Locus 4 (CA-INY-3802-H).

Figure 9.2. Wooden crib at Well No. 75 (ARS Locus 4, CA-INY-3802-H).

Figure 9.3. Square lumber “pipe” at Well No. 75 (ARS Locus 4, CA-INY-3802-H).

Seem to indicate the system functioned to distribute water (as in an irrigation system or drainage system) or sewage effluent (as in a leach field). No difference in sediments, such as gravelly fill to increase absorption, was noted below the inverted troughs.
ARS Locus 6 (Strohmeyer Well)

This locus, located on the east side of Highway 395, consists of a 20 m by 40 m concentration of historical artifacts near a lone black locust tree (Figure 9.5). The 1929 LADWP plat maps show a well in this general area and a pump house (possibly at the well location) is listed in the LADWP building inventory for the Strohmeyer homesite. No features were apparent during surface inspection or testing. One 50 cm by 50 cm SEEU and one 5 m by 5 m surface count unit were completed at this locus. Artifacts recovered appear to be a mix of town-era and more recent roadside litter.

Recovered from SEEU 1, placed in the densest portion of the locus, were 25 amber modern beer bottle fragments, two clear bottle glass fragments (one with a crown cap finish), a green glass fragment, a small can fragment, and a 5-inch-long ¼-inch-thick copper wire. All were from the surface or 0-10 cm level.

A total of 110 items were tabulated within the surface collection unit, over two-thirds of which are associated with beverage storage. Beverages are represented by four steel church-key opened beverage cans (4 by 2 inches, 5 by 2¾ inches, 4¾ by 2¾ inches, and approx. 2½ inches diameter), a church key (embossed with “Hamm’s Beer Refreshing as the land of sky blue waters” on one side and “THE HAMM...” “...PAUL M...A” on the other), five crown caps, an aluminum pull tab, a 2½-inch-diameter screw cap, 24 clear soda bottle fragments (“Mission” soda and possibly others), and 32 green “7-Up” bottle fragments. One of the green fragments is a bottle base embossed with “23/ 70 4-66/...LED” (Owens-Illinois Bottle Company, post 1932).

Food storage items include a roller-opened sanitary seal can (4 by 2½ inches), an aluminum rim pull-top sanitary seal can (5¼ by 2¾), a key-opened meat can (4¼ by 2½ by 3¾ inches), a can key, two can fragments, four can lids, 19 glass canning jar liner fragments (embossments include “...BOYD...” and “...GENUINE...” [Illinois Glass Co., post 1915), three sun-colored amethyst glass fragments, and two aqua glass fragments.

Other tabulated items include two light green glass plate fragments with exterior fluting, two light green glass bowl fragments with exterior fluting and an interior floral design, a white ware ceramic rim fragment, a 1½-inch-long ¾-inch-diameter pipe fitting, two fragments of brown-glazed ceramic power pole insulators, an aluminum tag embossed with “NDI 1” (likely from a power pole), an unidentified metal object, and three small pieces of plastic.
ARS Locus 10 (Pierce Property)

This locus, on the east side of Highway 395, consists of a low earthen mound with a small area of ash and charcoal (1 m in diameter) and a sparse scatter of historical artifacts over an area of ¼-acre (1,000 square meters; Figure 9.6 and 9.7). The historical material is within a much larger prehistoric lithic scatter that was tested by Far Western Anthropological Research Group under contact with Caltrans.

The LADWP plat maps shows that B. Pierce owned 20 acres here, and depicts an irrigation pipe along the west edge (highway side) and another pipe running diagonally through the parcel. The southern portion of the 20 acres is noted as “willows.” It is not known if the parcel was developed. A circa 1930 aerial photograph of the Manzanar area shows trees (willows?) along the highway and a brushy field.

A 1 m by 1 m excavation unit was placed to overlap the small ash and charcoal stain. Encountered in the unit were abundant charcoal and burned wood, about 35 small metal fragments, apparently from the same can, and a dish-shaped layer of burned soil. Nothing was recovered from below 10 cm. Two strata were identified in the unit (Figures 9.8 and 9.9). Stratum 1, the uppermost, consisted of a 5-cm-thick layer of loose grayish brown to dark grayish brown (10YR 5/2-4/2) silty sand. Stratum 2 consisted of brown (10YR 5/3) silty sand with gravels. The uppermost 5 cm of Stratum 2 was slightly darker (10YR 3/3), apparently
a result of burning.

No artifacts or features were encountered in a 30-cm-deep 50 cm by 50 cm SEEU excavated within a sparse scatter of historical artifacts 20 m northeast of Excavation Unit 1 (the charcoal stain).

Two 5 m by 5 m surface collection units were tabulated at the site. One was placed west of Excavation Unit 1 and the other was placed southeast of SEEU 1. Surface Collection Unit 1 contained a horseshoe, five
light aqua bottle glass fragments, and a small quartzite flake. Present within Surface Collection Unit 2 were a can fragment, a glass bottle fragment embossed with "MCCO.../... FACE .../MCCON.../... WIS...", four other clear glass fragments, a piece of barbed wire, and a 6-inch-long by 1-inch-wide metal strap with four nail holes.

The locus appears to represent a mix of roadside litter and casual and unintensive trash disposal, likely dating to the town era. No evidence of any structures or pipeline was found.

CA-INY-4877-H (MANZ 1993 A-17; Meyer Lumber)
This site consists of an artifact scatter, historical vegetation (trees), and a possible structure pad indicated at the time of the initial survey recording by weeds growing in a distinct area 4 feet by 10 feet in size (Burton 1996). Located within the Manzanar National Historic Site southwest of the intersection of Highway 395 and the Manzanar-Reward Road, the site covers approximately three-quarters of an acre (3,000 square meters). The site area is listed as "Meyer Lumber" on a 1910 town of Manzanar plat map (Eastern California Museum files), but no buildings are listed at this location in later LADWP records.

A backhoe trench, two 50 cm by 50 cm SEEU's and one 5 m by 5 m surface count unit were completed at this site (Figure 9.10). Artifacts at the site are widely scattered and subsurface material was very sparse, with nothing recovered from below 10 cm. The trench, 60 cm wide by 60 cm deep by 10 m long, intersected the possible structure pad but encountered no building remains or artifacts. Sediments consisted of 10 cm of loose sandy silt over very compact silty sand. Two glass fragments (one clear and one sun-colored amethyst), two white ware ceramic fragments, and a small piece of coal were recovered from the surface and 0-10 cm level of SEEU 1, which was excavated to 30 cm depth. No artifacts or features were encountered in SEEU 2, which extended to 20 cm depth.

Items tabulated within the surface count unit included seven glass fragments (3 amber, 1 clear, 1 aqua, 1 cobalt, and 1 sun-colored amethyst), two crown caps, four animal bones, three egg shell fragments, a peach pit half, a tire fragment, a chrome automobile trim fragment, and a small concrete fragment.

Surface collected from other portions of the site were a horseshoe and three ceramics. The ceramics include a white ware plate base with a small portion of a back stamp and two pieces of a Japanese porcelain hand-painted rice bowl likely from the relocation center (Figure 9.11).

The rectangular vegetation pattern may have been caused by undetected changes in soil compaction or chemistry, if this area had been used for long-term storage of lumber. Alternatively, it may just reflect disturbance during construction or use of the relocation center.

CA-INY-4881-H (MANZ 1993 A-21; Hatfield Property)
This site consists of a town-era artifact scatter covering about one-half acre in the northeastern portion of the National Historic Site. A former town road, now lined with dead and dying trees, is along the northern boundary of the site. Foundations of the Manzanar Relocation Center Watchtower 8 is within
Figure 9.10. Map of CA-INY-4877-H.

the site and the Relocation Center boundary fence bisects the site (Figure 9.12).

This site is within Lot 108 on the LADWP plat map, which shows the land as sold to LADWP by I. Hatfield in 1925. Over three-quarters of the 20-acre lot is noted as apple and pear orchards and the portion of the lot where the site is located is noted as grass. No buildings are indicated in LADWP records or visible in a circa 1930 aerial photograph.

Four 1 m by 1 m excavation units and two 5 m by 5 m surface count units were completed at the site. All of the units were placed in areas of dense surface material. The few temporally diagnostic artifacts recovered from the site suggest a late 1920s date.

**Stratigraphy**

Three strata were discerned at the site. Stratum 1 extends from the surface to about 10 cm depth. It consists of loose dark grayish brown (10YR 4/2) silty sand with gravels. Below this, Stratum 2 consists of 20-cm-plus-thick layer of compact to very compact brown to yellowish brown (10YR 5/3-5/4) sand. Stratum 3 was encountered in Excavation Unit 3 at 35 cm depth (excavation in the other units was halted at 30 cm BD). It consists of loose pale brown (10YR 6/3) sand with some gravels.
Excavation Unit 1

Recovered artifacts consisted of twenty-three 1/8-inch-thick window glass fragments (including one sun-colored amethyst piece), 94 other glass fragments, 22 terra cotta flower pot fragments, and six white ware ceramics. Most were from the upper 0-5 cm, but a few were recovered to 20 cm depth and one artifact was recovered from a filled-in rodent burrow in the 20-30 cm level. The non-window glass includes: a sun-colored amethyst rectangular bottle base 1 by 2 inches in size embossed with “BLUE RIBBON”; 12 sun-colored amethyst cut glass fragments (possibly from three or four different objects), 21 other sun-colored amethyst fragments, 17 aqua mason jar fragments (including a 3½-inch-diameter round base embossed with “2”), and 43 clear fragments (including a 1⅛-inch-diameter round base embossed with “[9] 9” (Owens Bottle Company, 1929). Recovered ceramics include six bowl body fragments with a multicolor floral decal design. Two of the pieces refit and the design is the same as on pieces collected from Surface Count Unit 1.
Excavation Unit 2
This unit was placed along the relocation center fence line about 10 m north of EU 1. Below 10 cm the deposit was sterile. Structural remains from this unit include seven window glass fragments, a 1-inch-diameter washer, a 20d wire nail, and a 2½-inch long wire nail with a ¼-inch thick shaft and a “25” (1925?) embossed on its ½-inch diameter head. Artifacts related to food storage are limited to five clear glass fragments. Furnishings and food-serving artifacts include a sun-colored amethyst cut glass fragment, five plain indeterminate white ware ceramic body, footring, and base fragments possibly all from the same vessel (one with a partial Johnston Bros. back stamp, post 1913 [Figure 9.13a]), and a white ware rim fragment with a pink, green, and gray floral decal and molded design. Food remains are represented by 16 marine shell fragments.

Excavation Unit 3
This unit was placed east of the relocation center fence and north of the watchtower foundation. From the surface four ceramic fragments, a window glass fragment, and four nails were recovered. The 0-10 cm level contained fragments of concrete, five ceramic fragments, two wire nails, and three marine shell fragments. The 10-20 cm level yielded a ceramic fragment, a round-head bolt fragment, and an obsidian flake. The wire nails include one 8d, one 6d, and four 5d. Ceramics include eight plain white ware body fragments apparently from the same vessel or set (see Figure 9.13), a plain porcelain body fragment, and a porcelain base fragment with a slight pinkish tint over half of the sherd and an unglazed footing.

Excavation Unit 4
This unit was placed about 5 m north of Excavation Unit 3. Recovered structural remains include 30 window glass fragments, six wire nails (one 8d, one 7d, 5d, and three 4d), a ¾-inch-diameter spring lock washer, and a 1-inch-long stove bolt with a ¾-inch-square flat nut. Food-related items include 18 can fragments, three ½-inch-thick rubber canning jar gasket fragments, and animal bone. Food serving artifacts and furnishings include a light bulb base, two plain white ware ceramic fragments, and a porcelain body fragment with a pink, green, and gray floral design. Other items recovered from this unit include a ¾-inch-diameter brass lid, an unidentified tool part, and a piece of smooth wire. The only artifact recovered below 10 cm depth was one of the canning jar gasket fragments.

Surface Count Unit 1
Tabulated in this 5 m by 5 m unit were 11 window glass fragments, 30 other glass fragments, 14 terra cotta flower pot fragments, a 1-inch-diameter twist-off bottle cap, four ceramic fragments, a 2½-inch-long stem caster for a ½-inch-diameter wheel, a ¼-inch-long fence staple, a piece of smooth wire, and three fragments of marine shell. The ceramics consist of four white ware bowl rim and body fragments with a red and green floral decal design and a wavy rim. The non-window glass includes a piece of sun-colored amethyst cut glass, two other sun-colored amethyst fragments, 13 clear glass fragments (including one embossed with “...LA.../...ARM...”), ten aqua mason jar fragments, and three green glass fragments.

Surface Count Unit 2
This unit was placed just northeast of the Watchtower 8 foundation blocks. Structural artifacts tabulated include 110 window glass fragments, 12 wire nails (one 20d, one 16d, five 7d, three 5d, and two 3d), three
3½-inch-long finishing nails, a tack, a screw, a bolt and nut, two fencing staples, a steel plate, a metal bar, a triangle-shaped metal piece, and 12 small concrete fragments. Domestic artifacts include a light bulb glass fragment, an oval press-in metal lid (1½ by 2½ inches), a clear glass fragment, a green glass fragment, eight plain white ware ceramic fragments, three small porcelain fragments, ten thick dark green glass fragments possibly from a juicer, and two marine shell fragments. Other items within the surface count unit include two pieces of smooth wire (one tar-covered), and the top of a dry cell battery.

Surface Collection
A harmonica (Figure 9.14) and a ceramic marble were collected. The marble was found imbedded in a hole in a metal support for the watchtower – it had to have been placed there by someone after the tower was removed. The marble, while not noticed during earlier survey work, can be seen in a 1993 overhead photograph taken of the watchtower foundation.

CA-INY-4882-H (MANZ 1993 A-22; Hatfield Property)
This site, also located on the former Hatfield property about 90 m south from CA-INY-4881-H, is actually an enigmatic feature consisting of some iron embedded in a low earthen mound. It was thought that the feature could be the remains of a town-era structure, even though artifacts around the feature virtually all appear to post-date the town (Figure 9.15). The imbedded iron feature was exposed revealing that it is a discarded part of a much larger home-made object of unknown function rather than the in situ remains of a structure (Figures 9.16 and 9.17).

The part of the object uncovered consists of a wooden platform, 2 feet by almost 5½ feet by 3½ inches thick, attached by carriage bolts to a steel frame made of heavy gauge (¼-inch-thick) angle iron and T-
The iron pieces are welded together in a C-shape, with diagonal braces extending from the steel frame away from the wooden platform. The ends of the diagonal braces, as well as the ends of the frame, have been cut off with a torch. The wood is very deteriorated and in pieces, but the placement of bolts indicates that the platform was once a single piece (although a single plank of such dimensions would be rare) or had been held together by some other means.

Although the object itself is not particularly large, the heavy gauge of its constituents suggest it was once part of a substantial structure. Exactly what sort of structure, and whether it was industrial, residential, or agricultural is unknown. Neither is its age clear. However, its partial burial in otherwise culturally sterile sediments indicates it pre-dates the surficial relocation center and post-relocation center artifact concentrations that surround it. The deteriorated condition of the wood suggests it could date to the town-era; the cut metal suggests it might be part of a structure razed by LADWP.

**CA-INY-4928-H (MANZ 1994 A-4)**

This site, west of Highway 395 on the north side of Bairs Creek within the Manzanar National Historic Site, includes a relocation center manhole (discussed in Chapter 10) and a sparse scatter of earlier
historical artifacts covering an area of about 15 square meters (Figure 9.18). An owner is not listed for this area on the LADWP plat map; the area is labeled as a “wasteland” with an alfalfa field to the west.

No subsurface artifacts were encountered in the one 50 cm by 50 cm SEEU excavated at the site. Tabulated within a 5 m by 5 m count unit were eight window glass fragments, a glass brick fragment, seven amber glass fragments, two clear glass fragments, a sun-colored amethyst glass fragment, a sun-colored amethyst bottle fragment with an applied prescription finish lip (1880-1919), a clear bottle fragment with a stopper finish lip, a ceramic fragment, a pocket tobacco can (4½ x 3½ x 2½ inches; 1913-1965), 54 can fragments, and a retouched obsidian flake. The ceramic is a large portion of a cylindrical red-glazed stoneware vessel. The complete vessel would have measured 3¾ inches high by approximately
6 inches in diameter. The rim of the ¼-inch-thick vessel is glazed, but the flat base is not.

Small in area and adjacent to a major north-south thoroughfare (now U.S. Highway 395), the artifacts likely represent a single episode of trash disposal. Temporally diagnostic artifacts at the site suggest a 1913-1918 date.
Relocation Center and Later Features

For the U.S. Highway 395 project the National Park Service tested seven small artifact concentrations post-dating the town of Manzanar within the APE. All seven concentrations had been previously recorded as part of CA-INY-3802, the Manzanar Relocation Center. Three (ARS Locus 9, 11, and 12) are predominately small accumulations of roadside litter, one (Feature P-33) appears to be a small trash dump associated with reuse of the relocation center auditorium, and three (ARS Locus 15, Feature P-26, and Feature P-27) are trash scatters associated with the World War II Manzanar Relocation Center.

In addition, other relocation center remains are located within the APE. The relocation center entrance, watchtower foundations, boundary fence, and manholes, are described in Burton (1996). A well (Well No. 75) and two problematical features (Features P-36, and P-37) were investigated for this project: Feature P-36 was mapped, and a portion of Feature P-37 was exposed.

ARS Locus 9, 11, and 12
These three loci, all on the east side of Highway 395 across from the Manzanar National Historic Site, consist of small concentrations of historical artifacts. The loci range in size from 180 square meters at ARS Locus 12 to 1,600 square meters at ARS Locus 9. For this project the surface of each locus was closely examined. Surface count units were placed in areas of densest surface artifacts and excavation units were judgmentally placed in areas thought to have the greatest potential for subsurface deposits.

Each locus is relatively sparse, with little or no depth. With an abundance of beverage containers, all appear to be predominately modern roadside litter, although some artifacts could date as early as the 1920s. Results are summarized below by locus.

Two 50 cm by 50 cm SEEU’s and one 5 m by 5 m surface count unit were completed at ARS Locus 9 (see Figure 9.6). Two clear bottle glass fragments were recovered from the 0-10 cm level of each SEEU. The surface collection unit contained nine glass fragments, two metal can fragments, and two pieces of lumber, one with a nail hole and rust stains. The nine glass fragments included a sun-colored amethyst round bottle base embossed with “50[5]” (Owens Bottle Company, 1911-1929), a clear whiskey bottle lip fragment with metal closure, a clear rectangular with rounded corners bottle base fragment, a “Coke” bottle base embossed with “BISHOP/NG /CALIF” (Maywood Glass Company, post 1940), four other “Coke” bottle fragments, and an amber body fragment.

One 50 cm by 50 cm SEEU and one 5 m by 5 m surface collection unit were completed at ARS Locus 11 (Figure 10.1). No artifacts were recovered from the SEEU; however some charcoal bits were encountered in the 0-10 cm level. The surface count unit contained one window glass fragment, 33 bottle
glass fragments and two concrete irrigation pipe fragments. The bottle glass included 30 fragments of a
clear embossed “Barq’s” soda bottle with a crown cap finish (post 1934), two body fragments from an
amber whiskey bottle, and a pale aqua piece.

One 50 cm by 50 cm SEEU and one 5 m by 5 m surface collection unit were completed at ARS Locus
12 (Figure 10.2). Twenty-eight glass fragments, a can lid fragment (approx. 3-inch-diameter), and two other
can fragments were recovered from the 0-10 cm level of the SEEU. The glass fragments included 21
nondescript clear pieces, an amber round whiskey bottle base fragment embossed on the side with “...5
QUART ...,” and five “Coke” bottle fragments (embossed pieces include “...a Cola/...ARK REGISTE...,” “TRADE
.../MIN...,” and “...A/...REGISTERED/...T. D-105529”). Tabulated in the surface count unit were two “Coke”
bottle fragments, seven clear glass fragments, two brown glass fragments, a can lid fragment, two sanitary
seal can fragments, and five other can fragments.

ARS Locus 15 (Feature P-47)
This locus, on the west side of Highway 395 within Manzanar National Historic Site, includes the
foundation blocks of Watchtower 7 and a scatter of historical artifacts sparsely distributed over an area
500 square meters in size (Figure 10.3). Two 50 cm by 50 cm SEEU’s were excavated and one 5 m by 5
m surface count unit was tabulated at this locus. Little or no depth of cultural material was revealed in SEEU’s. Two window glass fragments (one slightly sun-colored amethyst) were recovered from the 0-10 cm level of SEEU 1. Eleven window glass fragments (one slightly sun-colored amethyst) and a 6d wire nail were recovered from the 0-20 cm levels of SEEU 2.

Glass tabulated in the surface collection unit includes seventy-two ⅜-thick window glass fragments, a ⅛-inch-thick flat glass fragment possibly from an automobile, and two ¼-inch-thick flat glass pieces. One of the ¼-inch-thick pieces is apparently only 1⅜ inches wide and has scratches on both surfaces. Tabulated ceramics include a white ware plate rim with an interior molded design and five white ware saucer fragments with a pink, green, and gray floral decal design. Other items present include a small can fragment, four wire nails (8d, 6d, 2d, and a fragment), an iron bar (6¾ by 1¾ by ¼ inches, with two nailing holes with nails rusted in place) and a piece of cut lumber (7¾ by 5¾ by ¼ inches).

Also noted on the surface at the site were four sun-colored amethyst fragments of an ornate candy (?) dish and a glass marble. Overall, the locus appears to represent a mix of town-era and Relocation Center artifacts. Most of the abundant window glass and other structural remains present were likely from the relocation center watchtower. After the watchtowers were abandoned by the military police, the interned children reportedly used slingshots to shoot marbles at the windows (Ross Hopkins, personal
communication, 1997). The earlier sun-colored amethyst window glass may be from roadside trash dumping or LADWP’s demolition of town-era structures.

**Features P-26 and P-27**

These two artifact concentrations, located on the perimeter of the relocation center, were originally recorded by the National Park Service in 1993 (Burton 1996). Feature P-26, 1,500 square meters in size, contains hundreds of glass and ceramic fragments and a few crown caps and other artifacts. Feature P-27, covering 300 square meters, contains about 120 glass fragments, a few ceramics, and two cans. Because the two features are located close to each other and contain similar artifacts they are considered together here. Three SEEU’s and a trench were excavated and two surface count units were tabulated (Figure 10.4). In addition, a spoon was collected from within Feature P-26 (Figure 10.5). The back of the spoon handle is embossed with “SIMPSON NICKEL SILVER.” Most of the recovered artifacts appear to relate to the relocation center construction, use, or abandonment, although there are some apparently later artifacts such as a whiskey bottle and a cartridge case.
Trench 1
This trench, excavated by backhoe within a portion of the Feature P-26 artifact concentration, measured 60 cm wide by 80 m deep by 13 m long. Sediments consisted of 0-15 cm of loose silty sand underlain by compact sandy silt. Below 75 cm depth, sediments were very compact. The only artifact observed during the trenching was a can lid fragment recovered from the upper 10 cm.

Subsurface Exploratory Excavation Units
Two of the three SEEU’s excavated at this site were placed within Feature P-26 (SEEU 1 and 2) and the third (SEEU 3) was placed within Feature P-27. All were excavated to 30 cm depth. Sediments consisted of from 5-10 cm of loose silty sand underlain by compact sandy silt.

SEEU 1 yielded five glass fragments, all from the surface and 0-10 cm level. SEEU 2 yielded two window glass fragments and a wire nail fragment from the surface and 0-10 cm level. One glass fragment and six hotel ware ceramic fragments were recovered from the surface and 0-10 cm level of SEEU 3. The ceramics included a bowl body fragment, two cup handle fragments, two plate rim fragments with black and brown bands (glaze does not cover bands completely), and a bowl rim with a gold, green, blue, and pink geometric and floral decal design and a fainter blue band (Figure 10.6).
Surface Count Units
Tabulated within Surface Count Unit 1 within Feature P-26 were a clear whiskey bottle neck and metal cap, a clear round bottle base embossed with “[D]ESIGNY4402-G/...2 FL. OZ./23 <@> 0/D-98026” (Owens-Illinois Bottle Company, either 1940 or 1950), eight clear glass fragments with an embossed leaf design, 94 plain clear glass fragments, 11 plain white hotel ware ceramic fragments, two burned animal bones, a piece of plastic, a roller-opened sanitary seal can (2½ by 2½-inch diameter), and can fragments. The whiskey bottle cap reads “NATIONAL DISTILLERS.”

Surface Count Unit 2, within Feature P-27, contained 108 items. Structural artifacts and furnishings included 34 wire nails (one 20d, one 16d, three 8d, twenty-six 6d, two 2d, and one fragment), three lightbulb glass fragments, and three pieces of aluminum electrical wiring. Food and beverage storage is represented by a crown cap, 47 clear glass jar and bottle fragments, and an aqua glass fragment. Food remains consist of four burned animal bones. Artifacts associated with food serving include 12 plain white hotel ware ceramic plate fragments and one hotel ware cup handle fragment. Most of the ceramics are undecorated, however three pieces have rim bands or other minimal designs. Other items present include a talcum powder can, a cartridge casing with an “o” head stamp, and a rubber fragment.

Feature P-33
Feature P-33 is one of four adjacent artifact concentrations located between Block 19 of the relocation center and the U.S. Highway 395 right-of-way fence (see Figure 9.15). Trash at all four suggest they post-
date the relocation center; Feature P-33, and an adjacent enigmatic town-era feature recorded as CA-INY-4882 (see Chapter 9) are within the APE. Feature P-33 must represent purposeful dumping: within a 35-square-meter area hundreds of soda bottle fragments, crown caps, electrical porcelain fragments, wire nails, bits of wire, can lids, and a sanitary seal can were noted during the initial recording (Burton 1996).

One 1 m by 1 m unit was excavated within Feature P-33. The excavation unit contained abundant soda and whiskey bottle fragments, a few milk bottle fragments, electrical fixtures and wiring, wire nails, and a few bits of tin foil. Most of the artifacts were recovered from the surface and 0-10 cm level, with only a few glass fragments and an obsidian flake recovered from the 10-20 cm level. Owens-Illinois Bottle Company (post 1932) bottle base fragments with date codes of “7” and “8” suggest manufacture in the years 1947-8. It seems likely that Feature P-33 is a post-Relocation Center deposit possibly associated with later reuse of the auditorium as a VFW social hall (see Burton 1996).

Beverages are represented by 137 clear bottle glass fragments, 55 green bottle glass fragments, 98 amber bottle glass fragments, 18 aqua “Coke” bottle fragments (including one embossed with “BISHOP”), three crown caps, and a brown plastic whiskey bottle cap fragment.

The clear bottle glass fragments include 100 plain pieces, 21 painted (dark blue and white) fragments of “Antelope” soda bottles, three painted (light blue and white) fragments of “Barq’s” soda bottles, seven other painted pieces (white and red over white), four crown cap finish lip fragments, a fluted piece, and a milk bottle lip fragment. Basemarks include “LA VIDA BEVERAGES, INC/4295-G/23 <∅> 8,” “C/41 B 4/PAT. 120.277,” and “... s 410.../...2.” Green bottle glass includes 31 plain pieces, 22 painted (red and red over white) or fluted “LA VIDA” soda bottle fragments, and two crown cap finish lip fragments. Basemarks

Figure 10.7. Electrical parts and associated artifacts from CA-INY-3802, Feature P-33 (FN-850, -852, -854).
Electrical parts include three pieces of a broken electrical porcelain lamp socket embossed with "MADE IN USA/250W 250V," three electrical box knockouts (slugs), two partial knockouts, two small pieces of broken electrical outlets, and a fragment of a brown plastic outlet box cover. Wiring includes nine short pieces of insulated aluminum wire, two short pieces of copper wires twisted together, and ten ¾ to 1-inch-long pieces of black plastic wire insulation. Other recovered items related to electrical work include six small caps for holding solder flux and a large blob of melted solder (Figure 10.7). Wire nails recovered include three 16d nails, one 12d nail, seven 8d nails, one 6d nail, and one 1-inch staple.

Other Relocation Center Features Within the APE
Additional features associated with the relocation center are located within the APE on the west side of Highway 395. While these features generally have no archeological data potential beyond their initial recording, they are some of the most important features within the National Historic Site for their architectural and historical significance.

Relocation Center Entrance and Environs
Included within the APE at the entrance area are two evacuee-constructed buildings (sentry and police post), two substantial rock walls, remains of the relocation center entrance sign, the concrete slab of the police department building, paved entrance roads, rock-lined roads and parking areas, as well as three recently-placed historic plaques (Figure 10.8). The entrance area has been previously mapped and architects from the Historic American Buildings Survey (HABS) have produced "as built" drawings (Burton 1996). But besides the architectural remains, the entrance area is also historically significant as the location of most of the major events of the Manzanar riot.

For this project, Feature P-36 and P-37, both located just north of the entrance, were investigated since they are within the APE. Feature P-36, an enigmatic feature, was mapped by plane table and alidade (see Figure 4.1). The feature consists of boulders, possible terraced areas, and wooden barrels imbedded in tar and asphalt (Figure 10.9). To date, no definitive information has been found on what this feature was. According to WRA blueprints an oil storage tank was located in this area, and the barrels may relate to...
the storage or distribution of heating oil, road oil, or roofing tar. Feature P-37, located between Feature P-36 and the relocation center entrance, had been recorded as a possible rock-lined ditch, approximately 300 feet long. During the present field work a 2 m by 2 m area was exposed, revealing details of a steel pipe (culvert) and rock-lined ditch (Figure 10.10).

Watchtowers
WRA blueprints indicate watchtowers were constructed at the corners and midsections of the fenced residential area of the relocation center. Foundation blocks still remain of two (Watchtowers 7 and 8) of the three watchtowers once located along the eastern boundary of the relocation center (Figure 10.11). Nothing remains of the northeastern watchtower (Watchtower 1), and the location is now a graded road (Burton 1996). Window glass and possibly other structural remains present at CA-INY-3802, ARS Locus 15 (see above) and CA-INY-4881 (see Chapter 9) are from Watchtower 8 and Watchtower 7, respectively.

Figure 10.10. Feature P-37 excavation unit plan and profile.
Fence

Two portions of the existing barbed wire right-of-way fence on the west side of U.S. Highway 395 within the National Historic Site date to the relocation center (Features P-75 and P-76). Running parallel to the highway approximately 100 feet west of the pavement, about two-thirds of the eastern boundary fence is intact. Together these two portions comprise the largest remaining section of the barbed wire fence that once enclosed the relocation center residential area.

From the Watchtower 1 location at the northeast corner of the residential area the fence extends south 2,875 feet; from the Watchtower 7 location at the southeast corner of the residential area the fence extends north 650 feet. The section between, from the relocation center entrance to north of the auditorium (a total length of 1,700 feet), has been removed and replaced. The extant sections consist of 5-foot-high 4-inch-square posts placed approximately 16 feet apart. Nail holes indicate these post once held five wire strands at about 12-inch intervals starting at 12 inches above the ground. The top and bottom strands have been removed and the square posts have been augmented by small-diameter spacers (Figure 10.12).

Well No. 75

WRA blueprints show the Well No. 75 area (ARS Locus 4) as including a 10,000-gallon redwood storage tank, a pumphouse, and a 6-inch cast iron pipeline to the relocation center (Figure 10.13). The present well is in the same location as that shown on the WRA blueprint. A group of broken and overturned concrete slabs near the current well pump may date to the relocation center, but there is no evidence of the redwood tank.

Manholes

WRA blueprints indicate six sewer manholes within the APE on the west side of U.S. Highway 395 and one manhole within the APE on the east side of the highway. These include manhole numbers 2-7 of the sewage outfall line and manhole number 53 within the military police compound (Figure 10.14). A portion of the outfall line parallels the west side of the highway before continuing east to the relocation center sewage treatment plant.
The manholes were constructed according to contemporary standard engineering specifications (see, for example Hardenbergh 1942:74-82; Figure 10.15). The walls are of red brick set in mortar, circular in plan, and "bottle-shaped" in profile. Iron ladder rungs or "steps" are located 15-18 inches apart along one side. The 2-foot-diameter circular cast-iron cover has an "S" cast in the center. The covers have been welded on, perhaps as a safety measure done at the relocation center's abandonment.

Manhole number 2 is within Bogart Homesite (CA-INY-4883), and has been disturbed by the installation of a fiber optics line. Only visible as chunks of concrete and red brick on the surface, it was exposed for this project (Figure 10.16). Manholes 3 through 5 are located between the relocation center fence and the highway; one has been damaged by the fiber optics line installation. Manhole number 6 is just north of Bairs Creek within CA-INY-4928 and manhole number 7 is east of the highway adjacent to a graded road. Manhole number 53, within the military police compound, was not relocated.
Figure 10.15. Sewer manhole (from Hardenbergh 1942, Figure 31).

Figure 10.16. Manhole at CA-INY-4883.
Native American Indian Sites and Artifacts

Most of the testing at Native American Indian sites along U.S. Highway 395 in the vicinity of Manzanar National Historic Site was conducted by a Caltrans' contractor (Far Western Anthropological Group, Davis, California). However, the National Park Service collected some Native American Indian artifacts during work at two dual-component historical/prehistoric sites and while conducting surface collection and limited excavation at a small single component prehistoric site. Two of the sites (CA-INY-4860 and CA-INY-4883-H) are within Manzanar National Historic Site and the third (CA-INY-3782/H) is located on LADWP land, one-half mile south of the National Historic Site. In addition to these three sites, a few prehistoric artifacts were recovered during testing at six single-component historical sites.

No midden or prehistoric features were observed at any of the sites, and the recovered remains indicate sporadic or ephemeral use on the peripheries of larger sites. Temporally diagnostic artifacts recovered dating to the Klondike (post A.D. 1400) and historical period include two Owens Valley Brown ware sherds, two glass beads, and a Cottonwood Triangular projectile point, all from CA-INY-3782. Baker period use is indicated by two surface-collected Rose Spring Corner Notched projectile points, one from CA-INY-4883 and the other, an isolated find, from historic site CA-INY-4876 (Downtown Manzanar).

Obsidian hydration analysis suggests the prehistoric site use dates to the same general time span as other tested sites at Manzanar (Burton 1996) with one exception. Specimens from CA-INY-4860 suggest the main use of that site was during the Cowhorn period, 1200 B.C. to A.D. 600, a period not well represented at the previously tested sites. Descriptions of the sites and artifacts follow. The results of obsidian sourcing and hydration analysis is presented in Appendices C and D.

CA-INY-3782/H (Mulholland Homestead)
The prehistoric component of this site was tested by Far Western Anthropological Research Group. However, a small number of Native American Indian artifacts were collected during the National Park Service historical site testing (Figure 11.1, Table 11.1). Fourteen artifacts were surface-collected because they appeared likely to be associated with the historic occupation, either through their temporal span or spatial proximity to historic features. Eleven were recovered from excavation units. Described below, these items are not by any means a systematic or representative sample, but do provide a general range of artifact types present at the historical component of the site. Temporally-diagnostic artifacts and obsidian hydration results suggest Native American Indian use of the site area from as early as 7300 B.C. to historic times.
Figure 11.1. Locations of Native American Indian artifacts recovered during the historic site testing at CA-INY-3782.

Glass Artifacts
A very worn blue hexagonal glass bead measuring 3.6 by 4.2 mm was recovered from the 0-10 level of Excavation Unit 2. A second blue hexagonal glass bead (4.5 mm diameter) was collected from the surface near Excavation Unit 4. Two amber and two sun-colored amethyst glass fragments with possible intentional retouch were recovered from the surface. Two were within Surface Count Unit 2 and the other two were within a few meters of the surface count unit.
Ceramics

Two Owens Valley Brown Ware sherds were collected from the surface near Excavation Unit 4. One, with micaceous temper, is 6.4 mm thick, with a brushed brown (5YR 4/3) exterior and a brushed black (7.5YR 2/0) interior. The other, 7.5 mm thick, has a rough black (7.5YR 2/0) exterior and a smooth gray (10YR 3/1) interior.

Bifacial Tools

A nearly complete Cottonwood Triangular point measuring 20 mm by 15 mm by 3 mm thick and weighing 0.8 g was recovered from the surface just south of Surface Count Unit 2 (Figure 11.2a). This point style post-dates A.D. 1300. The point was chemically (XRF) sourced to the West Sugarloaf Mountain subsoure (Coso). It had a hydration rim value of 1.9 microns. Using the Coso hydration rate formula in Delacorte and McGuire (1993) of $31.624x^{2/3} = \text{years B.P.}$, this converts to a calendar date of A.D. 1800.

A biface margin was recovered from the 0-10 cm level of SEEU 4. Visually identified as from the Coso source, it had a hydration rim value of 8.9 microns. Using the hydration rate in Delacorte and McGuire (1993) this converts to a calendar date of 3090 B.C.

Cores and Core Fragments

Two cores and three core fragments were collected during the historic site testing. The 0-10 cm level of
Table 11.1. Surface-Collected Native American Indian Artifacts From CA-INY-3782 (keyed to Figure 11.1).

<table>
<thead>
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<th>Map Ref.</th>
<th>FN</th>
<th>Description</th>
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<tr>
<td>42</td>
<td>576</td>
<td>Possibly flaked glass</td>
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<tr>
<td>43</td>
<td>577</td>
<td>Cottonwood Triangular projectile point</td>
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<tr>
<td>48</td>
<td>582</td>
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<td>94</td>
<td>628</td>
<td>Blue hexagonal glass bead</td>
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<tr>
<td>98</td>
<td>632</td>
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<tr>
<td>99</td>
<td>633</td>
<td>Core fragment</td>
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<tr>
<td>SCU 2</td>
<td>652, 654</td>
<td>Two possibly flaked glass pieces and four flakes</td>
</tr>
</tbody>
</table>

Excavation Unit 3 yielded a small unifacial orange chert core and a tested cobble which appeared to be obsidian but upon XRF-analysis was determined to be a different, as yet unidentified, glassy rock.

An obsidian core fragment was recovered from the upper fill of Feature 1 (a large pit) and a quartzite core fragment was recovered from the 0-10 cm level of Excavation Unit 3, placed within a dense historical-period trash concentration. The obsidian core fragment, XRF-sourced as from the West Sugarloaf Mountain subsource (Coso), had a diffuse unreadable hydration band.

The final core fragment was collected from the surface near Excavation Unit 4. XRF-sourced as from the West Cactus Peak subsource (Coso), it had a hydration rim value of 3.4 microns. Using the hydration rate formula in Delacorte and McGuire (1993) this yields a calendar date of A.D. 1400.

**Flake Tools and Flakes**

Two flake tools and seven unmodified flakes were collected during the historic site testing. A retouched flake was recovered from the 0-10 cm level of SEEU 3. Visually identified as from the Fish Springs source, it had a hydration rim of 3.3 microns. Using the Fish Springs obsidian hydration rate in Delacorte and McGuire (1993) of 120.23\(x^{1.62}\) years B.P. this converts to a calendar date of A.D. 1100. The other flake tool, a heavily eroded utilized flake, was collected from the surface just west of Surface Count Unit 2. Visually identified as from Fish Springs, it had a hydration rim value of 8.2 microns (1700 B.C.).

Four unmodified flakes were collected from Surface Count Unit 2. These include two obsidian flakes, a cortical igneous flake, and a cortical orange chert flake. The obsidian specimens were visually identified as from the Fish Spring source. They had hydration values of 5.8 and 14.6 microns (120 B.C. and 7300 B.C.). Four unmodified flakes were encountered in the excavation units. An igneous flake was recovered from the 0-10 cm level of Excavation Unit 2, two light brown chert flake fragments were recovered from the 10-20 cm level of Excavation Unit 3, and an igneous flake fragment was recovered from the 10-20 cm
level of Excavation Unit 4.

**CA-INY-4860 (MANZ 1995 A-3)**

This prehistoric site consists of a sparse scatter of flaked stone artifacts covering an area of 1100 square meters (35 m east-west by 40 m north-south) between the Relocation Center Military Police Compound and U.S. Highway 395 (Figure 11.3). A complete surface collection of the site recovered 27 artifacts, including 2 obsidian biface fragments, an obsidian core fragment, 17 obsidian flakes, 3 igneous flakes, 3 chert flakes, and a quartzite flake. A third biface fragment previously seen at the site could not be relocated.

One 1 m by 1 m excavation unit was completed at CA-INY-4860. This unit was excavated to a depth of 70 cm where extremely compact soil precluded further excavation. Upper sediments consisted of loose to slightly compact yellowish brown (10YR 5/4) silty sand with subangular gravels. Below 60 cm depth there was a gradual change to a very compact culturally sterile reddish brown (5YR 4/3) sandy silt with rounded pebbles. Artifacts recovered from the unit included an obsidian projectile point fragment, eight obsidian flakes, two igneous flakes, and a quartzite flake. Most were recovered from the upper 30 cm of the deposit; however a few flakes were from as deep as 60 cm.

The projectile point fragment, two biface fragments, and a core fragment are illustrated in Figure 11.2. Metrical and provenience data are provided in Table 11.2. All were XRF- or visually-sourced as Fish Springs obsidian.

All collected debitage (n=34) was analyzed. Biface retouch flakes comprised 12 percent (n=4) of the debitage. Two of the biface retouch flakes were XRF- or visually-sourced as Fish Springs obsidian, one is red chert, and one is igneous. Use-modified flakes comprise 9 percent (n=3) of the debitage; two were XRF-sourced as Queen obsidian and one is white chert. Unmodified flakes without cortex comprise 62 percent (n=21) of the debitage and unmodified flakes with cortex account for 12 percent (n=4). Material types included Fish Springs obsidian (60 percent), non-Fish Springs obsidian (12 percent; Coso, Queen Impostor, and possibly Casa Diablo), igneous (16 percent), quartzite (8 percent), and chert (4 percent). Core shatter comprises 6 percent (n=2) of the debitage; one piece was visually identified as Fish Springs obsidian and the other was XRF-sourced as from the West Sugarloaf Mountain subsourse (Coso obsidian).
Although the low number of artifacts overall suggests limited use of the site prehistorically, the relatively high percentages of biface retouch and the low percentages of core shatter and flakes with cortex suggest secondary reduction and the production or repair of bifacial tools. The moderate percentage of use-modified flakes suggests subsistence tasks also occurred at the site.

Twelve specimens were submitted for obsidian hydration analysis. One specimen had a diffuse weathered rim. The readable hydration results ranged from 4.7 to 8.9 microns with a mean of 6.4 microns and a standard deviation of 1.3. Using the Fish Springs hydration rate in Delacorte and McGuire (1993), six of the hydration results for specimens visually or XRF-sourced to Fish Springs fall within the Cowhorn period and one falls within the Clyde period (Figure 11.4).

CA-INY-4883/H (MANZ 1993 A-23; Bogart Homesite)
The Bogart Homesite, located just northwest of the relocation center entrance, encompasses a sparse scatter of Native American Indian flaked-stone artifacts. U.S. Highway 395 forms the eastern boundary of the historical site (see Figure 4.1). Covering 4,340 square meters, the sparse scatter likely represents a continuation of ARS Locus 10 (CA-INY-3802-H) located on the east side of the highway and tested by Far Western Anthropological Research Group.

Complete surface collection of the prehistoric material at the Bogart Homesite yielded 14 obsidian flakes and a projectile point. In addition, five obsidian and one igneous flake were recovered during testing. The point is a Rose Spring Corner Notched projectile point, measuring 18 by 19 by 4 mm and weighing 1.5 g (Figure 11.2c). Rose Spring projectile points are time markers for the Baker period, A.D. 600 to 1300. It was XRF-sourced as from the Fish Springs source and had a hydration rim value of 2.0 microns. Using the Fish Spring hydration rate in Delacorte and McGuire (1993), this converts to A.D. 1580, later than the Baker period, probably reflecting distortion of the hydration rate hydration because of micro-environmental conditions.

All collected debitage from the site (n=20) was analyzed. Two were biface retouch flakes, one XRF-sourced as West Sugarloaf (Coso) obsidian and the other visually identified as Fish Springs obsidian. The Fish Springs biface retouch flake had been use-modified. Four other flakes were also use-modified, one was

| Table 11.2. Metrical and Provenience Data for Flaked Stone Artifacts Recovered from CA-INY-4860. |
|---------------------------------|----------|--------|------|-------|-------|-------|--------|
| Description                  | Provenience | Size (mm) | Source | OH† | Field No.  |
| Biface tip                   | surface    | 17   | 12  | 5  | 1.0    | FS    | 6.1    | 830-1   |
| Biface midsection            | surface    | 17   | 16  | 7  | 2.0    | FS    | 5.3    | 830-2   |
| Core fragment                | surface    | 32   | 30  | 17 | 16.2   | FS    | VW     | 831     |
| Point midsection             | Unit 1, 10-20 cm | 20 | 8   | 4  | 0.6    | FS    | 6.2    | 834     |

* FS = Fish Springs; Bold = XRF-sourced.
† OH = obsidian hydration rim thickness in microns; VW = very weathered, unreadable.
XRF-sourced as Queen Impostor obsidian and the others were XRF- or visually-sourced as Fish Springs. One of the use-modified Fish Spring flakes has cortex. Eleven of the flakes were classified as unmodified flakes, one has cortex. Material types for the unmodified flakes included Fish Springs obsidian (60 percent), non-Fish Springs obsidian (30 percent; Coso and Queen Impostor), and igneous (10 percent). Three angular pieces of debitage were classified as core shatter; one piece was visually identified as Fish Springs obsidian and the others as Coso obsidian. The relatively high percentage of use-modified flakes suggests subsistence tasks were important at this portion of the prehistoric site. The biface retouch flakes, cortical flakes, and core shatter suggests the production of minimally formed flake tools for expedient tasks.

Ten specimens were submitted for obsidian hydration analysis. One specimen had a diffuse hydration rim. The readable hydration results ranged from 1.0 to 3.7 microns with a mean of 2.9 microns and a standard deviation of 0.8. Using the Fish Springs hydration rate in Delacorte and McGuire (1993), the mean converts to a calendar date of A.D. 1275 (A.D. 950-1550 for ±1 sd). Sixty-six percent of the hydration results for specimens visually or XRF-sourced to Fish Springs fall within the Baker period. The three remaining specimens fall within the Klondike and historical periods (Figure 11.4).

Prehistoric Artifacts Recovered from Other Sites
A total of 11 prehistoric artifacts were recovered during testing at six of the single component historical-period sites. Six of the artifacts were recovered during excavation and five were collected from the surface. The artifacts are summarized by site below (Table 11.3). Most of these materials indicate wide-spread, albeit ephemeral, use of the Manzanar area by prehistoric peoples primarily during the Baker period, A.D. 600 to 1300. However, two biface fragments found in downtown Manzanar could have been brought in by town residents: both are fairly large and showy items, and both are of Casa Diablo obsidian, a source near the resort town of Mammoth Lakes, 150 miles north.
Table 11.3. Native American Indian Artifacts Recovered During Testing at Single-Component Historical Sites.

<table>
<thead>
<tr>
<th>Site</th>
<th>Flakes</th>
<th>Other Artifacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA-INY-3802, ARS Locus 8</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>CA-INY-3802, Feature P-33</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CA-INY-4928</td>
<td>1</td>
<td>Mano</td>
</tr>
<tr>
<td>CA-INY-4875</td>
<td>-</td>
<td>2 Proj. Points, 2 Bifaces, Abrader</td>
</tr>
<tr>
<td>CA-INY-4876</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CA-INY-4881</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CA-INY-3802/H, ARS Locus 8
A piece of quartzite shatter was recovered from the 0-10 cm level of SEEU 3 and an igneous use-modified flake with cortex was recovered from the 10-20 cm level of Excavation Unit 2. The use-modified flake is triangular in cross-section and has use scars along one edge and at the tip.

CA-INY-3802/H, Feature P-33
An unmodified obsidian flake was recovered from the 10-20 cm level of Excavation Unit 1. It appears to be from the Fish Springs Source.

CA-INY-4928-H (MANZ 1994 A-4)
A nearly complete retouched flake was collected from the surface of this site. It appears to be of Fish Springs obsidian.

CA-INY-4875-H (Hawthorne Homesite, MANZ 1993 A-15)
A complete bifacial granite cobble mano was collected from the surface of this site. It measures 12.0 by 10.2 by 6.1 cm thick and weighs 899 g (Figure 11.5a).

CA-INY-4876-H (Downtown Manzanar, MANZ 1993 A-16)
A Rose Spring projectile point base, a projectile point midsection, two bifacial tool fragments (Table 11.4; see Figure 11.2), and a ground stone artifact were collected from CA-INY-4876-H. Three of the flaked stone tools were submitted for XRF-sourcing and all four were submitted for obsidian hydration analysis.

The Rose Spring projectile point, recovered from the 30-40 cm level of Excavation Unit 3, was XRF-sourced as from the West Sugarloaf Mountain source (Coso). It had a hydration rim value of 2.4 microns. Using the Fish Springs hydration rate in Delacorte and McGuire (1993) this converts to a calendar date of A.D. 1450. Rose Spring projectile points are considered time markers of the Baker Period, A.D. 600 to 1300, slightly earlier, but the discrepancy could be due to the imprecision of hydration dating.
as well as continuation or curation of a point style.

The projectile point midsection, from the 0-10 cm level of Excavation Unit 1, was visually identified as from the Fish Springs source. It had a hydration rim value of 2.2 microns. Using the Fish Springs hydration rate in Delacorte and McGuire (1993) this converts to A.D. 1520.

Both biface fragments were collected from the surface and both were XRF-sourced to the Casa Diablo obsidian source. One, from the Lookout Mountain subsource, had a hydration rim value of 7.3 microns and the other, from the Sawmill Ridge subsource, had a rim value of 4.9 microns. Using the Casa Diablo hydration rate developed by Hall and Jackson (1990) of $129.656 \times 1.826$ years B.P. corrected for the difference in effective hydration temperature (EHT) using the value in Delacorte et al. (1995) of -.1888, these convert to 2000 B.C. and A.D. 35 respectively.

The ground stone artifact is a unifacial cobble handstone or abrader of vesicular andesite (Figure 11.5b). It measures 11.5 cm by 9.6 cm by 3.8 cm thick and weighs 332 g. It was collected during the clearing of Feature 1, the town of Manzanar community hall foundation. There is a fresh gouge on the abraded face, possibly caused during the installation of a fiber-optics line through the site in the early 1990s.

*CA-INY-4881-H (MANZ 1993 A-21)*
An unmodified obsidian flake was recovered from the 10-20 cm level of Excavation Unit 3. It appears to be of Fish Springs obsidian.

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**Figure 11.5. Recovered ground stone artifacts; a. granite mano from CA-INY-4875 (FN-3), b. vesicular andesite handstone from CA-INY-4876 (linear gouge is of recent origin; FN-155).**
Table 11.4.
Metrical and Provenience Data for Flaked Stone Artifacts Recovered from CA-INY-4876-H.

<table>
<thead>
<tr>
<th>Description*</th>
<th>Provenience</th>
<th>L</th>
<th>W</th>
<th>T</th>
<th>W(g)</th>
<th>Source†</th>
<th>OH</th>
<th>Field No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSCN base</td>
<td>Unit 3, 30-40 cm</td>
<td>16</td>
<td>15</td>
<td>3</td>
<td>0.7</td>
<td>WS</td>
<td>2.4</td>
<td>219</td>
</tr>
<tr>
<td>Point midsection</td>
<td>Unit 1, 0-10 cm</td>
<td>12</td>
<td>8</td>
<td>3</td>
<td>0.2</td>
<td>FS</td>
<td>2.2</td>
<td>161</td>
</tr>
<tr>
<td>Biface midsection</td>
<td>surface</td>
<td>41</td>
<td>31</td>
<td>12</td>
<td>16.8</td>
<td>SR</td>
<td>4.9</td>
<td>141</td>
</tr>
<tr>
<td>Biface midsection</td>
<td>surface</td>
<td>17</td>
<td>17</td>
<td>6</td>
<td>2.0</td>
<td>LM</td>
<td>7.3</td>
<td>140</td>
</tr>
</tbody>
</table>

* RSCN = Rose Spring Corner Notched projectile point
† FS = Fish Springs, LM = Lookout Mountain (Casa Diablo), SR = Sawmill Ridge (Casa Diablo), WS = West Sugarloaf Mountain (Coso); Bold = XRF-sourced.
Conclusions and Recommendations

During 1997 and 1998, test excavations were conducted by the National Park Service at 23 cultural resource sites, loci, and features along U.S. Highway 395 within and near the Manzanar National Historic Site, Inyo County, California. The testing included mapping, photography, surface collection and inventory, as well as excavation. Goals were to gather enough data to determine the research potential of the cultural resources, make management recommendations, and to provide additional information for public interpretation. The five specific research objectives developed for the testing are summarized and discussed below, followed by management recommendations.

Areal and Subsurface Extent
At each site, the distribution of artifacts and features was mapped. Areal extent varied widely (from less than \(\frac{1}{4}\) acre to over 2.5 acres in size) as did the number and density of artifacts. Most of the historic material was confined to the surface and the upper 10 cm of sediments. Exceptions occurred within purposefully dug trash pits (at Downtown Manzanar and at the Mulholland homestead) and cellars (at the Hawthorne, Anton, and Strohmeyer homesites). Significant subsurface deposits were encountered at only three of the historical sites (Hawthorne, Bogart, and Downtown Manzanar). At prehistoric site CA-INY-4860 a few flakes were found to 60 cm depth in the single excavation unit. It is unknown if there are sufficient subsurface material elsewhere within the site to provide significant information on the little-known Cowhorn period.

Site Structure and Integrity
In spite of substantial recent disturbance, many of the sites investigated retain an unexpected degree of integrity. Although LADWP removed all standing structures after they bought the properties, foundations, water lines, trash deposits, and cellars remain. The World War II-era and recent disturbance is mostly confined to the surface.

Age of Occupation
While some prehistoric remains were found, most of the resources investigated date to the 1910 to early 1930s town of Manzanar. Five of the town-era sites are large, with numerous artifacts and features, and seven are small sites, probably representing one or two trash-dumping episodes. The Mulholland homestead represents an earlier homestead occupation, and some early historical use (ca. 1900) is also evident at the Anton homestead. The relocation center era is mostly represented by features and sparse
artifact scatters. Post relocation center use is indicated by a small trash dump (Feature P-33), roadside litter (ARS Locus 9, 11, 12, and 15), and intrusive artifacts at nearly all the other sites.

**Quantity and Quality of Data**

At the town-era and earlier homestead sites, a wide range of artifact classes is present, representing various farm-related and domestic activities. The larger sites include abundant functionally and temporally diagnostic artifacts, sufficient to provide information on the activities and timing of site occupation. Preservation varies; metal in some of the excavation units had corroded almost beyond recognition, while in other contexts newspaper fragments were recovered. Later site assemblages are dominated by beverage containers, both from casual road-side littering and purposeful trash dumping.

**Research Potential**

Three historical sites have potential to address research questions: the Bogart Homesite could provide significant data on early twentieth-century agricultural lifestyles and economics; Downtown Manzanar appears to have potential to address questions of community interaction, integration, and economic orientation; and the Hawthorne homesite could provide information on the non-farming, non-merchant residents of the town of Manzanar. One prehistoric site tested, CA-INY-4860, though sparse, might be able to provide information on the locally under-represented Cowhorn phase. The other sites and loci tested lack sufficient data potential, either because of the paucity of remains or the lack of integrity, to provide additional insight into the research questions identified for the project. Each site is discussed below in more detail.

**Anton Homestead (CA-INY-3657-H)**

At the Anton homestead there is archeological evidence of two historical occupations, the first by Clarence Anton in the early 1910s apparently to satisfy homestead requirements, and the second in the mid to late 1920s probably coinciding with Mr. and Mrs. Mike Anton’s ownership. Few artifacts can be definitely attributed to the first occupation, other than some fragments of sun-colored amethyst glass, but the rock- and concrete-walled cellar may be the improvement listed in the patent claim. In fact, the cellar may have been the only structure constructed to satisfy homestead requirements, since no archival information has been found on any buildings present at the site, and there is no evidence of structures other than the cellar or possibly some ephemeral shack or tent.

The paucity of early features and artifacts recovered during testing corroborates Reno and Palmer’s (1996) deduction that the land was acquired primarily for its real estate value, not to establish a subsistence farm. On the other hand, there is no evidence to support Reno and Palmer’s suggestion that the cellar might have been used for a dug-out style habitation; artifacts near the floor are confined to a few canning jar and can fragments, consistent with cellar-type storage. There is more evidence of later use, with food storage and home canning artifacts dating to the 1920s. But cultural material is still sparse, suggesting a short-lived or part-time occupation with the farm managed from Independence. The most substantial evidence that the homestead ever amounted to much are the well and tree stumps, since the trees must have been planted. The irrigation box, the farthest north feature recorded of the town of Manzanar irrigation system, shows the extent of the Manzanar infrastructure put in by the town’s developers.
Because of the lack of evidence of subsurface material and the lack of integrity, the Anton Homestead does not appear to have significant further research potential. The excavation, collection, and recording completed for this project has effectively exhausted its information potential, and adequately characterized its occupation.

**Bogart Homesite (CA-INY-4883-H)**
The Bogart homesite contains a significant cultural deposit of artifacts that fall within the historical period of town occupation, between 1910 and ca. 1930. Although the Bogart house’s close proximity to the main road would now seem appropriate for an urban or commercial setting, the artifacts are consistent with farm life. The state-of-the-art septic system, when such features were just beginning to appear, would seem to indicate a prosperous farm. As the historical records show, the house was in good enough condition to be salvaged and removed rather than destroyed. However, some architectural debris, probably construction loss remnants, is still present at the residence location. Remnants of other features, such as the cellar known to be at the homesite, may still be present.

Although the cultural material recovered with the current testing is not particularly abundant, it provides functional and specific chronological information, and there is potential for both additional artifacts and features. Therefore, the Bogart homesite is considered to have good potential for significant data which could provide information on early twentieth-century agricultural lifestyles and economics.

**Downtown Manzanar (CA-INY-4876-H)**
Dateable artifacts recovered from the testing at Downtown Manzanar reflect the town occupation well, with many dating to between 1910 and 1930. In spite of extensive disturbance, there remains quite a lot of information in the archeological record. For example, the archeological results combined with the historic records and photographs help determine the original locations of several of the downtown Manzanar buildings. The store was situated with its front facade almost at the front property line. The locations of the store owner’s residence, community hall, the Manzanar garage/service station, and other structures can be estimated also.

Primary trash occurs at building locations; secondary, purposefully deposited trash (small dumps and scatters of domestic or activity remains, some burned and buried) is located away from building sites, as expected. In fact, over half of the artifacts recovered during the present testing came from a single excavation unit, which encountered a trash-filled pit. A wide range of activities is represented (food serving, food storage, food remains, furnishings, leisure activities, work, and automotive), including some potentially ethnicity-related items.

The potential for other intact features at the site appears good: there are at least three privies on the west side of the highway in LADWP photographs, and there may be other buried trash pits such as that found at Locus E. Further, there has not been much disturbance at the Lacy house, besides the initial removal of structures. Because of the abundant and varied cultural material present, discrete concentrations of artifacts, subsurface deposits, fair integrity, and potential for additional features, Downtown Manzanar has significant research potential. Data from the site might be used to address questions of community interaction, integration, and economic orientation (e.g., subsistence agriculture vs. production for sale, and economic self-sufficiency).
**Hawthorne Homesite (CA-MNO-4875-H)**

The abundance of wire nails and their wide range of sizes, electrical porcelain, and other structural remains indicate the residence at the Hawthorne homesite was torn down and destroyed, rather than moved. As at the Bogart homesite, the residence was close to Independence Avenue, the original highway. However, there still may be other buried structural remains, such as the cellar discovered during the present testing and probably a privy, which was located in the vicinity of Excavation Unit 2 but not relocated.

Most of the temporally diagnostic artifacts (other than the modern intrusives) date to the known period of town occupation, between 1910 and ca. 1930. Artifacts represent a wide range of activities and include items related to domestic activities (beverages, food, furnishings, and pharmaceuticals), personal clothing, grooming, hygiene, leisure, automobiles, and other activities.

With abundant artifacts, features, and intact subsurface deposits, the site has good research potential. The site appears to be something of an anomaly, with no evidence of either agricultural or commercial pursuits. Further investigations could provide information on the non-farming, non-merchant residents of the town of Manzanar.

**Mulholland Homestead (CA-INY-3782/H)**

The Mulholland homestead encompasses an extensive scatter of historical artifacts which includes numerous small concentrations. Excavation results suggest a generally shallow cultural deposit with no significant depth. All the temporally diagnostic artifacts could be pre-1905, which indicates the Mulholland site is the oldest historical site investigated for this project.

Besides scattered nails and a few pieces of window glass, no definitive evidence of any structures at the site was found during testing. However, the range of artifacts present, representing both farm and domestic activities, does suggest the Mulhollands made serious attempts to settle the homestead. The horse-drawn rake and hay mower blades suggest the growing of forage crops, likely for cattle. There are shoes for both saddle and workhorses. Although apparently never used, the large excavated pit at the site (Feature 1) was probably an attempt to locate a well, or possibly build a cellar.

Artifacts indicate the Mulholland homestead was not a claim made solely for investment purposes, or managed from a nearby town. A wide variety of both traditional male and female activities are represented and toys indicate children were also at the site. The harmonica parts and other artifacts found at the site suggest the family spent enough time at the homestead to engage in leisure activities.

The structure shown at the site on 1907 and 1937 USGS maps, and apparently assessed at $25.00, may have been of fairly light-duty construction. Its depiction on the 1937 map seems likely a carry-over from the 1907 map, rather than an indication that the structure was still present then. Although negative evidence is not usually adequate to prove something did not exist, the LADWP records are consistently complete and thorough, down to the last dilapidated chicken coop. The 1937 USGS map, in fact, shows many pre-town of Manzanar structures that were certainly gone by then. As indicated on the map, the 1937 map was only partially revised from the 1907 map, which was based on a 1905 survey. It therefore seems very probable that the Mulholland residence had disappeared by the late 1920s, since LADWP records show no structures in the area. Further, it seems likely that the structure was essentially gone by.
1910. If the building had been standing, it would have almost certainly attracted casual use, and very few artifacts that definitely date after 1910 were found.

Most of the indigenous Native American Indian artifacts at the site probably relate to the widespread prehistoric component in the surrounding area. However, some artifacts, like the glass beads and flaked glass, suggest Native American Indian use of the area in historic times. It is possible that Paiutes visited the Mulhollands while they lived at the homestead, perhaps as hired labor. However, the paucity of Native American Indian artifacts at the site does not hold much promise of clarifying the exact nature of the Paiute presence in the site area.

The historical component of the site as a whole has little additional research potential. Artifacts are virtually limited to the surface, which for this project has been scrutinized and collected. There is no evidence of features besides those already tested; those tested yielded so few remains that the completed levels of field work appears adequate to characterize the site.

**Strohmeyer Homesite**

At the Strohmeyer homesite, the cellar and storeroom foundations were found as well as remnants of the residence. The water system, including multiple sources, and the modern septic system, and the numerous buildings indicate a substantial investment of money, if not time: the Strohmeyer’s lived there only six years (1919-1925).

Although this site was subjected to the most intensive archeological work of any of the sites tested by the National Park Service for this project, little trash was encountered, suggesting trash was removed to dumps. Most of the town-era trash at the site probably post-dates the Strohmeyer occupation, apparently deposited by LADWP renters.

There are relatively few artifacts at this site to provide data for any research questions. Further, the integrity of the site has been compromised by later use. The densest surface scatter, at the northern portion of the site, dates to the 1940s, and is likely related to the re-use of the auditorium (across the highway) by the VFW as a recreation hall after the relocation center was closed. The east-west town road along the south side of the Strohmeyer property is now a LADWP ditch.

**Other Historical Sites and Features**

Seven small sites, loci, or features investigated for this project date to the town era. These include five trash dumps (ARS Locus 6, ARS Locus 10, CA-INY-4877-H, CA-INY-4881-H, and CA-INY-4928-H) and two enigmatic features (ARS Locus 4 and CA-INY-4882-H). The research potential of these sites appears exhausted by this testing: there is little or no subsurface deposit and the surface remains are sparse and lack integrity.

Seven small artifact concentrations tested post-date the town of Manzanar. None appears to have any significant information potential beyond that already recorded. Four of these are relatively recent: ARS Locus 9, 11, and 12 are predominantly accumulations of roadside litter and Feature P-33 is a small trash dump associated with the reuse of the relocation center auditorium. The other three trash concentrations (ARS Locus 15, Feature P-26, and Feature P-27) are associated with the World War II relocation center.

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Other relocation center remains located within the APE, including the relocation center entrance, watchtower foundations, and boundary fence, have little obvious archeological data potential beyond that recorded, but they are definitely significant as discussed under the management recommendations, below. Two problematical relocation center-era features investigated for this project (Features P-36 and P-37) are enigmas, and would require further research to determine their function and context.

Native American Indian Sites
Although most of the testing at Native American Indian sites along U.S. Highway 395 in the vicinity of Manzanar National Historic Site was conducted by a Caltrans’ contractor, the National Park Service conducted limited testing at three Native American Indian sites during this project. CA-INY-3782 is an extensive sparse artifact scatter; only the portion of the site coterminal with the historical Mulholland homestead was investigated. Temporally diagnostic artifacts recovered date to the Klondike period (post A.D. 1400) into the historical period.

CA-INY-4883 is a sparse lithic scatter, discovered while testing the Bogart homesite. The scatter is probably associated with the prehistoric component of ARS Locus 10, across the highway and tested extensively by Far Western Anthropological Research Group. The portion within the Bogart homesite is sparse: all 14 flakes and one projectile point observed on the surface were collected; only six flakes were found subsurface in excavation units. The projectile point, a Rose Spring Corner Notched point, and the obsidian hydration analysis results suggest Baker period use (A.D. 600-1300).

CA-INY-4860 is a small single component prehistoric lithic scatter with sparse surface and subsurface cultural material. Obsidian hydration results suggest the main use of the site was sometime during the Cowhorn period (1200 B.C. to A.D. 600), a period not well represented at previously tested sites in the vicinity. CA-INY-4860, although sparse, appears to date to a different time span than most of the previously tested prehistoric sites at Manzanar. Further investigations may provide specific information about the locally under-represented Cowhorn phase.

The portions of CA-INY-3782 and CA-INY-4883 tested do not appear to have any significant further research potential. No midden or prehistoric features were observed at either site, and the recovered remains likely indicate sporadic or ephemeral use at the edges of larger sites.

Management Recommendations
Three sites, the Bogart homesite (CA-INY-4875-H), the tested portion of Downtown Manzanar (CA-INY-4876-H), and the Hawthorne homesite (CA-INY-4883-H), appear to be eligible for the National Register of Historic Places based on their data potential. Subsurface features were encountered at each site and each site also has the potential for additional buried features. However, all three are located on the west side of the highway and are not likely to be impacted by the proposed highway project. The untested portion of Downtown Manzanar located east of U.S. Highway 395 was previously determined to be ineligible based on surface evidence (Reno and Palmer 1996).

One Native American Indian site, CA-INY-4860, appears to be eligible for the National Register. It is a small and sparse prehistoric site; complete surface collection yielded only 27 artifacts, all flaked stone.
However, the excavation unit indicated there are subsurface cultural deposits. More importantly, the site is unusual in that it represents Cowhorn period use. However, the site is not likely to be affected by the proposed highway project. As presently planned, there will be only limited shoulder work in the vicinity of the site.

Twenty of the tested sites, loci, and features in themselves, do not appear to be eligible for the National Register. None likely contains significant archeological remains beyond that recovered during testing, nor do they represent on the whole contributing features of the National Historic Site. These include CA-INY-3782/H, -4657-H, -4877-H, -4878-H, -4881-H, -4882-H, ARS Locus 4, 6-12, and 15, and CA-INY-4828-H. However, two of these sites (CA-INY-4881 and ARS 15) include the foundations of relocation center watchtowers.

The Relocation Center entrance, the watchtower foundations, and the remaining portions of the relocation center barbed wire fence along the west side of U.S. Highway 395 are integral parts of Manzanar National Historic Site's historic landscape and are considered significant contributors to the Historic Site. No major improvements should be allowed west of the current highway alignment. Important in this regard is that the highway not be moved any closer to the existing fence. The current two-lane highway retains the character it had during the National Historic Site's primary period of significance and national importance, the World War II relocation center era. Since the proposed divided highway would be a modern intrusion, it is recommended that the divided highway be located as far east within the 400-ft-wide APE as possible, and the current alignment be maintained as a separate frontage road, to help preserve the historic scene.

As currently proposed, work on the existing highway within eligible or potentially eligible sites (CA-INY-4860, -4875-H, -4876-H, and -4883-H) would be limited to shoulder work. Preliminary plans indicate that this work will involve at most the addition of small areas of fill on the sites' peripheries. Given the testing results, this shoulder work is considered to have "no effect" on the National Register-eligible sites.
Fifty-three clothing fasteners were collected from six sites within the town area of Manzanar. The results of their analysis are reported here. Fasteners are first organized according to the site from which they were collected, and within that grouping are then lumped by similar material type and form, described by type. Additional information, where known, is provided about each type, such as dates of manufacture, place of manufacture, probable uses, method of manufacture, and gender and age associations. Type designations used in this analysis follow that used in earlier work at Manzanar (Rogers 1996).

**Anton Homestead (CA-INY-4657)**
The buttons, rivet buttons, and seam rivets from the Anton Homestead (n=14) are metal, except for one shell sew-through button, as shown in Table A.1. All 13 metal fasteners are seam rivets or rivet buttons for denim work garments. They suggest a male presence, though it is assumed here that females, by the early twentieth century, also may have worn such garments. Two rivet buttons and seven seam rivets are stamped “LEVI STRAUSS & CO” or “L.S.&CO. - S.F.,” while a third and more complex rivet is stamped “IMPERIAL/UNION” on its face, and “SCOVILL MF’G CO” on the back. This last item has the most restricted date range of the group, between 1877 and ca. 1975. This does little to define the period of deposition at the site, at least by means of the clothing fasteners.

**Bogart Homesite (CA-INY-4883-H)**
All six fasteners from the Bogart Homesite are metal buttons or rivet buttons, from durable cloth work garments. Probably all of the fasteners are from traditionally male garments, but I am assuming here that rivet buttons may have been attached to trousers or overalls worn by females, as well, during the twentieth century, especially in as rural an area as Manzanar.

The temporal range suggested by the button assemblage is 1900 to ca. 1935, as this is the golden era for buttons and rivet buttons with slogans and mottos, and for logos worn on male work garments. We have three such fasteners for work pants, one labeled “RED DIAMOND,” one “STRONGHOLD STEVE,” and the last one, “SANITO.” The “RED DIAMOND” is dated between 1908 and 1910 (Adams and Albert 1965:2-3, 8-9). And 1908 is the *terminus post quem* for the group. This refines the period of deposition to 1908 to ca. 1935.
Downtown Manzanar (CA-INY-4876-H)
Eight fasteners of various kinds were recovered from CA-INY-4876-H. Type forms are summarized below. As shown in Table A.1, the CA-INY-4876-H assemblage exhibits the greatest variety of material types (n=5) within the reported sites. This is also the only site with definite evidence of children’s clothing, as reflected by two bone “pantywaist” buttons (Table A.2).

The buttons also reflect a bit of “fanciness.” Two of the buttons are fancy glass or plain, shanked metal (possibly cloth-covered when new), to be worn on more formal garments, by males or females. Others are shell and porcelain “shirt” buttons. Not one is a metal seam rivet, rivet button, or marked work garment button for heavy denim and duck work clothes.

In terms of time ranges, the fasteners suggest a period of deposition of ca. 1915 to ca. 1940. Several types have very long temporal ranges and consequently are of little use for determining period of occupation. But others, such as the black glass button (ca. 1850 to ca. 1930), the metal collar stud (ca. 1855 to ca. 1940), the Prosser porcelain button (1840 to ca. 1910), and the “pantywaist” bone buttons (ca. 1915 to ca. 1940) offer useful ranges.

Hawthorne Homesite (CA-INY-4875-H)
Four buttons were recovered from the Hawthorne Homesite, consisting of two shell buttons, one of metal, and one celluloid and metal button (see Table A.1). These are described below by type.

As shown in Table A.2, the clothing fasteners from this site cannot be distinguished as to gender or age association. They are all-purpose, all-people buttons. And all are relatively large sizes, being 23 to 31 lines in diameter. This suggests most were worn on outer garments, as opposed to undergarments. In terms of temporal ranges for the buttons, the most tightly datable specimen is the celluloid and metal button, which also provides the terminus post quem for the button group—ca. 1900 to ca. 1960. This time range is based upon stylistic concerns, as celluloid was first produced in 1869. The style of the celluloid and metal button, with its dark, mottled subdued facial appearance and its metal self-shank, is suggestive of the twentieth century.

Mulholland Homestead (CA-INY-3782/H)
The fasteners from this site include 14 items, most of which are metal (Table A.1) and generic, in terms of gender and age clues. Only one button is considered definitely from male garments—a simple iron sew-through button, the classic trouser fly and suspender button. Two others, both of black glass, are considered “adult” buttons, worn on formal or dress attire for men or women. From the 1840s to 1870s, the buttons could have been worn on a gentleman’s fancy vest. Otherwise, the two are for female dresses, waists, or skirts. Both buttons are small in size and are coated with lustrous metallic paints.

Two more buttons may be considered fancy buttons that could have been attached to formal garments for males and females, old and juvenile. Both are brass, complex, shanked buttons, with pierced faces, through which velvet or a shiny, plated metal disc would have shown. A third button, now of plain iron, was covered with cloth when new and so may have been attached to more formal wear, such as male or female suits, as opposed to everyday garments for physical work.
Three identical snap fronts were collected, obviously all from one garment. These are small and ornate, with lovely intaglio, stamped design of Grecian(?) helmets, each with a gangly bird on top, and leaves surrounding the helmet. These may refer to a specific myth or mythical figure, or merely be attractive design elements that suggest an ancient theme. No specific origin has been identified.

The remaining five fasteners are more ordinary types, including three Prosser white porcelain shirt and dress buttons and two copper Levi Strauss seam rivets. The rivets suggest heavy denim work garments, in contrast to the several fancy buttons noted above, for dressy garments.

Taken together, the dates of manufacture for the CA-INY-3782 buttons suggest a period of deposition of ca. 1870 to ca. 1920.

**Strohmeyer Homesite (CA-INY-3802, ARS Locus 7 and 8)**

Seven fasteners were collected at the Strohmeyer Homesite, most of which are metal buttons and rivet buttons. Two are considered “male” buttons as they are stamped “CAN’T BUST ‘EM,” classic male work pant buttons (Adams and Alert 1965:2-3; Hughes and Lester 1991:681-685). Two heavy work clothes rivet buttons are included, both unmarked. Two others are sew-through “shirt” buttons, at the large end of the shirt size spectrum (22-24 lines), one of aluminum and one of bone. Perhaps the most interesting button in this group is the charcoal grey coat button, composed of ground slate, mixed with shellac or other binder. Slate buttons were not common, but were among the many inexpensive, molded button types, usually made from man-made materials.

The buttons were probably deposited at the site in the first decade or two of the twentieth century. The “CAN’T BUST ‘EM” buttons were made between 1916 and 1918, while all others post-date 1877 and most continue to be made to the present. The ground slate button likely pre-dates ca. 1935.

**Table A.1. Distribution of Button Material Types.**

<table>
<thead>
<tr>
<th></th>
<th>CA-INY-4875</th>
<th>CA-INY-4876</th>
<th>CA-INY-4883</th>
<th>CA-INY-3802</th>
<th>CA-INY-3782</th>
<th>CA-INY-4657</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bone</td>
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<td>1</td>
<td></td>
<td>1</td>
<td></td>
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<td>2</td>
<td>6</td>
<td>5</td>
<td>9</td>
<td>13</td>
<td>36</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
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<td>Porcelain</td>
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<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4</strong></td>
<td><strong>8</strong></td>
<td><strong>6</strong></td>
<td><strong>7</strong></td>
<td><strong>14</strong></td>
<td><strong>14</strong></td>
<td><strong>53</strong></td>
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</tbody>
</table>
Table A.2. Distribution of Button by Gender or Age Association.

<table>
<thead>
<tr>
<th></th>
<th>CA-INY-4875</th>
<th>CA-INY-4876</th>
<th>CA-INY-4883</th>
<th>CA-INY-3802</th>
<th>CA-INY-3782</th>
<th>CA-INY-4657</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
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<td>Adult</td>
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<td></td>
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<td>5</td>
<td>11</td>
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<tr>
<td>Total</td>
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<td>8</td>
<td>6</td>
<td>7</td>
<td>14</td>
<td>14</td>
<td>53</td>
</tr>
</tbody>
</table>

**Button Type:** Bone Type 4.

**No. of Buttons:** 1.

**Material:** Bone.

**Manufacture:** round, one-piece disc with four sew holes, dyed black; face is flat and plain, with deep, sunken, round hole panel, of \( \frac{5}{16} \) inch diameter; sides are straight and \( \frac{3}{32} \) inch thick; back is flat and plain. Sides of button have cutting seam, and hole edges at back are off-center.

**Manufacture:** tubular-sawn blank, drilled, countersunk holes.

**Origins:** unknown.

**Uses:** because of its size and shape, the button is "shirt size", usable on a male shirt, work or dress trousers, vest; female blouse, skirt, dress, vest, suit, slacks.

**Date Range:** ca.1700 to present.

**Specimens Represented:**

- 24 lines (\( \frac{5}{8} \) inch) diameter
- \#169 (CA-INY-4876, Unit 2, 0-10 cm) – complete, good condition.


---

**Button Type:** Bone Type 4a.

**No. of Buttons:** 1.

**Material:** Bone.

**Description:** round, one-piece, cream-yellow color, polished bone; face is flat and plain, with four sew holes, hole panel is round, sunken and flat, \( \frac{5}{16} \) inch wide; sides are rounded and \( \frac{3}{32} \) inch thick; back is convex and plain.

**Manufacture:** tubular-sawn blank; lathe-shaped, holes drilled from two sides.

**Origins:** unknown.

**Uses:** common button for male and female underwear, male trousers.

**Date Range:** ca.1800 to present.

**Specimens Represented:**

- 24 lines (\( \frac{5}{8} \) inch) diameter
- \#491 (CA-INY-3802, Locus 7/8, pipeline trenching east) – complete, good condition.

**Button Type:** Bone Type 6.

**No. of Buttons:** 2.

**Material:** bone.

**Description:** round, one-piece, cream-yellow color, polished bone; face is plano-convex and plain, with two large sew holes, each ⅛ inch wide and countersunk; sides are straight and ⅛ inch thick; back is convex and plain. This type is known by collectors as a “pantywaist” button.

**Manufacture:** tubular-sawn blanks; lathe-shaped, holes drilled from two sides.

**Origins:** unknown.

**Uses:** young children’s underwear suits; elastic tape was actually threaded through the two “sew” holes.

**Date Range:** ca.1915 to ca.1940.

**Specimens Represented:**

- 20 lines (½ inch) diameter
  
  #181c (CA-INY-4876, Unit 2, 20-30 cm) – charred, but complete.

- 22 lines (%/₁₆ inch) diameter
  
  #181d (CA-INY-4876, Unit 2, 20-30 cm) – complete, good condition.


---

**Button Type:** Glass Type 2.

**No. of Buttons:** 1.

**Material:** black glass.

**Description:** round, one-piece domed button with self-shank; face is steeply convex, with facial design molded in great detail, meant to imitate a crocheted button, design consists of central raised star made from five radiating lines, with a raised dot between each pair of radiating lines, mid area of the face is defined by five scalloped lines, that encircle the center star and dots, and each scallop outer area is infilled with eight vertical lines; sides are straight and just under ⅛ inch thick, with maximum button thickness ⅛ inch; back is convex and plain, with molded, channel-type self shank.

**Manufacture:** molded glass.

**Origins:** unknown.

**Uses:** male dress vest; female dress, blouse, waist, skirt, vest.

**Date Range:** ca.1850 to ca.1930.

**Specimens Represented:**

- 18 lines (%/₁₆ inch) diameter
  
  #227 (CA-INY-4876, Unit 4, 10-20 cm) – complete, excellent condition.


---

**Button Type:** Glass Type 3.

**No. of Buttons:** 1.

**Material:** black glass and brass.

**Description:** round, three-piece button, shanked; face is convex with molded facial design meant to imitate ribbon and beads, as it consists of ten wide, grooved loops that cover three-fourths of the face, with 10 small faceted knobs in the remaining space, that resemble faceted beads, loop areas of the button face were definitely coated with gold lustrous paint; sides are beveled and ⅛ inch thick; back is convex and plain, with brass shank plate and brass wire loop shank embedded in the center of the button back.

**Manufacture:** molded glass, with shank parts embedded while glass was still molten.

**Origins:** unknown.
**Uses:** male dress vest; female dress, waist, skirt, vest.

**Date Range:** ca.1870 to ca.1930.

**Specimens Represented:**

20 lines (½ inch) diameter

#638b (CA-INY-3782, surface, w/A-38) – complete, good condition.


**Button Type:** Glass Type 4.

**No. of Buttons:** 1.

**Material:** black glass and brass.

**Description:** lozenge-shaped, three-piece button, shanked; face is steeply convex with elaborate, molded facial design meant to imitate silver jewelry, it consists of six, raised teardrop shapes, three parallel drops on each side, arranged horizontally, each drop has a faceted knob (imitation stud) on its widest part, the whole face is coated with a silver, lustrous paint; sides are rounded and ½ inch thick; back is steeply convex and plain, with central hole of ⅜ inch in diameter and fairly deep, at the bottom of which is a brass shank plate? with two holes in it. This is probably the remnants of an embedded brass shank, exact type unknown.

**Manufacture:** molded glass, with shank parts embedded.

**Origins:** unknown.

**Uses:** male dress vest; female dress, waist, skirt, vest.

**Date Range:** ca.1870 to ca.1930.

**Specimens Represented:**

12 lines (½ inch) wide by 25 lines (¾ inch) long

#638c (CA-INY-3782, surface, w/A-38) – shank missing, fair condition.


**Button Type:** Metal Type 4a.

**No. of Buttons:** 1.

**Material:** aluminum.

**Description:** round, one-piece, two hold sew-through; face is a flat, wide hold panel, with raised, rounded outer rim of ⅛ inch width; sides are rounded and ⅛ inch thick; back is the inverse of the face, with raised, flat hold panel, and depressed outer rim.

**Manufacture:** stamped disc.

**Origins:** United States, probably.

**Uses:** male trouser or shirt button; female everyday dress or blouse button.

**Date Range:** ca.1880 to present.

**Specimens Represented:**

22 lines (⅜ inch) diameter

#510 (CA-INY-3802, Locus 7/8, Unit 2, 10-20 cm) – complete, in poor condition.

**References:** Hughes & Lester 1991:222-224; Luscomb 1979:3.

**Button Type:** Metal Type 5a.

**No. of Buttons:** 1.

**Material:** brass and iron.

**Description:** round, three-piece, sheet brass and iron, shanked; face is convex with “SANITO” stamped across its center in large letters, the disc is crimped over back disc; sides are straight and ⅛ inch thick; back is partial, and is a flat iron disc, rusted, shank
is missing and type is unknown.

**Manufacture:** Sanders' type method of die-stamped discs forced together by machine.

**Origins:** United States?

**Uses:** male work pants, jumpers, overalls.

**Date Range:** ca.1900 to ca.1935.

**Specimens Represented:**

- **27 lines (\(\frac{1}{16}\) inch) diameter**
  - #332a (CA-INY-4883, surface) – only brass face present, fair condition.


**Button Type:** Metal Type 5b.

**No. of Buttons:** 1.

**Material:** brass and iron.

**Description:** round, four-piece sheet brass and iron, shanked; face is convex with small center diamond-shaped cutout, and “RED” stamped above the cutout, “DIAMOND” stamped in raised letters, below the cutout, brass disc is crimped over back and center discs; sides are straight and \(\frac{1}{16}\) inch thick; center iron disc is filler and shows through the diamond cutout; back is partial, and is a convex iron disc, rusted, shank is missing, type unknown.

**Manufacture:** Sanders' type method of die-stamped discs forced together by machine.

**Origins:** St. Louis, Missouri.

**Uses:** male work pants, jumpers, overalls.

**Date Range:** 1908 to 1910.

**Specimens Represented:**

- **26 lines (\(\frac{1}{16}\) inch) diameter**
  - #332b (CA-INY-4883, surface) – brass face present, and part of back and most of center iron disc; poor condition.


**Button Type:** Metal Type 5c.

**No. of Buttons:** 2.

**Material:** brass and iron.

**Description:** round, four-piece sheet brass and iron, shanked; face is convex with the raised letters “CAN'T/BUST/’EM” stamped into the disc, brass disc is crimped over back disc; sides are rounded and \(\frac{1}{16}\) inch thick; center iron filler disc is present; back is partial, and is a convex iron disc, shank is missing, type unknown.

**Manufacture:** Sanders' type method of die-stamped discs forced together by machine.

**Origins:** United States.

**Uses:** male work pants, jumpers, overalls.

**Date Range:** 1916 to 1918.

**Specimens Represented:**

- **27 lines (\(\frac{1}{16}\) inch) diameter**
  - #508 (CA-INY-3802, Locus 7/8, surface, 1 m se of Unit 2) – brass face present, and most of center iron disc; poor condition.
  - #509a (CA-INY-3802, Locus 7/8, Unit 2, 0-10 cm) – face, back and part of shank present, fair condition.

Button Type: Metal Type 6a.
No. of Buttons: 1.
Material: brass and iron.
Description: round, four-piece sheet brass and iron rivet button; face of brass is slightly convex, stamped with “STRONGHOLD STEVE” across the top, and a large, man’s face with moustache below the lettering, disc crimped over back disc; sides are straight and ¼ inch thick; center, thick iron disc, possibly base for a heavy rivet stem; back is missing, but probably consisted of a least two more parts — a stem and a back disc.
Manufacture: Sanders’ type method of die-stamped discs forced together by machine.
Origins: unknown.
Uses: male work pants, jumpers, overalls.
Date Range: ca.1900 to ca.1935.
Specimens Represented:
26 lines (¼ inch) diameter
#332c (CA-INY-4883, surface) — brass face present, and part of center iron piece; poor condition.

Button Type: Metal Type 9a.
No. of Buttons: 1.
Material: iron and cloth.
Description: round, four-piece button, shanked; face is a flat and plain iron disc, probably originally covered with cloth, face disc is crimped over the back disc; sides are rounded and ¼ inch thick; back is convex and plain, with a large central hole (¼ inch wide), through which a knob of iron is visible in interior of button shell; shank is gone, but is thought to have been “flexible shank,” of canvas.
Manufacture: Sanders’ type metal button, made from sheet iron blanks, die-stamped out and forced together by machine.
Origins: unknown.

Uses: This button is thought to have been cloth-covered when new. As such, and considering its size, it could have been worn on a male suit vest, or on a female waist, skirt, or dress.

Date Range: 1825 to present.

Specimens Represented:

24 lines (⅜ inch) diameter

#638d (CA-INY-3782, surface, w/A-38) – shank missing, poor condition.


Button Type: Metal Type 10.

No. of Buttons: 1.

Material: cuprous metal.

Description: round, one-piece large collar stud, of sheet brass or copper; face is a hollow sphere of nearly ¼ inch diameter; stem upon which sphere rests is a hollow cone, flaring towards back; back is a thin, wide disc with center depression that is the inside of the stem, back disc is ½ inch in diameter

Manufacture: stamped sheet metal.

Origins: unknown.

Uses: male shirt collars.

Date Range: ca.1855 to ca.1940.

Specimens Represented:

9 lines (⅜ inch) diameter

#202 (CA-INY-4876, Unit 2, 80-90 cm) – complete, fair condition.

diameter, "LEVI STRAUSS & CO ★" is stamped around the hole and the face of the fastener; sides are rounded and \( \frac{3}{16} \) inch thick, crimped over an iron back disc; most of the back is missing, but had a convex back disc, and presumably a back stem attached to a second back disc.

**Manufacture:** sheet metal discs, die-stamped and crimped together by machine.

**Origins:** San Francisco, California.

**Uses:** heavy denim or duck work garments for males, and in twentieth century, for females; used as fly, suspender, jacket, and overall strap rivet buttons.

**Date Range:** 1877 to present.

**Specimens Represented:**

26 lines (1\(\frac{1}{16}\) inch) diameter

- #760a (CA-INY-4657, SSU 1) – brass face only in fair condition.
- #332d-e (CA-INY-4883, surface) – 2 specimens, faces only, in poor condition.

22 lines (\(\frac{3}{16}\) inch) diameter

- #760b (CA-INY-4657, SSU 1) – brass face only, in fair condition.

**References:** Cray 1978:31-33.

**Button Type:** Metal Type 11c.

**No. of Buttons:** 3.

**Material:** iron.

**Description:** round, three- or four-part rivet button; face is a flat, stamped iron disc with large central hole, of \(\frac{3}{16}\) inch diameter, inner ring round the hole, and outer edge ring are stamped on the face with raised, fine cross-hatch lines in between the rings; sides are rounded and \(\frac{1}{16}\) inch thick, crimped over an iron back disc; back is a convex disc with center stem (tube) of \(\frac{1}{4}\) inch diameter, and a back rivet head, with stem crimped into the larger stem, all of iron. Back rivet head is \(\frac{3}{8}\) inch to \(\frac{7}{16}\) inch wide.

**Manufacture:** sheet metal discs, die-stamped and crimped together by machine.

**Origins:** unknown.

**Uses:** heavy denim or duck work garments for males, and in twentieth century, for females; large and small sizes suggest their use as suspender and overall strap rivet buttons.

**Date Range:** 1877 to present.
Specimens Represented:

22 lines (9/16 inch) diameter
#760c (CA-INY-4657, SSU 1) – complete, fair condition.

26 lines (11/16 inch) diameter
#760d-e (CA-INY-4657, SSU 1) – 2 specimens, in poor condition, face is missing from #760e.

References: Cray 1978:31-33.

Button Type: Metal Type 12.

No. of Buttons: 1.

Material: iron.

Description: round, three-piece sheet iron button, shanked; face flat and plain with disc crimped over back disc; sides are rounded and 3/32 inch thick; back is flat iron disc, with very rusted and corroded wire (loop shank?). It may be another type of shank, but very obscured.

Manufacture: Sanders' type method of die-stamped discs forced together by machine.


Uses: this small button may have been worn on a man's or boy's vest; for females, it may have been worn as a cloth-covered button on a dress, blouse, skirt, or vest.

Date Range: 1825 to present.

Specimens Represented:

18 lines (9/16 inch) diameter
#181b (CA-INY-4876, Unit 2, 20-30 cm) – very rusted, though complete specimen.

References: Luscomb 1979:17, 211.

Button Type: Metal Type 13.

No. of Buttons: 1.

Material: iron.

Description: round, three- or four-part rivet button; face is a concave, plain stamped iron disc with large central hole, of ¼ inch diameter; sides are rounded and ⅛ inch thick, crimped over an iron back disc; back is heavily corroded, but includes a convex back disc and thick iron stem. Second back disc (on other end of stem) is missing.

Manufacture: sheet metal discs, die-stamped and crimped together by machine.

Origins: unknown.

Uses: heavy denim or duck work garments for males, and in twentieth century, for females; small size suggests their use as suspender and overall strap rivet buttons.

Date Range: 1877 to present.

Specimens Represented:

23 lines (9/16 inch) diameter
#509c (CA-INY-3802, Locus 7/8, Unit 2, 0-10 cm) – poor condition.

References: Cray 1978:31-33.

Button Type: Metal Type 14.

No. of Buttons: 9.

Material: copper.

Description: round, two-piece, copper seam rivet; face is a copper burr, with ½ inch diameter central hole, and "L.S & CO/-S.F." impressed around it; back is a copper rivet, piercing the burr, with "L.S. & CO. - S.F." stamped and raised on the back surface.

Manufacture: stamped metal, with burr and rivet forced together by machine.
Origins: San Francisco, California.

Uses: seam reinforcement on heavy denim and duck work garments for males, and in the twentieth century for females, as well.

Date Range: 1873 to present.

Specimens Represented:

15 lines (3/8 inch) diameter

#640 (CA-INY-3782, surface, C-27) – complete and in good condition.

#760g-m (CA-INY-4657, SSU 1) – 7 specimens, all are complete and in good condition.

References: Cray 1978:22.

Button Type: Metal Type 15.

No. of Buttons: 1.

Material: cuprous and ferrous metals.

Description: five-piece fastener, consisting of a cuprous rivet assembly and an attached iron tab with folded and curved end; face of the rivet button is a convex cuprous disc, impressed “IMPERIAL/UNION”, it is crimped over a cuprous back piece/ cone; back cone is 3/16 inch long and 1/4 inch wide at the narrowest, back part; a thin cuprous washer or ring sits around the wider part of the cone, beneath which protrudes the toothed and splayed edge of the cone; a second ring circles the rivet stem that is wedged inside the cone; finally, the rivet head (at back of the whole affair) is situated, being 3/8 inch in diameter, stamped “SCOVILL MFG CO.” on its outside surface. The sheet iron tab has a hole near one end, through which the back rivet stem is attached, between the rivet head and the second washer. The tab is thin iron, of oblong shape, 7/8 inch long and 1/2 inch wide, with its outer edge folded over, perhaps to receive a suspender strap or overall strap clasp. Height of whole fastener is 3/8 inch.

Manufacture: all metal parts are stamped sheet metal, crimped together by machine.

Origins: Waterbury, Connecticut (home of the Scovill Manufacturing Co.).

Uses: an unusual form of rivet button, that was probably attached to denim or duck work garment for a male, such as overalls. The presence of the tab makes it unlikely that the fastener was attached to trousers or a jacket (jumper).

Date Range: 1877 to ca.1975.

Specimens Represented:

20 lines (1/2 inch) diameter

#760f (CA-INY-4657, SSU 1) – complete, fair condition.


Button Type: Metal Type 16.

No. of Buttons: 1.

Material: iron.

Description: round, one-piece sheet iron, with four sew holes; face is flat with concave hole panel of 1/4 inch diameter, and raised, rounded outer rim of 1/6 inch width, the face disc edge is crimped over to the back side; sides are rounded and 3/32 inch thick; back is the negative shape of the face.

Manufacture: Die-stamped disc of sheet iron.

Origins: unknown.

Uses: male work pants.

Date Range: ca.1835 to ca.1930s.

Specimens Represented:

24 lines (9/16 inch) diameter

#665 (CA-INY-3782, Feature 4, 30-40 cm) –
Button Type: Metal Type 17.
No. of Buttons: 1.
Material: brass, iron, maybe cloth or other metal also.
Description: round, four-piece button, shanked; face consists of a stamped brass disc, flat in shape, and ornate, pierced by one center hole, and eight holes equally spaced around the mid-area of the face, area around center hole is raised, stamped with eight, raised, radiating points, and the outer, rim area of the face is steeply raised, decorated with a scallop around each hole, and three teardrop impressions within each scallop; sides are rounded and 3/8 inch thick, crimped over back disc; back is convex iron disc, very fragmentary, and shank is missing, so type is unknown. The button must have had a center piece of velvet cloth, or else a plated metal disc, sandwiched between the face and back discs. This middle piece would provide ornate material to show through the many holes in the button face.

Manufacture: stamped metal discs, crimped together by machine.

Origins: unknown.
Uses: fancy male vest; female fancy dress, waist, skirt.
Date Range: ca.1860 to ca.1920.
Specimens Represented:
25 lines (3/8 inch) diameter
#571 (CA-INY-3782, surface, A-37) – face only, in good condition.


Button Type: Metal Type 18.
No. of Buttons: 1.
Material: brass and cloth.
Description: round, three-piece button, shanked; face consists of a stamped brass disc, flat in shape, and ornate, with raised, stamped center, consisting of small, six-petal flower, this flower being surrounded by six large leaves, radiating out and equally spaced around the center flower, the space between each large leaf is pierced, so that decorative velvet or other fabric may show through, and the outer rim is slightly raised, consisting of a narrow ring of brass; sides are rounded and 3/8 inch thick, crimped over back disc; back is a flat brass disc, with self-shank stamped from back disc, into a hollow, truncated cone, with two sew holes piercing the sides of the cone. Cloth middle piece is gone.

Manufacture: stamped metal discs, crimped together by machine.

Origins: unknown.
Uses: fancy male vest; female fancy dress, waist, skirt.
Date Range: ca.1860 to ca.1935.
Specimens Represented:
26 lines (5/8 inch) diameter
#638a (CA-INY-3782, surface, w/A-38) – complete, in good condition.

over a back disc, face is stamped (intaglio) with a central metal helmet, on top of which sits a bird, and sprigs of leaves on each side of and at the base of the helmet, face may originally have been painted red; face design may be a symbol for “war and peace” (Bellum and Pax in Latin), or for the goddess “Athena” (i.e., Minerva), goddess of war, who also invented the olive tree; back is a flat disc, with large central hole (½ inch diameter), the edge of which has been folded outward, forming a collar, “c. F. CO.* +C+” is stamped into the back collar. The back “male” portion of each snap fastener is missing, but each is presumed to have consisted of one or two metal parts.

Manufacture: stamped pieces, crimped together by machine.

Origins: unknown, manufacturer’s name has not been identified.

Uses: male shirt or female shirt or skirt fasteners, as snaps are small and ornate.

Date Range: ca. 1870 to present.

Specimens Represented:

18 lines (¼ inch) diameter
#639 (CA-INY-3782, surface, C-16) – face complete, in good condition.
#692a, b (CA-INY-3782, Unit 3, 0-10 cm) – 2 specimens, faces only, in good condition.


Button Type: Plastic Type 8.

No. of Buttons: 1.

Material: celluloid and iron.

Description: round, three- or four-piece button, shanked; face is flat and plain, composed of brown, mottled celluloid disc, possibly formed over an interior metal disc, outer edge is rounded; sides are round-
ed and ¼ inch thick, of celluloid, crimped over iron back disc; back is a flat round disc, with outer edges depressed, to fit beneath celluloid face disc; at back center is a convex mound, possibly a raised self-shank, merely stamped out from the center of the back disc.

Manufacture: stamped iron disc, molded celluloid sheet.

Origins: possibly United States or England.

Uses: male suit coat or vest; female dress, coat, suit jacket, vest, or skirt.

Date Range: ca.1900 to ca.1960.

Specimens Represented:

31 lines (approx. ¾ inch) diameter
#59 (CA-INY-4875, Unit 3, 10-20 cm) – fair condition, iron very rusted.


Button Type: Plastic Type 9.

No. of Buttons: 1.

Material: ground slate and shellac.

Description: round, one-piece, black, speckled material, four sew holes; face is concave (hole panel), with a flat edge of ⅛ inch width around the concavity, the flat ringed by a raised rounded outer rim of ⅛ inch; sides are rounded and ⅛ inch thick; back is convex, with raised, convex hole panel of ⅛ inch diameter.

 Manufacture: slate ground and mixed with adhesive, plastic materials, then molded to form a button.

Origins: unknown.

Uses: this large button is a coat button, for men, women, and children.
Date Range: ca.1880 to ca.1920.

Specimens Represented:

42 lines (1½ inches) diameter

#426 (CA-INY-3802, Locus 7/8, isolate) – complete, in excellent condition.

References: Cray 1978: 31-33

Button Type: Porcelain Type 2.

No. of Buttons: 3.

Material: porcelain.

Description: round, one-piece, of translucent, white porcelain, with colorless glaze; four sew holes; face is semi-conical with concave hold panel, of ¼ inch to ⅜ inch diameter; sides are straight and ⅜ inch thick; back is convex, with wide flat hole panel area, and flat area has the characteristic “orange peel” texture in the glaze. Known by collectors as “Dish Type China” button.


Origins: France, most likely; Britain or United States, less likely.

Uses: for males, shirts, long johns, vests; for females, skirts, waists, blouses, dresses, aprons, undergarments, or nightclothes.

Date Range: 1840 to ca.1910.

Specimens Represented:

17 lines (⅞ inch) diameter

#642 (surface, C-35) – complete, in excellent condition.


No. of Buttons: 1.

Material: porcelain.

Description: round, one-piece, of translucent, white porcelain, with colorless glaze; four sew holes; face is a truncated cone with deep, concave hole panel, of ¼ inch diameter, mid and outer areas of face, plus sides, and outer edge of back are painted with a dark brown ring, over the glaze; sides are straight and ⅜ inch thick; back is convex, with wide flat hole panel area, and flat area has the characteristic “orange peel” texture in the glaze. Known by collectors as an “Inkwell China” button.


Origins: France, most likely; Britain or United States, less likely.

Uses: for males, shirts, long johns, vests; for females, skirts, waists, aprons, undergarments, or nightclothes.

Date Range: 1840 to ca.1910.

Specimens Represented:

17 lines (⅞ inch) diameter

#643 (CA-INY-3782, surface, C-39) – complete, in good condition.

Button Type: Shell Type 1.

No. of Buttons: 1.

Material: shell.

Description: round, one-piece, with four sew holes; shell is off-white and softly iridescent; face is flat with a wide, raised outer rim, that is flat and shallow sunken, round hole panel, ¼ inch in diameter; sides are rounded and ⅜ inch thick; back is flat and devoid of cortex.

Manufacture: tubular-sawn blank, shaped by lathe and holes drilled.

Origins: England, Austria, France, or United States likely.

Uses: “shirt size,” commonly worn on male shirts, long johns, and vests; for females, buttons for blouses, dresses, nightgowns, and skirts.

Date Range: ca.1800 to present.

Specimens Represented:

24 lines (⅛ inch) diameter

#6 (CA-INY-4875, surface) – complete, good condition.


Button Type: Shell Type 4a.

No. of Buttons: 2.

Material: ocean shell.

Description: round, one-piece white, very iridescent, thin shell with pink and green highlights, with two sew holes; face is flat and plain with a small, sunken shallow hole panel of ⅛ inch diameter and two sew holes each ⅜ inch wide; sides are straight and just over ⅜ inch thick; back is plain and flat with some cortex present.

Manufacture: tubular-sawn blank; lathe-shaped, drilled holes.

Origins: England, Austria, France.

Uses: male shirt, underwear, nightshirt button; female blouse, dress, skirt, undergarments, nightgown.

Date Range: ca.1800 to present.

Specimens Represented:

15 lines (⅛ inch) diameter

#175 (CA-INY-4876, Unit 2, 10-20 cm) – complete, fair condition, charred all over.

20 lines (½ inch) diameter

#735 (CA-INY-4657, surface) – complete, excellent condition.


Button Type: Shell Type 11.

No. of Buttons: 1.

Material: shell.

Description: round, one piece, off-white softly iridescent shell, with two sew holes; face is concave, with flat, narrow outer rim and shallow, sunken, round hole panel, of ¼ inch diameter; sew holes are large, each ⅜ inch wide; sides are straight and ⅜ inch thick; back is plain and flat.

Manufacture: tubular-sawn blank; lathe-shaped, holes drilled.

Origins: United States, England, Austria, or France possible.

Uses: “shirt size” button, worn on male shirts, vests, undergarments; on female waists, blouses, dresses, skirts, nightgowns.

Date Range: ca.1800 to present.
Specimens Represented:

23 lines (%16 inch) diameter

#11 (CA-INY-4875, Feature 2, surface) – complete, good condition.

A total of 507 vertebrate faunal specimens were collected from eight of the 19 sites and loci excavated in the project area. Sites with recovered faunal remains included the Anton homestead (CA-INY-4657-H), the Bogart homesite (CA-INY-4883-H), Downtown Manzanar (CA-INY-4876-H), the Hawthorne homesite (CA-INY-4875-H), the Mulholland homestead (CA-INY-3782-H), the Strohmeyer homesite (ARS Locus 8), CA-INY-4877-H, and CA-INY-4881-H. All of these sites were associated with the 1910-1930s town of Manzanar or earlier homesteads. The assemblage contained both domestic and wild taxa. Identifiable taxa included fishes, turtles and tortoises, domestic and wild birds, rabbits, pocket gophers, and domestic and wild carnivores and artiodactyls.

Analytic Methods
Faunal material was recovered using ¼-inch screen and 100 percent of the recovered faunal bone was analyzed. The specimens were identified with the assistance of the comparative faunal collection at Desert Archaeology, Inc. and the WACC comparative collection housed at the Arizona State Museum. In addition, several references were used to aid in the identifications and to determine modern animal distributions in the project area (e.g., Gilbert 1980, 1990; Jameson and Peters 1988; Olsen 1964, 1979; Peterson 1990; Sisson 1953; and Stebbins 1985). Specimens were identified to species when possible. Nonmammalian specimens, with the exception of birds, were considered identifiable at the class level or below. Specimens unidentifiable to class were placed in the unidentified animal category. Bird bone that was identified to the order level or below was considered identifiable. Unidentifiable bird bone consisted of indeterminate large bird (chicken size) and indeterminate bird (size unknown). A bird/small mammal category was created for long bone fragments that could not be identified as either bird or small mammal. All mammal bone not identified to the family level was considered unidentifiable. Unidentifiable mammal bone was placed in one of four categories: small (rodent/rabbit size), medium (cat/dog/coyote size), large (deer/pig/sheep/cow size), and indeterminate (size unknown). The unidentifiable bone fragments were sorted according to estimated element circumference and bone wall thickness. Sheep and goat elements are too similar to separate based on the fragmentary elements present in this assemblage and were identified as “sheep/goat” (Ovis aries/Capra hircus). Bird bones that were similar to chicken bones, but were smaller or larger than the comparative specimens, were assigned to the category “chicken?” (cf. Gallus gallus). Eggshell fragments were not counted; only their presence per provenience was noted.

1 I thank Regina Chapin-Pyritz of the Arizona State Museum for graciously providing access to the WACC comparative faunal collection.
All faunal remains were tabulated by the number of identified specimens (NISP). The minimum number of individuals (MNI) was estimated for each discrete identifiable taxon. Elements with postdepositional breaks were refitted when possible and counted as one. Other attributes recorded for the faunal material included skeletal element, element portion, element symmetry, and bone surface modifications, e.g., burning and butchering marks. The lack of epiphyseal fusion of long bones and other indications of immature specimens also was noted.

Assemblage Description
The list of taxa is presented by site in Table B.1. A mixture of wild and domestic taxa was identified including fishes (Osteichthyes), turtles and tortoises (Testudinata), chicken (Gallus gallus), turkey (Meleagris gallopavo), mourning dove (Zenaida macroura), perching birds (Passeriformes), cottontails (Sylvilagus sp.), jackrabbits (Lepus sp.), pocket gophers (Thomomys sp.), dog/coyote (Canis sp.), cat (Felis domesticus), deer (Odocoileus sp.), pig (Sus scrofa), sheep/goat (Ovis aries/Capra hircus), and cow (Bos taurus). The assemblage contained 68 percent identifiable bone. Much of the identifiable bone was from chickens and jackrabbits. The elements from large mammals such as deer, pig, sheep, and cow were much more fragmented. Consequently, few large mammal specimens (21 percent) could be identified to species or element, making it impossible to identify the cuts of meat represented by most specimens. Fifty percent of the assemblage was burned, though the burned proportions varied greatly by site. The largest category of burned bone was charred/calcined except at ARS Locus 8 (ARS-8). Most of the burned bone from ARS-8 was blue/grey in color. Other bone surface modifications included caliche coating, animal gnawing, rust staining, weathering, and root etching.

Bogart Homesite (CA-INY-4883-H)
Only six faunal specimens were recovered from the Bogart homesite including cow (n = 2), bird/small mammal (n = 2), and large mammal (n = 2). The cow bones are rib shafts. One has a single saw cut, and the other has parallel saw cuts. The latter specimen was identifiable to meat cut and represents a short rib. This is a medium-quality cut. One large mammal long bone exhibits a single saw cut. None of the other specimens contained any surface modifications.

Downtown Manzanar (CA-INY-4876-H)
The recent excavations in downtown Manzanar produced 16 faunal specimens. Only 44 percent (n = 7) were identifiable and included chicken (n = 4), turkey (n = 1), and cow (n = 2). Unidentifiable bone included indeterminate bird (n = 1 and eggshell), bird/small mammal (n = 3), large mammal (n = 3), and two indeterminate mammal (n = 2). No meat cuts were identified in the assemblage. Three specimens exhibited butchering marks including one cow long bone shaft with a single saw cut, one large mammal element with parallel saw cuts, and one cow rib shaft with multiple saw cuts (Table B.3). Seventeen specimens were burned; most (82 percent) were charred/calcined (Table B.4). Three specimens were sun-bleached, including one indeterminate mammal specimen and one bird/small mammal specimen collected from the surface (Table B.5). One large mammal long bone fragment also was sun-bleached. This specimen was recovered from the top 10 centimeters of an excavation unit, suggesting it was recently incorporated into the assemblage from the surface. No other modifications were noted. Considerably more faunal remains were recovered during the previous excavations of this site within the National Historic Site boundary (Waters 1996). These remains are discussed below.
<table>
<thead>
<tr>
<th>Taxon</th>
<th>ARS Locus 8</th>
<th>CA-INY-3872</th>
<th>CA-INY-4875</th>
<th>CA-INY-4876</th>
<th>CA-INY-4883</th>
<th>CA-INY-4867</th>
<th>CA-INY-4877</th>
<th>CA-INY-4881</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bony fishes (Osteichthyes)</td>
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<td></td>
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<tr>
<td>Turtles and tortoises (Testudinata)</td>
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<td></td>
</tr>
<tr>
<td>Chicken (<em>Gallus gallus</em>)</td>
<td>146 (7)</td>
<td></td>
<td></td>
<td>4 (1)</td>
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</tr>
<tr>
<td>Chicken? (cf. <em>Gallus gallus</em>)</td>
<td>5</td>
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<td>2*</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkey (<em>Meleagris gallopavo</em>)</td>
<td>4 (1)</td>
<td></td>
<td></td>
<td>1 (1)</td>
<td></td>
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<tr>
<td>Mourning dove (<em>Zenaida macroura</em>)</td>
<td>1 (1)</td>
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<td></td>
<td></td>
<td>1 (1)</td>
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<tr>
<td>Perching birds (Passeriformes)</td>
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<td>Cottontail or jackrabbit (Leporidae)</td>
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<td>Cottontails (<em>Sylvilagus</em> sp.)</td>
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<tr>
<td>Jackrabbits (<em>Lepus</em> sp.)</td>
<td>16 (1)</td>
<td>76 (1)</td>
<td>26 (1)</td>
<td>1 (1)</td>
<td>2 (1)</td>
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<tr>
<td>Pocket gophers (<em>Thomomys</em> sp.)</td>
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<td>2 (1)</td>
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<tr>
<td>Dog/coyote (<em>Canis</em> sp.)</td>
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<td>1 (1)</td>
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<tr>
<td>Domestic cat (<em>Felis domesticus</em>)</td>
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<tr>
<td>Deer (<em>Odocoileus</em> sp.)</td>
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<td>Pig (<em>Sus scrofa</em>)</td>
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<td>3 (1)</td>
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<tr>
<td>Sheep/goat (<em>Ovis aries/Capra bircus</em>)</td>
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<td></td>
<td>2 (1)</td>
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<tr>
<td>Cow (<em>Bos taurus</em>)</td>
<td>17 (1)</td>
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<td>2 (1)</td>
<td>2 (1)</td>
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<td>Indeterminate bird (Aves)</td>
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<td>Indeterminate large bird (chicken size)</td>
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<td>Bird/small mammal</td>
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<td>Small mammal (rodent/rabbit size)</td>
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<td></td>
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<tr>
<td>Medium mammal (cat/dog/coyote size)</td>
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<td></td>
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<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Large mammal (deer/pig/sheep/cow size)</td>
<td>16</td>
<td>19</td>
<td>60</td>
<td>3</td>
<td>2</td>
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<td>Indeterminate mammal (unknown size)</td>
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<td>Unidentified animal (unknown class)</td>
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<tr>
<td>Site total</td>
<td>260</td>
<td>97</td>
<td>109</td>
<td>16</td>
<td>6</td>
<td>12</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

*a*=Contains eggshell recorded only as present
Hawthorne Homestead (CA-INY-4875-H)
A total of 109 specimens were recovered from the Hawthorne homestead. Only 40 percent (n = 44) were identifiable. Identifiable taxa included chicken? (n = 2 and eggshell), cottontail (n = 8), jackrabbit (n = 26), cottontail or jackrabbit (n = 1), domestic cat (n = 1), pig (n = 3), sheep/goat (n = 3), and cow (n = 1). Lagomorphs comprised the largest proportion of the identifiable bone (75 percent). Ninety-two percent of the unidentifiable bone was made up of large mammal (n = 60) and probably contained parts of sheep/goat, pig, and cow. Small mammal (n = 1), indeterminate mammal (n = 1), and unidentified animal (n = 3) comprised the rest of the unidentifiable assemblage.

The lagomorph remains in the Hawthorne assemblage may or may not represent food items eaten by the historic residents of the site. The cottontail remains were recovered below the in situ charred wooden boards of Feature 1. It is possible that these bones predate the town period. All of the jackrabbit elements were recovered from the same excavation unit. However, the bones were spread throughout the unit, recovered in Levels 3-8. In addition, 62 percent of the site assemblage was recovered from Unit 4, including possible chicken, large mammal, domestic cat, sheep/goat, and pig. Considering their association with other subsistence-oriented bone, it is likely that the jackrabbit elements represent a food item.

The meat cuts represented in the Hawthorne assemblage are a mixture of low and high quality cuts (Table B.2) (Azizi et al. 1996; Levie 1963; Schulz and Gust 1983). Identifiable pig elements included one lumbar vertebra, one carpal, and one tarsal. The vertebra is from the loin, a high quality pork cut. The podials are from the hock, a low quality pork product. Two sheep/goat elements were identified: an atlas and a proximal tibia. The atlas is from the neck, a low quality meat cut. The proximal tibia is from the shank end, a high quality cut. One cow element, a proximal humerus, was identified. This element is from the arm, a low quality cut.

Butchering marks were observed on 18 elements in the assemblage (Table B.3). Elements with single saw cuts (n = 11) were slightly more numerous than parallel saw cuts (n = 7). All saw cuts were present on large mammal bones. Thirty-nine percent (n = 42) of the assemblage was burned. The greatest proportion (45 percent) was charred/calcined. Bone surface modifications resulting from natural agents were noted on 38 elements. The most frequently observed modification was weathering in the form of surface erosion (n = 13) and sun-bleaching (n = 3). Eleven elements were rust stained, eight were caliche coated, two were root etched, and one was carnivore gnawed.

Mulholland Homestead (CA-INY-3782-H)
Ninety-seven faunal specimens were recovered from the Mulholland homestead. Jackrabbit bones comprised 78 percent (n = 76) of this assemblage. Taxa present in lesser quantities included large mammal (n = 19), small mammal (n = 1), and indeterminate animal (n = 1). The jackrabbit bones were from a single individual and were recovered from the same provenience, Feature 1. The completeness of the skeleton and proximity of the elements to each other suggest that the bones represent a natural death, not associated with any historic use of the site.

Because the rest of the assemblage was unidentifiable, no meat cuts were identified. Likewise, no butchering marks were noted. The large mammal elements were long bone shafts or indeterminate elements, except for one rib shaft fragment. All but three were burned (Table B.4) and probably represent food items. None of the other faunal remains exhibit any bone surface modifications except for the small-mammal long-bone shaft fragment. It is charred and caliche coated (Table B.5). This bone may be
Table B.2. Meat Cuts Represented in the Faunal Assemblages.

<table>
<thead>
<tr>
<th>Site</th>
<th>Taxon</th>
<th>Element</th>
<th>Meat cut*</th>
<th>Rank*</th>
<th>NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARS Locus 8</td>
<td>sheep/goat</td>
<td>metatarsal</td>
<td>hindshank</td>
<td>low</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tarsal</td>
<td>hindshank</td>
<td>low</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>cow</td>
<td>cervical vertebra</td>
<td>neck</td>
<td>low</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>proximal humerus</td>
<td>arm</td>
<td>low</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>distal metapodial</td>
<td>foot</td>
<td>low</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>first phalanx</td>
<td>foot</td>
<td>low</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>second phalanx</td>
<td>foot</td>
<td>low</td>
<td>1</td>
</tr>
<tr>
<td>CA-INY-4875</td>
<td>pig</td>
<td>carpal</td>
<td>hock</td>
<td>low</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tarsal</td>
<td>hock</td>
<td>low</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>lumbar vertebra</td>
<td>loin</td>
<td>high</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>sheep/goat</td>
<td>atlas</td>
<td>neck</td>
<td>low</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>proximal tibia</td>
<td>shank end</td>
<td>high</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>cow</td>
<td>proximal humerus</td>
<td>arm</td>
<td>low</td>
<td>1</td>
</tr>
<tr>
<td>CA-INY-4883</td>
<td>cow</td>
<td>rib shaft, 1-5</td>
<td>crossrib</td>
<td>medium</td>
<td>1</td>
</tr>
</tbody>
</table>

*a=Meat cuts and ranks are from Azizi et al. (1996).

prehistoric because it was recovered below the historic deposits. The fact that it is the only specimen in the cultural assemblage to be caliche coated supports this assumption.

*Strohmeyer Homesite (CA-INY-3802, ARS Locus 8)*

The Strohmeyer homesite produced the largest faunal assemblage with 260 specimens identified (Table B.1). The majority of specimens (n = 214 or 82 percent) were recovered from Unit 2. Eighty percent (n = 209) of the entire assemblage was identifiable. Seventy percent (n = 146) of the identifiable assemblage was comprised of chicken bone. Other identifiable domestic taxa included turkey (2 percent), cat (7 percent), sheep/goat (1 percent), and cow (8 percent). Wild taxa included fish (1 percent), mourning dove (1 percent), jackrabbit (8 percent), and deer (1 percent). The remainder of the identifiable assemblage was made up of chicken? (2 percent). Unidentifiable taxa (n = 51) included indeterminate large bird (4 percent), bird/small mammal (43 percent), medium mammal (2 percent), large mammal (31 percent), and indeterminate small mammal (20 percent). Most of the bird/small mammal bone is probably chicken.

The faunal remains from Feature 1, a septic tank, were originally recorded as a “natural death”. The bones were actually recovered while exposing the sewer line outside of the tank. Fifteen jackrabbit specimens were identified including skull parts, a lumbar vertebra, ribs, and a humerus shaft from a juvenile jackrabbit. This individual may or may not represent a “natural death” because there are so few bones present. Additionally, 14 domestic cat bones were recovered from the trench outside of the septic tank.
Table B.3. Butchering Marks Present in the Faunal Assemblages.

<table>
<thead>
<tr>
<th>Site</th>
<th>Butchering Mark</th>
<th>Taxon</th>
<th>Element</th>
<th>NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARS Locus 8</td>
<td>Single saw cut</td>
<td>Cow</td>
<td>Cervical vertebra</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Indeterminate vertebra</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rib shaft, 1-5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Long bone shaft</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Large mammal</td>
<td>Long bone shaft</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Parallel saw cuts</td>
<td>Cow</td>
<td>Proximal humerus shaft</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Long bone shaft (femur?)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Multiple saw cuts</td>
<td>Cow</td>
<td>Cervical vertebra</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Chop marks w/multiple</td>
<td>Cow</td>
<td>Rib shaft, 6-12</td>
<td>1</td>
</tr>
<tr>
<td>CA-INY-4875</td>
<td>Single saw cuts</td>
<td>Large mammal</td>
<td>Long bone shaft</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Indeterminate element</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Parallel saw cuts</td>
<td>Large mammal</td>
<td>Long bone shaft</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Indeterminate element</td>
<td>4</td>
</tr>
<tr>
<td>CA-INY-4876</td>
<td>Single saw cut</td>
<td>Cow</td>
<td>Long bone shaft</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Indeterminate element</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Parallel saw cuts</td>
<td>Large mammal</td>
<td>Indeterminate element</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Multiple saw cuts</td>
<td>Cow</td>
<td>Rib shaft, 6-12</td>
<td>1</td>
</tr>
<tr>
<td>CA-INY-4883</td>
<td>Single saw cut</td>
<td>Cow</td>
<td>Rib shaft, 6-12</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Large mammal</td>
<td>Long bone shaft</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Parallel saw cut</td>
<td>Cow</td>
<td>Rib shaft</td>
<td>1</td>
</tr>
</tbody>
</table>

including three lumbar vertebrae, eight ribs, one ulna, one femur, and one tibia. Both of these specimens probably represent secondary deposits because the skeletons are relatively incomplete. If these individuals either died in place or were buried, more elements of each animal would be recovered. However, because the excavation was intended to expose the sewer pipe, the rest of the skeletons may not have been recovered. One chicken femur and one turkey ulna also were recovered from Feature 1. These specimens are likely part of a secondary trash deposit.

Although the Los Angeles Department of Water and Power (LADWP) records list three chicken houses and a pig sty on the premises, there is little evidence for animal husbandry in the Strohmeyer assemblage. The ages of the seven individual chickens represented in the assemblage do not correspond with the expected age profile of a home flock. Six of the individuals were adults and one individual, aged approximately 3-6 months, was represented by only four unfused or immature elements. Archeologically, the best indicator of chicken farming is the presence of the bones of chicks, that is, individuals less than two months in age. The mortality rate for chicks can be high and flocks generally are culled of all weak,
crippled, or deformed chicks (Sando 1909:153). Therefore, the recovery of chick bones is expected where chickens are being raised. The absence of chick remains can be explained by disposal patterns, the chicks may have been disposed of in other areas. Also the bones of chicks are quite small, and may have passed through 1/4-inch screen. No pig bone was identified in the faunal assemblage. However, some of the 16 specimens were identified as large mammal may be pig bone. The absence of pig bones also may be the result of sampling strategy.

Other potential indications of animal husbandry were present in the Strohmeyer assemblage. Several cow foot elements were recovered, including one first and one second phalanx, and one distal epiphysis fragment from a metapodial. Unlike the cranial and foot bones from pigs, which are considered food items, cranial and foot bones from cows and sheep/goats have low food value and are commonly discarded in the butchering process (Lyman 1977:69). However, feet were often used to make calf's foot jelly (Bryan 1839:72). Ethnic background also influenced which parts were deemed edible. Therefore, the Strohmeyer household may have consumed the meat represented by the cow foot bones, or the bones may represent butchering waste.

The meat cuts represented in the Strohmeyer assemblage are low quality (Table B.2). There were two identifiable sheep/goat elements, a tarsal and a metatarsal. These elements represent the shank, a relatively low quality meat cut used for stews and soups (Levie 1963:260). Beef cuts were represented by cervical vertebrae, a proximal humerus, and the foot bones mentioned above. The cervical vertebrae are from the neck, a low-ranked meat cut (Levie 1963:261). The proximal humerus shaft is from an arm steak, another low ranked cut. As noted, the feet may represent offal.

In addition to the above specimens, other bone exhibited butchering marks but was not identifiable to species, element, or meat cut (Table B.3). A total of 14 elements with butchering marks were noted in the Strohmeyer assemblage. Single saw cuts were the most common, comprising 86 percent (n = 12) of the butchering marks in the assemblage. Two elements exhibited parallel saw cuts.

The majority of the bone (71 percent or 184 specimens) from the Strohmeyer homesite was burned. All of the burned bone was recovered from Unit 2. Forty-nine percent (n = 90) of the bone was burned to a blue/gray color. Other burning colors included charred or black (19 percent), charred/calcined or black to white (19 percent), calcined or white (10 percent), and partially charred (3 percent). It is unlikely that any of the bone was burned by cooking (cf. Lyman 1994:384). The bone was probably burned as the result of waste disposal, such as trash burning. The bone from Unit 2 was probably dumped into a common trash area. The uniformity of the burning colors indicates that most of the bone was burned under similar conditions and possibly at the same time.

Only 15 elements in the Strohmeyer assemblage exhibited surface modifications resulting from natural agents before burial, although several types were present (Table B.5). The most frequent modification was rust staining, occurring on nine elements. This staining probably resulted from the bone coming into contact with rusting metal, e.g., in a trash dump. Two elements were gnawed by carnivores and one was rodent-gnawed. One element was root etched. Root etching is thought to result form the acidic secretions of plant roots, although the secretions may actually be from the fungi associated with decomposing roots.
Table B.4. Burning Colors and Frequencies (in NISP) for Bone.

<table>
<thead>
<tr>
<th>Color</th>
<th>ARS Locus 8</th>
<th>CA-INY-3782-H</th>
<th>CA-INY-4875-H</th>
<th>CA-INY-4876-H</th>
<th>CA-INY-4883-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partially charred</td>
<td>6 (3%)</td>
<td>1 (6%)</td>
<td>10 (24%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charred</td>
<td>34 (19%)</td>
<td>1 (6%)</td>
<td>9 (21%)</td>
<td></td>
<td>1 (100%)</td>
</tr>
<tr>
<td>Charred/calcined</td>
<td>34 (19%)</td>
<td>14 (82%)</td>
<td>19 (45%)</td>
<td>2 (100%)</td>
<td></td>
</tr>
<tr>
<td>Blue/gray</td>
<td>90 (49%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcined</td>
<td>19 (10%)</td>
<td>1 (6%)</td>
<td>4 (10%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total burned</td>
<td>183 (100%)</td>
<td>17 (100%)</td>
<td>42 (100%)</td>
<td>2 (100%)</td>
<td>1 (100%)</td>
</tr>
<tr>
<td>Percentage burned</td>
<td>71%</td>
<td>18%</td>
<td>39%</td>
<td>13%</td>
<td>17%</td>
</tr>
</tbody>
</table>

Table B.5. Bone Surface Modifications Present in the Faunal Assemblages.

<table>
<thead>
<tr>
<th>BSM</th>
<th>ARS Locus 8</th>
<th>CA-INY-3782-H</th>
<th>CA-INY-4875-H</th>
<th>CA-INY-4876-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caliche coated</td>
<td></td>
<td>1</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Rodent gnawed</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carnivore gnawed</td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Rust stained</td>
<td>9</td>
<td></td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Eroded</td>
<td>1</td>
<td></td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Root etched</td>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Sun-bleached</td>
<td>1</td>
<td></td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>1</td>
<td>38</td>
<td>3</td>
</tr>
</tbody>
</table>

(Lyman 1994:375). Two elements exhibited weathering; one was eroded and the other was sun-bleached. Bone weathering is most commonly associated with exposure to sunlight, moisture, and temperature fluctuations before burial (Behrensmeyer 1978; Schiffer 1987).

Other Sites
The assemblages from other sites are very small, containing fewer than 15 specimens each. These include the assemblages from CA-INY-4657-H (Anton Homestead), CA-INY-4877-H (Meyer Lumber), and CA-INY-4881-H (town-era artifact scatter). The assemblage from CA-INY-4877-H contained four faunal
specimens: one humerus from a jay-sized passerine, two jackrabbit elements, and one indeterminate mammal element. All specimens were collected from the surface and probably were not associated with the historic occupation of the site. Three faunal specimens were recovered from CA-INY-4881-H, including one from an indeterminate bird, and two from indeterminate mammals. The two indeterminate mammal bones exhibited parallel saw cuts and are, therefore, associated with the site.

The Anton homestead assemblage was slightly larger (n = 12) and much more diverse. Elements from five taxa were identified, including one turtle/tortoise shell fragment, one mourning dove ulna, one jackrabbit astragalus, one mandible and one distal tibia from a pocket gopher, and one dog/coyote calcaneus fragment. Unidentifiable bone included bird/small mammal (n = 1), medium mammal (n = 2), large mammal (n = 1), and indeterminate mammal (n = 2). The dog/coyote and medium mammal bone fragments were burned as was the large mammal bone fragment. The bones of the other taxa do not exhibit surface modifications. All of these animals live in the site vicinity and their bones may be intrusive to the historic period occupation of the site.

Discussion

The faunal assemblages differ in the amount of identifiable bone, ranging from 80 percent in the Strohmeyer assemblage to 0 percent in the assemblage from CA-INY-4881-H. The assemblages with a majority of chicken or rabbit bone, i.e., those from the Strohmeyer and Mulholland homesites, tended to have the greatest proportions of identifiable bone. Cow was commonly represented, present at four sites. Sheep/goat, chicken, and turkey are present at three sites. Pig bone was identified at only one site. In addition to domestic animals, there is evidence at most of the sites for the hunting of wild game. Deer and jackrabbit were present in the Strohmeyer assemblage, and jackrabbit was identified in the Hawthorne, Anton, and Meyer Lumber assemblages. Some of the jackrabbit remains may be intrusive, but the evidence is unclear, except for the unburned jackrabbit elements from Feature 1 at the Mulholland homestead.

The number of taxa in a faunal assemblage is dependent upon assemblage size (Grayson 1984). The sites with the largest assemblages, i.e., the Strohmeyer homesite and the Hawthorne homesite, contained the largest number of identifiable taxa. The differences in the number of taxa among the assemblages are primarily the result of disparities in sample sizes. The fragmentation of the large mammal bone also reduced the number of identifiable taxa at some sites. The bulldozing of the Manzanar townsite prior to the construction of the internment camp (Burton 1996), may have been responsible for much of the bone fragmentation.

Little evidence for animal husbandry was present in the faunal assemblages, although archival records documented the existence of chicken houses and pig sties at the Strohmeyer and Bogart homesites. Three cow foot bones were present in the Strohmeyer assemblage, indicating the possible home butchering of at least one cow.

The bones of domestic animals identifiable to meat cut can be good indicators of socioeconomic status among households at archaeological sites. Meat cuts from various sections of the carcass differ in quality and price. Schulz and Gust (1983:45) suggest that “the frequency of consumption of differently priced cuts will vary with the socioeconomic status of consumers”. In other words, greater quantities of high-quality meat cuts should be recovered in higher-income households and greater quantities of low-quality
meat cuts should be recovered in lower-income households. However, the fragmentation of the large mammal bone from the Manzanar town sites makes it difficult to assess any patterns in meat cut consumption. Only three sites had large mammal bone that was identifiable to meat cut: the Strohmeyer, Hawthorne, and Bogart homesites. The limited sample (n = 15) of meat cuts from these sites were mostly low quality cuts from beef, pork, and mutton. One cut each from sheep/goat and pig were of high quality and the single beef cut from the Bogart homesite was of medium quality. Assessment of the income level of households based on these few examples would be premature, if not inaccurate.

Most of the assemblages contained less than 25 percent burned bone. Thirty-nine percent of the Hawthorne assemblage was burned. The Strohmeyer assemblage contained a much higher proportion of burned bone than the assemblages from other sites. The proportions of burned bone are probably related to the types of features sampled; architectural features contained less burned bone, and less bone in general, than trash features. All of the burned bone in the Strohmeyer assemblage was recovered from a single provenience, probably a trash dump area.

**Intersite Comparisons**

A total of 241 faunal specimens were recovered from four previously-excavated sites related to the turn-of-the-century town of Manzanar (Waters 1996). These sites include MANZ 1993 A-6, MANZ 1993 A-13, CA-INY-4876-H (also tested during MANZ 1997D), and MANZ 1993 A-28. Only CA-INY-4876 (n = 98) and A-13 (n = 121) contained more than 15 specimens each. As noted above, CA-INY-4876-H was part of downtown Manzanar. A-13 was the Shepherd Ranch, just outside of town. Nearly the same taxa were recovered in the previous excavations as were recovered from the current testing project area. In addition, elements from horse (*Equus caballus*), raccoon (*Procyon lotor*), and quails (Family Phasianidae) were identified. Bones of fish, turtle, and dog/coyote were not recovered during the previous excavations.

Bone from the previously-excavated sites was also highly fragmented, making the identification of meat cuts difficult. Unlike the mostly low-quality cuts from sites recorded during the present testing, high quality cuts from the rib and loin area were identified during the previous excavations at CA-INY-4876-H (Waters 1996:927). The Shepherd Ranch assemblage contained elements representing the rib and loin as well as pig skull and foot bones, cow foot bones, and long bones from pig and sheep/goat. It is tempting to say that the assemblages from the present testing represent the poorer part of town. However, the use of meat cuts alone to determine socioeconomic rank is not conclusive regardless of sample size (Waters et al. 1998). Household preferences in meat consumption introduce variability in the meat cuts used. This is particularly true for the residents of Manzanar, where many people kept animals, and fresh meat was readily available.

Butchering marks were present on 40 percent of the elements from the downtown Manzanar and Shepherd Ranch assemblages compared to only 8 percent for the assemblages from the present testing. Butchering marks evident in the downtown Manzanar assemblage consisted entirely of saw cuts. A variety of cuts was present in the Shepherd Ranch assemblage including saw cuts, ax/cleaver marks, and knife marks. Butchering marks in the present assemblage consisted of saw cuts with the exception of chop marks that occur with multiple saw cuts on a cow rib in the Strohmeyer assemblage.

Burned bone in the assemblages from previously-excavated sites ranged from 31 percent at A-6, 41 percent for Shepherd Ranch, 61 percent for Downtown, to 83 percent at A-28. These burned bone proportions
are more in line with those of the Strohmeyer and Hawthorne assemblages recovered during MANZ 1997D. The excavation units at the previously-excavated sites also were located in trash areas (Burton 1996). This may account for the greater proportions of burned bone in the assemblages.

Conclusions
The 1997 test excavations in and around Manzanar National Historic Site recovered a small assemblage of faunal remains. The bone is associated with residences and commercial buildings that were part of the town of Manzanar and earlier homesteads. The faunal sample is too small to answer any but the basic questions about the meat eaten by town residents. Beyond “what kinds of meat were people eating?” are questions about the relationship, if any, between meat choices and socioeconomic status. How important was animal husbandry in providing meat products for town residents? Did people butcher their own meat? How much did wild game contribute to the diet? Further excavations at outlying dumps associated with the town may recover enough bone to adequately address these issues.
Obsidian Source Analysis

Richard E. Hughes
Mr. Jeff Burton  
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Tucson, Arizona 85705

Dear Jeff:

Enclosed with this letter you will find a two-page table presenting x-ray fluorescence (xrf) data derived from the analysis of 22 obsidian artifacts from four archaeological sites (CA-Iny-3782, n=4; Iny-4860, n=9; site A-16, n=3; and site A-23, n=6) at Manzanar, Inyo County, California. One of the specimens bagged for xrf analysis (sample 833-1 from Iny-4860) was too small (i.e. < 9-10 mm diameter) and/or too thin (i.e. < ca. 1.5 mm thick) for generating reliable quantitative data by xrf. The research reported here was conducted pursuant to your letter request of January 15, 1998.

Analyses of obsidian are performed at my laboratory on a Spectrace™ 5000 (Tracor X-ray) energy dispersive x-ray fluorescence spectrometer equipped with a rhodium (Rh) x-ray tube, a 50 kV x-ray generator, with microprocessor controlled pulse processor (amplifier) and bias/protection module, a 100 mHz analog to digital converter (ADC) with automated energy calibration, and a Si(Li) solid state detector with 160 eV resolution (FWHM) at 5.9 keV in a 30 mm² area. The x-ray tube is operated at 34.0 kV, .25 mA, using a .127 mm Rh primary beam filter in an air path to generate x-ray intensity data for elements zinc (Zn Kα), gallium (Ga Kα), rubidium (Rb Kα), strontium (Sr Kα), yttrium (Y Kα), zirconium (Zr Kα), and niobium (Nb Kα). Barium (Ba Kα) intensities are generated by operating the x-ray tube at 50.0 kV, .35 mA, with a .63 mm copper (Cu) filter, while those for titanium (Ti Kα), manganese (Mn Kα) and total iron (Fe,O,T) are generated by operating the x-ray tube at 15.0 kV, .28 mA with a .127 mm aluminum (Al) filter. Iron vs. manganese (Fe Kα/Mn Kα) ratios are computed from data generated by operating the x-ray tube at 15.0 kV, .30 mA, with a .127 mm aluminum (Al) filter. Deadtime-corrected analysis time for each sample appears in the data table.

After x-ray spectra are acquired and elemental intensities extracted for each peak region of interest, matrix correction algorithms are applied to specific regions of the x-ray energy spectrum to compensate for inter-element absorption and enhancement effects. After these corrections are made, intensities are converted to concentration estimates by employing a least-squares calibration line established for each element from analysis of up to 30 international rock standards certified by the U.S. Geological Survey, the U.S. National Institute of Standards and Technology, the Geological Survey of Japan, the Centre de Recherches Petrographiques et Geochimiques (France), and the South African Bureau of Standards. Further details pertaining to x-ray tube operating conditions and calibration appear in Hughes (1988, 1994a). Extremely small/thin specimens are analyzed using a .25 mm² primary beam collimator, and resulting data normalized using a sample mass-correction algorithm. Deadtime-corrected analysis time is greatly extended in all instances when primary beam collimation is employed.

Trace element measurements on the xrf data table are expressed in quantitative units (i.e. parts per million [ppm] and weight percent [%] composition), and matches between unknowns and known obsidian chemical groups were made on the basis of correspondences (at the 2-sigma level) in diagnostic trace element concentration values (in this case, ppm values for Rb, Sr, Y, Zr, Nb and, when necessary, Ba, Ti, Mn and Fe,O,T) that appear in Hughes (1984; 1983a, b; 1986; 1988;
Artifact-to-obsidian source (geochemical type; sensu Hughes 1998) correspondences were considered reliable if diagnostic mean measurements for artifacts fell within 2 standard deviations of mean values for source standards. I use the term "diagnostic" to specify those trace elements that are well-measured by x-ray fluorescence, and whose concentrations show low intrasource variability and marked variability across sources. In short, diagnostic elements are those whose concentration values allow one to draw the clearest geochemical distinctions between sources (Hughes 1990, 1994a). Although Zn, Ga and Nb ppm concentrations also were measured and reported for each specimen, they are not considered "diagnostic" because they don't usually vary significantly across obsidian sources (see Hughes 1982, 1984). This is particularly true of Ga, which occurs in concentrations between 10-30 ppm in nearly all parent obsidians in the study area. Zn ppm values are infrequently diagnostic; they are always high in Zr-rich, Sr-poor peralkaline volcanic glasses, but otherwise they do not vary significantly between sources in the study area.

Composition measurements are reported to the nearest ppm to reflect the calibration-imposed resolution capabilities of non-destructive energy dispersive x-ray fluorescence spectrometry. The resolution limits of the present x-ray fluorescence instrument for the determination of Zn is about 3 ppm; Ga about 2 ppm; for Rb about 4 ppm; for Sr about 3 ppm; Y about 3 ppm; Zr about 4 ppm; and Nb about 2 ppm (see Hughes [1988, 1994a] for other elements). When counting and fitting error uncertainty estimates (the "±" value in the table) for a sample are greater than element-specific resolution limits given above, the larger number is a more conservative indicator of composition variation and measurement error arising from differences in sample size, surface and x-ray reflection geometry.

The artifact-to-source (geochemical type) attribution for each specimen appears on the data table. Of 22 specimens analyzed, nine were manufactured from Fish Springs volcanic glass and six were fashioned from varieties of Coso Volcanic Field obsidians (West Sugarloaf, n=5, West Cactus Peak, n=1; cf. Hughes 1988). Two samples were fashioned from Casa Diablo area obsidians (Sawmill Ridge, n=1 and Lookout Mountain, n=1; cf. Hughes 1994a), two have the same trace element composition as Queen geologic samples, and two other specimens were identified geochemically as representatives of the Queen Impostor chemical type. Despite its physical appearance, xrf analysis determined that specimen 693-3 from Iny-3782 was manufactured from a non-obsidian parent material.

I hope this information will help in your analysis and interpretation of materials from these sites. Please contact me at my laboratory ([650] 851-1410) if I can be of further assistance. As you requested, I have forwarded the specimens to Tom Origer for obsidian hydration analysis.

Sincerely,

Richard E. Hughes, Ph.D.
Director, Geochemical Research Laboratory

encl.
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All values except Fe/Mn ratios in parts per million (ppm) or weight percent (total iron); ± = pooled estimate (in ppm) of x-ray counting uncertainty and regression fitting error at 300 and 600 (*) seconds livetime; nm = not measured.
<table>
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<th>Zn</th>
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<th>Rb</th>
<th>Sr</th>
<th>Y</th>
<th>Zr</th>
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All values except Fe/Mn ratios in parts per million (ppm) or weight percent (total iron); ± = pooled estimate (in ppm) of x-ray counting uncertainty and regression fitting error at 300 and 600 (*) seconds livetime; nm = not measured.
Jeff Burton  
National Park Service  
Western Archaeological Conservation Center  
1415 North Sixth Street  
Tucson, Arizona  
85705

Dear Jeff:

This letter reports hydration band analysis of 35 obsidian specimens from four sites at Manzanar National Historic Site. The sites include: A-16 (n=4); A-23 (n=11); CA-INY-3782 (n=8) and CA-INY-4860 (n=12). This work was completed following source analysis by Richard Hughes, Geochemical Research Laboratory, who sent the specimens to us on your behalf. This work was completed as part of WACC project number MANZ 1997 D.

The analysis was completed at the Sonoma State University Obsidian Hydration Laboratory, an adjunct of the Anthropological Studies Center, Department of Anthropology. Procedures used by our hydration lab for preparation of thin sections and measurement of hydration bands are described below.

The specimens were examined to find two or more surfaces that would yield edges that would be perpendicular to the microslides when preparation of the thin sections was done. Two parallel cuts were made at an appropriate location along the edge of each specimen with a four-inch diameter circular saw blade mounted on a lapidary trim saw. The cuts resulted in the isolation of small samples with a thickness of about one millimeter. The samples were removed from the specimens and mounted with Lakeside Cement onto etched glass microslides.

The thickness of each sample was reduced by manual grinding with a slurry of #500 silicon carbide abrasive on plate glass. Grinding was completed in two steps. The first grinding was stopped when a sample's thickness was reduced by approximate one-half. This eliminated any microchips created by the saw blade during the cutting process. Slides were then reheated, which liquefied the Lakeside Cement, and the samples inverted. Newly exposed surfaces were then ground until proper thicknesses were attained.

Correct thin section thickness was determined by the "touch" technique. A finger was rubbed across the slide, onto the sample, and the difference (sample thickness) was "felt." The second technique used to arrive at proper thin section thickness is the "transparency" test where each microslide was held up to a strong source of light and the translucency of the samples was observed. A sample was reduced enough when it readily allowed the passage
of light. A coverslip was affixed over each sample when grinding was completed. The completed microslides are curated at our hydration lab under File No. 98-H1725.

The hydration bands were measured with a strainfree 60 power objective and a Bausch and Lomb 12.5 power filar micrometer eyepiece on a Nikon petrographic microscope. Six measurements were taken at several locations along the edge of each thin section. The mean of each measurements was calculated and listed on the enclosed page with other pertinent information. The hydration measurements have a range of +/- 0.2 due to normal limitations of the equipment.

Thirty-one of the specimens were marked by hydration bands that could be accurately measured, and four were not. Three of the four that could not be measured accurately had weathered surfaces, and this weathering was the reason why reliable measurements were not possible in two cases. Weathered surfaces on specimen 831 from CA-INY-4860 created hydration that varied in thickness, and specimen 832-16 from the same site had a fairly consistent band wide, but weathering appeared to have removed an unknown amount of hydration. The remaining specimens (340-1 from site A-23 and 659 from site CA-INY-3782) that lack measurable bands had diffuse hydration (DH).

Please do not hesitate to contact me if you have questions regarding this hydration work.

Sincerely,

Thomas M. Origer, Director
Obsidian Laboratory

Enclosures: Data Table
Specimens
### A-16

**Submitter:** J. Burton - National Park Service  
**March 16, 1998**

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**Lab Accession No.: 98-H1725**  
**Technician:** Thomas M. Origer

### A-23

**Submitter:** J. Burton - National Park Service  
**March 16, 1998**

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**Lab Accession No.: 98-H1725**  
**Technician:** Thomas M. Origer

### CA-INY-3782

**Submitter:** J. Burton - National Park Service  
**March 16, 1998**

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