THE CHINESE LAUNDRY ON SECOND STREET:

PAPERS ON ARCHEOLOGY AT THE WOODLAND OPERA HOUSE SITE

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CONTENTS

THE CHINESE LAUNDRY ON SECOND STREET: ARCHEOLOGICAL INVESTIGATIONS AT THE WOODLAND OPERA HOUSE SITE

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INTRODUCTION

Most modern residents of Woodland know the property on the northwest corner of Main and Second Streets only as the site of the Woodland Opera House. This imposing brick structure, built in 1895 and recently restored by the California Department of Parks and Recreation, is one of the few vaudeville theaters to survive from the late nineteenth century. Most of its counterparts are long gone, having evolved into moving-picture theaters soon after 1910, and ultimately being demolished to make way for even more modern improvements. The Woodland Opera House is a source of considerable civic pride, as it was when it was first constructed.

The existing opera house, however, is only the upper stratum of a historical continuum extending back to the earliest history of the city of Woodland. It was constructed on the ruins of an earlier opera house, built in 1884-85 and destroyed in the disastrous fire of 1892, which burned a substantial portion of the town's commercial district. Both opera houses are documented in the historical record. Far more obscure are the uses of the property from the town's beginnings in the 1860s until construction began on the first opera house in 1884. Accounts of the site's earlier enterprises are sparse.

Fortunately, the archeological record contains evidence of the diverse uses of the site. Examination of the deposits under the opera house provided clear testimony to the presence of the harness and saddle shop established in the 1860s by a German immigrant, Chinese laundrymen who worked here in the 1870s, and the restaurant and oyster bar that served the after-theater set in later years. Discovery of these remains stimulated archeological investigations as well as more intensive historical research. The combined efforts of the two disciplines have clarified much of the history of the Woodland Opera House site.

Documentation seems to be particularly scarce for the Chinese laundry; only two references to the business were found. One, an article on

the removal of the washhouse in the Woodland Daily Democrat on May 5, 1880, concludes with the recommendation that property owners

> ...consolidate the Mongolian population of our beautiful city in one remote corner -- after which the city should wall the heathen district with an impenetrable structure about fifty feet high.

If the reporter's intent was to render the Chinese invisible to the rest of the community, it appears in retrospect that the city was wise to spare itself the expense of building the "impenetrable structure." Time alone has largely obscured the Chinese heritage of Woodland.

As in many small towns in the western United States, Woodland's Chinese community shrank with the dwindling numbers of immigrants and the deaths of its aging residents during the early twentieth century. In Woodland, as in these towns, little now remains but old newspaper accounts, street maps showing a long-disappeared Chinatown, a few Chinese restaurants, and archeological deposits holding the only remaining physical evidence of the presence of Chinese workers who played a critical role in the development of California as we know it.

It is our hope that the historical and archeological evidence reported here will help to reinstate the nineteenth-century Chinese residents of Woodland as an important part of the history of that community, as well as of the history of the Woodland Opera House site.

Purpose

This report details the results of historical and archeological investigations undertaken by the California Department of Parks and Recreation as part of the Woodland Opera House restoration project. The primary objectives of this work were to identify significant cultural resources, and to document or recover those threatened by the impending restoration work.

Major areas of archeological and historical investigation included:

1) The period prior to construction of the first opera house, including evidence of a harness shop and Chinese occupation of the area;
2) Architectural evidence of the first opera house;
3) The destruction of the first opera house by the 1892 fire;
4) Construction of the existing opera house;
5) Construction of the Home Savings Bank Building on the parcel immediately south of the opera house in 1893.

Although each of these phases is represented archeologically, we believe those remains associated with the Chinese occupation of the site are the most interesting and significant encountered in the deposit. We have therefore emphasized the history and archeology of the Chinese component of the site in this report. As is the case with other non-White or non-English-speaking minorities, many aspects of the Chinese role in the evolution of California society, commerce, and industry are not well represented in the English-language record. We have used this study as a vehicle to re-emphasize the presence of a

sizable Chinese minority in early Woodland, and to reinstate them as a largely forgotten element in the history of the site.

The Chinese component at the opera house site is of significance beyond its contribution to an increased understanding of and sensitivity to local history. Although we have witnessed a number of archeological investigations of overseas-Chinese sites in recent years, many of these sites date to the 1880s and later, or have yielded only small collections. The Woodland assemblage provides an important contrast, as it can be securely dated to before 1880, and includes a variety of materials (especially plant and animal food remains) that have not survived on many other sites. As such, it helps to fill an important gap in the archeological record.

In this report are summarized the results of field work conducted from August through December 1980. Preliminary reports prepared after the first stage of the investigation (Felton 1980; Lortie 1980) focused on the basic ownership and structural history of the site, described the results of the initial archeological test excavations, and presented recommendations for subsequent work. An earlier draft of the present report contains additional discussion of archeological and architectural evidence for the first opera house. Much of this material has been deleted here, as it has little direct bearing on the pre-1885 uses of the property. The earlier work is summarized here as appropriate, but is discussed in greater detail in the initial reports.

The present report has been divided into five major sections: 1) introductory comments on methodology; 2) a synopsis of the site history, with particular emphasis on the development of the Chinese community in Woodland and the early businesses that stood on the property before the first opera house was erected; 3) a description and interpretation of architectural and archeological features documented during the field work; 4) descriptions and analyses of the artifacts recovered; and 5) discussions of archeological evidence of site chronology and the ethnic identity of the inhabitants, as well as reflections on the significance of archeologically recovered tablewares and opium paraphernalia for understanding Chinese life in nineteenth-century America.

Seven additional technical reports are presented in this volume; five were prepared under contract with California Archaeological Consultants, Inc., Woodland. Four studies focus on identification of floral and faunal material, primarily that associated with the Chinese occupation. One paper deals with coins recovered; one with textiles. A broader context for the Woodland finds is provided in a discussion of these remains with reference to aspects of the social history of the Canton region of China, the homeland of most of the nineteenth-century Chinese immigrants to America.

Methodology

Archeological work at the Woodland Opera House site was conducted in three stages. The first, in August 1980, included limited test excavations just to the south of the building, where an undisturbed section of ground was to be impacted by construction. At the time of

the initial investigation, no further archeological problems had been considered. While it was apparent from the outset that the structure itself constituted a significant primary resource, little attention had been paid during the early planning stages of the project to other cultural resources that might be present. A brief reconnaissance of the interior of the opera house soon dispelled this impression.

The "secondary" resources proved to be both significant and diverse. They included theater posters pasted to the interior walls, turn-of-the-century graffiti, deposits of charcoal, rubbish, and artifacts associated with two major fires, and paper ephemera (theater tickets, handbills, etc.) scattered beneath the building. The initial survey identified not only a wealth of theater-period artifacts on the site, but also archeological deposits and features related to the earlier opera house, as well as to pre-1884 uses of the site. Preliminary reports on the August 1980 archeological and historical work described these findings and presented significance arguments and preservation recommendations (Felton 1980; Lortie 1980).

The second stage, consisting of intermittent work designed to implement the recommendations outlined in the preliminary reports, was conducted from September through October of 1980. The work was performed prior to the start of construction, and included test excavations under the building to further define the archeological and architectural features. In addition, posters, graffiti, and architectural details were photographed; twentieth-century fire rubble was removed and sorted for meaningful artifacts; and miscellaneous artifacts scattered under the building were collected.

Minimal time and funding were available for the expanded scope of work called for by the unexpected finds. We decided that maximum efficiency and information yield could be achieved by working closely with the contractor (J. R. Roberts Corporation, Fair Oaks) during the construction phase of the project, taking advantage of foundation excavations required in areas of archeological interest. While we would have prefered to conduct excavations ourselves in a more controlled manner, such "opportunistic" archeology constitutes a productive approach when other preservation measures are impossible.

Methods employed in specific areas are discussed in pertinent sections of the report. Excavation equipment ranged from a backhoe to ice picks; a large shop vacuum cleaner proved to be a very effective tool in cleaning up excavation units for photographs, especially in the dry, dusty deposits under the floor of the building. Screens with 1/4-in. and 1/8-in. mesh were used selectively in the excavation of artifact-rich features and deposits. Most of the fill south of the building, on the other hand, consisted of construction rubble, and was not screened. Cramped space and lack of time prevented screening beneath the floor. Earth in test units was excavated by troweling, and was sorted carefully to recover as large a sample as possible. Material removed by the restoration crew was sorted but not screened, although large samples of the sediment from key deposits were saved for fine screening and flotation of the light constituents. This mixed recovery strategy was effective in obtaining a great variety of small plant and animal food remains, even though the variation in methodology makes systematic intrasite comparisons problematic.

SITE HISTORY

The Beginning of the City of Woodland

The founding and growth of the town of Woodland were based largely on the agricultural development of Yolo County. In 1855, a blacksmith shop and a general store established a nucleus for the townsite, and within two years, a saloon, gambling hall, public school, and a Masonic Lodge hall (upstairs over the school) were added. This small village acquired its first postmaster in 1857 (Gregory 1913:52). From all evidence, the Woodland Opera House site is very close to, if not actually on, this original nucleus of the settlement.

During the 1860s Woodland grew in size and importance. In May 1862, it became the seat of Yolo County, and nine years later it was incorporated. The first town plat was drawn up on June 25, 1863, in an effort to plan for the town's expansion. About this time, Main Street was becoming the major thoroughfare. Many facilities that represented, for nineteenth-century American towns, stability, prosperity, and progress, were established by the early 1870s, including several hotels, a wide variety of stores, a few shops for light industry, a private college, a flour mill, a court house, a gas and water works, and two breweries (Gregory 1913:98-103; Russel 1940:117, 204-205).

A major contributor to Woodland's development was the railroad. The link to the Central Pacific's end of the transcontinental line was completed in June 1869 with the building of tracks between Woodland and Davisville, which had a station on the major rail line between Sacramento and the San Francisco Bay area. In the mid-1870s, construction began on a railroad to the north, going up to the west side of the valley, and soon Woodland had connections to the upper part of the state and the Pacific Northwest (McGowan 1961, I:217, 231-234).

At the same time rail transportation was expanding, agricultural production in the valley was rapidly increasing. Innovations in mechanization and irrigation, development of more hardy cash crops, and the influx of great numbers of immigrants into the area increased per-acre output. As the county seat, major shipping point, and financial center (there were two banks in town by the late 1880s), Woodland benefited richly from these developments. Seven hotels, three restaurants, and an array of shops (including seven washhouses) also enabled it to provide service for the traveler. By the standards of the times, Woodland was a modern, progressive city (McGowan 1961, I:268-292; DePue 1879:78; McDermott and Sarlos 1969:294-295; Gregory 1913:74-79; Russel 1940:170-179).

Early Businesses on Block 2, Lot 5

The Woodland Opera House site is located on the block surrounded by Main and Court and First and Second Streets (Block 2), specifically on Lot 5, which faces Second Street between Main Street and the alley. Prior to the construction of the town's first opera house in 1884,

this lot contained several businesses, and parcels were bought and sold frequently. By the 1870s, four parcels had been established (Fig. 1). The early history of the site is best considered in terms of these properties.

Deitz's Harness Shop

Major occupant and owner of this property, Louis Deitz (also spelled Dietz), was an immigrant from Bavaria who arrived in Woodland in 1862 or 1863. Joining the German hejira of 1848, Deitz at age 18 emigrated first to New York, soon moved to Cleveland, and then relocated to St. Louis. In the spring of 1852, he joined a group heading for California. For about a year, he tried his hand at gold mining. Only marginally successful, he turned to urban pursuits, first in Stockton, then San Francisco. Finally, by 1854, he had opened a harnessmaking business in Sacramento. Apparently this operation prospered, for he soon had a branch store in Folsom. Unfortunately, the great flood of 1861-62 wiped out his shop in Sacramento. Not long after, he moved to Woodland, where he settled permanently (Woodland Daily Democrat Aug. 17, 1903).

Deitz's harnessmaking business in Woodland prospered; he was the leading harnessmaker in the county by 1870. In this year, he employed four men and owned property, equipment, and supplies valued at over $10,000. Investing in real estate also was an important activity for Deitz, as was typical for ambitious businessmen of his time; between 1862 and 1880, he acquired and sold several parcels around town. By 1866 (the year he became a naturalized citizen), Deitz had acquired property in the commercial district and owned all of Lot 5, Block 2, where the first and second Woodland Opera Houses were to be located (Gregory 1913:99; Sprague 1870:146, 274; U.S. Census 1870, 1880; First American Title Company of Yolo 1980, Yolo County 1867:5; Yolo Weekly Mail Jan. 13, 1870; Yolo Democrat Jan. 17, 1878, Feb. 20, 1879; Woodland Daily Democrat July 29, 1878, March 12 and Dec. 31, 1880; McKenney 1878:649).

No information is available on precisely when Deitz set up his business on the site. In 1867, he sold three parcels while retaining (until 1881) one that fronted on Main Street (Fig. 1). Deitz's shop was probably located on this parcel by the late 1860s since a January 1870 advertisement locates his place of business on the north side of Main (Yolo Weekly Mail Jan. 13, 1870). In the early or mid-1870s, he purchased a half interest in the "Burns and Deitz Block" across the street, on the southwest corner of Main and Second Streets and, by about 1876, had moved his harness shop to the new building. At this time, he expanded his operation into carriage trimming and manufacturing, forming a partnership with a blacksmith and a carriage trimmer. Apparently, the economic hard times of the late 1870s hit Deitz's business hard. His carriage-manufacturing venture was abandoned and his partnership dissolved. In March 1880, he moved back across the street, probably to the site of his earlier shop.

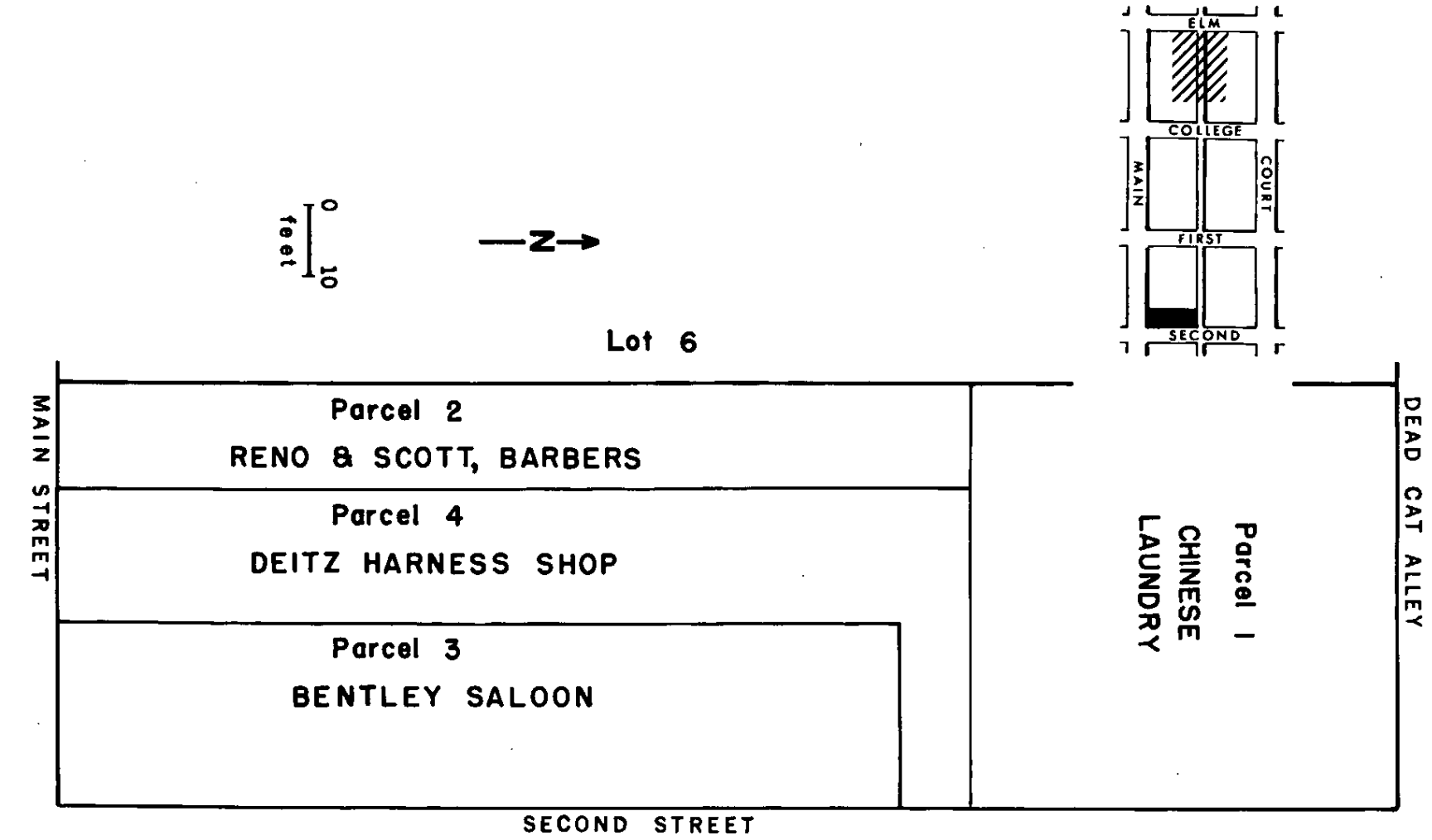

Figure 1. Map of Woodland Opera House site showing property parcels and uses, ca. 1870-1880. Inset shows location of site (solid) and Chinatown (hatched).

Presumably, these were smaller quarters and better suited for his reduced operation. For reasons that are unclear, Deitz made a third, and final, move back to the Burns and Deitz Block in the 1880s, selling his last parcel on Lot 5 in November 1881 to George St. Louis, a storekeeper. It seems likely that Deitz relocated some time in that year. In the middle of the decade, he advertised his establishment as being on the southwest corner of Main and Second. He retained ownership of this property, and evidently ran his business here, until his death in 1903 (McKenney 1878, 1884; Sprague and Atwell 1870:264, 274; Yolo County Clerk 1903; Yolo County Assessor's Office 1876; Yolo Democrat Jan. 17, 1878, Feb. 20, Oct. 9, 1879; Woodland Daily Democrat July 29, 1878, March 12, Dec. 31, 1880).

Bentley's Empire Saloon

The Empire Saloon, on the northeast corner of Main and Second (Parcel 3) was in business from at least the 1860s into the 1880s and was run for most of that time by George W. Bentley. Woodland's 2,500 citizens supported 24 saloons in 1879, and Bentley's establishment was evidently one of the "finer" drinking spots, with $2,500 worth of stock and fixtures in 1881, when Bentley sold his business to L. Dreyfus, a Woodland liquor dealer (Sprague and Atwell 1870:229, 530; First American Title Co. 1980; McKenney 1884:643, 1885:327).

Reno and Scotts' Barber Shop

Ownership records show several transactions on Parcel 2 of Lot 5 between the time Deitz first sold it and 1884 when the Woodland Opera House Association purchased it. In spite of the changes in ownership, apparently only one type of business was situated on this parcel during these years. What is more notable is that it was originally a Black-owned and operated business. Robert Reno and the Scott brothers, John and Jacob, bought the parcel in 1868, ran a barbershop here and probably lived on the premises. The barber's profession in the nineteenth century was generally considered an "appropriate" Black occupation, so Reno and the Scotts were following traditional occupational lines. However, untypical of most Black people of this era, they were property owners and were able to maintain a business for well over a decade. Although we do not know who operated it after 1884, Sanborn maps indicate a barbershop at this location until at least 1889 (Sprague and Atwell 1870:352, 499; McKenney 1878:42; 1884:666, 668; U.S. Census 1870, 1880; Yolo County Assessor 1882).

The Chinese Laundry

Little is known about the occupants of, or activities on, Parcel 1 at the north end of Lot 5 before construction of the first opera house. This was the first section of Lot 5 that Deitz sold (April 1867), and the one that changed hands most often. A Chinese-operated laundry was removed from this property in May 1880:

> The Chinese Must Go - The old dilapidated Chinese wash-house on Second Street, just north of Bentley's corner, is to be removed to the Chinese quarter northwest of town, and men are now engaged in removing it. The house and lot on which it has stood are the property of T. P. Magee, who, we understand will erect a handsome building on the ground thus vacated, not however until the premises have undergone a thorough fumigation - a precaution highly essential to the sanitary interests of the people living in the vicinity. Now it is in order for persons owning such tenements on the prominent streets of Woodland to follow the example of Mr. Magee... (Woodland Daily Democrat May 5, 1880:2).
>
> The wretched old wash-house on Second street, just north of Bentley's corner saloon, so long tenanted by Chinese, is going to be removed and a new, decent, respectable, and cleanly house put up in its place. This is well. It would be still better if all the landlords who rent their premises to Chinese in other parts of Woodland should do the same thing that Mr. Magee is doing (Yolo Mail May 6, 1880:3).

Evidently the washhouse had been there for quite a while, although we have found no evidence to indicate exactly when it was constructed. If there were any other structures on the parcel before the laundry went into business, it would seem likely that they were also commercial properties. From the ownership records, it is apparent that Parcel 1 was controlled by a series of absentee landlords. The owners did not identify this property as their primary or secondary place of business, and none indicated it as the location of their personal residence (Sprague and Atwell 1870:294, 268, 305, 383; McKenney 1878:40, 1879:524, 527, 530, 1884:661, 1885:342; Yolo Democrat Jan. 17, 1878; Yolo Weekly Mail Feb. 3, 1870, Oct. 5 1871, May 6, 1880; U.S. Census 1870, 1880).

Although there is no direct evidence, the laundry may have begun operation on the site as early as the late 1860s. The May 1880 accounts describe the structure as old and dilapidated, and one mentions the building as "so long tenanted by Chinese." By 1870 there were six Chinese laundries in Woodland, although their specific locations are unknown (Sprague and Atwell 1870:522). The number of Chinese laundries had increased only to seven at the end of the decade (DePue 1879:78). Since both newspaper items describing the removal of the laundry refer to the structure as a long-time occupant, it may be one of the earlier half-dozen businesses counted in 1870.

Assessment records are of little help in determining the condition or character of the structure on Parcel 1. In 1876 and 1879, the structure was valued at $500. The three buildings on Lot 5 facing on Main Street were assessed at $300 for Parcel 2, $1,000 for Parcel 4, and $800 for Parcel 3. The higher amount for Parcel 4 could indicate that this structure was of brick. The 1871 Bird's Eye View of Woodland (Fig. 2) depicts it as having a flat roof with a low parapet and false front, common features for brick buildings. All three of

these structures were single story and apparently about the same size. The $500 assessed value of the washhouse probably indicates a frame building larger than the barbershop on Parcel 2, but less substantial than Bentley's saloon on Parcel 3.

The 1871 bird's-eye view shows small frame structures to the north of the three mentioned above and south of Dead Cat Alley (Fig. 2). Because of the angle of view, the alley itself is not visible on this block, and it is difficult to establish the north-south placement of these buildings. There are at least two medium-sized gable-roof frame structures in this area, oriented east-west, facing Second Street. These seem to be on the northern part of the property, near Dead Cat Alley (cf. archeological Features 8 and 9, below). The lithograph also shows at least one smaller outbuilding (a shed or privy) on the lot (cf. Feature 10).

Apparently T. P. Magee, the owner of Parcel 1, did not rebuild after the laundry was removed. The assessments of 1882 show no value for improvements; only the land was taxed. By 1884, when the community started plans for the construction of the first opera house, Magee would have had an incentive to keep the lot vacant. His property would have been one of the preferred sites for a large theater; there would be no demolition costs, and the parcel was centrally located (Yolo County Assessor 1876, 1879, 1882; Woodland Daily Democrat May 5, 1880; Yolo Mail May 6, 1880).

Thus--although documentation is minimal--Parcel 1 of Lot 5, Block 2 seems to have been developed for commercial use from the early 1860s. Probably from late in this decade until 1880 it contained a Chinese laundry, and no subsequent structure replaced the laundry until the construction of Woodland's first opera house.

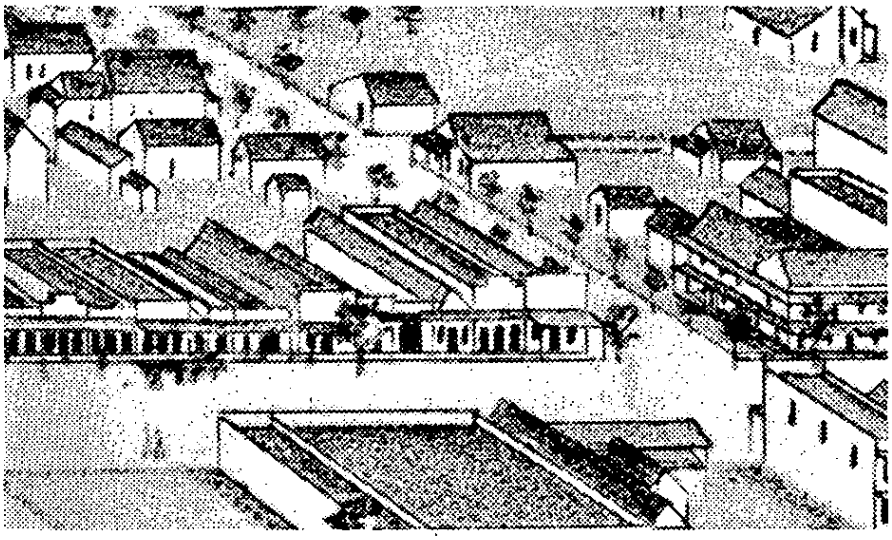

Figure 2. Lot 5 of Block 2 looking north, as depicted in the Bird's-Eye-View of Woodland in 1871 (Yolo County Historical Society).

The Chinese of Woodland

Chinese Population and Occupations

It was not until relatively late in the nineteenth century that the Chinese population of Woodland was large enough to attract notice. A handful of Chinese workers in the county in 1860 were employed as cooks and laborers. About this time, apparently, some Chinese started to operate truck farms along the Sacramento River, but there is no documentation on how many persons were involved with this activity. The expansion of large-scale commercial agriculture during the 1860s and 1870s, and the construction of the railroad through the county brought hundreds of Chinese workers to the area (Russel 1940:170-172; U.S. Census 1860; Saxton 1971:7).

The census records for 1870 do not enumerate Woodland separately from Cache Creek township as a whole. A rough estimate for the town in that year would be 60 to 70 Chinese residents, with possibly another 20 persons living at various places on the outskirts of town. (A total of 82 Chinese was recorded for the township; the Caucasian population was over 3,000.) Close to half of the town dwellers were cooks; the next largest occupation was "washer" (laundry worker); then came gardeners; and, finally, laborers. A neighboring rural township, Buckeye, shows a different labor profile; ten Chinese farm laborers are listed with no other occupation represented. The need for experienced cooks in Woodland must have been pressing, since the town had a half-dozen hotels with dining accommodations, at least three restaurants, and an undetermined number of boarding houses. The demand for laundrymen was significant because of the growth of the town (McGowan 1961 I:217, 231; U. S. Census 1870).

The Chinese population in Woodland grew slightly by 1880, by which time there were over a hundred Chinese living in town. A more dramatic change occurred in the occupational profile. Only about 20% of this group were employed as cooks; while 30% were "laundrymen;" about 15% laborers; the same percentage were servants; with the rest working as gardeners, or at other unskilled jobs. New in the Chinese community were three merchants and five women.

The anti-Chinese political agitation and violence common throughout California in the depression of the 1870s affected Woodland as well. Advertisements in a Woodland newspaper and in the city directory by two of the town's major hotels stressed that they did not employ Chinese cooks. Other eating establishments undoubtedly complied with this policy. Anti-Chinese organizers in most of the state pressured employers to fire all their Chinese workers. In the Sacramento Valley, this movement became a powerful force, especially after 1877. Laundrymen, while subjected to discrimination in other ways, may have escaped some of the economic pressures of this movement since they ran their own businesses (U.S. Census 1880; McKenney 1878:50; Yolo Democrat May 9, 1978; Woodland Daily Democrat Sept. 12, 1878; McGowan 1961:323-326).

The Chinese Quarter

Although Parcel 1 was an early Chinese business site, it was not part of the town's Chinese quarter per se. The earliest records are equivocal, but the Sanborn map for 1886 (and subsequently, in 1889 and 1906) shows a "Chinatown" three blocks west of the site, on Dead Cat Alley between Elm and College Streets (Fig. 3). Most of the 14 buildings labeled "Chinese dwellings" were clustered around the Elm Street end of the alley. One account of the removal of the laundry on Parcel 1 noted that the building itself was not going to be demolished but rather was "to be removed to the Chinese quarter northwest of town..." (Woodland Daily Democrat May 5, 1880:2). This would be roughly where the "Chinatown" on the 1886 Sanborn map is located, that is, northwest of the central business district (Fig. 1, inset).

Woodland's Chinatown was not established immediately by the first Chinese who settled in the city, sometime in the middle of the 1860s. The 1870 census schedules record no major cluster of Chinese in one area. Two groups of five or more persons were living at a single location. One group of eleven (eight cooks, two laundrymen, and one servant) was some distance from the next recorded group (three cooks at a hotel). The other large group consisted of 16 men (eleven cooks, three washers, and two gardeners) living in three dwellings, with Caucasian families living between them.

With the increase in both Chinese population and anti-Chinese feeling in the 1870s, however, residential concentration began and the existence of a Chinese quarter is traceable in the 1880 census schedules. At that time, there were two relatively large groupings of Chinese located an undetermined distance apart. Thirty-five persons (including one married couple and four women) listed in eight dwellings represented the largest grouping. In this cluster were also the three merchants noted above, and five managers of boarding houses. The next largest concentration was 28 men, all "laundrymen," living in three dwellings. Since the laundry on Second Street was removed in May, and the census in Woodland was not begun until June, it is possible that some of the workers previously employed (and possibly housed) at the washhouse on Parcel 1 were included among these 28 laundrymen.

Chinese Laundries

It is significant that the Chinese occupation of Parcel 1 was associated with a laundry, a business which was one of the major sources of income for the Chinese in California, particularly after 1870. The laundry business was one of the few economic niches in which Chinese could attain the status of independent entrepreneurs. The enterprise also required little initial capital investment (Ong 1981, 1983). In 1880 Chinese comprised 80% of the state's laundry workers.

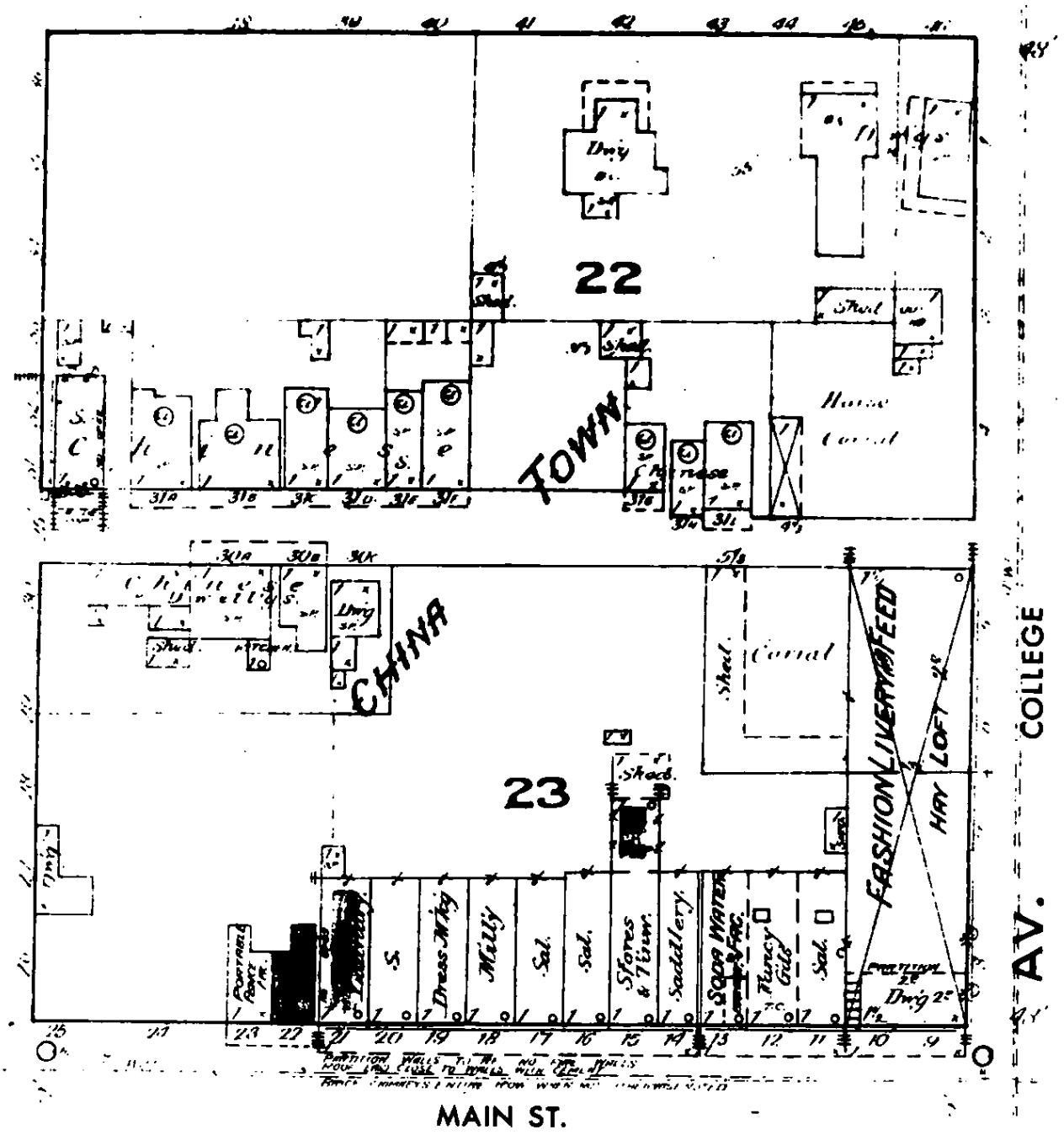

Figure 3. Woodland's Chinese quarter, as indicated on the 1886 Sanborn fire insurance map (Shields Library, University of California, Davis).

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No record has been found which identifies the operators and workers in the Second Street laundry. Judging by the assessed value of the structure in 1876, it was probably an average-sized place of business. A Chinese laundry in the 1870-1900 period usually employed from four to six workers (Askin 1978:7, 10-12; Ong 1981:102). In Woodland in 1879 there were seven Chinese washhouses in town; about 35 laundrymen are listed in the 1880 census, giving an average work force per laundry of five (DePue 1879:78; U.S. Census 1880).

According to Siu (1953), a Chinese laundry usually had three to four rooms which contained an area for the large kettles of hot water, space for sorting, folding, and storing the clothes, possibly a room for drying, area for ironing, and space for transacting business with customers. The washing kettles were typically at the rear of the building, but sometimes they were in the basement or in a separate structure behind the laundry. Since California's climate is generally mild, most of the drying was probably done outdoors, either in an open area to the rear of the building or on the roof. The ironing was usually done at the front of the laundry so that one of the men ironing could also serve customers as the need arose. Since most cities, including Woodland, did not then have much of a sewer system, the dirty water from the laundry was dumped into cesspools behind or beneath the buildings or in a nearby vacant lot (see interpretation of archeological Features 8 and 9, below). The profit margin for Chinese laundries was thin; there was constant pressure to keep costs down. Rather than have a structure built for a laundry, the Chinese usually rented older structures, of whatever prior function, and adapted their operations to fit the buildings.

Although the evidence for the Second Street laundry is fragmentary, it is possible to reconstruct its general appearance. The 1886 Sanborn map shows six Chinese washhouses on Main Street. Each was a single story, made of brick. Like other commercial buildings here, they were of the standard rectangular or square shape but tended to be slightly smaller than average (about 20 ft by 60 ft). Since one 1880 account of the Second Street laundry noted that it was to be moved to the Chinese quarter, rather than demolished, it may be included among the 14 wood frame buildings comprising the Chinatown shown on the 1886 Sanborn map (Woodland Daily Democrat June 4, 1880). Most of these structures appear smaller than their commercial counterparts on Main Street. The Second Street laundry was probably a small wood-frame, single-story structure, containing three to five rooms with some open space to the rear (or possibly to the side next to Dead Cat Alley) for drying clothes and dumping dirty water.

One aspect of this laundry's operation is reflected in fragments of ceramic food vessels found in the deposit. These are usually associated with residential or domestic use of the site. Laundry workers sometimes lived at the washhouses, especially at family-owned and operated businesses. Residence at the Second Street laundry may be doubted, in light of the pattern evident in 1880 of all the town's laundry workers living in rooming houses, although the laundry had been moved by the time the census was begun. The presence of these artifacts might be explained by the preparation and consumption at the workplace of the daily meals that laundrymen customarily ate, at about

9:00-10:00 a.m. and at around 4:00-5:00 p.m. (Culin 1887:9). Usually one of the workers--either a junior employee or a man with previous cooking experience--was selected to serve as a regular cook for the group (Jaffa 1901:32-33). Since the food was served hot and the washday could last from dawn until far into the night, these meals were almost certainly served at the laundry.

By the 1870s the Chinese laundry was being used as a symbol of social degradation by anti-Chinese activists, and it was an obvious target during the anti-Chinese riots of this decade and the 1880s. Foremost among the criticisms of these laundries was their presumed violation of public standards of sanitation and safety. Local physicians and public health officials often traced the source of diseases in their cities to the Chinese quarter, and most of the community leadership was convinced that Chinese laundries had to be "better" regulated or removed in order to protect public health. While laundry operators undoubtedly conducted their businesses in ways that violated public health laws, it is likely that they were no worse than many small businesses of the time. Sanitation and general health problems of nineteenth-century cities were created by forces far more complex than the mere presence of the Chinese. Health officials in the 1870s and 1880s did not have a clear understanding of the etiology of most diseases in the cities nor of what they could effectively do to prevent them. As a result, they were tempted to look for scapegoats for their inability to deal with the problem, and the Chinese, an alien element in the population, were an easy mark (Trauner 1978:70-74; Askin 1978:19-21).

In 1878, Woodland's Board of Health inspected the business district and was extremely critical of the way in which commercial establishments (including several "China houses") carelessly disposed of their refuse and let their cesspools overflow (Woodland Daily Democrat Sept. 12, 1878). By the summer of 1880, the Board's focus had shifted and Chinese laundries were singled out as a major health threat. The Board's Secretary, Dr. Thomas Ross, toured all the "China washhouses" in June. The doctor's report, which appeared in the local press, described the cesspools behind the washhouses as foul pits full of filth, saturating the soil "with disease producing germs, from which, especially in the evening emanate effluvia charged with germs, which if allowed to continue, will assuredly produce their evil effects on the health of the community..." He warned of a large cesspool "full to overflowing--the contents of which stagnate, stink and soak, and pollute the atmosphere in the immediate vicinity of the rooms where the children congregate in school." The editor of the Democrat joined the outcry with an attack on Woodland's Chinatown and accusations that "the effuvia (sic) of these dens of shameless filth, infamy, and disintegrating nastiness is productive of malarial diseases..." He then called for effective sanitary regulations to "abate the nuisance" (Woodland Daily Democrat June 4, 1880).

Solutions proposed for these perceived public sanitation problems usually involved fumigation of the "infected" areas or outright removal of the unhealthy facilities. When the Chinese laundry on Parcel 1 was removed in May 1880, both of Woodland's leading newspapers stressed the benefit to public sanitation (Woodland Daily Democrat May 5, 1880; Yolo Mail May 6, 1880).

Reasons for the removal of the Second Street washhouse are not clear. It is possible that the owner, T. P. Magee, was anticipating the enactment of a city ordinance requiring all laundries to be housed in fireproof (brick or stone) buildings. In the late nineteenth century some California city officials passed fireproof-laundry laws, partially out of an effort to harass the Chinese, and partly as a result of genuine concern for improving health and safety conditions in the fire-plagued cities of this era. According to the 1886 Sanborn maps, as noted above, all of the six remaining Chinese washhouses in Woodland were in brick buildings.

The Opera Houses at Woodland

The expansion of the nation's railroad system into many rural areas in the late nineteenth century provided a tremendous stimulus to the development of popular entertainment. Traveling vaudeville troupes and famous individual performers were able to supplement their incomes by making a series of "whistle stops" throughout rural America. This was an important development both for expanding show business and for breaking down the isolation of remote communities. The minstrel shows, chautauqua lectures, vaudeville, melodramas, as well as contemporary plays and the classics, helped rural audiences keep in touch with the rest of the world and relieved them of the boredom that plagued rural life.

The construction of a relatively large theater also symbolized a community's effort to keep pace with modern trends. The Woodland Opera House is an excellent example of both this rural community's civic pride and the developments in popular entertainment from the 1880s to 1920. Woodlanders, between 1885 and 1913, enjoyed the full array of theatrical fare available to most Americans of this era. All evidence suggests that the opera house is one of the few remaining in California that were constructed for the vaudeville circuit. As movies increased in popularity between 1905 and 1920, the vaudeville-era theaters in smaller cities and towns were converted into motion-picture houses, or were abandoned and demolished (McGowan 1961, II: 152-153; McDermott and Sarlos 1969:291-295).

Well before the first opera house was constructed, Woodland had enjoyed plays and musical reviews in a theater on Main Street, upstairs over the Academy of Music. "Washington Hall" was of a substantial size, and served the community from the late 1860s. The Westend Theater, or Prior's Hall, was operating in the 1880s. Even so, popular demand for theatrical entertainment in Woodland was great enough, and the financial position of the community sufficiently solid, to support the construction of a relatively large opera house (McDermott and Sarlos 1969:292-294; McGowan 1961, II:152).

The term "opera house" should not be misunderstood. Only two operas were performed here; the name was used to associate the building with "high culture." The opera house served as a community center, accommodating high school graduations, civic ceremonies, and political conventions, as well as a theater for plays and minstrel shows (McGowan 1961, II:152).

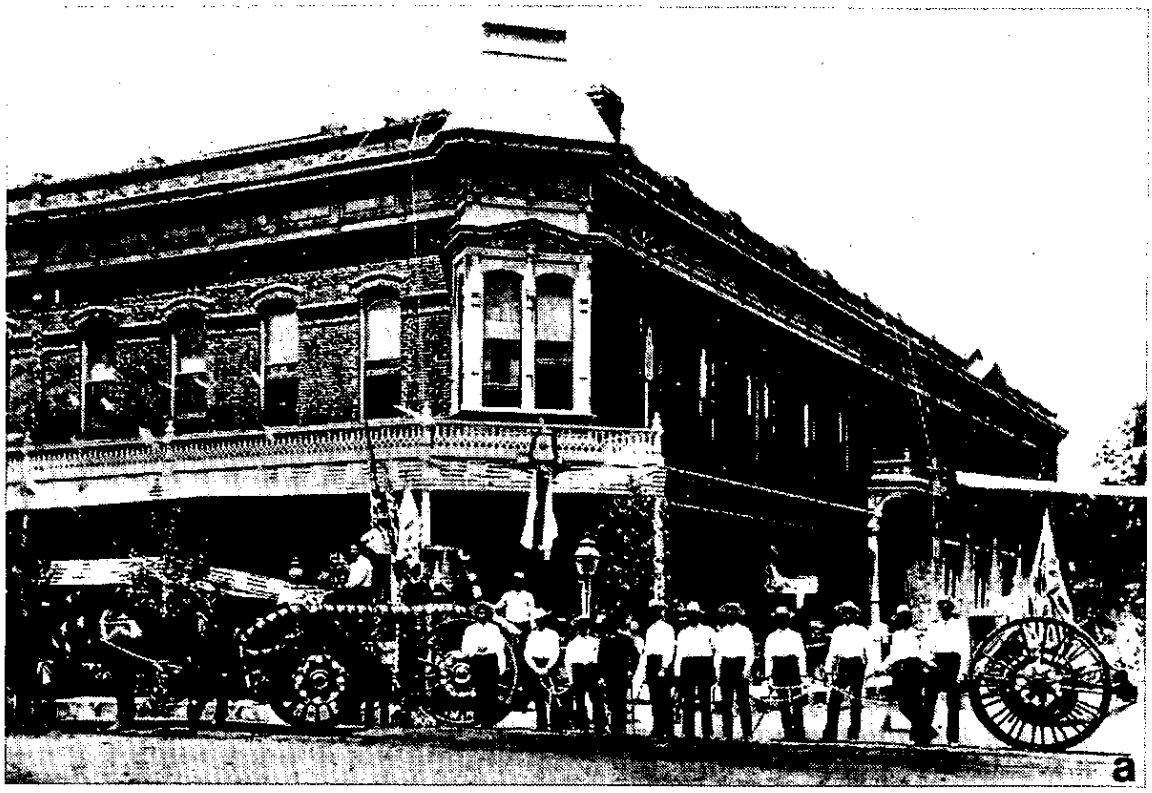
Woodland's first opera house opened its doors in February 1885, on the site now occupied by the second opera house. It offered a full range of theatrical entertainment, evidently well attended. The first opera house and adjoining businesses were housed in an ornate, two-story complex (Fig. 4a). It had a projecting second-story bay window with a steep turret-like roof on the southeast corner, above the entrance to a liquor store/saloon. A porch supported by turned posts ran along Main Street. The elaborate cornice and arches over the many windows appear to have been painted to contrast with the brick walls.

The layout of the property after the construction of the first opera house is reasonably well documented compared to the earlier period. Of particular importance is the Sanborn Fire Insurance Company map for 1886 (Fig. 5a). This plan (which is supported by a similar map for 1889) shows what appears to be a single brick structure about 60 ft wide and 180 ft long extending from Main Street to Dead Cat Alley. The northern portion of this structure housed the theater itself, while the southern section contained five separate rooms. Archeological evidence suggests that this complex actually consisted of two separate structures, although a historic photograph (Fig. 4a) shows a strong stylistic continuity between the two (see The 1885 Opera House - Architectural Elements, below).

The two rooms on the east side of the southern section of the opera house are labeled "Oyster Rooms" (basement and first floor) and "Liquors" (wine room, basement) on the 1886 and 1889 Sanborn maps. "Oyster Rooms" probably refers to an oyster bar, a restaurant specializing in dishes prepared from this shellfish. The room marked "Liquors" could have been a liquor store or a saloon. A long north-south room in the center of the building is identified as a restaurant. A kitchen is shown in the northwest corner of this section of the building; a barber occupied the room at the southwest corner, facing Main Street. Both the saloon and the barbershop were probably old businesses dating to pre-opera house days, although they appear to have been housed in a single large new brick structure by 1886.

On July 1, 1892, the opera house and adjoining businesses were destroyed in a disastrous fire that burned a large part of Woodland's commercial center. After the fire, the property stood unused until 1893, when the Farmers and Merchants' Bank (later known as the Home Savings Bank and the Elliot building) was constructed on the corner of Main and Second Streets (Fig 4b; Woodland Daily Democrat, Jan. 2, 1894). The bank was faced with red sandstone and had a full basement (Laugenour and Meikle n.d.:1). It was demolished in 1973, the basement filled, and the lot graveled. An addition to the restored opera house now occupies the site of the Elliot Building and the alley that separated it from the opera house.

In 1895, the president of the Farmers and Merchants' Bank, and one of the richest men in Woodland, David N. Hershey, bought the ruins of the opera house and helped organize local businessmen into a board of directors, which assumed the duties of acquiring funds and overseeing construction. One of the directors was Frank Dietz, Louis' son and



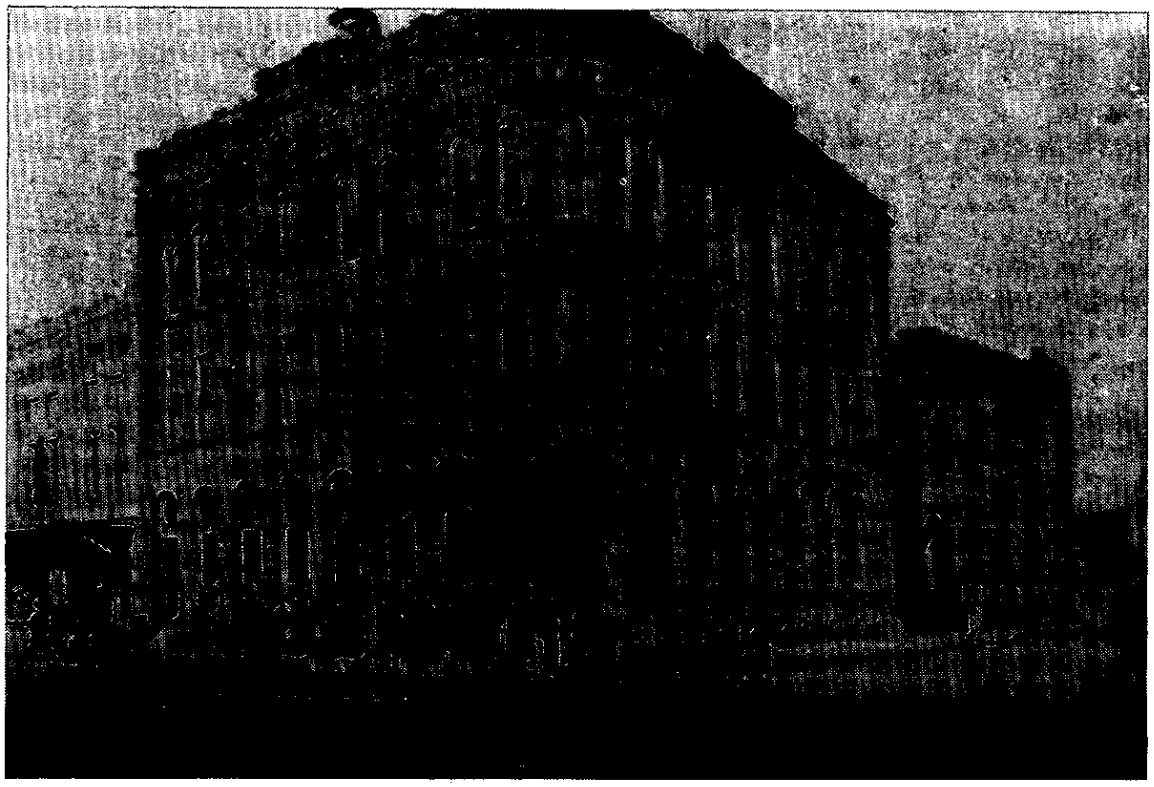


Figure 4. Early views of the site: a) first opera house, ca. 1885-1892; b) Farmers and Merchants' Bank (foreground), second opera house (background), ca. 1895-1905 (Yolo County Historical Society).

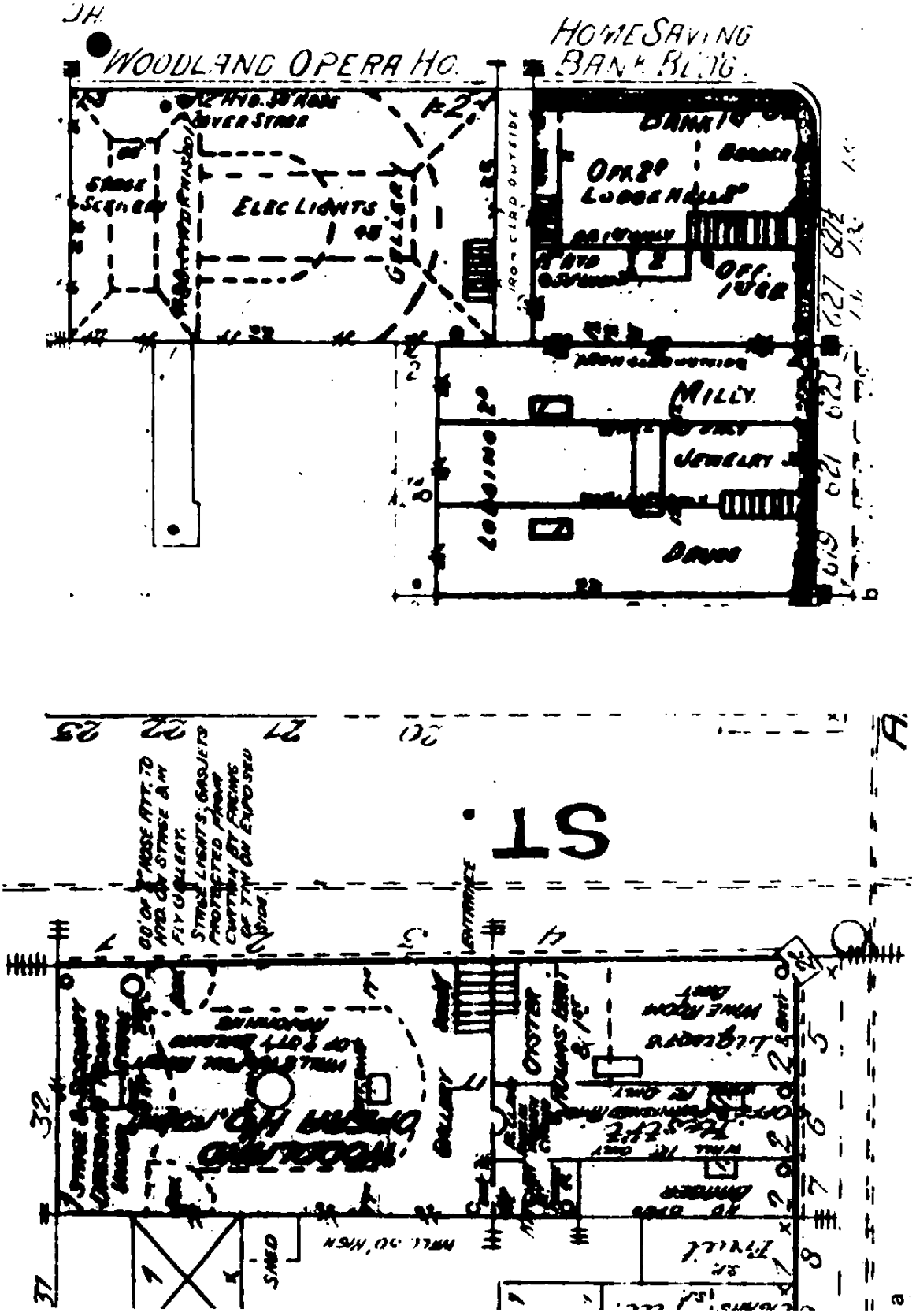


Figure 5. Plans of the Woodland Opera Houses as depicted on Sanborn Maps: a) 1886 map of the first opera house; b) 1906 map of the second opera house (Shields Library, University of California, Davis).

heir to the harnessmaking business originally situated on this lot (Woodland Daily Democrat July 5, 1892; McDermott and Sarlos 1969:296-298). By June of 1896, an opera house had been reconstructed and opened on the parcel north of the bank (Fig. 4b). Reportedly, this structure incorporated the east and west walls of the original opera house, which had withstood the 1892 fire (Yolo County Historical Society brochure).

The 1906 Sanborn Fire Insurance map (Fig. 5b) shows the property after the construction of the Elliot Building and the new opera house. Based on both historical and archeological evidence, the theater layouts of both the first and the second opera houses appear to have been similar, but not identical; the second opera house extended about 4 ft further south than the first (cf. Feature 2).

The second opera house was as much a success as its predecessor. Seating capacity was 644, equal to nearly 15% of Woodland's total population in 1890. To attract a full house, the management kept ticket prices low. This proved to be a good policy, since many traveling theatrical companies booked short engagements at the opera house. Between October and May it averaged two to four different productions a month.

Long-range trends in American popular culture made it inevitable that live theater, such as Woodlanders had enjoyed for years, could not survive for long after 1900. Production costs since the 1880s had been increasing, while audiences were stable or declining. Competition from motion pictures, however, eventually forced theaters featuring live entertainment out of business, especially after 1910. Those which did not convert to primarily, or exclusively, showing movies, soon had to close their doors for good. The Woodland Opera House saw its peak year, in terms of the number of productions and attendance, in 1908, but declined rapidly after that. In 1913, a patron who sustained an injury on the premises sued the opera house. This lawsuit, combined with years of declining revenues, finally put it out of business.

The Woodland Opera House shared the fate of many theaters throughout the country when faced with growing competition from moving pictures. What was exceptional about the later history of the opera house is the fact that it was not sold, demolished, or converted to other uses; the wealthy owners simply boarded the building up and left it idle for almost 60 years. The building, however, has not survived in a pristine condition; over the years vagrants and local youths gained access and vandalized the property. A fire in 1937 destroyed the roof and stagehouse. Amazingly, the owners had maintained insurance on the property and soon had the roof repaired. With a new roof and some repairs, it again remained undisturbed, except for occasional acts of vandalism, until the late 1960s, when interest in restoring the old building began to gain support.

Through the efforts of local citizens, the Woodland Opera House was acquired from the Hershey estate by the Yolo County Historical Society in 1971; it was classified a State Historic Park in 1979. During the fall and winter of 1980-1981, the California Department of Parks and

Recreation and the nonprofit Woodland Opera House, Inc., undertook the restoration of the building, using state funds and a federal preservation grant. With the completion of that work, the Woodland Opera House again symbolizes not only a great age of popular theater, but also an era's rapid economic development and the confidence of Woodland's citizens in the progress of their town (McDermott and Sarlos 1969:300, 301-304; McGowan 1961, II:153).

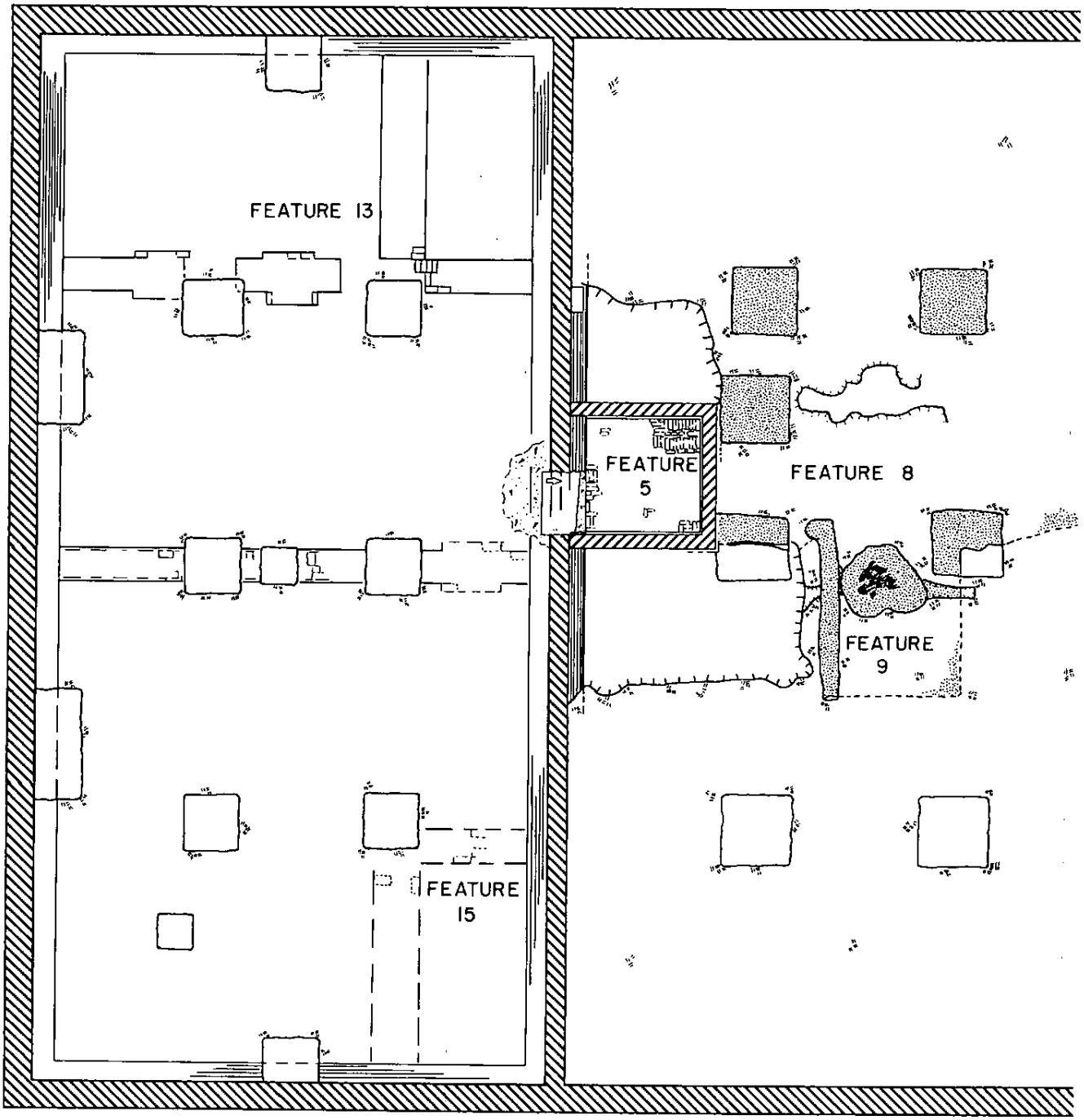
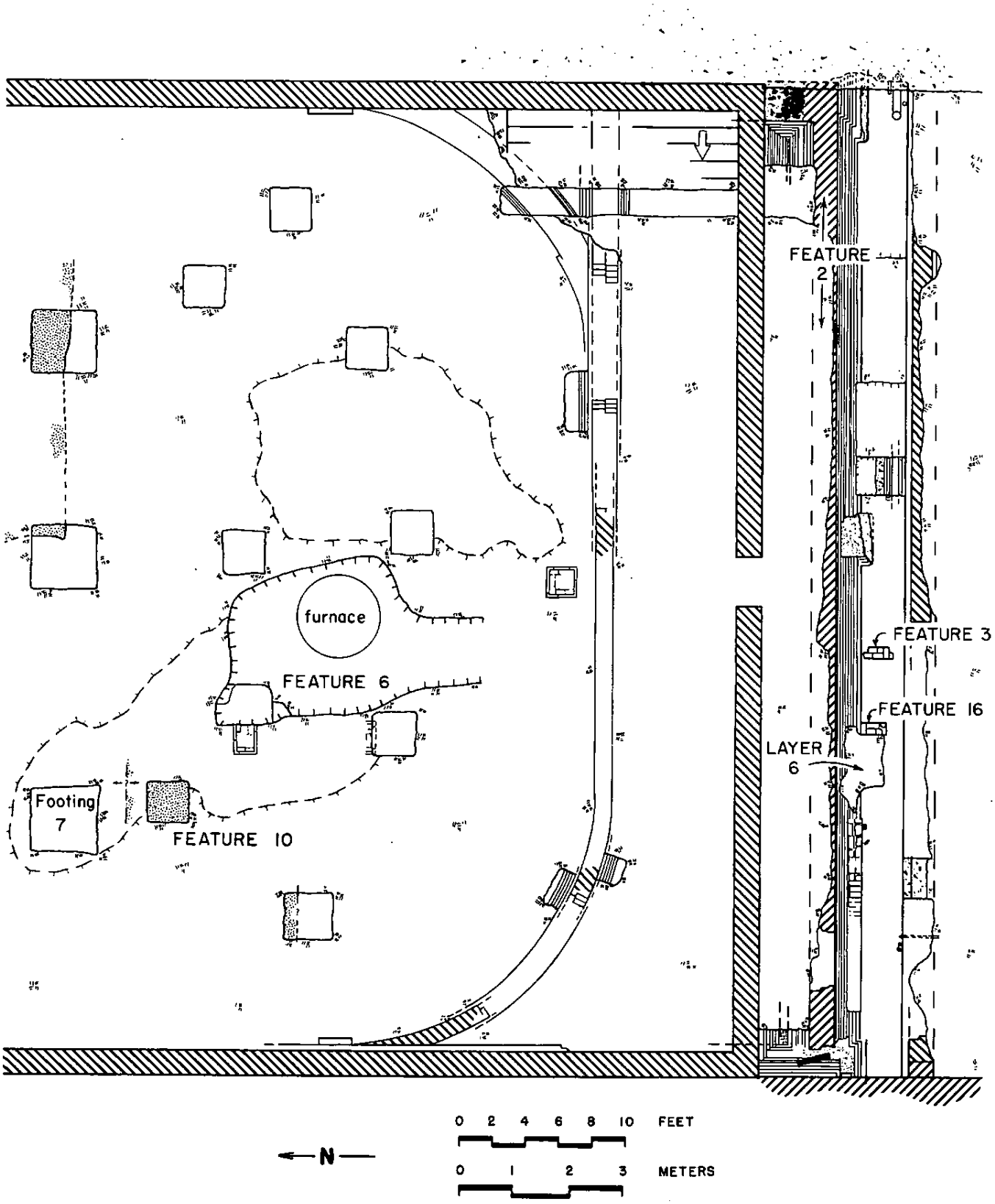


Figure 6. Archeological site plan, Woodland Opera House.


FEATURE 2
furnace
FEATURE 6
FEATURE 3
FEATURE 16
LAYER 6
Footing 7
FEATURE 10
0 2 4 6 8 10 FEET
N
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23

FIELD ARCHEOLOGY AND ARCHITECTURE

A total of 18 archeological features was recorded during the excavations (Fig. 6). Most of these are attributable to the historic buildings that stood on the property before the construction of the existing opera house, including Deitz's harness shop and associated outbuilding, a privy or cellar, a Chinese laundry, and the first opera house. The features are reviewed below, with special attention to those which have provided the artifact samples dealt with in this report.

Deitz's Harness Shop Site (Parcel 4)

Most physical evidence of the Main Street building occupied by Louis Deitz's harness shop was destroyed by the construction of the basement for the Farmers and Merchants' Bank on the south end of Lot 5 in 1895. Nevertheless, several archeological features and numerous artifacts associated with Deitz's operation and/or St. Louis's later use of Parcel 4 were recorded. These include five brick footings, a cellar, and perhaps a privy, as well as much leather scrap and related hardware.

The artifacts associated with leather working recovered beneath the existing opera house consist primarily of dry leather scraps, brass rivets and burrs, and iron buckles. The leather is dry, and is in a remarkably good state of preservation considering its age; this part of the site has been protected from the elements almost continuously since 1885. Unfortunately, few of the leather-related items were found in undisturbed deposits; most were recovered from Feature 6, the furnace pit, and fill that had previously been removed from that feature.

Many Chinese artifacts were also recovered on Parcel 4, presumably a result of the Chinese occupation of Parcel 1.

Brick Foundations (Features 3 and 16)

Two brick constructions (Features 3 and 16) adjoin the south side of the south foundation of the original opera house (Feature 2), near the center of the parcel. They are parallel north-south trending mortared brick "walls," 8 in. wide and about 4.5 ft apart. Only the lower, northernmost portions of these features survived; the rest was removed by the construction of the bank building. Although the brickwork of these features is not tied into that of Feature 2, their upper courses are immediately adjacent to, and slightly overlap, the lower courses of the larger foundation. The lower parts of Features 3 and 16 step downward from this point toward the south.

The placement and spacing of Features 3 and 16 compare favorably with that of the doorway shown in the south wall of the opera house on the 1886 and 1889 Sanborn Fire Insurance maps. As an 1884 deed stipulated that this door was to be aligned with one in the north end of the "Brick Store now occupied by George St. Louis," Features 3 and 16 probably mark the location of both doors.

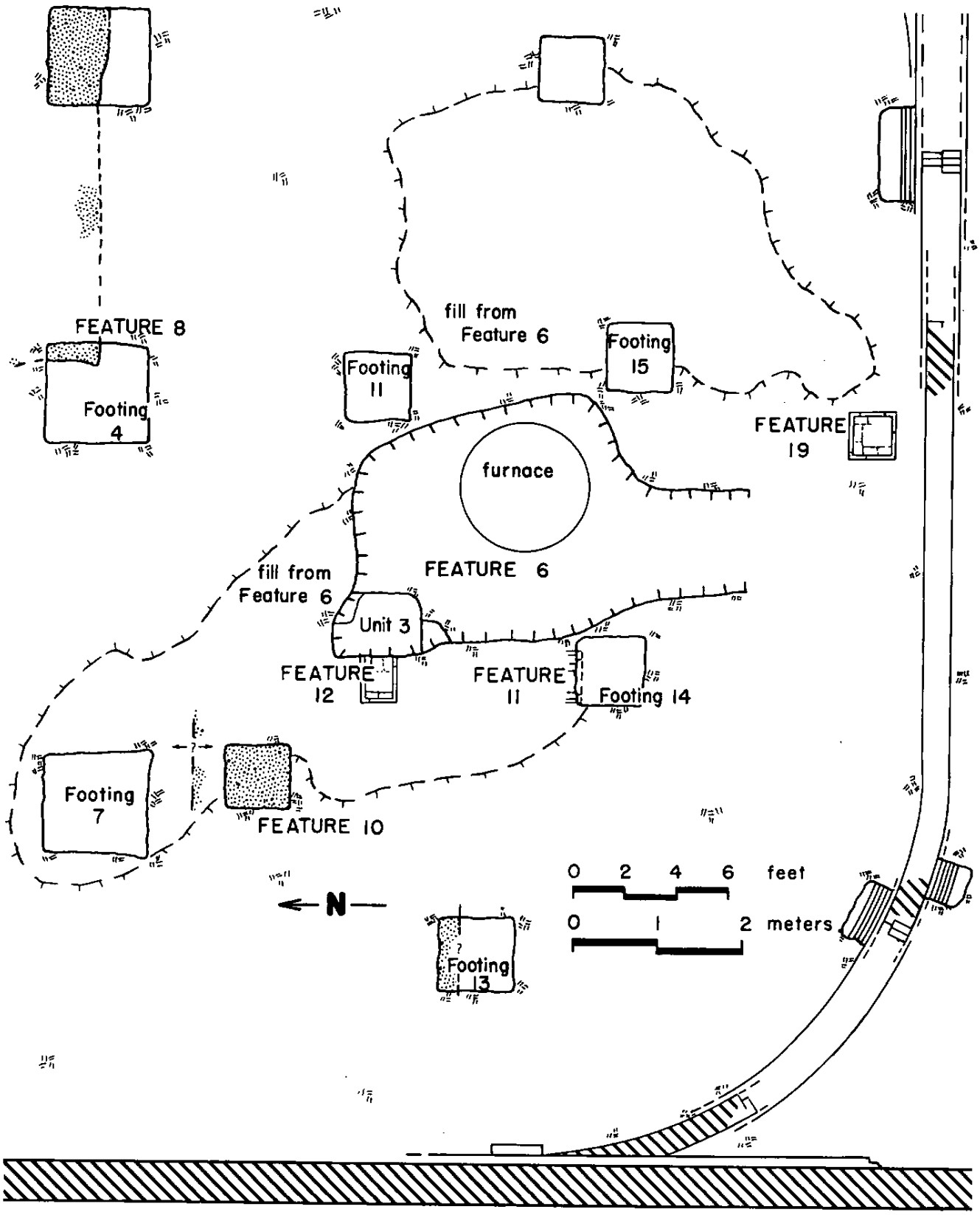

Figure 7. Archeological Feature 6, furnace pit in earlier cellar.

Furnace Pit/Cellar (Feature 6)

The largest feature in the north end of Parcel 4 is an irregularly shaped pit about 16 ft long, 9 ft wide, and 3 ft deep. The cast-iron furnace that last heated the opera house was still in place here when we began work, although the lower part of the furnace and the pit floor had been covered with loose fill of uncertain origin. Excavation showed that the pit was originally at least 5.5 ft deep. Access is from the south, where the sidewall forms a sloping ramp into the depression (Fig. 7). The walls of the pit on the north, east, and west are vertical earth embankments. The fill was rich in artifacts, including dry leather, food remains (animal bones, seeds), bottle glass, and numerous pieces of Chinese porcelain and stoneware dishes and food containers. There were several piles of loose earth around the pit which contained similar artifacts; apparently these piles of fill were the immediate source of the material that had sloughed into the pit, covering the bottom of the furnace. It seems most likely that this earth was removed during the original excavation of the furnace pit. What, however, was the source of the artifacts in the fill? Most of them clearly predate the opera house. They are too numerous to have been scattered over the surface of the site into which the furnace pit was later dug, or to have been discarded under the building after the opera house was in place. We suspect that the excavation of the furnace pit may have entailed cleaning out an old cellar, the fill of which contained these artifacts.

A single small test excavation was made into the fill in the northwest corner of the furnace pit to recover a sample of the artifacts, test for undisturbed deposits, and see if any architectural features from the hypothesized earlier cellar were still present. This work showed no clearly definable undisturbed strata, but rather a loose jumble of artifacts, earth, and some scattered pieces of lumber. The presence of small pieces of asbestos throughout the fill is significant in interpreting the deposit. This material was used extensively to insulate the flues radiating out from the opera house furnace to different parts of the building. The presence of asbestos throughout the fill suggests that all of the material sampled has been redeposited since the opera house furnace was installed.

The general size, shape, and placement of the existing pit and the presence of at least three brick footings around its perimeter (Features 11, 12, and 19; Fig. 6) suggest that the furnace pit actually represents a pre-1885 cellar about 8 ft wide (east to west) and 10 ft to 15 ft long, over which a frame building sat. These footings could have supported a building about 12 ft wide and at least 20 ft long. There is no architectural evidence that these footings were associated with Deitz's brick harness shop or either the first or the existing opera house. It seems most likely that the cellar was constructed, abandoned, and filled with earth and trash prior to the construction of the opera house. Perhaps it was filled when St. Louis got the property from Deitz in 1881, and was re-excavated in 1885 to provide a place for the furnace. Parts of another, presumably earlier, cast-iron furnace were scattered under the building when we began work.

Although no good views of the site have been located for this period, the 1871 bird's-eye view shows a structure north of the harness shop (Fig. 2). This is a small, gabled-roof, frame building oriented east-west, as suggested by the brick footings around Feature 6. The cellar represented by Feature 6 may have been beneath this structure, perhaps an outbuilding used in Deitz's harness-making operation.

Possible Origins of the Chinese Artifacts in Feature 6

While the leather scrap, buckles, and brass rivets recorded are easily attributable to Deitz's harness shop, explanation of the large numbers of Chinese artifacts in Feature 6 was initially more problematic. These included not only artifacts of obvious Chinese origin, but also food remains, such as turtle shell, not commonly found on Euro-American sites in California, and bird bones showing butcher cuts for Oriental cooking (see Simons, this volume). Seeds from this and other features include those of vegetables originating in China (Honeysett and Schulz, this volume). Similar objects were recovered in large numbers on Parcel 1, the Chinese laundry site immediately to the north. Possible explanations for the presence of these materials on the parcel occupied by Deitz's harness shop and, subsequently, St. Louis' store, include:

1. Chinese workers were employed in the harness shop or store;

2. Chinese occupants rented this or other buildings on Parcel 4 from Deitz or St. Louis;

3. Fill material containing Chinese artifacts was brought from Parcel 1 to fill the cellar.

While it contained large quantities of Chinese artifacts, the Feature 6 assemblage included a higher percentage of non-Chinese artifacts (specifically ceramics) than other Chinese-related features to the north (Features 8 and 9). More than one period of occupation may be represented in this mixed deposit, or it may be attributable to simultaneous fill with trash of both Chinese and Euro-American derivation.

Possible Privy (Feature 10)

An additional intrusive feature was found in the northwest corner of Parcel 4 during monitoring of the contractor's excavations for new floor support footings (Fig. 6). A footing hole dug here contained a large amount of broken bottle glass. As the fill was loose and would have provided an unstable base for the new footing, the original 2.5-ft-square by 1-ft-deep hole was excavated to a depth of 5 ft before undisturbed ground was encountered. Large quantities of artifacts were present throughout its depth. These are primarily broken glass bottles, although a large number of seeds were recovered as well (Honeysett and Schulz, this volume). The feature was probably a pre-1885 privy or cellar, filled at some time prior to the construction of the opera house. Because of the small size of the hole, we did not define any part of the outline of the original pit.

If it was a typical privy, the footing excavation must have hit squarely in the center in order not to have located one side or end. We know that the original intrusion does not extend too far north, as another larger footing excavation less than 3 ft away yielded no evidence of the artifact-rich feature. A soil discoloration noted in the Footing 13 pit to the southwest may represent the south side of this or another comparable intrusive feature. This discoloration was not investigated further, due to lack of time. It is located on the north end of Parcel 2, which had a different ownership history than Parcel 4, and may represent a separate, as yet unidentified, feature.

Chinese Occupation of Parcel 1

Archeological evidence from Parcel 4, discussed above, indicated the presence of Chinese people in the vicinity prior to the construction of the first opera house in 1885. Field investigations on Parcel 1 yielded even more evidence of a Chinese occupation. Limited archeological testing and monitoring of the construction work here revealed two large intrusive features, probably cellars or cesspools (Fig. 8). Both had been filled with artifact-rich sediment. The majority of the artifacts recovered from this fill can be securely associated with the overseas Chinese who operated a laundry on the site until the spring of 1880.

Feature 8

Archeological investigation of this area was suggested by the presence of numerous artifacts on the ground surface under the floor of the opera house. It was apparent that the area had been disturbed recently. In 1973, a group of high school students dug for artifacts beneath the building, under the direction of architect Keith Long and Peter Wiesick, an instructor at Woodland High School (Felton 1980:17-18). Apparently they worked in this general area. Some of the artifacts recovered at that time were kept in storage by the Yolo County Historical Society, and were transferred to the Department of Parks and Recreation when work began in 1980. These consisted primarily of brown-glazed Chinese stoneware fragments. Other artifacts apparently gathered at that time were found stacked on the steps under the southeast corner of the building in boxes nearby.

The 1973 disturbance affected an area about 15 ft across, and 6-9 in. deep. Loose dirt was piled on both sides of a hard bank of earth that appears to represent a remnant of the original ground surface. The first task in 1980 was to clear this area and define the source of the artifacts present. These were widely scattered, even in the deposits below the 1973 disturbance. In order to determine the depth of the artifact-bearing sediment, a single test pit (Unit 7) was excavated immediately to the north of the embankment mentioned above. Conducting any excavation in this area was slow and difficult, as there is only about 2 ft of clearance between the bottom of the floor joists and the ground surface. It was necessary to crawl into this site, carrying lights, power cord, and tools. Also, the dryness of the sediment, the lack of ventilation, and the presence of decomposing asbestos insulation made a particle filter mask essential.

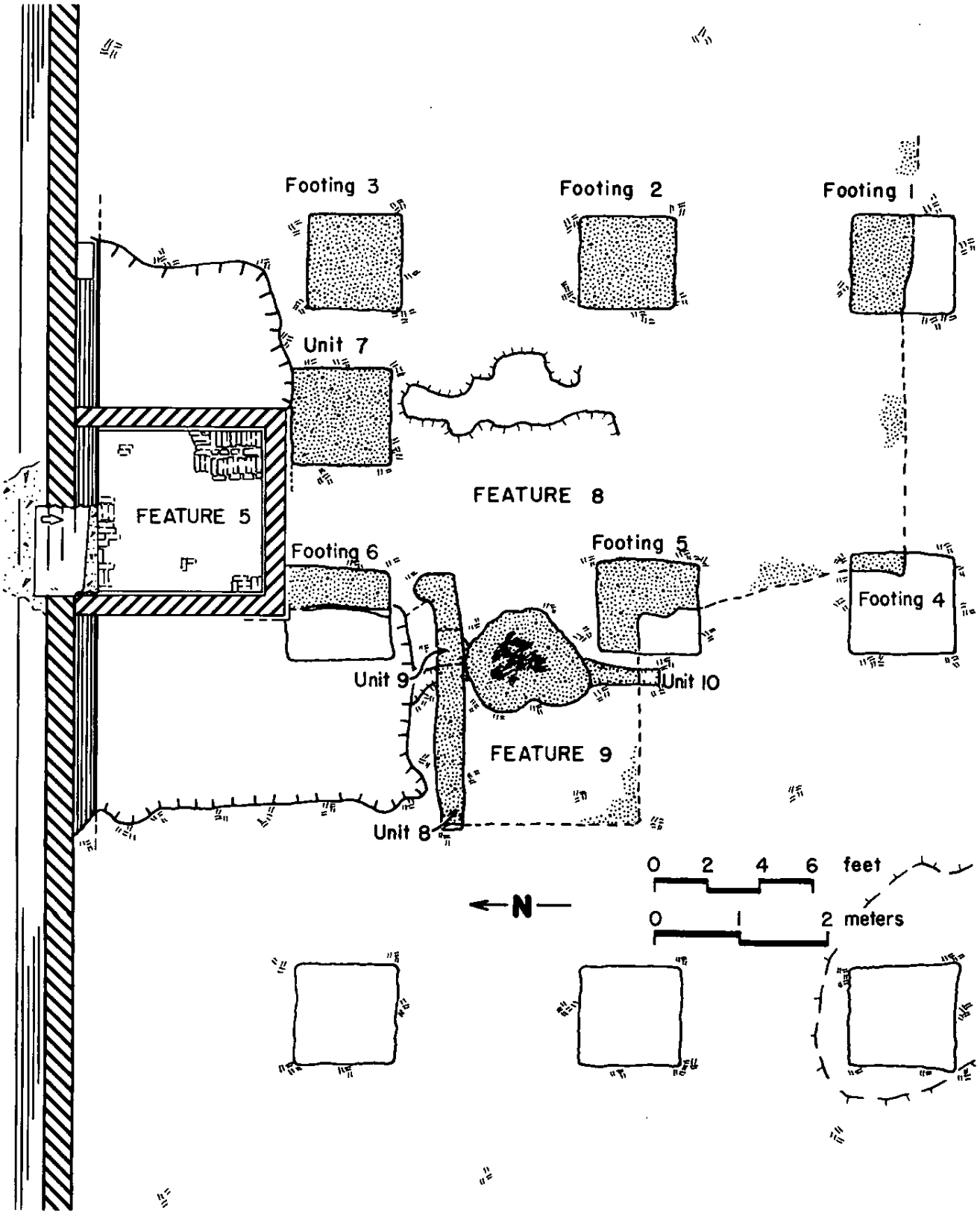

Figure 8. Archeological Features 8 and 9 - cesspools (?), Chinese laundry site. Fill containing Chinese artifacts is shaded.

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Unit 7 was 4 ft square; excavation was conducted with a trowel and hand pick. Artifacts were recovered while troweling; the sediment was deposited in the hole just east of Feature 5, a brick-walled "vault" associated with the 1884-1892 opera house. Presumably the large holes to the east and west of this feature are also related to the construction of the earlier opera house.

The fill in Unit 7 (Feature 8) proved to be an unstratified, tan-to-grey clay loam deposit extending to a little more than 2 ft below the surrounding ground surface. At this depth, a slightly moist, sterile subsoil was encountered. The fill above was rich in artifacts, including: Chinese ceramics; bird, fish, mammal, and turtle remains; rusted iron (probably tin cans); bricks; and other materials. The bricks were scattered in a jumbled fashion throughout the fill. The only definable stratigraphy was lighter colored pockets of grey ash, which in some instances contained quantities of small fish bones. These lenses were not deposited horizontally, but appeared to have been thrown randomly into the pit along with the rest of the fill.

Although the excavation of Unit 7 defined the depth of the deposit in Feature 8, budget limitations precluded expanding the testing operation to define its horizontal limits. We could only monitor the excavation of pits for new concrete footings by the contractor. These consisted of a series of holes 1 ft deep and 4 ft square, which were dug after removal of the existing brick floor-support footings. The girders supporting the floor joists above were shored in order to remove the existing brickwork and install concrete footings in the same location. The new footings were considerably wider than the originals, which implied an impact to undisturbed archeological resources not recognized in the early environmental impact review of the project.

Fortunately, distribution of the new foundation pits made it possible to define the south and west sides and the southwest corner of Feature 8 (Fig. 8). After the contractor had excavated the holes, the pit floors and sides were cleaned by an archeologist to identify any vertical or horizontal stratigraphy present. In four of these (Footings 1, 4, 5, and 6), the interface between the fill in the feature and the surrounding lighter, more firm subsoil was clearly apparent on the pit floors.

The sediment removed from these and other foundation pits by the restoration workers was thrown onto large plastic sheets beside the holes, and troweled through to recover a sample of the artifacts present. Several sediment samples (10 gal) were recovered from Footing 2 for fine screening and flotation, to obtain a sample of plant remains. A substantial number of seeds, including those of vegetables of Chinese origin, were recovered during the excavations and subsequent analysis (Honeysett and Schulz, this volume).

Feature 9

Feature 9, another pit, was located immediately west of Feature 8 (Fig. 8). The fill in both features was continuous and contained similar material, although Feature 9 was considerably smaller and deeper than Feature 8. Test excavations in Feature 9 were limited to two narrow, shallow trenches across the feature, the purpose of which was to define the south, west, and north sides of the intrusion. Excavation in this area was stimulated by the presence of artifacts and charcoal in a rounded depression about 5 ft across near the center of the feature. While it is possible that this hole was dug or expanded in 1973, the presence of a burned surface in the bottom of the depression suggests that Feature 9 was used as a fire pit after being filled but before or during the construction of the first opera house in 1884.

After the extent of the intrusion had been defined by these narrow trenches, a small hole (Unit 9) was dug to determine the depth of the fill near the northeast corner of the feature. A void had appeared in the bottom of the original 9-in. deep trench (Unit 8) in this area, which proved to be located above a rusting mass of sheet metal (possibly stove pipe), the subsidence of which had created the void. We believe the bottom of the pit was reached at a depth of about 4 ft 3 in., although the small size and depth of the hole prevented certainty in this regard. Less brick and sheet iron and fewer ceramics were noted in Feature 9 than in Feature 8.

Interpretations of Features 8 and 9

We are certain that Features 8 and 9 are associated with a washhouse operated on the site by overseas-Chinese workers between about 1870 and May of 1880. The only graphic source found for the area during this period is the 1871 bird's-eye view (Fig. 2). This lithograph shows several aparently frame buildings on the north end of Lot 5, although the perspective makes it difficult to determine their north-south placement. One of these buildings is shown fronting on Second Street; we hypothesize that this structure was the Chinese washhouse, and that it covered Feature 8. The feature extends to a point about 28-30 ft west of the street, suggesting that the building was at least 30 ft long. While the north side of the feature was not found (it apparently extended beyond the stage wall into the basement dressing room area), we estimate that the building was also about 30 ft wide. This would place the smaller adjoining Feature 9 at the center and just outside of the west wall of the original structure.

Although we have speculated that the laundry building covered Feature 8, we have not yet discussed its possible functions nor those of Feature 9. A local newspaper article provides a plausible explanation of these features:

> On Monday last the Woodland Board of Health made a tour of inspection to all China wash-houses on Main Street. They found them all, without exception, in such a fearful filthy condition that the extent of their foulness cannot be imagined... In all, the atmosphere is impure, the cesspools badly arranged, full,

> foul, and offensive: in one in fact no provision had been made for drainage -- it has no cesspool; the water, containing all kinds of filth from dirty clothing, is allowed to collect under the wash-house, when (measured) by removing a board from the floor, was found to be over three feet deep. In the rear of this same wash-house, and just at the back wall, a fence picket was thrust its entire length in a collection of filth, from which emanated a fearful stench... The vacant lots south of the corner of Main and First Streets, are completely honeycombed with old cesspools... To the west of Washington Hall is a wash-house which has a cesspool about 12 feet square and fourteen feet deep, full to overflowing -- the contents of which stagnate, stink, and soak, and pollute the atmosphere... (Woodland Daily Democrat June 4, 1880:3; emphasis added).

The underlined portion of this account could easily be a description of archeological Features 8 and 9. The 3-ft-deep pool under the house sounds very similar to Feature 8, while the account of the apparently deeper "collection of filth" at the back wall of the same structure might be a description of Feature 9. The tour of the washhouses, however, occurred almost a month after the appearance of the articles discussing the removal of the washhouse on the opera house site to the Chinese quarter. It is possible that the work of removing the structure was not completed immediately, and the facility refered to is in fact the washhouse on what was later to become the opera house site. Even if the reference is to another site, it seems probable that the Second Street laundry's inevitable drainage problems were handled in a similar manner. The Board of Health account, in fact, makes it apparent that cesspools, in some form, were an essential part of all laundry operations.

Presumably cesspools, cellars, and other depressions were filled as part of the site cleanup after the removal of the structure, rather than during its use as a laundry. The source of the fill in Features 8 and 9 has not been identified with certainty. Most of the Chinese artifacts recovered were included in this post-demolition fill, and as such cannot with certainty be attributed to the laundry. Nevertheless, a Chinese coin and a small brass pendant or button that may be of Chinese origin were found embedded in hard, dark laminae below the fill in the northwest corner of Feature 8. The in-situ finds lend credence to the Chinese occupation of the site prior to the filling of the features.

While it is possible that the material in Features 8 and 9 was hauled to the site from a distant location, this seems unlikely. A more plausible suggestion is that the site itself was graded to fill the holes or to lower the surface in the center of the parcel beneath the lowest part of the multi-level opera house floor. Historic grading would also explain the absence of clear architectural evidence of the structure that stood above the features, and the small numbers of artifacts present in the areas surrounding the features themselves.

The 1885 Opera House -- Architectural Elements

Several brick architectural features associated with the first (1885) opera house were investigated during the 1980 archeological work. The limited testing conducted in August immediately south of the building had detected an unanticipated east-west foundation (Feature 2), a feature which was found to represent the south wall of the first opera house (Felton 1980: 9-10). Other features related to the first opera house are a curved, stepped brick footing (Feature 7) under the south end of the existing building, and a brick "vault" of unknown function immediately in front of the stage. Many elements of the earlier structure were re-used in the construction of the later opera house, including the north, east, and west perimeter walls, the east-west cross wall at the front of the stage, and most of the floor support footings.

Brick Vault (Feature 5)

Feature 5 is an enigmatic structure presumed to be associated with the first opera house. It is a brick-walled "vault" immediately south of the stage and just to the right (east) of center stage. The interior dimensions of this small room are 6.4 ft (east-west) by 7.3 ft. The 8-in.-thick walls are composed of a single course of mortared brick; the mortar on the insides of the walls has been smoothed, while on the outside the mortar slops from between the bricks. The insides of the walls were painted or whitewashed. The room has a brick floor, consisting of randomly laid brick bats placed with stretcher faces up. The "vault" was built in a hole dug to a depth of about 2.5 ft below the existing ground surface beneath the building. The top of the brick floor is 2.5 in. below the bottom of the stage wall foundation, and 1 ft below the top of the concrete floor in the dressing rooms to the north (Fig. 6).

The function of Feature 5 is unknown. It is possible that the vault was simply a small dressing room, storage room, or office. At present, the dressing rooms consist of frame partitions at the east and west sides of the basement under the stage, and are somewhat larger than Feature 5. No plans showing the layout of the 1885-1892 dressing rooms are available, although a series of brick features that may delineate some of these was found beneath the floor in the dressing room area during restoration (cf. Features 13, 14, 15).

Dressing Rooms (Features 13, 14, 15)

Only limited archeological investigations were conducted in the dressing-room area at the north end of the Woodland Opera House. This area was considered to be less sensitive than others because a basement had been dug here during the construction of the original opera house, a fact which largely precluded the preservation of any pre-1885 deposits. Work in this area, however, yielded some evidence related to the first opera house and its destruction by the 1892 fire.

Architectural elements recorded included a series of stepped brick foundations, designated Features 13, 14, and 15. Presumably, these features were foundations for the columns supporting the stage above, and/or dressing room partitions. While Feature 14 appears to have been continuous north-south across this area of the building, the brickwork on the east and west is discontinuous, but substantially larger than the simple footings used to support the floor of the opera house. If Features 14, 15, and 16 had been constructed simply as footings for columns supporting the stage, we would expect to find smaller brick features, 2-4 ft square. The columns supporting the stage of the existing opera house consisted of 4-by-6 and 6-by-6 wooden posts resting directly on the concrete floor. The locations of these posts are indicated in Figure 6 by the positions of the square pits dug for the new concrete footing pads in the center of the room. Perhaps the widest brickwork of Features 13, 14, and 15 marked the locations of major load-bearing columns supporting the stage of the first opera house.

The linear nature of Features 13, 14, and 15 suggests that at least a portion of this area was divided by brick partitions. Only two completely enclosed rooms are indicated, however. These enclosures, in the southeast and southwest corners of the dressing rooms area, are about 7 ft by 12 ft. They may have been star performers' dressing rooms.

Businesses in the South End of the First Opera House

Restaurant Deposits (Layer 6)

Few 1885-1892 deposits have survived south of the south foundation of the first opera house (Feature 2). In most areas, these were entirely obliterated by the excavation for the basement and foundations for the Farmers and Merchants' Bank in 1893. The single exception is Layer 6, a remnant deposit resting on the south face of Feature 2 near the center of the lot. Layer 6 was first encountered in Unit 2 in August 1980, and was later found to extend to the west. It appears that the builders' trench for the bank was narrower in this area, sparing the remnant designated Layer 6, which yielded sawed animal bone, many eggshell fragments, and a few glass and ceramic artifacts. These presumably represent the restaurant activities on the site while the first opera house was in service. How this debris found its way under the floor and onto the foundation is not known; perhaps there was a void between the opera house and the brick store to the south into which employees discarded trash.

Oyster Bar Site

An attempt was made to determine whether any deposits representing the oyster bar on Parcel 3 had survived the construction of the bank building. The Sanborn maps indicate a basement in this area, and the presence of a basement under a building destroyed by the 1892 fire suggested that artifact-rich deposits might remain. A backhoe was used to remove the fill to a depth of about 5 ft below the current grade on the west side of the parcel. Following this, a smaller pit about 2 ft by 3 ft was excavated by hand to a depth of 8.5 ft.

While a large number of oyster shells were randomly scattered in the fill in this unit, it is apparent that these were redeposited during the construction of the bank building, and do not represent primary deposits in the 1885-1892 cellar itself. The stepped brick footing and concrete foundation pad of the north wall of the bank building (Feature 1) underlie the deposit containing the oyster shell. Only sterile subsoil is present outside (north) of the bank wall builders' trench.

ARTIFACTS FROM THE WOODLAND OPERA HOUSE SITE

Artifacts were recovered from 72 archeological proveniences during the 1980 field work at the Woodland Opera House site. In addition to the material related to the operation of the existing opera house, the collection included European and Chinese ceramics, glass bottles (mostly broken), food remains (animal bone, shell, and plant seeds), and leather scraps and hardware associated with the earlier occupations of the site. The bulk of the latter artifacts are attributable to six discrete deposits:

Feature 6 - the furnace pit (and surrounding debris) - the original pit being attributed to Deitz's harness shop, but with fill including considerable amounts of Chinese material;

Feature 8 - a large shallow intrusion, believed to be a cesspool for the Chinese laundry;

Feature 9 - a smaller, deeper intrusion adjoining Feature 8, believed to be part of the same cesspool complex;

Feature 10 - a trash deposit - possibly a privy - on the harness shop parcel;

Footing 7 - loose earth scattered in the area of this footing, probably representing fill removed from Feature 6; and

Layer 6 - the only intact deposit related to the 1885-1892 businesses south of the opera house proper, and attributed to the restaurant site.

In the discussions that follow, we have described only artifacts from the early deposits indentified above, with particular emphasis on materials associated with the Chinese occupation. While all of the identifiable Chinese material securely attributable to those deposits is reported, we have dealt only selectively with artifacts believed to be from the Feature 8/9 area recovered during the 1973 excavations by local high school students. These materials include a small collection of ceramics (mostly Chinese food storage vessels, some Euro-American ceramics, no Chinese tableware) subsequently stored by the Yolo County Historical Society and transfered to the Department of Parks and Recreation in 1980. Only the Chinese food storage vessels included in that collection are reported here. In addition, other material gathered by the students (especially animal bone) was left scattered under the southeast corner of the building. Because of lack of provenience, the scattered faunal remains were discarded, although other identifiably Chinese artifacts, including pieces of two opium pipe bowls, opium tin fragments, and food storage vessel fragments were retained and are reported.

Figure 9. Major overseas-Chinese tableware styles: a) Double Happiness bowl; b) Bamboo rice bowl; c) Winter Green rice bowl; d) large Four Flowers bowl; e) Simple Flower wine pot. These specimens were not recovered at the Woodland Opera House, but represent the styles found there. Most of the Woodland examples are badly broken.

TABLE 1

Chinese Tableware Sherds
Woodland Opera House Site

Style	--- Feature --- 6	8	9	10	Footing 7	Total
Double Happiness		5				5
Bamboo	3	5		1		9
Four Flowers	32	66	8	7	1	114
Winter Green	54	39	2	7	1	103
Other	5	4	—	—	—	9
Total	94	119	10	15	2	240

TABLE 2

Chinese Tableware Minimum Vessel Counts
Woodland Opera House Site

Style	Feature 6	8	9	10	Total
Double Happiness					
Rice bowls		3			3
Total		3			3
Bamboo					
Rice bowls	1	3		1	5
Total	1	3		1	5
Four Flowers					
Rice bowls	1	2	1		4
Large bowls	1	1	1	1	4
Small cups	1	3			4
Large plates	1	1			2
Medium plates	1	3			4
Small plates		2			2
Soup spoons	1	2	—	1	4
Total	6	14	2	2	24
Winter Green					
Rice bowls	3	2			5
Large cups	1	3	1	1	6
Medium cups	1	1			2
Small cups	—	1	1	1	3
Total	5	7	2	3	16
Other	1	2	—	—	3
Total	1	2			3
Total	12	29	4	6	51

Chinese Ceramic Tablewares

One of the most striking aspects of the ceramic collections from overseas-Chinese sites of the nineteenth century is the high degree of uniformity of decorative styles and vessel forms present on virtually all sites. Previous archeological work has produced several well-illustrated descriptive catalogs for the varieties of Chinese ceramics most commonly recovered (Chace 1976; Olsen 1978; Praetzellis and Praetzellis 1979; Pastron, Gross and Garaventa 1981). Recent translations of nineteenth-century overseas Chinese business records have provided a nomenclature for some of the common styles (Sando and Felton 1984). The major tableware styles present have been identified as: Four Flowers ("Four Seasons"), Winter Green ("Celadon"), Bamboo ("Longevity," "Three Circles and Dragonfly"), and Double Happiness (Fig. 9). In the Woodland Opera House collection, 231 of the 240 Chinese tableware sherds (95.8%) can be attributed to one of these four groups (Table 1). Seven of the ten unidentified sherds may be undecorated or defaced fragments of the identifiable groups. At least 51 tableware vessels are represented by the fragments recovered (Table 2).

Four Flowers (Four Seasons)

The most common Chinese tableware present is porcelain decorated with the polychrome floral Four Flowers pattern. This group includes 114 sherds representing at least 24 different vessels of seven different sizes and shapes, including rice bowls, larger serving bowls (192 mm in diameter), small handleless cups (45 mm in diameter), soup spoons, and three sizes of plates (82, 137, and 220 mm in diameter). The decoration consists of overglaze enamel colors, predominantly greens, pinks, and reds. The primary decorative elements are four flowers representing different seasons: prunus (winter); lotus (summer); tree peony (spring); and chrysanthemum (fall) (Fig. 9d; Hobson 1915, ii:38). An abstract orange design, identified as a mystic (or endless) knot, is present on the base of many of the Four Flowers vessels (Chace 1976:524-526; Praetzellis and Praetzellis 1979:147-149).

Winter Green (Celadon)

The style name is derived from the light bluish-green glaze used to decorate these porcelain vessels. In the Woodland deposits they are second in number only to the Four Flowers pattern; 103 sherds representing at least 16 different vessels were recovered. Forms include rice bowls (about 140 mm in diameter)(Fig. 9c), and three sizes of cups (48, 65, and 76 mm in diameter). In addition, a single fragment of a soup spoon was found unassociated, and is not included in the tabulations for the features. The bases of the Winter Green vessels are often marked with a square blue mark. These appear to be abstract designs (Chace 1976:523-525), although Praetzellis and Praetzellis (1979:146-147) have tentatively read and dated two of them.

Bamboo (Three Circles and Dragonfly)

This pattern has also been referred to in the archeological literature as Longevity, Swatow, or Blue Flower ware. Nine sherds representing

at least four rice bowls were recovered. The decoration consists of a series of blue to grey-green underglaze floral designs painted on the exterior of the grey stoneware (porcellaneous stoneware) rice bowls (Fig. 9b). While the number, relative placement, and identity of the decorative elements is consistent, their specific treatment varies widely. Overall, these vessels appear to have been hurriedly decorated (Chace 1976:523; Olsen 1978:15-16, Praetzellis and Praetzellis 1979:149-150). Although rice bowls of this style are common on North American sites, other vessel forms are rare. Shallow dishes with a related pattern have been reported from San Francisco (Pastron, Gross, and Garaventa 1981:42B), as well as from Malaysia (Willetts and Poh 1981:10, 62).

Double Happiness

The exteriors of these porcelain rice bowls are decorated with blue underglaze, hand-painted motifs. The design includes well-formed "Double Happiness" characters (Fig. 9a). This double character appears to be repeated three times, although complete or nearly complete examples are generally rare on sites occupied after 1870 (see discussion below). The rest of the body between the characters is covered with closely spaced, thin curved and spiral lines, leading several researchers to refer to this pattern as "Swirl" (Pastron, Gross, and Garaventa 1981:430; cf. Chace 1979; Praetzellis and Praetzellis 1982). Five sherds representing at least three vessels were recovered from Feature 8.

Wine Warmer

A single porcelain fragment of a wine warmer was recovered from Feature 8. This lower body-base sherd was identified from a description by Olsen (1978:27-28) and comparison with vessels in the Yreka Chinatown and China Camp collections of the California Department of Parks and Recreation. It appears to represent a straight-sided vessel 7 - 8 cm in diameter (Fig. 9e). The exterior is decorated with thin blue hand-painted parallel and curvilinear lines. Descriptions in the contemporary inventories suggest that this design was refered to as "Simple Flower" (Sando and Felton 1984); a distinctive hand- painted flower is a central design element on complete vessels.

Olsen indicates that the Tucson specimen reported is about 14.5 cm high; the Yreka pieces appear to be of a similar height, with parallel sides extending to a shoulder about 4.5 cm below the top of the vessel. Above the shoulder, the walls constrict to a round opening about 3 cm in diameter. The Yreka and China Camp specimens have handles and small knobbed lids. Brott (1982: cover photo) illustrates a teapot purchased in a San Francsico antique store with a design almost identical to that of the Simple Flower wine warmers. A wide range of vessels decorated in this pattern, often in combination with Double Happiness characters, has been reported by collectors from Southeast Asia (Willetts and Poh 1981:13-14), who refer to these vessels as "Shanghai Ware."

Unidentified Porcelain Base

A single base sherd of an unidentified vessel and decorative pattern was recovered from Feature 8. The bottom of this vessel was about 12 cm in diameter; the sides flare outward slightly. The only decorations are two thin, parallel, light-blue underglaze, horizontal lines running around the exterior of the vessel. The surface of the vessel is of a light-bluish tint, even though the body is white porcelain. This sherd may be the base of a bowl, vase, or ginger jar.

Orange Overglaze

A single tiny porcelain sherd with a thin layer of orange pigment over the exterior glaze was found in Feature 6. The vessel form and pattern are unidentified.

Other

Seven unidentifiable porcelain and stoneware sherds believed to represent Chinese tableware were recovered at the Woodland Opera House. Several of these have been burnt beyond recognition. The others are undecorated fragments that may be attributable to one or more of the groups described above.

Chinese Ceramic Food Storage Vessels

Like the tableware styles discussed above, a characteristic stoneware in a variety of vessel forms is ubiquitous on nineteenth-century overseas-Chinese sites. This vessel group most commonly occurs in the form of brown-glazed food and liquid storage jars, lids, and bottles. A total of 261 sherds of this group, representing at least 28 different stoneware vessels and lids, was recovered (Table 3; table includes 7 earthernware lids and 2 stoneware food-processing bowls for a total of 37 items).

The body of the brown-glazed vessels is a coarse grey-to-buff stoneware (often with small air pockets) covered with a thick, shiny glaze that varies in color from reddish-brown to almost black. These vessels occur in a wide variety of sizes and shapes (Figs. 10, 11). Most were apparently used for storage and shipping of prepared foods, liquors, and condiments. As such, they are most analogous to American glass bottles, jars, and tin cans. Like these items, Chinese stoneware vessels were probably sometimes reused.

Large Globular Jars

Rim, body, and base sherds representing at least six large globular jars were recovered. None of the Woodland examples are substantially reconstructable, but the sherds are diagnostic enough for comparison with more complete specimens recovered in Ventura (Chace 1976:521-522) and Yreka. On the basis of these comparable examples, the jars were at least 33 cm tall and almost egg-shaped, with walls flaring out sharply from a flat, unglazed base 10-12 cm in diameter (Fig. 10d).

The walls curve outward to a shoulder about two-thirds of the way up the vessel. The diameter at the shoulder varies from about 28 to 35 cm. Above the shoulder, the walls constrict sharply to a round mouth with little or no neck. The mouth is about 10 cm in diameter; the lip is generally triangular in cross section, tapering upward. Four lugs for tying down lids are situated on the body just below the lip. The vessels described as "domed lids/pans" (below) may be lids for large globular jars. One upper body sherd has an unglazed patch with an incomplete Chinese character drawn with the same brown glaze that covers the rest of the vessel. The character is too incomplete to translate.

Substantial size variation exists in vessels of this style. One of the rim sherds from Woodland has a smaller mouth (ca. 8 cm), thinner walls, and a slightly longer neck than the other pieces. Olsen (1978:32-33) describes a jar from Tucson with an 8-cm-wide mouth and a height of about 23 cm. He suggests that the jars of this general type were used to contain "substances such as peanut oil and soy sauce, which are prime requisites for most common forms of Chinese cooking." Pictures of large soy sauce jars in early twentieth-century China (Kennelly 1917, IV:429; Groff 1919: Fig. VII-2), seem to substantiate this interpretation.

Large Barrel Jars and Lids

Fragments representing two large, widemouthed barrel-shaped jars and threee corresponding lids were recovered at Woodland (Fig. 10b). As only rim sections of these jars were identifiable, the following description is derived in part from a more complete but almost identical example in the Yreka collection.

The slightly curved walls extend up and outward from a concave base about 35 cm in diameter; the maximum diameter of the vessel near the rim is about 42.5 cm. The inside diameter of this slightly constricted mouth is about 29 cm. A short vertical lip extends about 3 cm above the shoulder of the jar. A bead slightly thicker than the lower part of the lip runs around the rim. The jar interior, the lip, and the lid that fits over it have a thinner, lighter- colored glaze than the exterior of the jar. The lids look like shallow inverted pans about 40 cm in diameter, with vertical sides about 5 cm high (Fig. 10a). Presumably, these vessels were also used initially for the shipping and/or storage of foodstuffs (Chace 1976:522).

Widemouthed Food Jars and Lids

These shouldered, widemouthed jars are much smaller than those described above; two sizes, holding about 1 and 2 lb respectively, have been reported. Fragments representing at least six examples, all apparently of the larger size, were recovered at Woodland. These are approximately 13 cm high and 15 cm wide at the shoulder, with a mouth about 8 cm across (Fig. 11c). The lip consists of a narrow bead of clay formed by rolling the top of the short neck out and downward.

TABLE 3

Chinese Food Storage Vessels (Minimum Vessels)
Woodland Opera House Site

Type	Feature 6	8	9	8/9*	10	Total
Large food container	1	3		2		6
Globular jar	1			1		2
Barrel jar	1	1		1		3
Barrel jar lid						
Small food container						
Jar (widemouthed)		3		3		6
Jar lid (earthenware)		5	1	2		8
Soy sauce bottle	1	2		2	1	6
Liquor bottle		1				1
Domed lid/pan		2		2		4
Food processing vessel						
Grinding bowl	—	1	—	1	—	2
Total	4	18	1	14	1	38

*Sherds recovered by students in 1973, believed to be from Feature 8-9 area of the site. No Chinese tableware vessels were included in this collection.

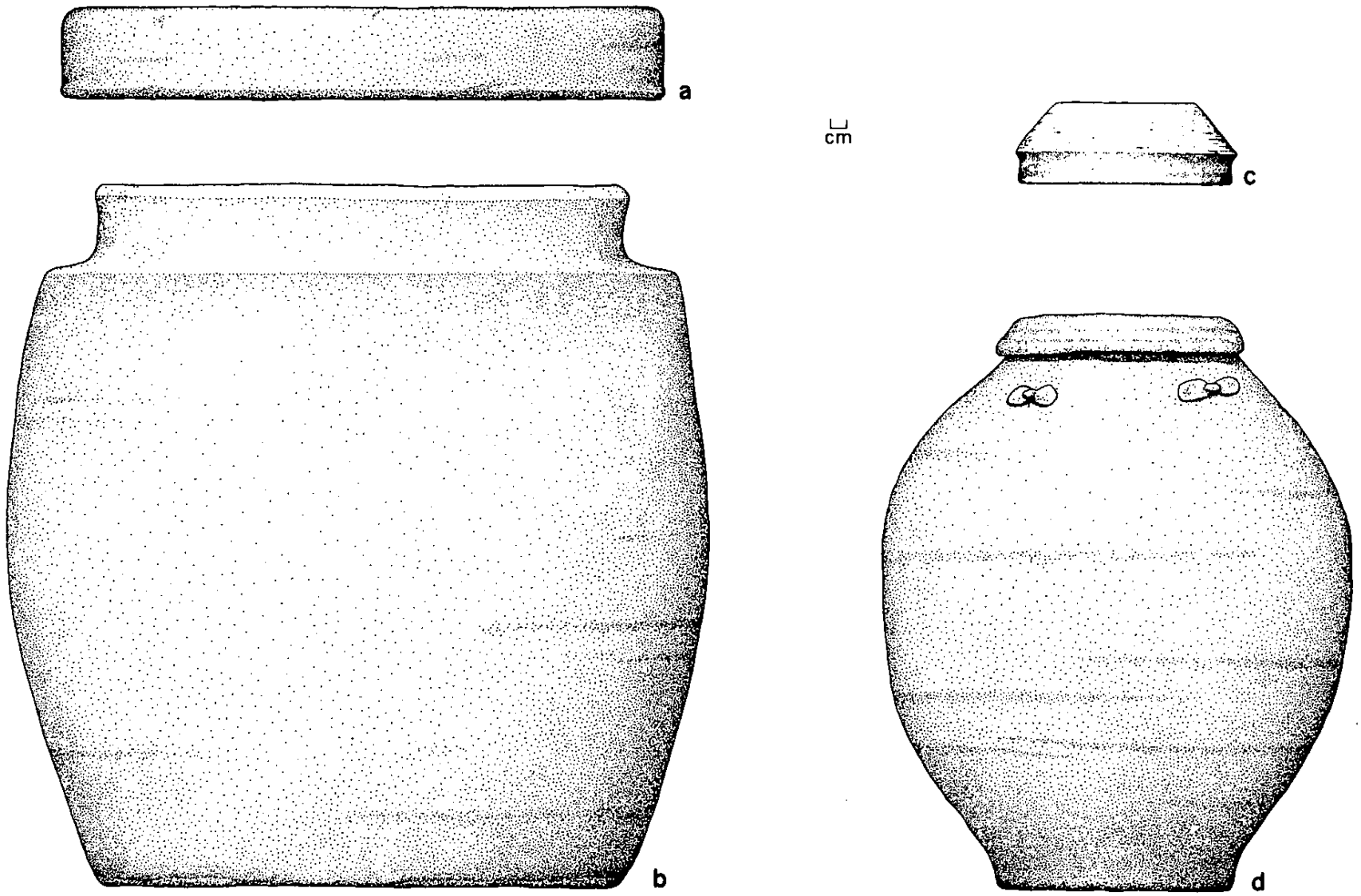

Figure 10. Chinese stoneware food storage vessels: a) large flat lid; b) large barrel jar; c) domed lid/pan; d) large globular jar.

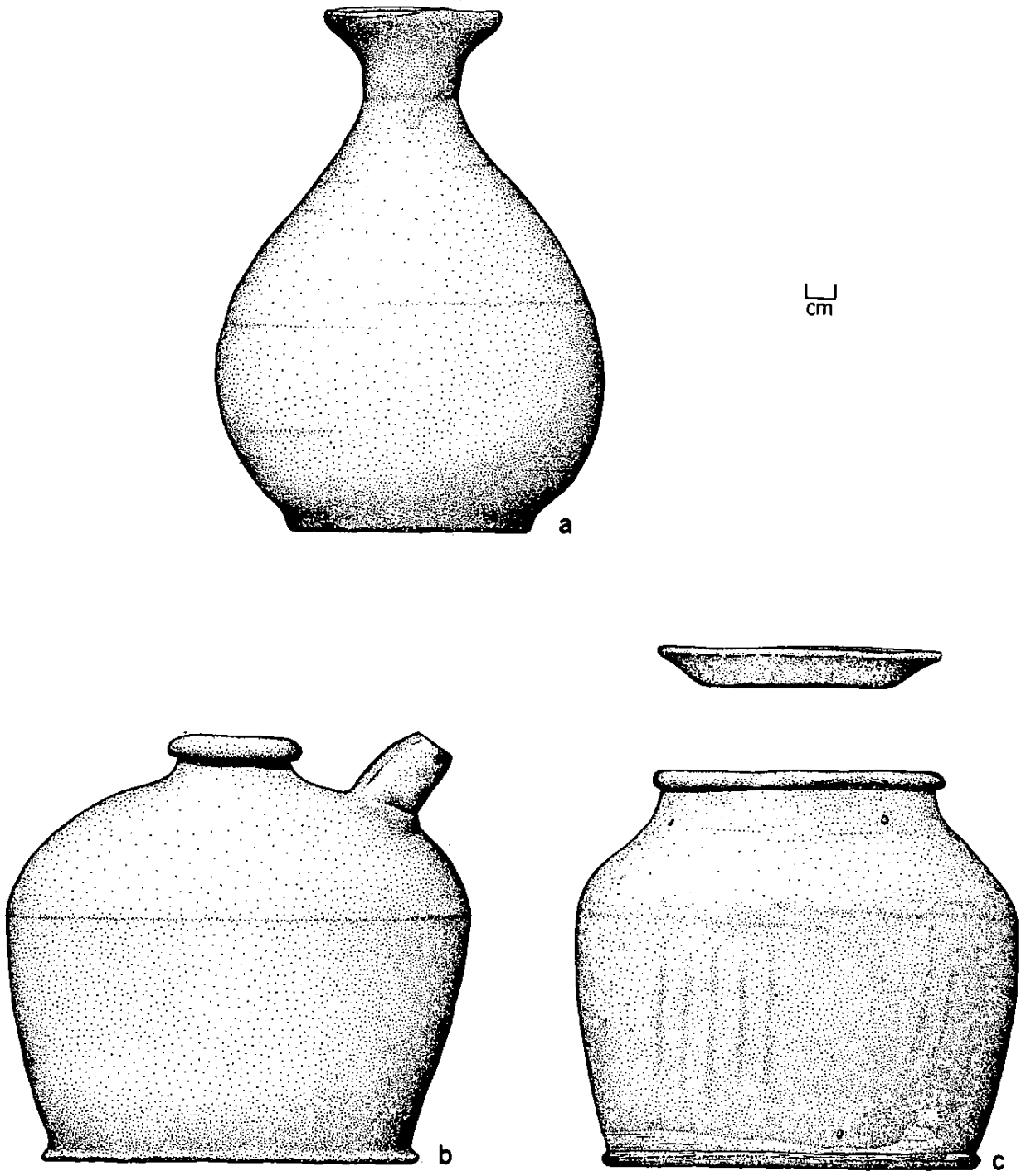

Figure 11. Chinese stoneware food storage vessels (small): a) liquor bottle; b) soy sauce bottle; c) widemouthed jar and earthenware lid.

It has been suggested that these jars may have contained preserved vegetables (mustard greens, cabbage, salted garlic, radishes, or onions), pickled lemon, shrimp sauce or paste, sweet gherkins, soy bean curd, sweet rice crackers, Chinese bacon, pickled duck eggs, dried oysters, fish, abalone, seaweed, mushrooms, lichee nuts, peanut oil, vinegar, molasses, or tea (Chace 1976:517-519; Olsen 1978:31-32; Praetzellis and Praetzellis 1979:154-155; Whitlow 1981:43).

Fragments of eight unglazed earthenware lids for these jars were also found. These are small, slightly concave discs of a grey-to-buff porous body, and of a slightly larger diameter (ca. 10 cm) than the mouths of the jars (Fig. 11c). At first glance they look like small, poorly formed saucers. Several have fragments of unfired white clay, or a similar substance, adhering around the circumference of the convex face. Apparently, these were placed on top of the jar, dished side up, and sealed with clay.

Soy Sauce Bottles

The shape of these vessels is virtually identical to that of the shouldered food jars, although the treatment of the top is different. There is a small opening with a rolled rim about 2.7 cm across in the center of the domed top of the bottle, with a small spout to one side (Fig. 11b). Fragments representing at least six soy sauce bottles were collected at the opera house. Olsen (1978:36-37) notes that these were also used for vinegar and molasses. Minimum vessel counts for soy sauce bottles and widemouthed jars were based on diagnostic rim and upper body sherds only, as basal fragments of the two vessel forms are indistinguishable.

Liquor Bottle

Although these are among the most common brown-glazed Chinese stoneware vessels reported in the literature, only a single basal fragment clearly identifiable as part of a wine bottle was recovered at the Woodland Opera House. These are globular, almost tear-drop shaped vessels about 16 cm high, with a distinctively flaring neck and mouth (Fig. 11a). Unlike the heavy, unglazed, and poorly formed bases of the soy sauce and food jars, the bottom of the wine bottle is thinly potted, has a well-defined foot ring, and is glazed. Olsen (1978:27) comments that variations in the glazes of these vessels may be time-sensitive. Although commonly referred to as wine bottles, these vessels generally contained distilled spirits such as Ng Ky Py (Chace 1976:515-517; Olsen 1978:26-27; Praetzellis and Praetzellis 1979:153-154).

Domed Lids/Pans

These vessels have been described in the archeological literature as pans for cooking herbs and greens, although the possibility that they served as container lids has also been discussed. When upright (or inverted, if they are in fact pans) they have a domed appearance, with a vertical lip, steeply sloping sides, and a horizontal top (Fig. 10c). Only the interior of the vessel and the outside of the rim are glazed; the exterior sides and bottom are unglazed. The four

fragmented Woodland examples were about 12 to 12.5 cm in diameter, and 4 cm high (deep). The walls of these vessels are thin (1.3-1.5 mm). They occur in different sizes: one comparable to the Woodland specimens and another about 17 cm across are present in the Yreka collection. Chace (1976:521) reports a specimen 21.3 cm in diameter.

No evidence of burning, as would be expected on cooking vessels, was observed on the Woodland or Yreka specimens. Perhaps at least the smaller examples were outer lids for the large globular jars discussed above, doubling as bowls or pans after opening.

Chinese Stoneware Food-Processing Vessels

The Woodland Opera House excavations yielded fragments of two unglazed stoneware bowls of a type which does not appear to have been reported previously. The stoneware body from which they are made looks identical to that of the food storage vessels described above. The two vessels are deeply incised, with cross-hatched lines on the interior of the bowl-like form (Fig. 12). Only base and body fragments were found on the Woodland site, making it impossible to precisely determine vessel size. The base of the largest was about 11 cm in diameter, however, with a rim diameter that exceeds 26 cm. The walls are from 5 to 10 mm thick. The second example, represented by only two small body sherds, appears to have been smaller, as the vessel walls are less than 5 mm thick. More complete examples of these vessels have been recovered recently at China Camp State Park.

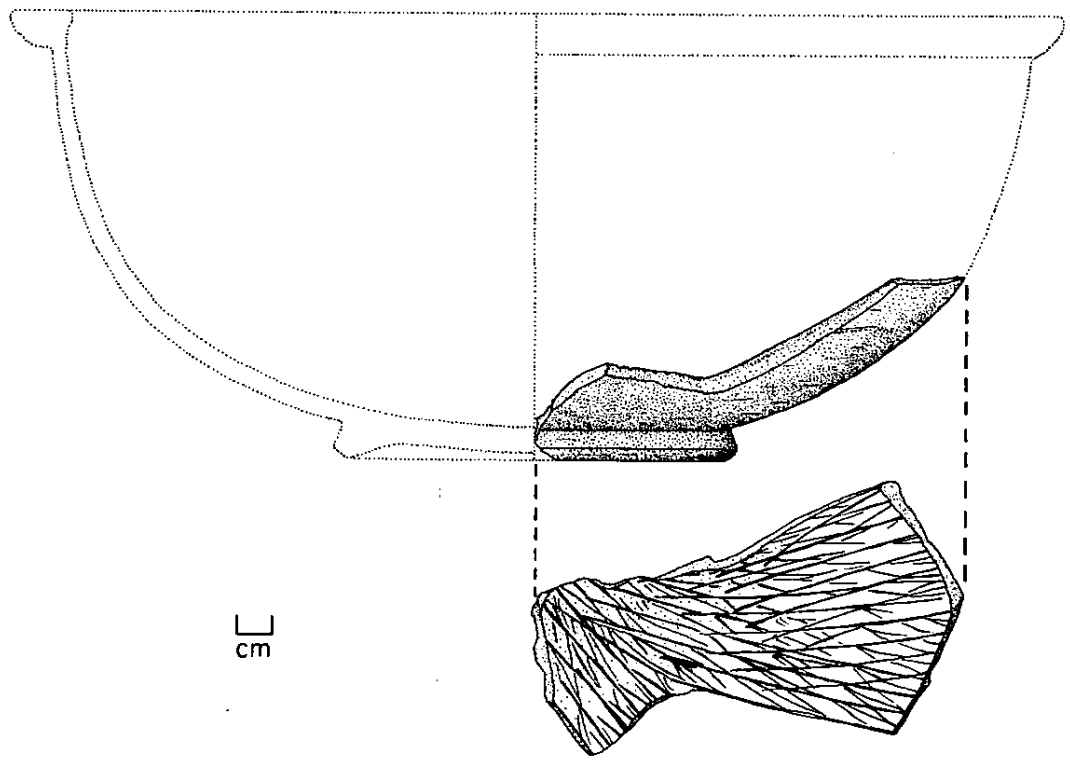

Figure 12. Chinese stoneware food-processing vessel.

Partial reconstruction of the China Camp vessels suggests that the larger variety was about 12 cm high and 27 cm in diameter, with a thick, wedge-shaped rim.

These vessels were probably mortars or grinding bowls for macerating vegetables, preparing sauces, etc., similar in use to the Mexican molcajetes. The Mexican counterparts were made of both stone and clay; common pottery bowls with very similar incised interiors can be found in central Mexican markets. Lister and Lister (n.d.:63-64) describe these as "...a small bowl with grid work cut into interior bottoms while the clay was still soft."

Euro-American Ceramics

In addition to the Chinese ceramics, 124 sherds of European or American ceramics were recovered from the Woodland Opera House site. These include examples of four major body types (cf. Rado 1969:156-167): 10 of common pottery (yellowware), 103 of earthenware, seven of stoneware, and four of porcelain. Each group is discussed below. Vessel forms and minimum numbers of vessels have been summarized in Table 4.

Common Pottery (Yellowware)

Fragments of a brown-variegated glazed (Rockingham) spittoon and two vessels of unknown function are included in the common pottery group. All are of a fine buff yellowware body, often used for mixing bowls. One of the unidentified forms is an unglazed, wheel-turned cylinder, open at one end. It is about 8.5 cm in diameter, and of an unknown height which exceeds 17 cm. The bottom is flat with a short footring. A single rim sherd indicates that the mouth was not constricted; the top edge of the cylinder wall was simply rounded and smoothed. The fragments of this vessel and the single spittoon sherd were recovered from Feature 6.

The second unidentified vessel is represented by two fragments of a flat-sided hollow form about 8 cm square (Fig. 13a). An oval area has been cut out of one side. The exterior is covered with a clear glaze, giving it a bright, light yellow color. One side has an irregular splotch of green glaze on the yellow field. Perhaps this was part of a lamp or lampshade; it appears to have been a decorative piece. These sherds were recovered from Feature 8.

Stoneware

Stoneware is a nonwhite, nonporous body. It is impermeable to liquids, and was commonly used to make bottles for ale, wine, ink, etc., as well as crocks and other storage vessels. (See Glass and Stoneware Bottles, below, for a description of the stoneware bottles recovered.)

Five sherds from a stoneware jug about 19 cm in diameter were recovered in the Feature 8 area; several additional pieces of what appears to be the same vessel were included with the 1973 artifacts returned by the Yolo County Historical Society. The glaze varies from

TABLE 4

Euro-American Ceramics (Minimum Vessels)
Woodland Opera House Site

Vessel Type	Footing 7	6	-- Feature -- 8	9	10	Layer 6	Total
Earthenware							
Cup							
plain						1	1
Saucer							
plain	1	2			1		4
paneled	1	1					2
Plates (all sizes)							
plain	1	3		2			6
molded relief		1	1				2
Oval baker							
plain		1				3	4
Large bowl							
plain		1	1				2
Bedpan							
plain			1				1
Patchbox							
plain			1				1
Unidentified							
plain	—	1	—	—	—	—	1
Total	3	10	4	2	1	4	24
Yellowware							
Spittoon							
Rockingham		1					1
Unidentified							
glazed			1				1
unglazed	—	1	—	—	—	—	1
Total		2	1				3
Stoneware							
Jug			1				1
Crock lid	1	—	—	—	—	—	1
Total			1				2
Porcelain							
Saucer							
green band	—	1	—	—	—	—	1
Total		1					1
Grand Total	4	13	6	2	1	4	30

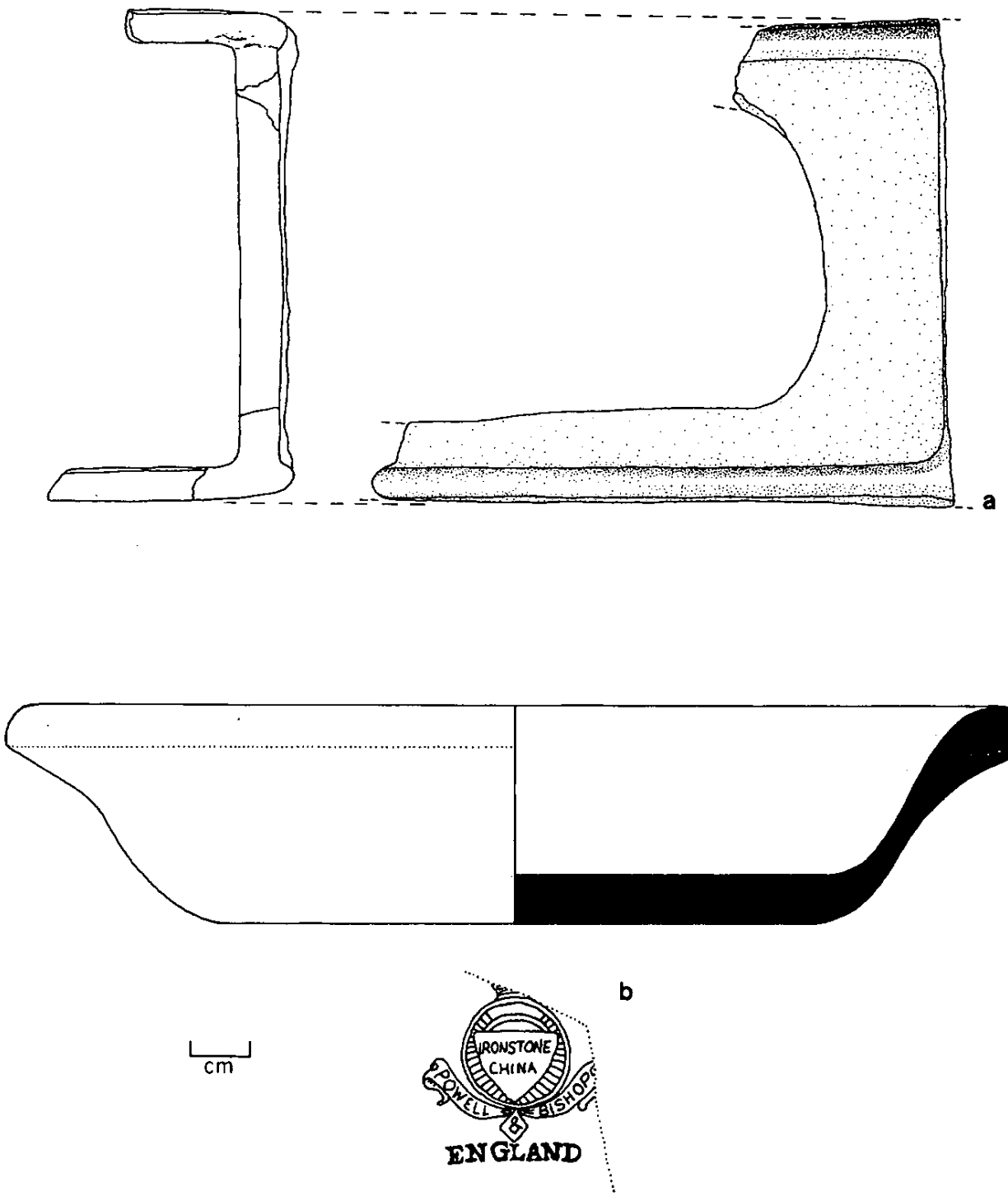

Figure 13. Euro-American ceramics: a) unidentified yellowware vessel; b) mark on reverse of oval baker.

dark to yellowish brown. Although only base and body fragments are present, this appears to have been a small- mouthed jug, possibly for liquor. These pieces may be of American origin. None are marked.

Half of a salt-glazed stoneware crock lid about 23.5 cm in diameter was found in the loose fill scattered on the surface near Footing 7. The body color varies from grey to pink to buff. It is possible that this piece is of local origin; several potteries producing such wares had been established in Sacramento by the 1870s (e.g. Sacramento Daily Union Oct. 11, 1873:5).

Porcelain

Only four fragments of non-Chinese porcelain were recovered -- all in Feature 6 and all pieces (one badly burnt) of a white saucer decorated with a pea-green band and a thin gilded line around the inside of the rim.

Earthenware

The 103 earthenware sherds from the features reported here represent at least 24 different vessels, most of which are probably of British origin. Many of these are defined on the basis of one or a few fragments only; like the other ceramic classes, most earthenware vessels could not be reconstructed. The bulk of the earthenware was recovered from Feature 6.

The vast majority of specimens are Ironstone-style tableware. None of the 24 minimum vessels had colored decoration. Only four vessels had molded decorations, including fragments of two Ironstone plates with molded relief patterns and two paneled saucers. A small plate has the Corn and Oats pattern molded around the rim; two fragments of a larger plate are decorated with the Vintage Shape pattern. These pieces are not marked; the two patterns were identified from published illustrations (Wetherbee 1980:70, 84). Wetherbee indicates that Corn and Oats was manufactured by the British firms of J. Wedgewood and Davenport after 1863, and that Vintage Shape was first made by W. Adams, and repeated by E. Challinor about 1865.

The remaining earthenware vessels are undecorated. These pieces include: four saucers, six plates, four small oval bowls (bakers), one cup, two large bowls or basins, one bedpan, one patch box, and one unidentified vessel (Table 4).

Although the undecorated earthenware group includes five fragmentary makers' marks, only one is identifiable (Fig. 13b). This is a printed Powell & Bishop garter mark on the base of one of the oval bakers from Layer 6. The words "IRONSTONE CHINA" are printed on a shield in the center of the circular garter with the firm's name on a banner below. The word "ENGLAND" is printed in large letters beneath the mark.

Godden (1964:509, mark 3136) indicates that this company was in business under that name for only two years, from 1876 to 1878. Other writers, however, indicate the period 1867-1878 for the firm (e.g.,

Praetzellis, Rivers, and Schulz 1983:68). The mark illustrated by Godden does not include the word "England," present on the Woodland specimen. The presence of "England" is of interest since this designation has been widely assumed to have chronological significance. The name of the country of origin was added to many imported goods after 1891 to comply with the McKinley Tariff Act (Godden 1964:11, 239). This, however, does not imply that British goods were never marked "England" before that time. For example, ceramics recovered from deposits on a Canadian military site occupied from 1875-1883 include several British marks incorporating the name of the country (Hamilton 1979:25-29). Still, it is possible that the subsequent firms of Powell, Bishop and Stonier (1878-1891) or Bishop and Stonier (1891-1939) continued to use the earlier "Powell & Bishop" mark (Godden 1964:77-78, 510). One of the marks attributed to the latter company is virtually identical to the garter design described, but with the name Stonier in place of that of Bishop; the word "ENGLAND" is printed below the mark.

Distribution of Euro-American Ceramics

Twenty-one of the 30 non-Chinese ceramic vessels were recovered from Feature 6 and the related Footing 7 deposits, and the restaurant-associated Layer 6 (Table 4). It is interesting that the six non-Chinese vessels represented in the most obviously Chinese-affiliated feature (Feature 8) include only a single tableware form. The other vessels here were a bedpan, a large basin, a patch box, a stoneware jug, and an unidentified yellowware item. The patch box is a short round jar (7.5 cm diameter, 3 cm high, lid missing) that was probably a commercial salve or ointment container. Although this is a very small sample, the predominance of non-tableware forms is compatible with the assumption that the Chinese retained traditional food service customs and dishes while incorporating foreign objects for other utilitarian needs.

The vessels present in the areas yielding the heaviest concentrations of Euro-American ceramics (Feature 6, Footing 7, Layer 6) are predominantly food preparation and service vessels (Table 4). The most common from Layer 6 is the small oval baker. Three are represented. These are the size that would be used to prepare individual servings, as might be expected in a restaurant.

Glass and Stoneware Bottles

The excavations yielded a total of at least 57 bottles from beneath the opera house (Table 5). Although some of these are whole, most are highly fragmented. Except for two demijohns (which were probably used as bulk containers by liquor wholesalers or saloons) and two jars for home canning, all the specimens were retail containers. No glass bottles or vials of Chinese origin were recovered. The bottles are described below according to their probable contents.

Liquors

Liquor containers are generally common on nineteenth-century sites -- a reflection of the importance which consumption of their contents

TABLE 5

Glass and Non-Chinese Stoneware Bottles (Minimum Vessels)
Woodland Opera House Site

Type	Footing	-- Feature --				Total
	7	6	8	9	10	
Demijohn					2	2
Wine			1			1
Champagne		1	1	3	1	6
Stoneware ale	1	1			1	3
Black glass			1			1
Stoneware gin		1				1
Bitters		2	3	1		6
Soda water		2	2		3	7
Pepper sauce		1				1
Pickles, etc.		1			2	3
Fruit					3	3
Canning jars					2	2
Patent medicine		4			9	13
Pharmacy					2	2
Toiletries			1		3	4
Ink		2				2
Total	1	15	9	4	28	57

played in the social life of Victorian America (or at least of American men). A minimum of 14 such bottles was recovered. Unlike most other categories of bottles, none of these were embossed.

The largest of the liquor containers are two aqua demijohns from Feature 10. These bottles have sloping-collar finishes, were probably free blown, and have bare-iron pontil scars. Both vessels are broken, but basal diameter seems to have been about 27 cm. These demijohns probably held wine, but may have contained hard liquor or cider.

Wine is represented by six fragmentary champagne bottles and one neck and finish fragment of a Bordeaux-style bottle (cf. Schulz et al. 1980:75-76). The latter was found in Feature 8 and is from a straight-necked bottle with a crudely laid-on ring finish. Original capacity is estimated at 23 oz. The champagne bottles are all of the heavily constructed classic shape, the finish consisting of a tooled laid-on ring with a chamfered lip. Pieces of single 26-oz specimens were recovered from Features 8, 9, and 10. Fragments of two 13-ozbottles were found in Feature 9, and the upper portion of a third was found in Feature 6.

A whole ceramic ale bottle was recovered from Feature 10. It has a buff-colored body while the upper portion is amber colored, and is covered overall (except for the base) with a clear or cream (Bristol) glaze. The finish is a sloping collar and ring. There is no potter's mark. Vessels such as this were common containers for imported British ale and porter from the gold rush until the early years of the present century. Fragments of two additional ceramic ale bottles were recovered from Feature 6 and the Footing 7 area.

Also possibly from an ale or beer container (but perhaps from one for bitters or hard liquor), is a neck and finish fragment from a black glass bottle found in Feature 8. It has a double sloping-collar finish and was perhaps from a 16-oz bottle.

Even more fragmentary are a few sherds from a tall, cylindrical, salt-glazed stoneware jug, commonly used for imported Dutch gin or German mineral water (Schulz et al. 1980: Figs. 4a, 29a). These are from Feature 6. Original capacity was probably about a quart, but which of the two common -- but very different -- types of contents it held cannot be determined.

Bitters

Bitters held an important place in the popular concept of medicine in the last century; they were bitter-tasting solutions of botanical drugs combined for their tonic, stomachic, or antimalarial effects and suspended in a liquid medium of remarkably high alcoholic content. Hundreds of brands of such concoctions were placed on the market during the second half of the last century, and the success of some of them suggests that bitters were then used, at least occasionally, by the great majority of Americans.

By the end of the century, these preparations had acquired the reputation of being widely used merely as disguised sources of

alcohol. With the growing success of the temperance movement, there is no doubt that they increasingly served this function. At the same time, their original appeal lay in their purported curative powers, and it was medicinal uses for which they were advertised.

Four brands of bitters are represented in the collections from the opera house features. The six bottles in this category are of types illustrated by Wilson and Wilson (1969) and Schulz et al. (1980).

The container design for Lacour's Sarsapariphere Bitters resembles nothing so much as a Victorian baptismal font (Wilson and Wilson 1969:43). Because of their distinctive shape, even small sherds of these bottles are often recognizable, as is the case with a fragment of amber glass from Feature 9. One of two sherds from Feature 8 (both of olive glass and probably from the same bottle), however, bears the vertical embossing "(LACO)UR'S BITT(ERS)." The bottles originally held about a fifth of the liquid.

Louis Lacour of San Francisco began producing these bitters by 1866 and trademarked the name Sarsapariphere the following year. Lacour retired in 1869 and died in 1873. Although manufacture of the product may have been continued by another firm, it seems to have disappeared from the market by the late 1870s (Schulz et al. 1980).

A second brand represented in the collection was Dr. Henley's Wild Graperoot IXL Bitters. Fragments of two bottles, one of aqua and the other of pale olive glass, were recovered from Feature 8. The first of these is embossed "WILDGRA.." in an arc over a large "I..."; the second retains only the final letters of the word "BITTERS," but these are identical in size, shape, and spacing to more complete bottles in the Old Sacramento collection. The containers originally held a quart each.

Dr. William Henley of Portland, Oregon, originated these bitters and formed a partnership in 1866 with several members of the San Francisco liquor trade to produce them. Manufacture of the product shifted through the control of several firms in the ensuing decades, and it appears to have remained on the market at least until 1912 (Schulz et al. 1980).

Two fragments of a square bottle of amber glass are embossed "...OST..." and "...H BIT...", and are undoubtedly from a container of Dr. Hostetter's Stomach Bitters -- for decades the largest-selling bitters in the nation. Embossed bottles were first used for this brand in 1858 and continued to be produced, virtually unchanged, well into the present century (Schulz et al. 1980). The fragments are from Feature 6, and are probably from a 20-oz bottle.

Several more fragments, also from a square bottle of amber glass, were recovered from Feature 6, but these are made in a log cabin design and represent Drake's Plantation Bitters. The only part of the embossed label recovered from the 28-oz container reads "PATENTED/1862."

Patrick H. Drake and Demas Barnes of New York began marketing this brand in 1860 or 1861. Plantation bitters were a combination of cinchona and other botanical drugs, mixed into a base of St. Croix rum, of which Drake & Co. were eventually the largest importers in the country. Heavy and widespread advertising made the brand one of the largest selling in the nation in the following decades. It was on the market into the 1910s, but by the turn of the century, sales had dwindled to insignificance (Schulz et al. 1980; American Druggist 1911:36).

Soda Water

In the last century Americans consumed large quantities of soda water, including both artificially carbonated water and water from natural mineral springs. Because of the popular credence given to therapeutic claims of mineral springs, soda and mineral waters were widely thought of as more healthful than other beverages. And they easily straddled the temperance issue, finding appeal both as mixers for hard liquor as well as teetotal alternatives thereto.

At least seven soda-water bottles are represented in the assemblage, and these represent four brands or companies.

The basal half of a transparent aqua bottle from Feature 10 is embossed vertically on the sides, "(THE) BELFAST/(S)ODA WATER &/(G)INGER ALE CO./ (SAN F)RANCISCO/(CA)L." (cf. Schulz et al. 1980: Fig. 32a). The bottle is made in a two-piece mold, and originally would have held about 10 oz and have had a blob-top finish.

The embossed legend was trademarked in 1877 by -- oddly -- the Pacific Mineral Water Company of San Francisco (California State Archives, Trademark Application No. 409, filed Nov. 13, 1877). The history of this company has not been studied, but it was apparently succeeded by the Belfast Ginger Ale Company (Steimke Bros), who renewed the trademark in 1897 (Schulz et al. 1980).

A fragment of translucent aqua glass from Feature 8 embossed "...URGIN & S..." is readily identifiable from more complete specimens in the Old Sacramento collections as an 8-oz, standard style, blob-top soda water bottle, orginally embossed "PHILADA GLASS WORKS" in a semicircle above "BURGIN & SONS."

George H. Burgin was a Philadelphia pharmacist and physician, who, with various partners, in 1828 purchased the Millville, New Jersey, glass factory which eventually became the Whitall-Tatum Glassworks. Burgin sold out his interest in the Millville operation in 1846 and built a new glassworks in Philadelphia. With the withdrawal of other partners and the entry of his sons, the firm became Burgin & Sons in 1853. They manufactured black and green glass bottles, as well as flint-glass pharmaceutical ware. Burgin died in 1870, but the firm continued under the same name until 1908 (Freedley 1859:277; Oberholtzer 1912:612-620).

Four pale-aqua fragments (of at least two bottles) from Feature 6 and two additional broken bottles from Feature 10 represent the soda manufactory of Casey & Cronan. The bottles were made in two-piece molds and are of the patent style (Schulz et al. 1980:118-119). The side is embossed "CASEY & CRONAN/EAGLE/SODA WORKS". On the base is the embossed designation "GRAVITATING STOPPER/MADE BY" encircling "JOHN MATTHEWS NY," encircling "PAT/OCT 11/1864" (Schulz et al. 1980:Fig. 34b).

Hugh Casey was the son of a long-time Sacramento liquor wholesaler and soda- water manufacturer; he took over his father's business in 1873. In 1875 he formed a partnership with Michael Cronan. The company, by 1880, employed three workers and was producing over 100,000 bottles of soda water annually. The partnership was dissolved in 1885 (Schulz et al. 1980).

John Matthews was a New York manufacturer of soda fountains. He began business about 1832 and eventually had one of the most prominent such manufactories in the nation. The patent date on the opera house bottle refers to the design of the neck and special closure consisting of a glass rod with a rubber gasket, intended as a more efficient substitute for cork. The invention was actually that of Albert Albertson, though Matthews soon began manufacturing the special bottles and closures. As late as 1870, they were still advertised as "Albertson's Patent Gravitating Bottle Stoppers" (U.S. Patent Office 1866: Patent 44, 684; Matthews 1870:26). By 1875, however, the invention was being advertised as "Matthews' Patent," the bottles depicted were embossed; and the company was assigning exclusive rights to the bottles to local bottlers in specified areas throughout the country (Matthews 1875:41). Matthews himself died in 1870, though the company continued under his name. In 1891 the firm united with New York's three other largest soda- water apparatus manufacturers to form the American Soda-Fountain Company (Morrison 1962; Druggist's Circular 1894).

A final fragmentary 8 to 9-oz soda-water bottle was recovered from Feature 8. The specimen is of blue glass and is in the standard style, made in a two-piece mold with a blob-top finish. The base is missing. The bottle is embossed "N(A)PA/WOOD'S/(S)OD(A)//NATURAL/ (MINER)AL WATER/(T W) F A.G.T."

J. Henry Wood immigrated to San Francisco in 1853. Two years later, during a protracted illness he convalesced at the Napa Soda Springs and after recovering, decided to purchase and develop the springs. This effort involved him in protracted litigation until 1861. In 1862, Wood began bottling the water for sale in San Francisco and surrounding areas. From 1870 to 1872, the soda water was bottled through the agency of Thomas W. Fenn, whose operation the present bottle represents. By 1872 ownership of the springs had passed from Wood to John P. Jackson, who ran them for the rest of the century using bottles bearing his own mark (Markota and Markota 1972).

Food

Although in the last century canned foods -- because of the danger of contamination -- were much less popular than today, some kinds of foods, especially condiments, were either pickled or preserved in bottles. The opera house site yielded a minimum of seven such containers, as well as two jars that illustrate the growing popularity of home canning in the latter nineteenth century.

The only embossed retail food container was a broken gothic-style pepper sauce bottle from Feature 6. The bottle is aqua glass, apparently made in a two-piece mold. Only the basal two-thirds of the container has survived, but this shows it to have been a square bottle, horizontally ribbed on three sides, with a gothic church-window style panel on the fourth face. Around the bottom of the body is the embossing "G.C.O. PAT/SEPT 28/1875". The reference is to Design Patent No. 8,6666, registered on the date indicated, by George C. Ovens of Red Bank, New Jersey (Zumwalt 1980). We have located no further information on Ovens or the use of his bottles.

Other food containers included at least three aqua bottles for pickles or similar products, but these vessels were quite fragmentary. The upper portion of a bottle from Feature 10 shows this specimen to have been a simple squarish shape, probably without paneled faces, with a broad ring circling the top of the shoulder, a nearly straight-sided neck, and a tooled bead or ring finish. Mouth aperture was 31 mm. The bottle was from a two-piece mold and probably held about a pint. Two other specimens, one from Feature 6, the other with articulating sherds from Features 6 and 10, are of the same style but slightly larger, having a mouth aperture of about 38 mm and being of perhaps a quart capacity. A squarish base from Feature 10 may be from the latter bottle, though this cannot be demonstrated. It measures 74 by 79 mm and the base bears an embossed 12-pointed asterisk design.

Likewise highly fragmented were three widemouthed cylindrical food jars -- all from Feature 10 -- of the style used for imported French fruit (Felton and Schulz 1983:Fig. 18a). The bottles were of clear glass, apparently made in a dip or turn mold. They were straight-sided and sharply shouldered with a short straight-sided or very slightly flaring neck, and a simple fire-polished lip. Two of these containers had pontil-marked bases, about 135 mm in diameter, and mouth apertures of 108 mm. Volume was perhaps a quart. The third jar was slightly larger with a base diameter of about 150 mm. The base bore no pontil scar. Volume is suppositional, but is estimated at 1.5 qt.

The final two food vessels, unlike the preceding specimens, are not retail containers, but jars for home canning. These 2-qt jars, which are of typical cylindrical, gradually shouldered and neckless design, are from Feature 10. They are of aqua glass, made in a two-piece mold, and have a bust-and-grind, screw-cap finish. They are embossed "MASON'S/ PATENT/ NOV 30th/1858". The finish on these jars is that of the original Mason patent, made to take a zinc screw cap with the seal actually being formed on the shoulder. Such containers, with this embossing, were probably in common use for at least half a century after 1858 (Toulouse 1969).

Patent Medicines

As the latter nineteenth century was the era of laissez faire and mass production in industry, so was it in medicine. Both the increasing efficiency of transportation and the growth of large daily newspapers combined to produce a marketing opportunity in which folk remedies and scientific advances, effective remedies and dangerous drugs, could -- if combined with the right approach to advertising -- be vended in vast quantities and with great profit to a dyspeptic, febrile, seasonally undernourished population, which lived in remittent fear of ailments neither it nor scientific medicine fully understood.

The opera house features yielded at least 13 bottles which once held proprietary medicines. Four of them bear embossed company names. A small widemouthed jar of clear glass found in Feature 10 bears the embossed label "MATHEY CAYLUS" in a semicircle over "A/PARIS" (Fig. 14c). The bottle is from a two-piece mold and has a volume of about 2.5 oz. The base is embossed
"AC 1057."

Mathey Caylus was a French pharmacist who, in the early 1850s, developed a gluten capsule for copaiba and other preparations which were intended to pass through the stomach before being absorbed. Bottles of these encapsuled medicines were available in the United States by 1859. They continued to be available well into the present century, but by 1917 pictorial advertisements show the embossing style to have changed to a horizontal line of block letters near the shoulder (American Druggists' Circular and Chemical Gazette May 1859:120; American Druggist and Pharmaceutical Record Feb. 1917:36).

A fragment of curved aqua glass from Feature 6 is embossed "..A E. PIN.../...TABLE CO...." -- the remains of a bottle of Lydia E. Pinkham's Vegetable Compound. Neither the finish nor the mold type of the original bottle can be ascertained from this specimen, but the body curvature and lettering match pint bottles for this product in the Old Sacramento collections.

Lydia Pinkham was a Massachusetts housewife who, when her husband's real estate speculations fell through, began preparing for neighbors a formula for female complaints. In 1875 she began systematically bottling the compound for local sale, and the following year the family organized the business as a company and started advertising in the newspapers. Claiming to cure ovarian troubles, spinal weakness, uterine tumors, as well as faintness, flatulence, and craving for stimulants, the preparation was grossing well over a million dollars annually by the end of the century (Washburn 1931; Stage 1979).

A whole bottle from Feature 6 is embossed vertically "E. G. LYONS & CO/ESS./JAMAICA GINGER/S.F." (Fig. 14d). The bottle is of pale aqua glass, made in a two-piece mold. It is a "Philadelphia oval" shape with a sloping-collar finish and holds about 3.5 oz. The bottle retains some remnants of the original paper label, but other than that it is printed in blue ink, no details are discernible. The base of a second similar bottle was found in the same feature, but the available piece bears no embossing.

E. G. Lyons was born in France and came to California in 1852 with his father, who operated a general store in Tuolumne County. In 1864, the younger Lyons moved to San Francisco and a year later, with a cousin, took over a cordial and bitters manufactory, the new firm being styled E. G. Lyons & Co. It was incorporated in 1891 and the name was then changed to the E. G. Lyons Co. Lyons died in 1893 and a few years later his sons and sons-in-law changed the name once more to the E. G. Lyons & Raas Co. (Lang 1882; Pacific Wine and Spirit Review March 6, 1893:18; Jan. 31, 1904:38).

A third bottle in the same style, but from Feature 10, is faintly embossed vertically "McMILLAN & KESTER/(illegible)/S.F." This is another essence of Jamaica ginger bottle.

Donald McMillan and L. B. Kester began in the cordials and bitters industry, working in the branch manufactory opened in San Francisco in 1852 by Turner Bros. of Buffalo, New York. In 1865, McMillan and Kester purchased the San Francisco operation, and began running it under their own names, continuing to use the Turner name for some of their products. During their first year of operation, for example, they trademarked a paper label for Turner's Essence of Jamaica Ginger (California State Archives, Trademark Application 156, filed Feb. 1, 1865), though the bottles, if embossed, may have borne their own names. Jamaica ginger under their own names was awarded a premium at the Mechanics Institute Industrial Exhibition in San Francisco in 1877. Kester died in 1881, and for about five years thereafter McMillan operated alone under his own name. He was succeeded in turn by his son Ronald McMillan, who continued the business until 1906 (Hales 1979).

Of the unembossed medicinal bottles, the most numerous were large-panel bottles of aqua glass. These vessels, which probably held about a pint, are sharply shouldered, straight-necked, have a squared extract lip finish, and were made in a two-piece mold. Six of these bottles were found in Feature 10. The bases of two similar, but much smaller (2 oz), specimens were also found, one each in Features 6 and 10. A finish found with the Feature 6 specimen was also of the extract style, but the smaller bottles differed from the larger ones in having one unpaneled face. Bottles of this style were termed "castor oil panels" in turn-of-the-century glass factory catalogs (Illinois Glass Co. 1903), but they were widely used for other medicinal products as well.

Pharmacy Bottles

Only two specimens are included in this category; one is embossed. Both are of clear glass and both are from Feature 10.

An oval bottle with one flat face (Philadelphia oval style) was the only bottle in the collection embossed for a Woodland business. The bottle was made in a two-piece mold and has a flaring rim (prescription finish). The flat face is embossed with a logo consisting of a superimposed C, W, and P, beneath which is the vertical label "C. W. PROCTOR/DRUGGIST/WOODLAND" (Fig. 14b). The base is embossed "W. T. & CO." over the mold mark B.

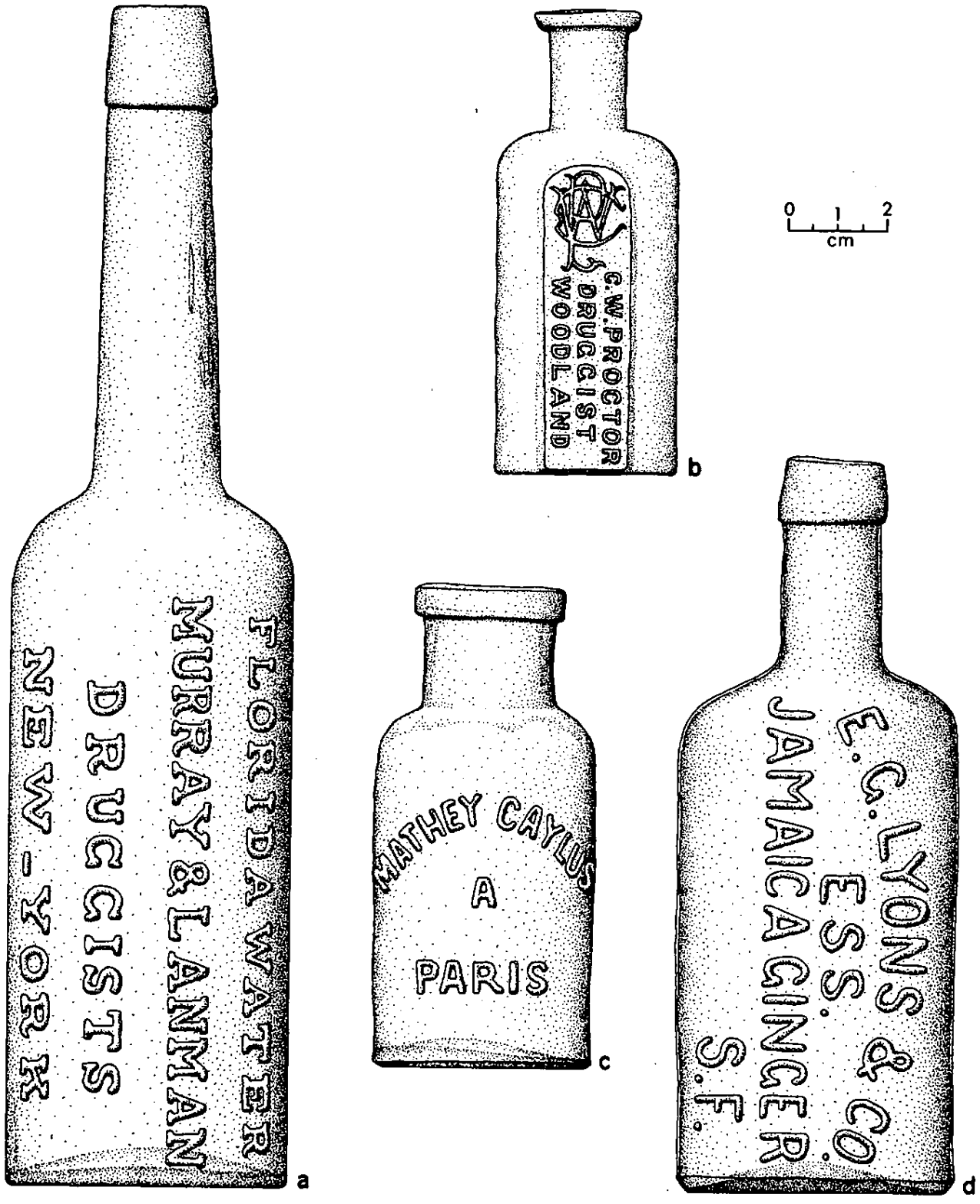

Figure 14. Embossed bottles from the Woodland Opera House site: a) Florida Water, Murray & Lanman, New York; b) C. W. Proctor, Druggist, Woodland; c) Mathey Caylus, Paris; d) E. G. Lyons & Co., San Francisco, Essence of Jamaica Ginger.

C. W. Proctor was operating a pharmacy in Davisville in 1870, and by 1878 had moved to Woodland, advertising himself as a "practical druggist, dealer in drugs, chemicals, paints, oils, glass, and druggists' sundries." Proctor's shop was under the Craft Hotel on Main Street. His last Woodland listing is in September 1879 (Sprague and Atwell 1870; McKenney 1878; Woodland Daily Democrat Sept. 11, 1878; Sept. 29, 1879:2).

The basal designation on the bottle is the mark of the Whitall, Tatum & Co. Glassworks of Millville, New Jersey. The glassworks operated under this name from 1857 to 1938, but use of the W. T. & Co. initials was discontinued in 1901 in favor of a vertically arranged W. T. (Pepper 1971).

A broken cylindrical prescription bottle of about 4 oz capacity was also recovered. The bottle is straight sided, distinctly shouldered, and has a slightly expanding neck and prescription finish. The bottle was made in a two-piece mold.

Personal and Household Products

This category, in the present instance, includes toiletries and ink. The collection contains four bottles for the former and two for the latter. The former are embossed and represent two products; the latter are unembossed.

One ink bottle is an octagonal well which held about 3 oz. It was found in Feature 6 and is made of aqua glass in a two-piece mold, but the upper portion has been broken away. A fragmentary ceramic ink bottle was recovered from the same feature. It is of a medium grey stoneware, covered with a thin light-brown glaze, and was about 5 cm in diameter with a mouth about .25 cm in diameter.

Two tall aqua bottles -- both from Feature 10 -- are embossed vertically, "FLORIDA WATER/MURRAY & LANMAN/DRUGGISTS/NEW YORK" (Fig. 14a). The long-necked cylindrical containers held 8 oz, were made in a two-piece mold, and have sloping-collar (oil style) finishes. Mold marks embossed on the bases read "16" and "21." A shoulder and neck fragment from a third bottle in the same feature is also undoubtedly of the same type, but the specimen does not include the embossed area.

Lindley Murray and David T. Lanman, two New York pharmacists, formed a partnership about 1825, and began wholesaling drugs and patent medicines. Sometime in the ensuing years they began producing an orange-scented cologne-like perfume, which they marketed widely in Latin America. About 1850 Murray left the firm and, six or eight years later, George Kemp became a junior partner, the company name being changed to Lanman & Kemp. About this time the company began advertising Florida water heavily in the United States, and it soon became extremely popular. The perfume was always labeled Murray & Lanman's Florida Water, in spite of the change in the company name. Lanman died in 1864 and Kemp continued the operation, eventually admitting his sons, nephews, and brother into partnership, but not changing the name (Hales 1979; Druggists' Circular 1871).

Many bottles of this product are embossed "No 69 WATER ST" in place of "DRUGGISTS" as on these bottles. The Water Street designation -- which had been the firm's address for the previous half century -- was included in the bottle embossing registered by Kemp in 1870 (California State Archives, Trademark Application 175, filed June 14, 1870). In the following year, however, the firm moved to 68 and 70 William Street and subsequently omitted the anomalous address.

A clear glass sherd from Feature 8 is from a cylindrical bottle and retains enough of the embossing to indicate that the original label was "ED PINAUD" in curved letters over an embossed circle.

Eduard Pinaud was a Parisian perfumer who, in the late eighteenth century, founded what was to become one of the major perfume houses of France, shipping throughout the world a long list of toiletry products. The present specimen is probably from a bottle for Eau de Quinine Tonique, a hair preparation "composed of 65% alcohol colored a beautiful red, and with a balsamic or aromatic odor," but containing no quinine (Druggists' Circular and Chemical Gazette Sept. 1890:202). This preparation, one of Pinaud's two or three best- selling products, was introduced in 1850 and is still on the market, though now in a somewhat different style bottle (Saturday Evening Post Sept. 21, 1929:195).

Other Artifacts

Opium Pipes

Fifty-five ceramic opium pipe bowl fragments, representing at least 25 bowls, were recovered under the opera house. These mold-made objects occur in a wide variety of shapes, materials, and decorative styles, which are similar or identical to previously published examples (Etter 1980:98; Praetzellis and Praetzellis 1979:157-159, Fig. 7). Over 70% of the opium bowls were recovered from Features 6, 8, and 9, which have the most clearly defined Chinese components, but Feature 10, which otherwise yielded mostly American glass, contained fragments from at least six pipes (Table 6). The origin and use of opium pipe bowls and related paraphernalia, and patterns of nineteenth-century opium use, are further described below (see Discussion).

In terms of their general size and shape, these artifacts bear a superficial resemblance to American doorknobs (Fig. 15). The tops of the bowls are smooth, slightly convex (round, horizontal, or octagonal) surfaces about 5.5 to 7.8 cm wide, with a small hole in the center. The sides extend downward from this smoking surface, usually curving or beveling inward to a narrow central neck about 1.7 cm in diameter. This neck is inserted into the length of bamboo that forms the stem of the pipe. Although the sides of some bowls are plain, they are most frequently decorated with vertical facets, compound curves, horizontal rings, or bands of floral and geometric designs, including Greek keys and "s"-like motifs. The sides or bottoms of the bowls often bear impressed Chinese characters. These have been reported to be potters' and shops' names (e.g. Praetzellis and Praetzellis 1979:158), although none of the Woodland marks are clearly identifiable as such (Ruth Ann Sando, personal communication).

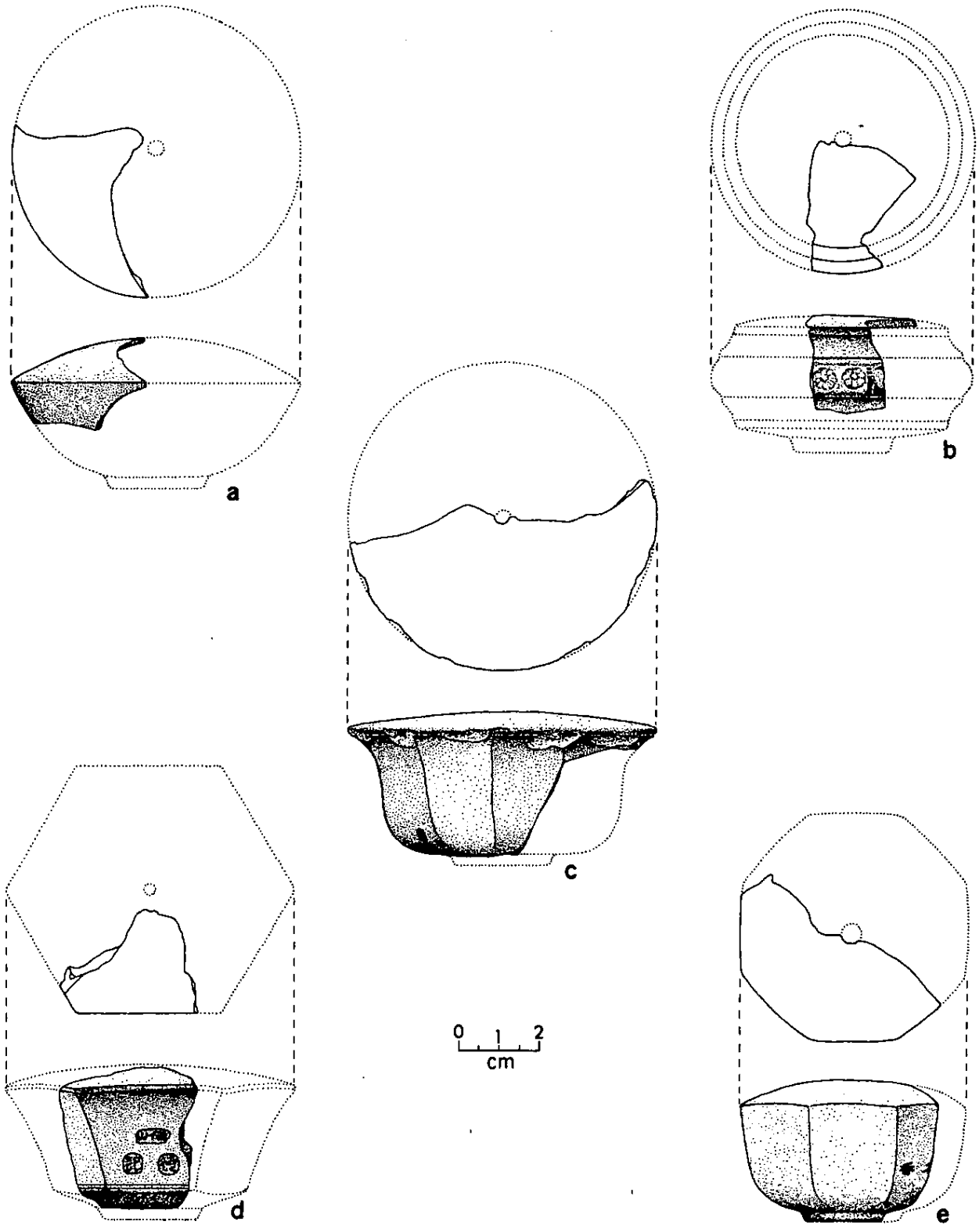

Figure 15. Ceramic opium-pipe bowl styles: a) circular, plain; b) circular, banded; c) circular, faceted; d) hexagonal, faceted; e) octagonal, faceted.

TABLE 6

Opium Pipe Bowls, Woodland Opera House Site

Smoking surface: / Side decoration:	Circular Plain		Circular Banded		Circular Faceted		Hexagonal Faceted		Octagonal Faceted		
Material	Feat.	Bowls	Feat.	Bowls	Feat.	Bowls	Feat.	Bowls	Feat.	Bowls	Total
Common pottery											
Orange unglazed	6	1			8	1	8	1	6	3	
	8	1			10	1			8	2	10
Orange glazed	6	1	6	2			8/9	1*			
	8	2	10	3							
			8/9	1*							10
Grey unglazed							9	1	10	1	
							10	1			3
Stoneware											
Grey unglazed	8	1									1
Red polished		—		—		—		—	8	1	1
Total		6		6		2		4		7	25

*1973 excavations.

It is possible that some of the opium pipe bowls recovered at the Woodland site were manufactured in the potteries at Yi-hsing Hsien in Kiangsu, near Shanghai. Although the area was noted for its red, unglazed stoneware teapots, the potters also produced a variety of other small items, including "the heads of opium pipes, which are beautifully made and tastefully decorated" (Hobson 1915,i:177). Hobson reported that the ceramic bodies commonly produced there were unglazed stonewares of differing shades of red, brown, buff, and black-brown. Decorations included engraved low relief and stamped designs and inscriptions. While some of the Yi-hsing ware was soft, the body was often hard enough to be polished with a lapidary wheel (Hobson 1915,i:175-183). One of the Woodland specimens (Table 6) appears to have been polished after firing, while the others bear incised, impressed, and molded designs and characters.

No additional opium pipe hardware was found on the Woodland Opera House site, although metal collars and flanges by which the bowl was attached to the stem have been recovered elsewhere.

Opium Tins

Opium prepared for smoking was a thick, viscous liquid, commonly compared with molasses in appearance. It was usually shipped in small rectangular brass tins. According to one generally reliable observer of the Chinese in the United States, opium for smoking was:

> ...put up in white porcelain pots holding five leung, 6 58/91 ounces avoirdupois, for use in China, and in brass cans containing the same amount for export. Most of the opium used for smoking... throughout the United States, is imported in these cans (Culin 1891:498).

A total of 106 fragments of sheet brass representing a minimum of nine opium tins, was recovered from the deposits beneath the Woodland Opera House. Although none of the specimens were complete, enough pieces were present to determine the size and method of construction of these tins (Fig. 16a). The small rectangular boxes were about 9.5 cm high, 6.5 cm wide, and 4.0 cm deep. The body of the tin was folded from a single sheet of thin-gauge brass (.2 mm thick), the ends of which were soldered together. The base is a rectangular piece of the same metal, the sides of which have been folded up slightly to facilitate soldering to the body. A strip of heavier gauge brass (.5 mm thick) was folded and soldered to the inside of the upper lip of the body to form a flange to receive the lid. The lid is formed from a rectangular sheet of brass the same size as the base. A strip of thin brass about 1 cm wide is soldered around the perimeter of this piece, to engage with the reinforced lip of the tin itself.

The lids of these tins are frequently stamped with a cartouche containing Chinese characters representing the brand name of the opium. Fragments of at least eight stamped lids were recovered (Fig. 16b). The characters on five of these were identifiable; all represented "Li Yun," or "Beautiful Origin," brand opium. Two of the additional characters at the top of the cartouche appear to signify "Superior Quality" and "Royal" (Ruth Ann Sando, personal communicaton).

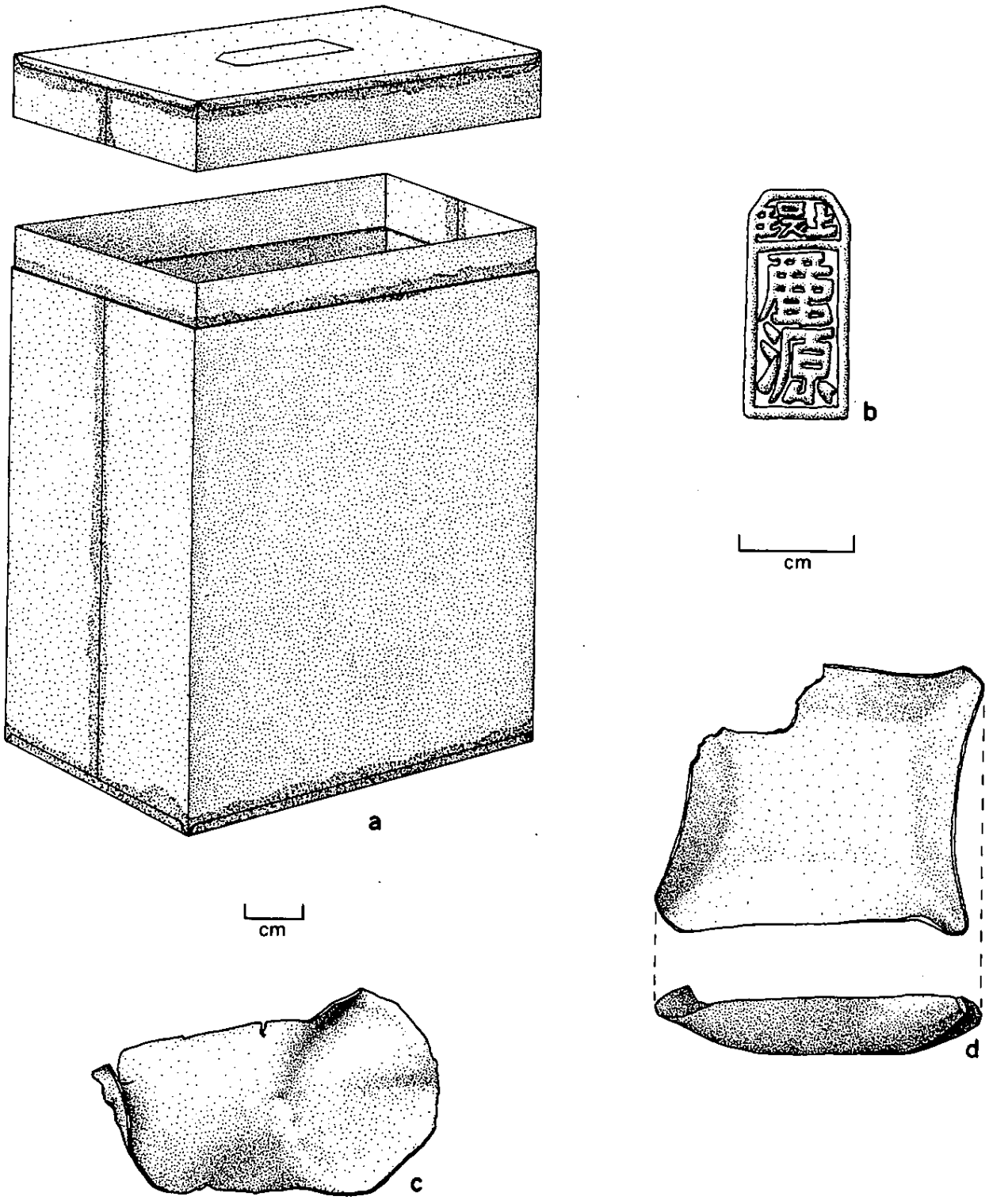

Figure 16. Brass opium tin artifacts: a) typical whole tin; b) stamped mark on lid, "Beautiful Origin" brand of opium; c-d) objects of reworked opium tin brass.

"Beautiful Origin" was one of the two most common brands of top-grade opium in use in the United States during the late nineteenth century (Culin 1891: 498; Kane 1882:31; Sando and Felton 1984).

Distribution of the Woodland opium tin specimens by feature, raw frequency (total count, number of tops and bottoms) and estimated minimum number of individual counts are given below (Table 7). The total length of the easily recognizable metal strips that formed the sides of the lids (thin strips) and the body-lid flange (thick strips) were measured and used in estimating minimum individual counts. As each tin originally had only one of each type of strip, the total length of each group of strip fragments was divided by the original length of one strip (215 mm) to derive the minimum number of tins represented.

TABLE 7
Brass Opium Tins

	Counts			Thick Strips		Thin Strips	
Feature	Pieces	Bottoms	Tops	Total Length	(Tins)	Total Length	(Tins)
6	6	1	--	65 mm	(1)	--	--
8*	73	6	7	669 mm	(4)	1,130 mm	(6)
9	27	2	1	215 mm	(1)	283 mm	(2)
Total	106	9	8	949 mm	(5)	1,413 mm	(7)

*Includes pieces from 1973 disturbance assumed to be from Feature 8 or 9.

There is evidence at this and other sites, that the brass of opium tins was salvaged and reused. Three obviously shaped pieces of sheet brass were recovered from Feature 8 and a fourth from Feature 6. One is rectangular (23 by 27 mm); the sides have been bent up to form a small "dish" (Fig. 16d). The other intact piece is oval, about 18 mm wide and 36 mm long. It appears that a small, shallow, spoon-like depression has been hammered in one end, although the piece is badly bent, making it difficult to determine its original form (Fig. 16c). The other two pieces are also generally oval, but are bent and broken. These artifacts appear to have been cut with shears from the brass forming the sides of the opium tins. Several other thin pieces of scrap brass snipped from larger pieces were also recovered. That this material was commonly reused is further suggested by the fact that the bodies of the tins are archeologically under-represented compared to other smaller parts of containers (lids, bottoms, and lid strips).

Objects virtually identical to the rectangular dish-shaped piece have been reported from overseas-Chinese sites in New Zealand (Wegars 1984:2). These are referred to as 'funs trays,' and were reportedly made to hold small amounts of smoking opium. The Yreka Chinatown site

also yielded reworked pieces of opium tins. These were small octagons (15-25 mm squares or rectangles with corners snipped off), which co-occured with Chinese coins and glass game pieces, leading to the speculation that the opium tin pieces were also used as game counters (Helvey and Felton 1979).

Clothing

The dry environment under the Woodland Opera House resulted in the preservation of organic materials which generally do not survive in archeological sites. These include pieces of silk and wool cloth representing nineteenth-century clothing (Pope, this volume). Unfortunately, they are small fragments from unidentified garments. Nevertheless it seems likely that the silk specimens are remnants of clothing worn by the site's nineteenth-century Chinese residents.

Other clothing-related items recovered at the Woodland Opera House are listed below (Table 8).

Twenty-five buttons make up the largest single group of clothing-related artifacts from the features reported here. The

TABLE 8

Clothing-Related Artifacts

Artifact	Footing	-- Feature --				Total
	7	6	8	9	10	
Buttons						
Porcelain		5	9	2	1	17
Shell			3			3
Iron		1			2	3
Brass			2			2
Total		6	14	2	3	25
Suspender buckles					1	1
Shoe leather		1	1			2
Straight pins			4		1	5
Fire cap label	1					1
Total	1	7	18	2	5	33

majority of these are of white porcelain, and occur in sizes from 9 to 16 mm in diameter. Buttons are commonly measured in lines (lignes), of which there are 40 to the inch. Two general sizes are represented here, the smaller of which ranges from 9 to 11 mm (14-17 lines; 11 total), and a larger size which varies from 14 to 16 mm (22-25 lines, 6 total). All porcelain buttons have four thread holes. Most are plain, although two (one large and one small) have molded decorations in the form of lines radiating from the center. All appear to have been manufactured using the method patented in Britain by Richard Prosser in 1840 (Kirk 1975:337).

Three shell buttons were recovered from Feature 8. These fall within the same size ranges as the porcelain buttons; two are 9 mm and one 14 mm in diameter.

Nineteenth-century general merchandise catalogs refer to plain porcelain buttons as "white agate" buttons, while those with molded decoration are termed "pearl agates" (Weinstock, Lubin & Co. 1891:41; Montgomery Ward & Co. 1895:85). Buttons made of shell are referred to as "pearl" buttons in these catalogs. While buttons of the size range recovered could have been used on a number of different garments, shirt buttons are frequently listed as being 16 lines in diameter, which corresponds well with the smaller buttons from the Woodland Opera House. Larger sizes (18-30 lines) are commonly referred to as dress buttons.

Metal buttons include two of brass and three of iron. One brass specimen may be from a Chinese garment. It is a small sphere about 9 mm (3/8 in.) in diameter, with a small eye loop soldered to one side; a loose wire ring is attached to the eye (Fig. 18b). This object was found in situ at the bottom of Feature 8, along with a Chinese coin. Similar items 7 to 8 mm in diameter from other Chinese sites have been identified as buttons (George R. Miller, Priscilla Wegars, personal communications), although the sphere might be part of a pendant or other ornament as well.

The other brass button, also from Feature 8, has 4 holes, through which iron pins that originally held an iron backing have been attached. The identification of this object is uncertain; it may be a piece of harness hardware.

The iron buttons are badly rusted, making it impossible to determine their original size or appearance with certainty. All seem to be composite buttons (made of more than one piece); they may have been covered with cloth. One of the iron buttons was attached to the cloth with a shank, although another had four thread holes.

Feature 10 yielded a suspender buckle. It is of brass, and has rollers around which the suspender strap was looped. The purpose of the buckle was to adjust the length of the suspenders, which were attached to buttons on the waist band of the trousers by cloth or leather straps with button holes (cf. Montgomery Ward & Co. 1895:93-94).

Fragments of at least two leather shoes or boots were found in Features 6 and 8. Both features contained unidentifiable fragments of leather; included in Feature 6 were also a very dry and brittle sole and heel, probably from a boot. The sole and heel are about 240 mm long; the heel is composed of several thicknesses of leather, attached with iron nails, and is about 30 mm high. The sole is held to the uppers by threaded brass pins. The brass "screws" (actually twisted wire) were patented in 1862 (Anderson 1968:59).

The collection contains five brass straight pins from Feature 8 (four pins) and Feature 10 (one pin). The two complete examples are 26 mm (1 in.) and 29 mm (1-1/8 in.) long; the others are broken. These were probably used in sewing or mending clothing.

A silver nameplate, probably from a leather fireman's hat (Fig. 17b), was recovered under the opera house floor at Footing 7. Loose earth scattered in this area contained leather scraps and other items that probably originated in Feature 6 to the southeast. The nameplate is shield-shaped, 65 mm (2.5 in.) wide and 44 mm (1.5 in.) high. A stylized carriage with a large spoked wheel is embossed on the face of the shield. The name "H. T. GRATACAP" is stamped above the carriage, with the letters "MAKER NY" below. Fragments of red paint and a black substance (glue or paint?) still adhere to the back of the plate.

Henry T. Gratacap is listed in the New York city directories from 1837 to 1888. He was listed as a saddler until 1841, but from 1842 onward, he apparently concentrated on supplying different kinds of caps. Of particular interest were the listings between 1855 and 1869, several of which identify fire caps as his business. It is not clear from the directories whether he manufactured these caps, or simply distributed them. The fact that firemen's caps of the period were commonly made of heavy leather, along with Gratacap's background as a saddler, however, suggest that he was a manufacturer (Longworth 1837:275; 1841:311; Doggett 1842:137; Wilson 1855:337; 1856:329; 1869:431; 1888:757).

It is likely that the nameplate found under the Woodland Opera House is from one of Gratacap's products; the red paint on the back of the piece suggests that this was a fire hat. While it is possible to imagine that the label was lost during the 1892 fire, it seems more likely that it was from a fireman's cap brought to Louis Deitz's harness and saddle shop for repair.

In regard to the clothing collection as a whole, there is little among it that is identifiably Chinese except the silk cloth and the spherical brass button. Other common buttons, (which might, from disparaging contemporary comments about loss of these items during laundering, be expected to occur frequently on laundry sites) are also disappointing in this regard: Features 6, 8, and 9, located on the washhouse site, yielded no more buttons per volume of deposit than did Feature 10, associated with the harness shop.

Harness-Related Artifacts

Louis Deitz operated a harness and saddle shop on Parcel 4 between the late 1860s and about 1876, and again during 1880 and 1881 (see Site History, above). Although the shop itself was located in a building to the south of the opera house, a considerable number of artifacts clearly attributable to leather-working activities were recovered beneath the floor of the existing structure (Table 9). The vast majority of these are from Feature 6, apparently an outbuilding cellar which was filled by trash from both the harness shop and the laundry. This deposition probably occurred either at the time of Deitz's move to a new shop in the mid-1870s or when the property was being prepared for construction of the first opera house, between 1880 and 1884. A secondary but still appreciable collection of harness-related material came from around Footing 7 and probably represents debris removed from Feature 6 to permit installation of the opera house furnace.

TABLE 9
Harness-Related Artifacts

Artifact	Footing 7	--Feature-- 6	8	9	10	Layer 6	Total
Leather scrap (gm)	(345)	(1727)	(15)	(1)	(108)		(2,196)
Buckles	2	6	1				9
Bridle rosette						1	1
Brass discs		6				1	7
Rivets		34	1		5	2	42
Burrs (washers)	1	36	—	—	1	1	39
Total	3	82	2		6	5	98

The collection includes 2,196 gm (4.84 lb) of dry leather scrap (identifiable shoe leather excluded). Most of this consists of small, irregularly shaped scraps, presumably waste trimmed from larger pieces during the production of saddles or harness. There are a few pieces of leather strap and of leather exhibiting stitch holes.

Nine harness buckles were recovered. These are all made of iron or steel, and are badly rusted. Seven buckles are of the common barrel roller variety, although their shape and proportions vary somewhat (Fig. 17f-g; cf. Montgomery Ward & Co. 1895:327). These are generally slightly rounded, rectangular rims, with a catch (chape) which engages the strap attached to one side. The catches are heavy lengths of wire, one end of which is wrapped around the rim. On several examples, there is a complete or fragmentary roller on the opposite side of the ring, to facilitate the movement of the strap through the buckle while adjusting. The widths of the barrel roller buckles vary from 27 mm (1 in.) to 45 mm (1-3/4 in.) and would have accommodated straps from 5/8 in. to 1-1/8 in. wide. One buckle still has a piece of 1-in. leather strap attached.

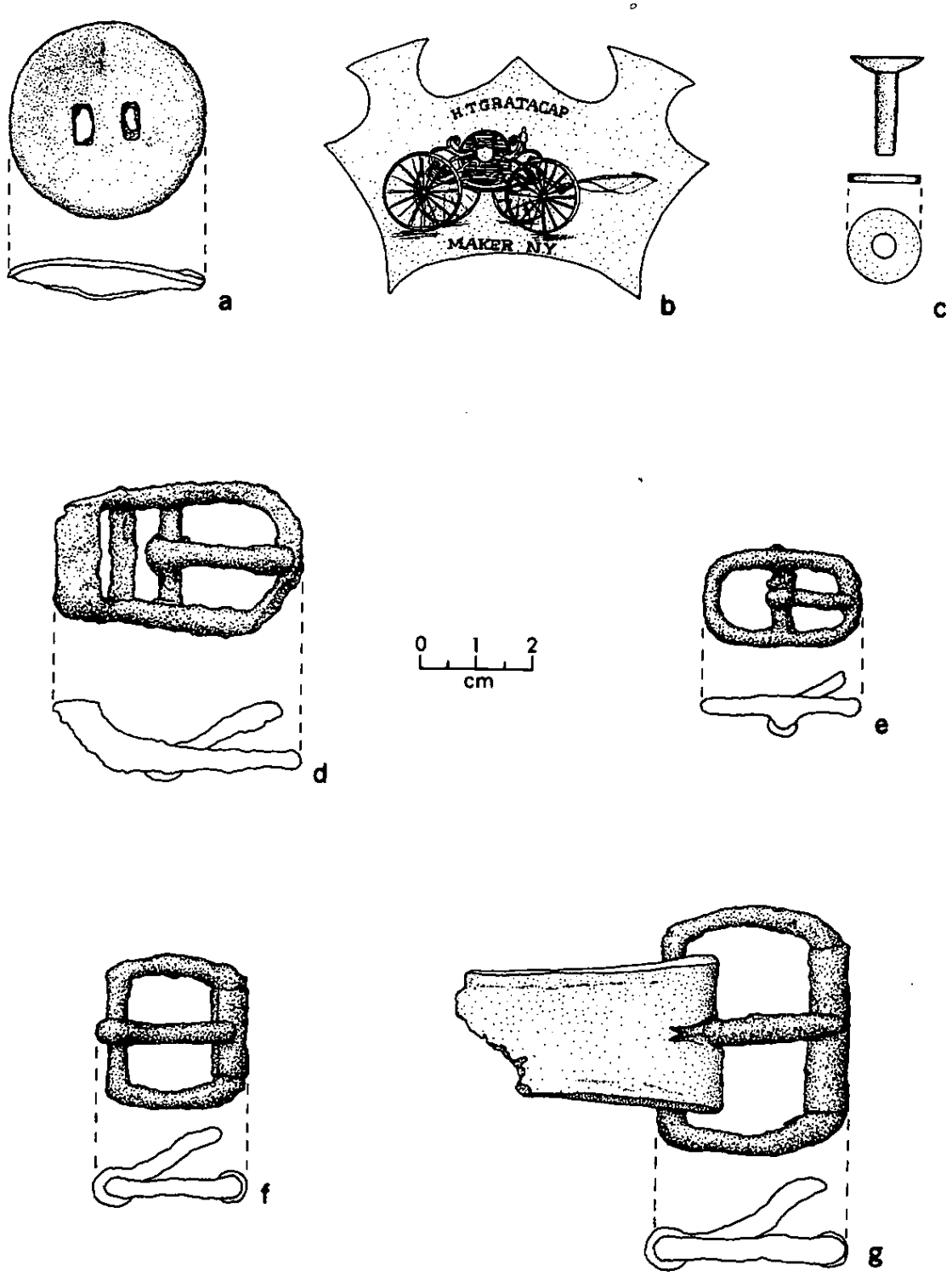

Figure 17. Artifacts associated with pre-1880 harness shop: a) zinc rosette; b) fire cap nameplate; c) brass rivet and burr; d-e) harness buckles; f-g) harness buckles, barrel roller variety.

Two other harness buckles of different forms were also found in Feature 6. One is a small oval-shaped rim with a center bar to which the catch is attached (Fig. 17e). The outside width of this piece is only 16 mm (5/8 in). Another buckle (Fig. 17d) is similar in form and construction, although one side of the rim is offset to allow the loose end of the strap to pass through smoothly. These two buckles could be used with straps no more than 3/8 and 1/2 in. wide, respectively.

A zinc (?) disc has been tentatively identified as a bridle rosette (Fig. 17a). This item is 34 mm (1-3/8 in.) in diameter, and has two oval holes near the center. It was recovered from Layer 6, south of the existing opera house and is believed to have been deposited between 1885 and 1892. A rivet and a burr (see below) were also recovered here.

Seven circular sheet brass discs with convex faces presumed to be harness or saddle decorations were recovered: six from Feature 6 and one from Layer 6. Three of these (14 mm, 9/16 in. diameter) have faces of thin sheet brass with iron backings from which brass wires protrude. A slightly larger, steeply convex piece (17 mm, 5/8 in. diameter) is gilded on front, and has remnants of lead in the reverse hollow. Another specimen (23 mm, 7/8 in. diameter) is also partially lead-filled. The largest piece is 36 mm (1-3/8 in.) in diameter, and has a narrow band pressed in the metal around the circumference. There is no lead or wire on the back of this specimen, although opposing sections of the border have been broken away; perhaps a loop was originally attached there.

Eighty-one brass and copper rivets and burrs (washers) are included among the harness shop debris. These appear to be primarily of two sizes (Fig. 17c). Thirty of the rivets are of brass, have flat-topped countersunk heads 12 to 14 mm (1/2 in. to 5/8 in.) long, and taper from about 5 mm (3/16 in.) in diameter just under the head to 4 mm (5/32 in.) near the end. The burrs used on these are 12 to 14 mm in diameter, and have a central hole 4 mm wide. This group of rivets and burrs probably includes standard sizes No. 7 and No. 8. The sizes refer to the gauge of the shank; each is available in a range of lengths. A smaller size of rivets and burrs (No. 10, four examples) is also represented. The heads of these rivets are 8 to 10 mm (3/8 in.) in diameter, with tapering shanks 3 mm (1/8 in.) in diameter at their widest point. The shanks are 13 mm (1/2 in.) long. Although they are commonly referred to in trade catalogs as copper, among the Woodland specimens the larger variety are of brass. Several of the smaller rivets, however, are pure copper, or contain a higher percentage of copper than do the larger ones.

This hardware was advertised as belting and hose rivets and burrs (Russell & Erwin 1865:290), but was also used in the United States in the manufacture of harness (Keegan 1973:104). The rivets were inserted through holes punched in the pieces of leather to be joined, a burr placed over the tapered end of the shaft, and the end of the rivet flattened with a hammer to secure the burr. While a few of the Woodland specimens have never been used, the heads of many of them have been cut off, leaving only the head or shank and attached burr.

These probably represent repair of used harness or other leather goods or salvage of leather from discarded pieces. In other specimens, the leather has been removed or has disintegrated, leaving the used rivet with the burr still attached. In these cases, it is possible to determine the total thickness of the pieces of leather attached to each other. The smaller rivets appear to have been used on thin pieces (2 to 4 mm thick), while the longer size attached pieces from 7 to 12 mm thick.

Although Deitz specialized in saddles and harness, it is possible that he also manufactured or repaired leather belting, which was used extensively to drive steam-powered machinery at the time. Indeed Deitz himself may have used belt-driven, steam-powered equipment in his shop, although we have no documentation to confirm this.

Other artifacts that may be attributable to harness-shop activities include a piece of wrought-iron hardware from Feature 6 believed to be part of the harness used with a horse collar (cf. Montgomery Ward & Co. 1895:326). A horseshoe was recovered in Feature 9. Other unidentified iron hardware that may be associated with wagons or harness is present in the collection.

Firearm Cartridges

Seven metallic firearm cartridges and one lead ball are included in the collection. The ball is slightly flattened; its diameter is between 7.2 and 8.4 mm. It was probably used as a No. 4 or No. 5 buckshot (Montgomery Ward & Co. 1895:476), but might have been used in a small-caliber percussion weapon. The lead ball was recovered in Feature 8, as were two .32 caliber short rim-fire cartridges. These specimens, which are unmarked, could have been used in a pistol or a rifle, although the firing pin impressions suggest that they were fired by different guns. Of the other cartridges, four were recovered from Feature 6 and one from the Footing 7 area. They include two .22 caliber short copper rim-fire cartridges, one of which is marked with an "H," indicating manufacture by the Winchester Repeating Arms Co. after 1873 (Williamson 1952:448).

The remaining three cartridges are center-fire brass .45-70s. One of these (Footing 7 area) has the characters "R, 8, L, 79" stamped around the head of the cartridge. This is the headstamp format used on .45-70 cartridges produced by and for the U.S. Army in the late 1870s for use in Springfield rifles and carbines. The numerals "8, 79" indicate that the specimen was produced in August, 1879 for use in a rifle ("R"). The letter "L" demonstrates that it was made in Lowell, Massachusetts, by the U.S. Cartridge Company (Waite and Ernst 1980:163).

The other two .45-70 cartridges have no headstamps, but exhibit a distinctive style of construction. The primer appears to be set in a cup formed from a piece of brass separate from the cartridge body itself. As a result, there is a distinct ring around the primer. Cartridges made under government contract by Winchester are of the same style of construction, but are marked with headstamps similar to that described above (Waite and Ernst 1980:163). Winchester began

manufacture of .45-70 government cartridges in 1876 (Williamson 1952:454). It has been suggested that the unmarked Woodland .45-70 specimens may be government ammunition produced by Winchester for sale on the commercial market (George Stammerjohan, personal communication).

Miscellaneous Artifacts

The distribution of a variety of miscellaneous artifacts at the site is shown below (Table 10). Most of these are from Features 6 and 8 and are tools or small personal items related to recreation or grooming.

TABLE 10
Miscellaneous Artifacts

Artifacts	Footing 7	-- Feature -- 6	8	10	Layer 6	Total
Coins	1	1	6	1		9
Door lock			1			1
Game counters		2	1			3
Glass bead					1	1
Glass disc		1				1
Glass tumblers	2	1			1	4
Hand tools		1	1	1		3
Pen point		1				1
Salt shaker cap					1	1
Tobacco pipes	1	4		1		6
Toothbrushes	—	—	3	—	—	3
Total	2	12	13	3	3	33

The coins derive from China and Annam and are described elswhere by Farris (this volume). It is most likely that the coins as well as the glass game counters were used in the Chinese game fan t'an.

A glass ornament, a thin white glass disc 15.5 mm in diameter with a small hole through one edge (Fig. 18a), was recovered from Feature 6. It is probably a garment decoration. A disc of similar size with a comparably placed hole is shown in a late nineteenth-century catalog, along with other sewing-related items (Weinstock, Lubin & Co. 1891:40). The description states "Fancy Colored Concaves or Disks, very pretty for all kinds of fancy work, small sizes...", but does not identify the material from which they were manufactured. A single

small cream-colored glass bead was recovered from Layer 6; it is about 4 mm in diameter.

A pen nib with the words "R. ESTERBROOK & CO., COLORADO," and "No 2" stamped on the face was recovered from Feature 6. The pen point is made of brass and is 32 mm (1-1/4 in.) long. Richard Esterbrook was a New York pen dealer who formed a manufacturing company in 1869 (Wilson 1869:336). Esterbrook & Co. of New York were advertising nationally by the 1870s, and by the turn of the century they offered over 150 varieties of nibs (Harper's Weekly April 26 1879:334; July 8, 1899:685). An early Montgomery Ward & Co. catalog (1895:114) lists a number of Esterbrook points. The same catalog also shows a job-lot yellow metal pen marked with "COLORADO No 2", although the manufacturer is not identified. These were sold by the gross only, at rates considerably cheaper than the labeled Esterbrook products.

Fragments of four fluted glass tumblers were recovered from the deposits being considered here. The specimens complete enough to be identified have octagonal bases with flutes extending part way up the exterior of the body from the base. Pieces of two tumblers were recovered from Feature 6, one from Feature 8, and one from Layer 6.

A threaded brass salt or pepper shaker cap, 35 mm (1-3/8 in.) in diameter, was also found in Layer 6, south of the existing building. The artifacts from this deposit are attributable to a restaurant that stood on the site between 1885 and 1892.

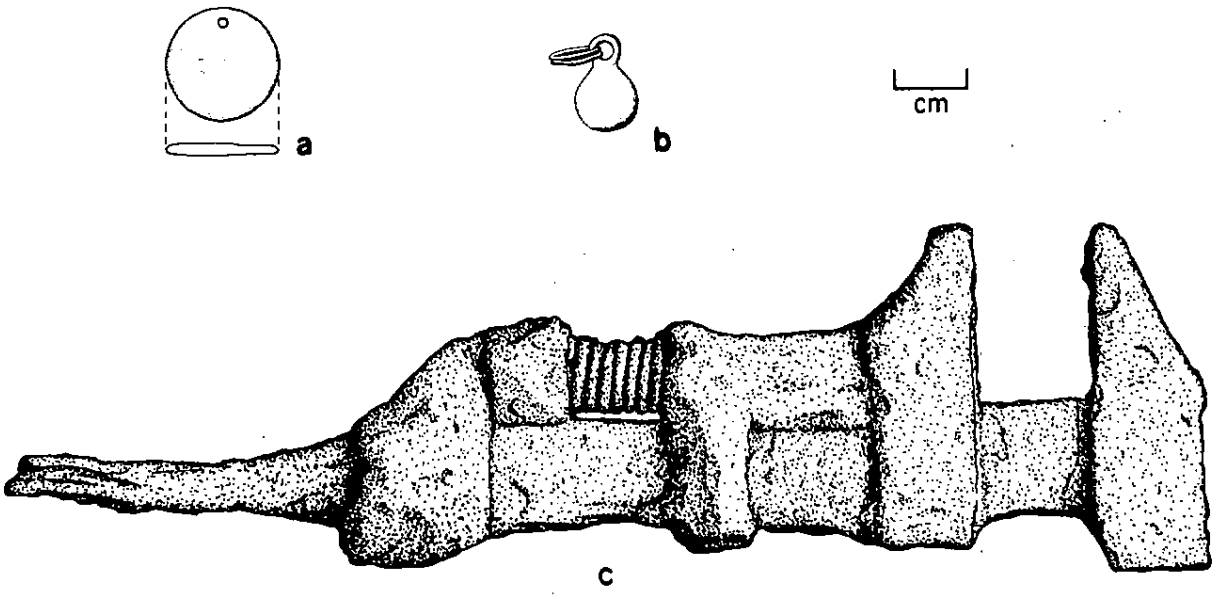

Figure 18. Miscellaneous artifacts: a) decorative glass disc; b) spherical brass button; c) wrench.

The Woodland collection contains ten fragments representing at least six white ball-clay tobacco pipes. Two of those from Feature 6 have manufacturers' marks. These are stem sherds with the names "McDougal, Glasgow," and "White." Both marks are common on California sites of the latter half of the nineteenth century. Duncan McDougal was a Scottish pipe maker whose firm operated between 1846 and 1967 (Humphrey 1969:17-18). William White & Sons was also a Glasgow firm, which manufactured pipes from the early nineteenth century until 1955 (Oswald 1975:207). A pipe bowl fragment from Feature 10 bears the numerals "78"; Humphrey (1969:18) suggests that the number is a style designation.

Pieces of three bone-handled toothbrushes were found in the fill of Feature 8. None are complete; only fragments of the bone handles remain. Two pieces have drilled holes through which the bristles passed. One handle fragment has been burned.

Several hand tools were recovered at the Woodland Opera House site. These include a small fragment of a folding wooden carpenters' rule with a brass hinge (Feature 10; Russell and Erwin 1865:168), a cold chisel made of square steel stock (Feature 6), and a wrench (Feature 8). Although the wrench is badly rusted, comparison with nineteenth-century catalog illustrations suggests that it is a Coe's Patent screw wrench (Fig. 18c; Russell and Erwin 1865:241-242).

Building material on the site included numerous bricks and brick bats, cut and wire nails, and scrap lumber, which have not been dealt with in this analysis. One piece of identifiable building hardware was recovered from Feature 8; it is an iron face plate from a horizontal rim lever knob door lock (cf. Russell and Erwin 1865:24).

The Asian coins and toothbrushes are concentrated in Feature 8, the deposit with the highest percentage of Chinese artifacts. The ball-clay tobacco pipes, on the other hand, are most heavily represented in Feature 6, which contains artifacts representing both the harness shop and the Chinese occupation. No clay pipe sherds were found in Feature 8. While tobacco was popular among the overseas Chinese, they favored brass pipes of Asian manufacture over British clay pipes. Similarly, the pen point seems an unlikely product of the laundry operation, since Chinese characters were commonly written with a brush.

DISCUSSION

The most interesting and significant aspect of the Woodland Opera House assemblage is the high frequency of artifacts of Chinese origin. These are concentrated in Features 6, 8, 9, and 10, which are attributed to structures that stood on the site prior to the construction of the first opera house in 1884.

The last ten years have witnessed a great increase in interest in the archeology of overseas-Chinese sites in the western United States. The initial work focused primarily on describing and identifying the unfamiliar artifacts being recovered, a task which seemed formidable at the time. Research soon revealed, however, that the bulk of the Chinese artifacts commonly recovered were actually of a limited and highly predictable variety. For example, one can expect to find Bamboo, Four-Flower, and Winter-Green style tablewares on most late nineteenth and early twentieth-century overseas-Chinese sites. Conversely, the historic occupants of a site yielding these objects can be identified as Chinese with a high degree of confidence.

Although a limited range of identifiably Chinese artifacts is present on most overseas-Chinese sites, a substantial variation is evident in the relative frequencies with which classes of artifacts occur on sites of different periods and uses. Presumably these artifactual differences are reflective, at least generally, of differences in the historical development and social makeup of the communities in question. The associations between the artifact frequencies and the historical factors to which they are attributable are, however, not obvious. It is difficult to interpret these artifact frequencies through study of a single, poorly documented site such as the Woodland Opera House. Comparison of collections from sites representing a wide temporal span and range of functions should permit more meaningful statements about the reasons for observed differences. In the following discussion, we examine some aspects of the assemblages at the Woodland Opera House in terms of the archeological evidence from other sites, as well as documentary information. A complementary overview of the Chinese community in Woodland (Prazniak, this volume) provides a discussion of the nineteenth-century social history of the Canton Delta, the homeland of the Woodland Chinese.

Depositional Chronology

While the variety of Chinese artifacts recovered is typical of those from most other nineteenth-century Chinese immigrant sites in western North America, several factors make the Woodland collection significant for the archeological study of the Chinese in California. The first of these is the fact that the deposits can be dated to the period from about 1870 to 1880 with a high degree of confidence, based on documentary, architectural, and artifactual sources of information. Many other sites that have been systematically investigated cannot be dated with this degree of precision, often because of the fact that the Chinese artifacts themselves are not readily datable. Chinese ceramics do not commonly bear datable marks,

and Chinese coins, while datable, were often in use for long periods of time (Farris, this volume). Whatever the reasons, many of the available overseas-Chinese collections can be tied temporally only to the lifespan of the community from which they originated, which frequently extended from the 1870s until the 1930s or later. As such, these collections are of little value in examining changes in the popularity of different artifacts through time.

The marked and datable artifacts recovered at the Woodland Opera House site (Table 11), consist primarily of embossed bottles, although a few other marks are included. While the samples from other areas are small, Features 6, 8, and 10 contained six to ten datable specimens each. The termini post quem for these features are 1875, 1870, and 1878, respectively. This range is in good agreement with the known history of the site, in that all terminus dates precede the demolition of the Chinese-occupied buildings on the site in 1880, abandonment of the harness shop in 1881, and the subsequent construction of the opera house in 1884.

No finer definition of the chronology of the deposits under the building was possible. Unlike the area south of the building, where distinct strata could be closely correlated with the architectural history of the site, the subfloor deposits yielding the bulk of the artifacts consist of generally homogeneous fill in intrusive features. We suspect that this fill represents not gradual accumulations of debris, but rather material scraped from the surrounding surface and deposited in the cellars at the time the washhouse was demolished and the site cleaned up.

Recent work has shown the utility of studying crossmending of ceramics, a means of evaluating the mixing of different deposits on archeological sites (e.g., Schulz 1981). This involves identifying sherds of the same vessel recovered from presumably distinct deposits, and from this inferring that those deposits are contemporaneous or have been mixed following their initial deposition.

In the Woodland collection, most crossmending occurred between lots from a single feature. In three instances, however, crossmends over greater distances were observed. One of these was predictable; it involved crossmending of fragments from Feature 8 with pieces recovered in 1973 and subsequently stored with the Yolo County Historical Society, confirming that at least part of the undocumented 1973 work took place in this area of the site.

A more enigmatic crossmend was that between stoneware jar lid sherds from Features 6 and 8. The Feature 8 specimen was recovered at some depth in Unit 7, while the Feature 6 piece was found in the loose material in the upper fill of the furnace pit. Another crossmend occurs between pickle-bottle sherds from Features 6 and 10. The integrity of the Feature 6 deposits has already been questioned. It seems likely, from this evidence, that the Feature 6 fill derives at least in part from Features 8 and 10.

TABLE 11

Marked and Dated Artifacts from the Woodland Opera House

Date	Count	Artifact	Contents, Maker, Origin
Feature 6			
1858-1920+	1	bottle, fragments	Dr. Hostetter's Stomach Bitters, Pittsburgh
1862-1910+	1	bottle, fragments	Drake's Plantation Bitters, New York
1865-1891	1	bottle	Essence of Jamaica Ginger, E. G. Lyons & Co., San Francisco
1869-	1	pen nib	Esterbrook & Co., New York
1872-	1	.22 caliber cartridge "H"	Winchester Repeating Arms Co., New Haven, Conn.
1875-1885	2	bottle, fragments	Casey & Cronan, Eagle Soda Works, Sacramento
1875-	1	bottle	G. C. Ovens (patentee) Red Bank, N.J.
1875-1900+	1	bottle, fragment	Lydia Pinkham's Vegetable Compound, Lowell, Mass.
Feature 8			
1850-1980+	1	bottle, fragment	Eau de Quinine Tonic, E. Pinaud, Paris
1853-1908	1	bottle, fragment	Burgin & Sons, Philadelphia
1866-1912+	2	bottle, fragment	Dr. Henley's Wild Graperoot IXL Bitters, San Francisco
1866-1873+	1	bottle, fragment	Lacour's Sarsapariphere Bitters, San Francisco
1870-1872	1	bottle	Wood's Napa Soda Natural Mineral Water, T. W. Fenn Agency, San Francisco
Feature 9			
1866-1873+	1	bottle, fragment	Lacour's Sarsapariphere Bitters, San Francisco

TABLE 11 (Continued)

Date	Count	Artifact	Contents, Maker, Origin
Feature 10			
1850-1870+	2	bottles	Florida Water, Murray & Lanman, New York
1858-1900+	2	canning jar	Mason's patent
1859-1917	1	medicine jar	Gluten capsules, Mathey Caylus, Paris
1865-1881	1	bottle	Essence of Jamaica Ginger, McKillan & Kester, San Francisco
1875-1885	2	bottles	Casey & Cronan, Eagle Soda Works, Sacramento
1877-1897+	1	bottle	Belfast Soda Water & Ginger Ale Co., San Francisco
1878-1879	1	bottle	C. W. Proctor, Woodland
Footing 7 area			
1879-	1	.45-70 caliber cartridge "L"	U.S.Cartridge Co., Lowell, Mass.
Layer 6			
1867-1878?	1	baker, oval	Powell & Bishop, England

Ethnicity

The study of overseas-Chinese archeological sites is one of the few instances where archeological methods can readily determine the ethnic identity of a site's former inhabitants. While ethnicity of other groups may be reflected in the remains attributable to them, the evidence is usually much more subtle, and the degree of confidence that can be placed in conclusions so derived lower than is the case with overseas-Chinese sites. The highly identifiable character of the artifacts is fortunate in the case of the Woodland Opera House, as very little direct written evidence of the Chinese utilization of this property was encountered. In this instance, the archeological record was the only indication that the site was occupied by Chinese people until a concerted historical research effort was undertaken to help explain the archeological finds.

Ceramics

In the initial absence of good documentation regarding the historic occupants of the site, attributing the food remains and other artifacts recovered at the Woodland Opera House to a Chinese immigrant origin was questioned. We considered the possibility that the association of these remains with identifiable Chinese artifacts might be coincidental; that is, that the deposits represented a mixing of trash from any number of sources. To test this possibility, we compared the ratio of Chinese to non-Chinese ceramics (excluding opium pipe bowls) between the features in question with ratios from other, better-documented Chinese immigrant sites. The assumption here is that a high ratio of Chinese to Euro-American ceramics should be present if the site is attributable primarily or entirely to Chinese inhabitants, with greater numbers of Euro-American goods if the deposits are derived from non-Chinese in whole or part. Factors other than the national origin of the inhabitants or mixing of deposits could, of course, be involved. For example, in an analysis of Chinese material recovered in Boise, Idaho, the frequency of non-Chinese goods has been interpreted as reflecting changes in acculturation or class identity among Chinese immigrants (Sprague 1981:23; also see Jones 1980).

In Boise, ceramics from different deposits dating between 1870 and 1920 consisted of from 40% to 69% Chinese vessels. Archeological work in the old Chinese neighborhood of Lovelock, Nevada, shows that the relative frequency of ceramic sherds of Chinese origin varied from 36% to 81.8% in various areas of the site, and made up 62.3% of the total site ceramic collection, including opium pipe bowls (Praetzellis and Praetzellis 1979:180). The Lovelock site was most heavily occupied from about 1900 to 1940. In Ventura, California, ceramics from two features attributable to Chinese occupation (including a laundry) between about 1890 to 1910 showed high ratios of Chinese to Euro-American ceramics (Feature 24, 79% Chinese by weight, excluding ceramic ale bottles; Feature 25, 85% by vessel count, Bente 1976:462, 489).

Frequencies of Chinese and non-Chinese ceramics in the Woodland Opera House features, with both sherd counts and percentage, are given below (Table 12).

TABLE 12

Woodland Opera House - Ceramic Sherd Frequencies

	Chinese*		Non-Chinese		Total	
	No.	Percent	No.	Percent	No.	Percent
Feature 9	27	90.0	3	10.0	30	100.0
Feature 8	272	88.3	36	11.7	308	100.0
Feature 10	31	75.6	10	24.4	41	100.0
Feature 6	130	61.9	80	38.1	210	100.0
Footing 7	5	38.5	8	61.5	13	100.0
Layer 6	--	--	5	100.0	5	100.0
Total	465	76.6	147	23.4	607	100.0

*Opium pipe bowls excluded, as are all sherds recovered by students in 1973.

Differences between the items included in (or excluded from) other published Chinese/Euro-American ceramic ratios make precise comparison difficult. It is obvious, however, that Features 6, 8, 9, and 10 all exhibit Chinese ceramic frequencies similar to the ranges published for other documented Chinese sites; Features 8 and 9 show higher frequencies than any of the collections cited. We are not prepared to explain these high frequencies in terms of acculturation, class, or minor differences in the way in which ratios were calculated (e.g., including opium bowls would increase Chinese ceramic frequency; using vessel counts decreases this frequency slightly). Nevertheless, even before documentation of the use of the site by Chinese was found, it seemed justifiable to argue that the ceramics from Features 8 and 9 and, by association, the faunal material and other artifacts, could be securely attributed to Chinese immigrants.

Feature 10 yielded a smaller sample of ceramics and faunal material than other features, and was most notable in the large quantities of American glass bottles present. Glass bottle fragments were fewer in the more demonstrably Chinese features. It seems possible that the few Chinese ceramics in Feature 10 represent contamination of a predominantly non-Chinese feature with material from another location. Perhaps the source is the fill removed from Feature 6 and scattered around the southern end of the building, including the Feature 10 area.

Feature 6 has the highest frequency of Euro-American ceramics of the four major features yielding any quantity of Chinese goods. It contained a large amount of faunal material similar to that from Features 8 and 9, but also yielded more American glass, harness-related artifacts, clay pipes, and other non-Chinese goods than the other features. An important factor to be considered in comparing Feature 6 with Features 8 and 9 is the difference in the ownership history of the separate parcels on which they are situated. Features 8 and 9 are located on a parcel owned and rented to tenants (including Chinese) by absentee landlords between at least 1867 and 1880. The Feature 6 parcel was used by the owner as a harness and saddle shop into the 1870s, and again in the very early 1880s, as attested by both written accounts and the large quantities of leather scrap and harness hardware recovered on this parcel. From 1876 to 1880, that operation moved to the south side of Main Street. Perhaps the original site was rented or leased to Chinese occupants during that time, with a resultant mixing of earlier and later deposits to produce the ceramic frequencies observed. Another more likely possibility is that the Chinese artifacts were present in earth used to fill Feature 6 at the time the site was being prepared for construction of the opera house in 1884. This fill may have come from the parcel to the north, where Chinese occupation is documented.

Bottles

Unlike the ceramic containers, the glass bottles in the collection are entirely of American or European manufacture, and all held American or European products. Nor were any of the products designed specifically for a Chinese market. All the items represented in the assemblage were everyday purchases of Euro-American consumers and decorated the shelves of grocers or druggists or liquor dealers catering largely or entirely to a Euro-American clientele.

The derivation of the glass bottles, however, does not necessarily mean that they are the result of non-Chinese consumption and discard. From their first arrival in California, Cantonese immigrants undoubtedly began experimenting with western products -- foods, beverages, and medicines among them. Excavations of 1850s deposits in what was then Sacramento's Chinatown have yielded numerous wine, liquor, food, and medicine bottles, indicating an adaptation to extra-ethnic consumables already at that time (Praetzellis and Praetzellis 1982).

Many of the types of embossed bottles present in the Woodland collection have been found at other overseas-Chinese sites in the West. Hostetter's Bitters bottles have been recovered in Chinese deposits in Ventura (Bente 1976), in Yreka (personal observation), in Lovelock, Nevada (Armstrong 1979), and in Val Verde County, Texas (Briggs 1974). The Ventura deposits also yielded bottles from other types of bitters, local pharmacies, Lydia Pinkham's Vegetable Compound, and Pinaud's perfume. The Lovelock collection includes various soda-water bottles, and the Texas collections include fruit jars and local pharmacy and soda-water bottles.

The Murray & Lanman's Florida Water bottles are of particular interest. Bottles of this brand were also recovered at Lovelock, and bottles for other brands of Florida water have been found at Ventura, Yreka, and a Chinese fishing village in Marin County (Schulz 1984). This perfume must have had considerable appeal among Chinese consumers, since Hong Kong manufacturers began to produce it in the late nineteenth or early twentieth centuries, as they still do (Moss 1968; Bressie and Bressie 1973).

The recovery of these bottles, however, at least as perceived so far, does not provide a distinctive pattern. All of the products involved were widely in use among non-Chinese inhabitants of the West; all that can be said is that the Woodland bottle collection is as associable with a Chinese as with a non-Chinese deposition.

Food Remains

The ethnic identity of the Woodland site's occupants is reflected in the large quantity of food remains recovered, including animal bones as well as vegetable seeds and fruit pits. Some of the latter are of Chinese origin (Chinese squash, winter melon, and Chinese olive). In other cases, traditional western foods were prepared in typically Chinese fashion, as with distinctively butchered chicken bones. Finally, two butchered cat bones point to the use of a food resource not traditionally utilized by westerners.

Reconstructing historic foodways based on archeological data is an important area of anthropological research; it provides an independent source of information on nutrition, health, and the involvement of consumers in the production and distribution networks by which these most vital of commodities are obtained. Careful analysis of foodways becomes even more significant in the study of ethnically distinct populations. As was apparently the case with the overseas Chinese, food habits are often a conservative aspect of culture. Traditional ways of preparing and consuming food are frequently retained long after other more visible customs have yielded to acculturative forces.

Reconstructing a factual understanding of historic food habits for the overseas Chinese may even be more important than for ethnic groups of Euro-American descent. Many aspects of Chinese immigrant culture, including food habits, were considered strange and exotic by non-Chinese neighbors. Stereotyped and derogatory accounts of Chinese fare were committed to the written record with little or no qualification.

A conventional observation regarding late nineteenth and early twentieth- century Chinese restaurants in the western United States is the charge that cats and rats made up a substantial part of the Chinese diet. While the overseas Chinese may well have eaten food resources considered unacceptable by western standards, the written record alone offers little if any evidence that would permit us to differentiate between myth and reality. The archeological record, on the other hand, presents an unprejudiced if incomplete record against which to compare written and oral accounts. For example, the Woodland Opera House food remains include two clearly butchered cat bones as

well as those of ground squirrels, but leave little doubt that the dominant preference was for pork, beef, and fish. There seems to be a greater variance from typical American fare in terms of vegetables than in the kinds of meat commonly consumed.

Chinese Ceramic Analysis

Archeologists studying both prehistoric and historic sites have traditionally expended much effort on the analysis of ceramics. Not only are ceramics frequently abundant in archeological contexts and better preserved than many other classes of artifacts, but they can be good indicators of site chronology. Further, ceramics are representative of a variety of behavioral realities, ranging from the strictly utilitarian to more abstract realms of style and taste.

Prehistoric pottery has long been known to change stylistically over time, so that the sites in which it occurs can frequently be dated with some degree of precision. The fact that the pottery was usually locally manufactured further contributes to the interpretive potential of this material, in that stylistic traditions distinguishable from neighboring houses and communities appear to have evolved within broader traditions. It is sometimes possible to trace social organization and interaction by analysis of changes in design elements through space and time.

Many nineteenth-century Euro-American and Chinese ceramics, on the other hand, were mass-produced and commercially transported to users thousand of miles from their origin, precluding the kinds of analysis possible with domestically manufactured items. It seems probable, for example, that attempts to trace kinship relationships between different American households on the basis of British transfer-printed patterns would produce questionable results at best. Mass-produced ceramic styles, however, reflect not only a people's eating habits but also their purchasing power and, by implication, their social status. Studies of the relative purchase prices of different styles of British earthenware have demonstrated good correlation between documented socioeconomic status of the inhabitants and the values of the ceramic assemblages attributed to them (e.g., Miller 1980; Felton and Schulz 1983). Thus, while the kinds of social patterns reflected by historic and prehistoric ceramics may differ, both have the potential of providing historical insight beyond the simple reconstruction of eating habits.

In the absence of identifiable manufacturers' marks, the utility of ceramic analysis in dating archeological deposits is based on assumptions about the processes by which styles and taste change through time. While utilitarian objects that successfully fulfill their desired function can reasonably be expected to change little, the opposite is often the case with decorative elements. For example, some nineteenth-century British ceramic styles changed rapidly and drastically; it is possible to estimate the age of a deposit to within a decade or so from even a brief examination of the range of earthenware styles present. Yet while a variety of styles are represented in different proportions on different overseas-Chinese sites, the meaning of this variability is less obvious. While ceramic

diversity may be explained by differences in the age of the deposits, it may also be due to differences in site use or the social composition of the communities involved.

Research has repeatedly shown that the social identity and composition of a household influence the ceramic assemblage derived from it. Ceramics may reflect ethnicity, kinship, or social status. Unfortunately, our models for inferring these social realities from the artifacts present are limited primarily to pre-industrial economies and, more recently, to industrial Euro-American ceramic traditions. The overseas-Chinese situation is not directly analogous to either of these settings; it seems logical that the analytic potential of the assemblages will differ from that of both the prehistoric and the Euro-American.

Nineteenth-century Chinese culture and society have been frequently characterized as conservative (i.e., resistant to change) in terms of the maintenance of traditional ways of living and making a living. Factors which fostered conservatism include the traditional agrarian economy, powerful centralized bureaucracy, and the influence of Confucian ideology, which codified and reinforced traditional social relationships. The newly industrialized capitalist nations of the nineteenth century, on the other hand, were irrevocably committed to change and growth in many forms. Indeed, continually increasing consumption is one of the basic tenets of capitalism; the generation of the "surplus value" (profit) upon which the system is based dictates that markets and production must continue to expand. In this setting, continued and increasing consumption could be insured through rapid changes in the commodities supplied and subsequently demanded. While entirely new products could be created, this was not essential; often simple changes in style alone could increase consumption. The nineteenth-century British ceramic industries consisted of hundreds of privately financed and directed firms competing with each other to design, produce, and market the latest styles, even though the new commodities generally served precisely the same functions as their eighteenth-century predecessors.

In China, on the other hand, while some industries, including ceramic manufacture, had long been developed to a high degree of specialization, there was a strong tradition of governmental control over commerce, subordinating the interest of the merchants (and undoubtedly the consumers) to that of the state. Everyday Chinese ceramics would thus have been protected to some degree from the frenetic change induced by the underlying premises of industrial capitalism. It is readily apparent from the archeological record that there was less change through time in nineteenth-century Chinese ceramics than in those of British production. While there is obviously considerable homogeneity in the overseas-Chinese assemblages from the mid-nineteenth through the early twentieth century, a number of distinct stylistic distributions occur and must be explained.

Intersite Comparisons

In order to compare the Woodland ceramic assemblage with those of other overseas-Chinese sites, we have tabulated the relative frequencies of the major tableware stylistic groups for 20 archeological assemblages. Although information is available from several additional sites, we have limited this study to collections that include at least 20 vessels or 40 sherds of the four major dinnerware styles, and for which at least a crude assessment of temporal range is available. The assemblages used derive from:

1) Sacramento, California (I) -- ca. 1855: Features 1 and 3 through 6, on the block bounded by I, J, Fifth, and Sixth Streets, in what was then Sacramento's Chinatown. These are trash deposits attributed to Chinese merchants (Praetzellis and Praetzellis 1982:129-133). The authors' minimum vessel counts were used, with the addition of one Four Flowers and one Winter Green spoon not included in their tabulation.

2) Weaverville, California (I) -- 1859-1863: an assemblage from Strata C and D at the Moon Lee One site, dated by Brott (1983:42-47, 87-124) on the basis of documented fires in the neighborhood.

3) Donner Summit, California -- 1865-1869: Chinese laborers' camp for construction of the Transcontinental Railroad (Chase and Evans 1969; Evans 1980:92).

4) Weaverville, California (II) -- 1864-1874: Stratum B at the Moon Lee One site, dated from historic fire levels (Brott 1983:42-45, 87-124).

5) Sacramento, California (II) -- ca. 1870-1878: 917-919 Front Street (old City Hotel site). Chinese laundry and cigar factory documented on the site during indicated time range (Furnis 1980).

6) Virginia City, Nevada -- ca. 1860-1890: Mining town, context unknown (Evans 1980:92).

7) Woodland, California -- ca. 1870-1880: present collection.

8) Hopkins Land Exchange sites, Tahoe National Forest, near Truckee, California -- ca. 1870-1880: Four cabin sites in a single section. Although direct documentation of Chinese occupation is lacking, investigators suggest that they were occupied by Chinese laborers involved in charcoal burning or woodcutting during the 1870s. Ceramic totals are derived from the site-specific lists (Elston, Hardesty, and Clerico 1981:104; Elston, Hardesty, and Zeier 1982:224).

9) Langtree, Texas -- 1882: Chinese laborers' camp for construction of the Southern Pacific Railroad (Briggs 1974).

10) San Francisco, California -- ca. 1880-1885: N5 site, San Francisco Water Project. This deposit was formed by massive landfilling behind a sea wall constructed between 1878 and 1881. The site is some distance from the primary overseas-Chinese neighborhood in San Francisco; the kinds of households or businesses represented are unknown. Although the authors believe the bulk of the material to have been deposited between 1880 and 1885, they note that later pieces (specifically British ceramics) are present in small numbers (Pritchett 1981:251-274; Pastron, Gross and Garaventa 1981:653-682).

11) Yema Po, California -- 1874-1892: Chinese workers' camp during construction of Chabot Dam, near San Leandro, on the southeast side of San Francisco Bay (Miller 1981; 1983; personal communication).

12) Sacramento, California (III) -- ca. 1882-1895: 907 Front Street. Occupied by a Chinese laundry from between 1880 and 1882 until after 1895. The collection is stored with the California Department of Parks and Recreation.

13) China Camp, California -- ca. 1869-1911: Shrimp fishing camp on San Francisco Bay near San Rafael. The camp had an isolated but fairly stable population, which reached a height in the 1880s of several hundred people -- all Chinese (Schulz 1984).

14) Ventura, California (I) -- 1890-1900: Trash pit (Feature 25) apparently associated with a Chinese laundry (Bente 1976; Chace 1976; Greenwood 1978).

14) Ventura, California (II) -- 1906-1910: A well (Feature 24) associated with a Chinese laundry. The well was evidently filled within a short period of time, and because of the volume of the assemblage, material from neighboring Chinese homes and businesses is believed to be included as well (Bente 1976; Chace 1976; Greenwood 1978).

16) Boise, Idaho -- 1880-1930: Small sample from test excavations in urban Chinese neighborhood (Jones 1980). Further work has since been conducted on the site (Sprague 1981).

17) Sonoma, California -- ca. 1880-1940: Dump on Spain Street; material recovered by local amateurs. Both Chinese and Euro-American ceramics and other artifacts are present; the Chinese material was identified by Praetzellis (1976). Historical associations are unknown. Dating is based on the glass bottles recovered, many of which probably postdate the Chinese material. The collection is stored with the California Department of Parks and Recreation, Sacramento.

18) Yreka, California -- ca. 1885-1940: Large collection from 1969 highway salvage project on site of urban Chinese neighborhood. Several structures are represented, although their uses are undocumented. Associated artifacts suggest that the buildings included two laundries and a restaurant as well as residences (Helvey and Felton 1979).

19) Aptos, California -- ca. 1900-1920: Camp for Chinese laborers at fruit-processing plant (Whitlow 1980).

20) Lovelock, Nevada -- ca. 1905-1940: Urban Chinese neighborhood, with archeological features associated with residences and laundry (Jensen and Rusco 1979; Praetzellis and Praetzellis 1979).

As data from these sites have been variously reported in terms of sherd counts or as minimum numbers of vessels, we were concerned as to the comparability of relative frequencies derived from these differing kinds of enumeration. To select only one or the other format would reduce the number of samples available. Both counts were readily available for five of the collections (Table 13), making possible a comparison to determine how use of the two values affected the resulting stylistic ratios. The differences between the percentage values calculated for the 17 pairs of style counts from these five sites varied from 0.5% to 11.2%. The average difference was 3.9%; only three pairs varied by more than 5%. It seems safe to conclude that frequencies derived from sherd and minimum vessel counts can be legitimately compared, as long as major significance is not attributed to variations of less than about 10%. We have used minimum vessel counts when available for our analysis. While vessel counts are somewhat more subjective than sherd counts, the fact that these objects were originally viewed and used as vessels rather than sherds seems adequate justification for this choice.

Frequencies of the four major styles of dinnerware among the 20 assemblages are provided in Table 13. At least two patterns of association are evident in these figures, but prior to discussing them, a note is necessary on the economic value of the different styles.

For some time we have suspected that there were important nineteenth-century cost differentials among the major ceramic styles discussed here. In particular, the relatively poor craftsmanship often evident on the Bamboo pieces, its apparently common occurrence in laborer camps, use of porcellaneous stoneware rather than porcelain as the fabric, and restriction in form to rice bowls, all led us to suspect that this was an inexpensive style. Double Happiness pieces shared several of these traits and thus might have been similarly valued.

Unfortunately, no direct evidence was available to test these interpretations. Recently, however, a collection of 1870s and 1880s Chinese mercantile records from California has begun to provide solid evidence on the cost of these styles. Preliminary study clearly shows that the Double Happiness and Bamboo bowls were considerably cheaper than Winter Green or Four Season bowls, the former being valued at about half the level of the latter (Sando and Felton 1984).

With this background, we can now examine the comparative ceramic frequencies. The most striking trend in the data is a chronological one, centered in the early popularity and subsequent decline of Double Happiness. This style occurs in 11 of the 20 assemblages, most

TABLE 13
Chinese Dinnerware Frequencies in Western Sites

Site	Date	Form[1]	Double Happiness		Bamboo		Four Flowers		Winter Green		Total	
1. Sacramento (I)	c. 1855	V	67	87.0	--	--	4	5.2	6	7.8	77	100.0
		S	913	95.3	--	--	18	1.9	27	2.8	958	100.0
2. Weaverville (I)	1859-1863	V	4	19.0	6	28.6	5	23.8	6	28.6	21	100.0
3. Donner Summit	1865-1869	S	827	81.9	104	10.3	37	3.7	42	4.2	1,010	100.0
4. Weaverville (II)	1864-1874	V	10	16.7	14	23.3	19	31.7	17	28.3	60	100.0
5. Sacramento (II)	c. 1870-1878	V	1	2.7	14	37.8	5	13.5	17	45.9	37	100.0
6. Virginia City	c. 1860-1890	S	40	8.2	73	15.1	238	49.1	134	27.6	485	100.0
7. Woodland	c. 1870-1880	V	3	6.3	5	10.4	24	50.0	16	33.3	48	100.0
		S	5	2.2	9	3.9	113	49.3	102	44.5	229	100.0
8. Tahoe Forest	c. 1870-1880	S	--	--	47	90.4	--	--	5	9.6	52	100.0
9. Langtree	1882	V	--	--	35	89.7	2	5.1	2	5.1	39	100.0
		S	--	--	621	86.0	51	7.1	50	6.9	722	100.0
10. San Francisco	c. 1880-1885	V	9	2.5	61	17.1	138	38.8	148	41.6	356	100.0
11. Yema-Po	c. 1874-1892	V	--	--	39	55.7	19	27.1	12	17.1	70	100.0
12. Sacramento (III)	c. 1882-1895	S	--	--	26	9.5	139	50.5	110	40.0	275	100.0
13. China Camp	c. 1869-1911	V	4	4.3	13	13.8	35	37.2	42	44.7	94	100.0
		S	9	2.1	84	19.8	134	31.6	197	46.5	424	100.0
14. Ventura (I)	c. 1890-1900	V	--	--	5	20.8	13	54.2	6	25.0	24	100.0
15. Ventura (II)	c. 1906-1910	V	--	--	12	22.6	26	49.1	15	28.3	53	100.0
16. Boise	c. 1880-1930	S	--	--	8	19.0	2	4.8	32	76.2	42	100.0
17. Sonoma	c. 1880-1940	V	--	--	10	28.6	14	40.0	11	31.4	35	100.0
		S	--	--	37	30.3	46	37.7	39	32.0	122	100.0
18. Yreka	c. 1885-1940	V	14	2.2	155	24.5	252	39.9	211	33.4	632	100.0
19. Aptos	c. 1905-1920	V	--	--	--	--	35	54.7	29	45.3	64	100.0
20. Lovelock	c. 1900-1940	S	--	--	21	6.0	131	37.4	198	56.6	350	100.0

[1]Form: V = vessel counts; S = sherd counts

abundantly in the earlier range of samples. Indeed, Double Happiness comprises more than 80% of the ceramics from two of the three earliest collections, while among those dating after the 1870s it never totals more than 5% and is frequently absent altogether. While in some of these latter cases, the sample size is small enough that absence of a given type is not exceptional, it should also be noted that the only three later assemblages where the type appears are either from sites of long-term occupation, where Chinese settlement was initiated prior to 1860, or are from urban contexts where a few pieces of outmoded ceramics might be expected to have been retained long beyond their period of popularity.

The decline of Double Happiness ceramics, however, should not be viewed alone, but in comparison with the Bamboo style. As noted above, these two styles were economically and functionally equivalent, both occurring on the market, in America at least, almost exclusively as cheap rice bowls. In the earliest sample -- the only one from the 1850s -- Bamboo bowls do not appear at all. They generally outnumber Double Happiness bowls in the 1870s assemblages and overwhelm them thereafter.

The reasons for the shift from Double Happiness to Bamboo vessels are not clear. While changing frequencies may simply reflect changing taste, it seems at least as likely that difference in availability is responsible for the shift. Possible factors could include short-term changes in the availability of styles to merchants in North America or more basic changes in production and distribution in Asia. The period of the 1850s and 1860s was one of great unrest and bloodshed in China. Chace (1979) has suggested that "drastic shifts in the emigration and supply patterns during the Punti-Hakka Wars (1856-1868) might provide an explanation" of the limited temporal distribution of the Double Happiness pattern. Many of the southern provinces were also embroiled in the Taiping Rebellion during this period. It is notable that Ching-te-chen, one of China's most important porcelain manufacturing centers and a major source of the export porcelain shipped from Canton, was destroyed in 1853. The Taipings reportedly killed two-thirds of the population; manufacturing was not restored until 1864 (Weiss 1971:36-43). Double Happiness may be a pattern that came into use during the 1850s and 1860s when production at Ching-te-chen or other manufacturing centers was disrupted.

Unfortunately, the origins of the porcelains and stonewares commonly recovered from overseas-Chinese sites are not well documented. As both the Chinese workers and Chinese ceramics that came to America were predominantly from the Canton region, however, it seems plausible that both the people and the goods they brought with them would reflect the chaos at home. A key step in evaluating the effect of domestic Chinese political and economic events on the ceramic frequencies observed will ultimately be to determine specific points of origin of the styles present, followed by a more thorough study of the mid- and late-nineteenth-century history of those regions.

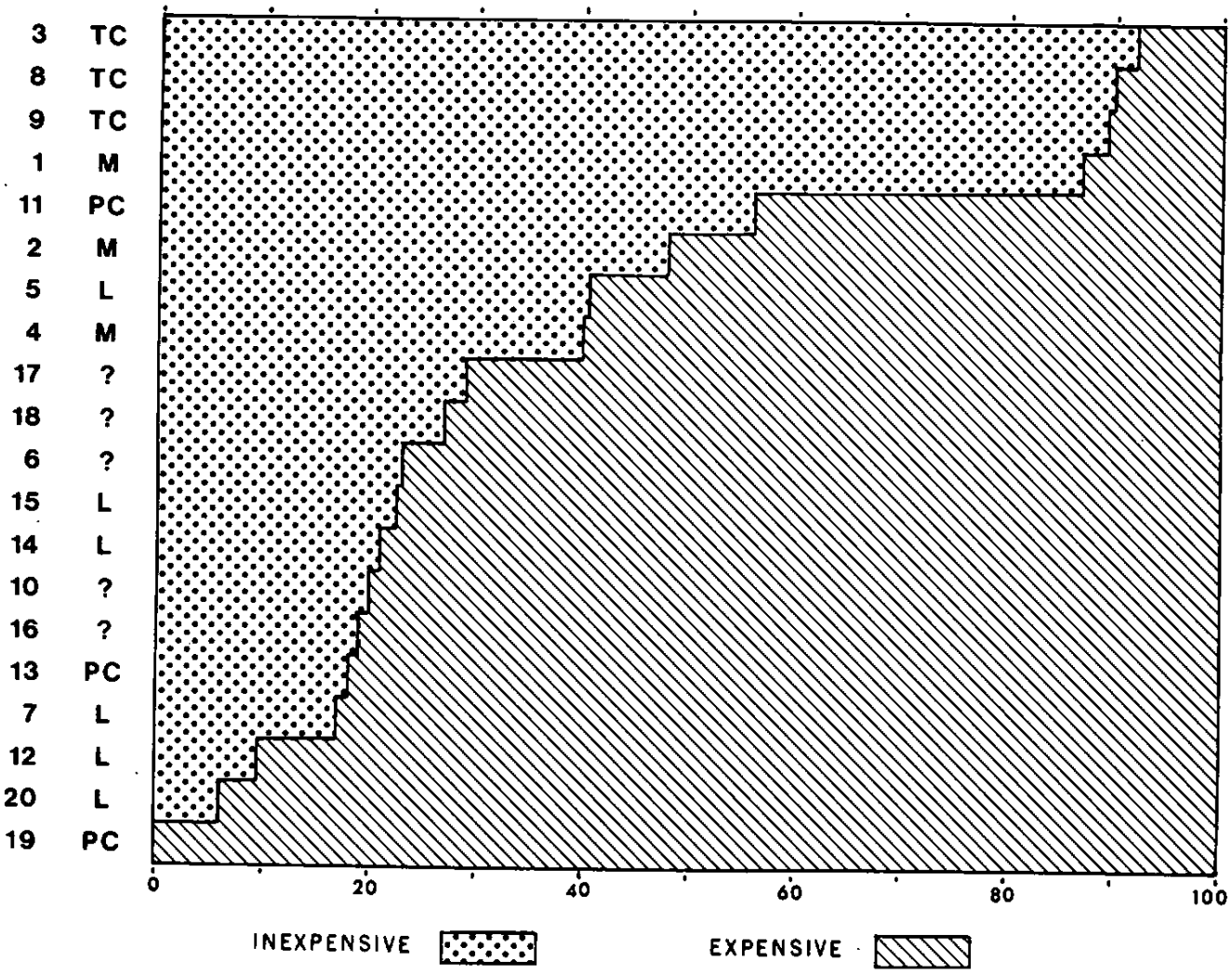

Figure 19. Ratio of inexpensive (Double Happiness and Bamboo) vs. expensive (Four Flowers and Winter Green) ceramics at 20 sites. Sites are numbered as in Table 13 and functionally classified as temporary work camps (TC), permanent work camps (PC), laundries (L) or mercantile sites (M).

Another striking aspect of the available data involves the distribution of cheap (Double Happiness and Bamboo) vs. expensive (Four Flower and Winter Green) ceramics (Fig.19). Four of the collections are heavily dominated (frequencies greater than 85%) by inexpensive wares; four exhibit a rough balance (inexpensive frequencies between 40% and 60%); while in the remaining samples, cheap wares appear in frequencies which extend in an unbroken curve from less than 30% to zero.

At least part of the reason for these differences becomes apparent when the assemblages are viewed functionally. Three of the four collections clearly dominated by cheap wares (Donner, Tahoe, and Langtree) are from temporary work camps; these are the only such camps represented. Furthermore, the fourth of these samples (Sacramento I), while it is from a mercantile site, appears to include not only ceramics used by merchant occupants, but large quantities intended for sale. These were deposited at a time when most Chinese immigrants were situated in the gold fields, where they would probably have been living in temporary camps.

This apparent association of high frequencies of Bamboo or Double Happiness ceramics with transient workers is probably related both to the cheapness of the vessels and to functional requirements. Rice bowls (which exclusively provide the samples of these two styles) were the most versatile forms of vessels available to the immigrant workers: not only can they be used for rice and any variety of sauce-based dishes, but also for soup, and among poorer Cantonese, they are even used as wine cups (Anderson and Anderson 1977:365). In situations where mobility was necessary or storage space at a premium, consequently, such bowls can be expected to dominate ceramic assemblages. In contrast, Four Flowers and Winter Green vessels are not only more expensive, but exhibit a great variety of forms, ranging from wine cups, soup spoons, and small platters to large serving bowls. High frequencies of such wares, consequently, not only document a heavier level of investment in dinnerwares, but also imply a living situation sufficiently stable to allow the possession of specialized vessels.

To some degree, then, the cost dichotomy between these style sets may be obscured by differences in range of form. Since the cheaper wares occurred only as rice bowls, poorer immigrants who lived in stable situations would no doubt have invested in Winter Green or Four Flower ceramics to meet their needs for other vessel varieties. As a result it may be more useful, when investigation of economic status is the goal, to examine style frequencies only among rice bowls. The assumption would be that even working class consumers who invested in expensive cups or saucers because they could not obtain such vessels in cheaper styles, would still purchase inexpensive rice bowls. Such a mixed assemblage, in use among workers on a Berkeley truck farm, is pictured by Jaffa (1901:Pl.I). Among these men, Bamboo rice bowls were in use with Four Flowers serving bowls.

Restriction of statistical attention -- for economic study -- to rice bowls, however, strains the sample-size restrictions of the available collections, and is beyond the scope of our investigation. It might be noted, however, that the cheap Bamboo/Double Happiness vessels can be viewed as overseas-Chinese equivalents of the cheap, annular decorated British earthenware bowls that occur in high frequencies on slave and poor-white dwelling sites in the southeastern United States (cf. Otto 1977). As durable, portable, and multi-purpose containers, they seem ideally suited to the needs of transient working-class users, and may hold the key to archeological study of status and adaptation among nineteenth-century Chinese immigrants in the far west.

Conclusions

We have hypothesized that sociological factors as well as historical events explain the variability observed in the archeological assemblages. For example, it is suggested that the high frequency of Bamboo-style rice bowls on rural work sites indicates occupation by poor or low-status individuals. The urban "norm" appears to be represented by ceramic assemblages with high frequencies of Four Flowers and Winter Green style vessels. The Woodland assemblage is a typical example of this norm. These interpretations remain speculative, however, as the quantitative data (i.e., ceramic costs and household income) required to test hypotheses associating status and ceramics are only now becoming available.

Another sociological factor that should be considered in attempting to explain the archeological occurrence of these ceramic styles is that of ethnic differentiation within the overseas-Chinese community. Both class and ethnic identity can be factors in shaping the consumer behavior that is ultimately reflected in the archeological record (e.g. Felton and Schulz 1983). In the case of the overseas Chinese, it has been suggested that at least part of the archeological variability may be attributable to the presence of minority Hakka peoples on some sites (Paul Chace, personal communication). Perhaps, for example, the Double Happiness pattern was preferred by one group or the other. While this seems plausible, it should be pointed out that Hakkas made up only a small percentage (less than 7%) of the Chinese immigrants to California in the nineteenth century (Chinn 1969:20). Further, the presence or absence of Hakka people is not known for the sites examined here.

Except for the shifts noted, overseas-Chinese ceramics generally reflect continuity in the styles present. This consistency contrasts sharply with the diversity in mid-nineteenth-century California sites occupied by Mexican and American capitalists. For example, trash deposits attributable to the households of prominent citizens of Monterey, California during the 1840s and 1850s contain dozens of different ceramic patterns and styles (Felton and Schulz 1983). This is compatible with the essential difference between the Chinese and Euro-American economic frameworks, which leads us to anticipate: 1) that commodity diversity will increase as an essential part of an expanding capitalistic market system, and 2) that noncapitalist mass production (i.e., at least some Chinese ceramic manufacture) might

actually diminish diversity, compared to either traditional domestic production or industrial capitalist production. The archeological data we have reviewed appear to be compatible with these hypotheses.

Unfortunately, we have few collections that can be securely associated with Euro-American working-class households in California during this same period, making it difficult to evaluate the range of commodities that might have been available to different groups. Perhaps tableware of poorer people showed as little diversity as is reflected in the overseas-Chinese assemblages, and lack of variation is a reflection of poverty rather than cultural or economic background. Comparison with ceramics from sites occupied by low-status individuals in other areas of the United States would seem to refute this hypothesis, however. For example, archeological assemblages recovered from sites occupied by slaves, free Blacks, and poor Whites in the eastern United States during the early nineteenth century include far more diversity in numbers of patterns present than do overseas-Chinese sites in the west (Otto 1977; Baker 1978; Miller 1980). While most of these people probably had little economic power, the variety of goods present in their refuse indicates that they were securely tied to the expanding world-wide market system that was a vital element to the success of industrial capitalism. Certainly the overseas Chinese were actors in this same drama, although they appear to have contributed more as producers than as consumers.

Opium Smoking in the Nineteenth Century

By the late nineteenth century, opium smoking was one attribute of a publicly accepted, disparaging image of the overseas Chinese. Numerous accounts from the 1870s on describe these immigrants as rendered either depraved or senseless by what was labeled a Chinese vice (cf. Sacramento Union Feb. 23, 1876:1). It is difficult to reconcile these accounts with contemporary and often glowing reports of the capabilities and endurance of Chinese workers. Modern socioeconomic studies and historic documentation have provided insights into both the stereotype of the Chinese opium smokers and the relation of opium smoking to manual labor.

In the archeological record, opium-smoking paraphernalia have been reported for most nineteenth and early twentieth-century American sites attributed to the overseas Chinese. These objects are found among the remains of their settlements, whether the context is urban or rural, and whether the occupants were mercantile or working class (see sources for Table 13, and Kuffner 1979; Etter 1980; Wylie 1980; Lalande 1981; Olsen 1982). The Woodland excavations, as noted above (see Artifacts), yielded sherds of 25 ceramic opium pipe bowls and fragments of nine of the small tins in which prepared opium was shipped.

The widespread use of opium among immigrants from China is abundantly documented in contemporary testimony. Estimates of the number of users, however, vary greatly. Probably one of the most realistic is derived from San Francisco's Chinatown in the 1890s:

> The number of opium smokers in proportion to the population is difficult to estimate. In China the most unbiased and trustworthy opinions give thirty per cent for those who are addicted to the habit and ten per cent of confirmed opium sots. I am inclined to think that the same figures will hold good for the Chinese in San Francisco though Colonel Bee, the Chinese Consul, places the percentage much lower. The Consul says that eight years ago a careful investigation showed only sixteen per cent of smokers and he thinks there has been no increase since. On the other hand well-informed Chinese place the percentage as high as forty per cent of smokers and twenty per cent of sots. The truth evidently lies between these two extremes... (Masters 1894:640-641).

A similar result was obtained from a "careful survey" conducted in several large American Chinatowns in 1909, a study which found 10% of the population to be heavy smokers (averaging 6 lb per year), 15% light smokers (1.5 lb per year), and 10% social smokers (1 oz per year), for a total of 35% (Wright 1910:42). Both of these estimates presumably refer to the adult male population.

Whatever the extent of opium use in the Chinese community, it is doubtful that it exceeded the usage level of late-nineteenth-century Euro-Americans, among whom opium consumption -- in the form of both prescription drugs and proprietary remedies -- was extremely widespread (Courtwright 1982). The Chinese method of use -- smoking -- was both distinctive and less directly tied to medicine, however, and opium use became readily stamped as a specifically Oriental vice. Increasingly after the 1870s, lurid press accounts linked opium smoking, in the popular mind, with images of addiction, degradation, squalor, organized crime, and ultimately miscegenation, all demonstrably intended to bolster a racist antipathy to the Chinese (Raynor 1968).

These distorted perspectives are important, not only because they are to some extent still with us, but also because the resulting crusade against opium smoking was the foundation of modern drug policies. These effects are well beyond the scope of this study, but it is important here to provide an unbiased view of a practice so widespread in the last-century Chinese community, and so pervasively represented in its archeological record. The purpose of this discussion is to review the context of overseas-Chinese opium use and to suggest a socioeconomic basis for it.

Historical Background

Opium has been used in China for a millenium, having been introduced by Arab merchants. It is first mentioned in literature as a medicine in the tenth century. Its use was limited, however, until the development of smoking -- apparently an outgrowth of the introduction of tobacco and the tobacco pipe, carried to Asia from the New World by European traders. By the 1620s, the Chinese were aware that opium too could be smoked. In eighteenth-century Formosa it was sometimes mixed with hemp and other plant material, as well as tobacco. By about 1760, extracts of pure opium were apparently being smoked (Spence 1975).

The spread of the practice is closely linked to foreign trade. During the late eighteenth century, merchants from Britain and other western nations exported to China huge quantities of opium produced in colonial India. The commerce was introduced largely as a device to maintain a favorable balance of trade. Previously, the western nations had purchased large quantities of goods from China, but had been able to provide few commodities which the Chinese needed or wanted to purchase. As a consequence, much western capital entered China but did not return. Opium provided an "ideal" commodity with which to reverse this trend; it carried within its addictive property an insured demand (Scott 1969:15-45; Inglis 1975:72-95).

Opium use spread rapidly. From a few thousand chests annually in the 1790s, imports of the drug rose to over 20,000 chests annually in the 1830s, to a height of over 81,000 in 1884 (Spence 1975:151). In response to an expanding market, Chinese farmers began growing opium poppies, thus bolstering the foreign supply with increasing quantities of domestic production.

The first smokers of the drug on the mainland were officials of the Manchu court, but the practice soon spread, apparently working its way down the social scale as increasing supply lowered the price. The habit seems not to have been taken up on a large scale by the common people in the 1830s; it was not until the 1870s that smoking spread extensively among the peasantry and laborers (Spence 1975: 151-153).

It is clear that some of the first Chinese argonauts to reach California during the gold rush were opium smokers. In a letter believed to have been written in 1853, a miner from Kentucky noted:

> (The Chinese) smoke prepared opium to excess... I have smoked a little with them through curiousity. Their prepared opium is very mild & pleasant to the taste & soon begets a drowsy & dreamy langor that needs all the stimulus of gold digging to throw off (Apostol 1981:116).

References to opium smoking in America in the 1850s and 1860s are rare, but, beginning in the 1870s, become increasingly common. In part, these reports may be due to the growing anti-Chinese movement of the time, which found in opium smoking a rationale for bigotry. In part also, they may indicate the increasing popularity of the drug among the immigrants -- reflecting both its continued spread at home and the changing social and economic conditions in California.

Distribution and Use of Smoking Opium

Opium was widely available for purchase in Chinese communities in the American west. Many Chinese stores, "whether devoted to the sale of clothing or drugs or groceries" found "a notable proportion of the business to consist in the sale of opium" (Mattison 1879:14). The drug was smoked not only in homes and in opium dens, but also in a wide variety of commercial establishments:

> No one can go through the Chinese quarters without seeing how prevalent the practice of opium smoking is. Every lodging house has its opium bunks... The restaurants furnish opium couches, set in alcoves... Almost every store has its place in the rear where business transactions are made over the opium pipe. Every guild hall has its opium couch, and even some homes are furnished with them (Condit 1900:58-59; cf. U.S. Senate 1877:61, 220).

Numerous nineteenth-century accounts describe the process of smoking opium (e.g. Mattison 1879; Sacramento Union Feb. 23, 1876:1; Kane 1882; Whitwell 1887; Culin 1891; Masters 1892). Most of the semi-liquid drug on the American market was prepared in Hong Kong, although smaller quantities were prepared in Canada or the United States. It was shipped in 5-leung (186.5 gm) tins such as those found at Woodland, and then transfered by the retailer into a ceramic jar. From this jar supplies for individual smokers were weighed out into small containers made of horn, ivory, lichee nuts, or cardboard, or into small porcelain cups or seashells for immediate use.

The layout or collection of primary utensils used by the smoker consisted of a metal rod, a lamp, and an opium pipe. To prepare the opium for smoking, a small quantity of the tarry substance was picked up on the rod and carefully cooked in the fire of a small oil lamp; these were often made of glass with a bell-shaped cover. When enough of the moisture had been driven off to give the opium the desired consistency, the resultant "pill" was transfered to the pipe bowl. The bowl was seated in a metal flange in the top of a horizontal length of bamboo about 18 in. long with a mouthpiece at one end. The rod with the cooked opium gum was inserted into the tiny hole on the upper surface of the bowl, leaving a small donut-shaped ring around the aperture. The smoker then tilted the bowl into the flame and inhaled, vaporizing (but not igniting) the drug and drawing it through the tube into the lungs.

Culin (1891:409) indicates that opium-smoking paraphernalia were available at the following costs in Philadelphia:

bamboo pipe stem	$1.00 to $1.25 and up
pewter socket for bowl	$ .25
pipe bowl	$ .50
wooden stands for bowl	$ .75
glass lamp	$ .75 to $1.00
brass travelers' lamp	$1.50
cylindrical horn opium box	$ .25 to $1.00

The late nineteenth-century literature on opium smoking -- based primarily on night visits to "dens" -- is almost unequivocal in noting sleep as the sequel of smoking. Actually this effect seems to have been only occasionally desired or forthcoming (Kane 1882:62-63). The real objectives of the opium smoker and the reasons for the spread of the habit often lay in other effects of opium use.

Opium Smoking - a Socioeconomic View

Varying reasons have been given for the pervasiveness of opium use in nineteenth-century China and subsequently in the overseas communities, including those in America. Nineteenth-century observers were generally content to blame the depravity of the Chinese or the cupidity of British merchants, but neither explanation advances our understanding of the social causes underlying a clearly cultural pattern.

Recently, two studies have provided explanatory models based on the spread of the opium habit among Chinese in America. Helmer (1975) has pointed to the fact that beginning in the 1870s, importation of smoking opium into the United States rose much faster than the population of the Chinese community. While others (e.g. Kane 1882:15-20; Wright 1910:40) attribute this rise to increased consumption by non-Chinese smokers, Helmer traces it to a great expansion in the output of the Indian factories, resulting from an attempt of the British administrators to eliminate competing Persian and domestic opium from the Chinese market. Because the resulting increased supply and lowered cost of the drug coincided with economic depression in America, it was seized upon by Chinatown merchants as a solution to declining profits. Opium was consequently pushed by merchants at all levels -- and by any of the tongs which could benefit from the trade -- and demand grew to meet supply.

A somewhat different perspective is provided by Courtwright (1982). Viewing the credit-ticket arrangement, by which many immigrants paid their way from Canton to California, as an oppressive system, he interprets opium use as a safety valve which provided the indebted worker with relief from psychological pressure and precluded the animosities of the indebted from building to open revolt. At the same time, the habit brought great profit to the same merchants who controlled the district company to whom the immigrant was indebted, and prolonged his indebtedness by decreasing -- to the extent of the costs of his habit -- his ability to repay his loans.

These interpretations are both useful and perceptive, in that they assess opium smoking within a social and economic context, and they draw attention to the benefits which powerful commercial interests within the Chinese community derived from supplying and promoting the drug. These interpretations are less than satisfying, however, since, except for reference to "tremendous psychological pressures," they do little to explain the motivation for individual users to adopt the habit, especially in the face of the threat of addiction to a relatively costly substance, the effects of which appear to have been common knowledge.

A key to this anomaly may be found in the fact that smoking opium -- contrary to western belief -- was not a major hindrance to a worker's productivity:

> Many Chinamen smoke (opium), and we should expect to find them incapacitated for work by it. But it is not so. From the

> overwhelming testimony given before the Congressional Committee (on Chinese Immigration, 1881) to the effect that Chinamen, placed side by side with American, Irish, and British miners, do more than they in a given time on the hardest kind of work, we are fain to believe that the extreme physical deterioration claimed to result from opium-smoking must need some modification before being admitted to full belief (Kane 1882:75).

Such observations, while perhaps helping to explain why opium was often not avoided by workers, still do little to explain why so many readily took up the habit. Other accounts, however, indicate that opium was actually considered an aid in the performance of work, rather than a hindrance. Contrary to modern images of the drug as a heavy depressant, opium was widely viewed in the nineteenth and early twentieth century as a stimulant (Masters 1892:638; Berridge and Edwards 1981:105-109, 202, 237). Accounts of Chinese opium use suggest that the drug was frequently taken in dosages that did not induce unconsciousness, but rather permitted the user to continue to work. The assertion that opium acts as a "prophylactic against the effects of cold and exposure" (Culin 1891:501), as well as other accounts, suggest that moderate use seemed advantageous to men working in a harsh environment, such as the winter railroad construction camps in the Sierra of California.

While some nineteenth-century accounts hint at an association between chronic opium smoking and work, most do not examine it closely or attempt to explain the relationship. The twentieth century, however, brought a more systematic and scientific approach to the question. This is apparent in publications by the League of Nations, which was on the forefront of attempts to curb opium use and traffic during the 1920s and 1930s. One study had the expressed purpose of enquiring into "the extent of opium-smoking among workers, and the effects of opium-smoking on the conditions of recruitment, engagement, and employment and on the efficiency, welfare, sickness, and death rates of such workers" (International Labour Office 1935:9). This study focused largely on overseas-Chinese workers in the Far East, but did not include China itself. While it does not deal directly with North American immigrants, the Southeast Asian Chinese were part of the same cultural and economic tradition as those who worked in America in the nineteenth century.

The investigators cited several reasons why the Chinese abroad took to opium smoking, but their most significant find was the high correlation between the nature of the work performed, the living, health, working and climatic conditions, and the incidence of opium use among workers:

> More conclusive than the evidence regarding the influence of opium- smoking on conditions of life and work is that concerning the influence of conditions of life and work as causes of the smoking of opium. The evil is most widespread among workers in the most arduous occupations. The exhaustion caused by heavy work, ill health, and poverty account for the majority of the cases of opium smoking among workers. Absence from the normal

> social environment, separation from families, employment in isolated places, lack of other recreations are important contributory causes of addiction (International Labour Office 1935:63).

The perceived benefits of opium use in these conditions are based on the belief that the drug acted as a stimulant as well as a pain killer.

> The Commission repeatedly came in contact with the opinion, based on personal experiences, that opium used in moderation acts both as a mental and physical stimulant. Physical stimulation was said to be specially noticeable in individuals performing hard work under difficult climatic conditions (International Labour Office 1935:47; also 33, 59-60).

While emphasizing the association between strenuous work in difficult conditions with the incidence of smoking, the League of Nations study acknowledged that there were several interrelated reasons for this pattern of use among overseas-Chinese workers. They found that medical problems were a primary reason for the initial use of opium:

> ...illness is a frequent cause of opium-smoking among workers. A Chinese medical witness in the Straits Settlements (Strait of Malacca, Malaysia) stated that "in case of illness, a coolie, being too poor or living too far away from medical aid, smokes opium to relieve distressing symptoms," while the Government of the same colony stated that 60 percent of opium-smokers had taken the drug to relieve either pain or some definite illness (International Labour Office 1935:58).

While the strongest evidence for this association comes from the Southeast Asian study, supporting data are available from both China and the New World. First, although the drug was smoked by members of all classes of Chinese society, incidence of the practice varied greatly among them. Among the heaviest users in the late nineteenth century were sedan chair porters and sailors (Park 1899:21, 23, 25-26) -- men who were clearly among those subjected to the hardest and most prolonged toil. The role of opium among the former group is illustrated by a contemporary account:

> Years ago when in South China I made a journey of thirty-five miles in one day borne in a sedan chair by three strong Chinamen who took nothing but opium till they got to their journey's end. They would carry me at a rapid pace for three hours till they came to a town, then dump me down in the crowded market place and deaf to all remonstrance, rush off to an adjoining opium house, have a quarter of an hour's smoke, and start again with lightness and elasticity in their tread (Masters 1892:638).

A report of Chinese seamen in London in the early nineteenth century indicates a pattern of smoking in the morning before work:

> They're ordinary working people that come in here and have their pipe... I've known them to get up at eight, seven or eight in the morning, smoke opium twice, two periods of opium, and then go do

their duty, do their work, and they won't go to bed before eleven o'clock at night (Berridge and Edwards 1981:202).

The authors of the British study conclude that "Opium was an aid to hard work, not a distraction from it, and smokers managed to combine their habit with a normal work existence" (Berridge and Edwards 1981:144). This is in accord with accounts of smoking during the day by 95% of Southeast Asian Chinese stevedores, who worked "sixteen hours on end and claim that opium helps to keep them awake" (International Labour Office 1935:59-60). Other accounts from both Asia and America relate the testimony of smokers that opium provided a feeling of increased strength and greater endurance and allayed pain (Taylor 1855:494; Doolittle 1865:351; Lloyd 1876:262; Vaughn 1971:63); and it was widely reputed as a "prophylactic against the effects of cold and exposure" and various diseases (Druggists' Circular 1880; Culin 1891:501; Park 1899:36-37). It is noteworthy that among addicted users in modern Hong Kong, 70% belong to unskilled laboring groups subjected to the most "wretched conditions," and over half cite medical reasons for initial use of narcotics (Hess 1965:62, 67).

It requires little extension to find a parallel for such conditions among nineteenth-century Chinese laundry workers in North America. Working daily from dawn to midnight (Culin 1887; Jaffa 1901; Lee 1903), washing, sorting, and ironing, they faced "incessant toil" at "moderately severe" labor, in small businesses or partnerships in which time off for illness was an expensive sacrifice. It is hardly surprising that some should seek aid from a drug known to provide it, regardless of the long-term cost. Contemporary accounts mention a characteristic "odor... of steam, damp clothes and opium" in the laundries (Mulford 1873:223), or claim explicitly that "nearly all the laundry men smoke opium" (Sacramento Union Feb. 23, 1876:1). Indeed, among Americans who adopted opium smoking, Chinese laundries often served as suppliers of the drug and of a place to smoke it (Kane 1882:8, 70-71; Courtwright 1982:73).

Concluding Comments

Historic accounts of Chinese opium use in the nineteenth and early twentieth centuries present a sharp contrast to popular images of opiate abuse. While this research suggests that the inherent pharmacological effects of opium smoking may not always have been as devastating as commonly depicted, it also reveals a series of exploitive economic realities. Evidence from Southeast Asia in particular suggests that occupation and class identity were key factors in dictating who used opium and the probable outcome of the habit. The expenditure of a substantial portion of a worker's income on a substance viewed as essential to keep working, created a self-perpetuating cycle of poverty, economic exploitation, drug dependence, increased poverty. The role of economic exploitation in this cycle could be argued, in that the decision to use opium was most often a personal choice on the part of the worker, and the drug was self-administered. Nevertheless, the world-wide economic network which created the conditions that fostered this cycle was based on exploitation of underpaid labor:

> There can indeed be little doubt that the opium problem would lose much of its intensity if the conditions of work and life of the workers affected were improved by such measures as the adjustment of hours of work to the normal physical possibilities of human labour, a medical organization capable of ensuring adequate treatment of illness, and adjustment of wages to a level sufficient to allow a standard of living consistent with normal health and comfort... (International Labour Office 1935:64).

While working or living conditions for Cantonese immigrants in nineteenth- century America were seldom as severe as those experienced by their countrymen in some other parts of the world, they too fit the model of exploitation. While it may not be possible to aver a direct causal link between working conditions and opium use, it is nonetheless important to view the situation within the context of Chinese culture and within relevant economic settings. Criminological perspectives -- drug use as an underworld pattern -- may be relevant to other forms of nineteenth-century drug abuse -- including opium smoking in Chinese establishments by non-Chinese -- but they offer no insight into a pattern of employment by a user population comprising a third of the adult males in a society, the vast majority of whom exhibited no criminal or even anti-social behavior. To the extent that opium use was tied to relief from severe working conditions and to the extent that it aided the proletarianizing of independent peasants, it paralleled the role of liqour in contemporary western culture (Dingle 1972; Van Onselen 1976; Dodd 1978). To the extent that it was employed to provide relief from disease or other ailments, it paralleled, ironically, the role of morphine among the very Euro-Americans who created and nurtured the deprecatory stereotype of Chinese smokers.

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THE CHINESE IN WOODLAND CALIFORNIA: A SOCIAL HISTORY OF THE CANTON DELTA REGION, 1850-1880, IN CONNECTION WITH ARCHEOLOGICAL FINDINGS AT THE WOODLAND OPERA HOUSE SITE

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Introduction

Archeological features uncovered in 1980 in conjunction with restoration work at the opera house in Woodland, California, brought to light remnants of an overseas-Chinese community which had been virtually forgotten in local histories. While relatively few in number, the Chinese who emigrated to this Central Valley town in the 1870s and 1880s were at that time a visible and active sector of local society. As Woodland expanded in the 1870s to become a major agricultural town, Chinese who had worked at mining gold and silver and at constructing the railroads and levees, relocated in the area, hoping to take advantage of new business opportunities which growth provided. Working primarily as cooks, launderers, vegetable gardeners, and boarding-house keepers, the Woodland Chinese, like their counterparts in other California towns, sought to earn enough money to return to China and live in comfort, or at least enough to help support family members still in China. The recovery of fragments of silk cloth, rice bowls, and winter melon seed among other items in the archeological investigation of the opera house site led to a search for additional information about this overseas community.

Census records and contemporary newspapers offer demographic descriptions of the Woodland Chinese and accounts of activities of individual members. A broader understanding of their activities, however, requires the application of historical and anthropological perspectives. In an effort to include these perspectives, I have examined the rural social history of the Canton delta in the nineteenth century and detailed some of the material and social conditions which shaped the lives of southern Chinese villagers and which subsequently were woven into the fabric of Chinese immigrant life at Woodland. When brought to bear on the archeological, demographic, and journalistic accounts, information regarding the family and rural culture of the Canton delta provides a basis of understanding the interaction between the Woodland environment and the Chinese village heritage which was the framework within which the Woodland Chinese viewed problems and possibilities in their new setting.

I have placed outside the scope of this paper two other areas of socio-historical inquiry which would prove valuable in future studies: 1) developments of the period in Californian and American history which bore on the experiences of Woodland Chinese, and 2) comparisons of Woodland with other overseas-Chinese communities to investigate the extent to and process by which one community differentiated itself from another.

Natural and Human Causes of Rural Strife: The Background of Emigration

Most of the Chinese who emigrated to the United States came from eight counties in the Pearl River delta, south of Canton. While estimates indicate that seven out of ten Chinese immigrants were peasant farmers from the impoverished rural districts of Toushan, Xinhui, Jaiping, and Enping, most of the Chinese farmers who settled in the Sacramento delta and surrounding agricultural towns such as Woodland were from Chungshan, a moderately well-off rural district about 40 miles south of Canton. In addition, a smaller number of immigrants came from small merchant and craftsman families in the counties of Shunde, Nanhai, and Panyu, all rural suburbs of Canton (Nee and Nee 1974:64, 66, 78).

Chinese immigration from these counties is ascribed most frequently to the twin effects of famine and war. The mid-nineteenth century was, to be sure, a period of turmoil and decline in rural China. Droughts and floods ravaged the Canton delta in the early 1850s and periodically throughout the 1860s (Wakeman 1966:127, 135). Warfare was a symptom of as well as a contributor to the deterioration of life in rural south China. A devastating civil war, which would last over a decade, broke out in 1851 when the Taiping Rebellion began near Canton and spread northward. In 1854, the Red Turban Revolt unleashed class hatred in the delta regions, resulting eventually in even harsher conditions for taxpayers and tenants of commoner status (Wakeman 1966:140). A century of widespread peace and prosperity had come to an end, and as had happened periodically in China's history, rural society was once again plagued by local administrative irregularities, severely compounded this time by unprecedented population increases.

Government misadministration, warfare, flood, and famine all had specific consequences for villagers of the Pearl River delta. Throughout the 1840s the incidence of tax protests against local officials increased in both south and central China (Yang 1975:177). The suppression of the Red Turban Revolt in 1855 dashed the hopes of taxpayers who had sought redress of their grievances. Instead, the gentry elite gained undisputed control of the countryside. Commoners found themselves at the mercy of tax collectors, who received official sanction to collect taxes directly, bypassing sub-bureaucratic channels, and to line their own pockets by squeezing the rural people for whatever surcharges they could extract. Farmers in the river delta also suffered at the hands of landlords who developed elaborate back-rent systems requiring tenants to pay 70% of their harvests in rent (Wakeman 1966: 150, 155). Human-created inequities of this type severely exacerbated the plight of poor and moderately well-off

peasants during times of flood or drought. As a result of these conditions, piracy increased to epidemic proportions in the river delta, and villagers who had anything, no matter how little, became prey for these groups. The social composition of secret societies, pseudo-kinship organizations whose members swore secret oaths of allegiance to one another, also underwent drastic change. Their members had previously come primarily from outlaw and fringe groups. Owing to the increased social and economic deterioration in the Canton delta, however, law-abiding farmers threatened with impoverishment began to join in greater numbers, seeking through mutual aid protection from ravenous tax collectors and abusive landlords, many of whom were the impoverished farmers' own wealthier clan members (Wakeman 1966:116, 136-137).

With many areas affected by natural and human-caused disasters, why did only some groups emigrate, and how was the decision made as to which individuals would leave? South China, unlike most of China, had traditionally been an area of heavy overseas migration, primarily to Southeast Asia. While throughout China diversification of occupations among sons was considered a productive strategy for enhancing family prospects, in the Canton area this included trying to place at least one son overseas so that he could earn money and contribute to the family's support, or perhaps even become wealthy and return to China permanently to retire as a landlord (Ping-Ho 1964:289-291). Generally, those who emigrated were men, and as a result in many south China villages women outnumbered men (Nee and Nee 1974:16). In fewer cases in the twentieth century, women who did not marry emigrated and worked to send money home for the support of their parents (Topley 1975:84-85). Seldom did the completely destitute emigrate. In general, a family had to scrape together a minimum of surplus funds in order to purchase a passage ticket. Many of those who emigrated came from families which had some resources, small amounts of land or small shops, but which were continually vulnerable to periodic ruin by the more influential and wealthier members of rural society. Like many southern Chinese who emigrated to California, those who settled at Woodland had their roots in this social milieu.

Settlement Patterns: The Male Community -- Its Precedents and Functions

With its population of approximately 2,500 and its growing economy, Woodland must have appeared to the Chinese who arrived in California as one of the more promising places for them to locate and find work or establish small businesses. A steady influx of predominantly young Chinese men between the ages of 15 and 22 added to the growing census rolls, increasing the official Chinese population in Woodland from approximately 65 in 1870 to 98 in 1880. Three merchants and five women also arrived in this interim. A few older residents arrived from other parts of California. Wong Tek, for example, arrived in 1873 from San Francisco and set up a laundry in Cacheville which he advertised in the Yolo Weekly Mail (Sept. 18, 1873). Another, Ah Wah, had been in California for 26 years and "had seen San Francisco rise from a little village to a large thriving city" (Woodland Daily Democrat Oct. 14, 1878). He established a Chinese boarding house in Woodland and acted as a conduit for other Chinese enroute from San Francisco.

As the Chinese community grew, it became a visible subgroup on the county census rolls. Requested to provide their legal names, 60% of the Chinese contacted for the 1880 census gave names containing the character "Ah." Woodland citizens therefore, presumed that most Chinese shared a common name. Such was not the case. In villages throughout China, families traditionally held a feast when a baby boy reached one month of age. At this time he received his "milk name," to be used by relatives, neighbors, and for official matters if he did not at some later time receive a "book name," commonly bestowed when a child entered school. In the Canton delta, the "milk name" often consisted of but one character, and it was customary in these cases for the sake of euphony to place the prefix "Ah" before such names. Hence a boy or man might be known as Ah Long or Ah Chin, although "Ah" was not a proper part of his name (Ball 1888:468). The census taker at Woodland clearly mistook this prefix for a formal part of the name and then had trouble ascertaining if it was a surname or a given name, Ah Sing alternating with Sing Ah in various parts of the listings.

From the 1880 census, we know that the Chinese in Woodland constituted a relatively small and predominantly male community. Unmarried young men could plan to spend many productive years contributing to the family resources by working at jobs in America and then return to China to marry and continue their family lines. Not until years had passed and hopes of returning to China faded did many Chinese immigrants attempt to bring wives and children to America. Younger Chinese sometimes chose instead to return periodically to China to consummate arranged marriages, father children, and renew family ties (Nee and Nee 1974:18). Eagerness to achieve the family goal of greater prosperity in their home villages made long separations and difficult arrangements more tolerable. There were precedents for such male-oriented communities in rural south China. What were their goals and functions?

It was common in the south China province of Guangdong for lineages to establish men's or boys' houses in connection with their ancestral trusts. These houses consisted of a sleeping room and a kitchen. They were used as a sleeping place and recreation center for unmarried boys and young men between the ages of 12 and 26, and as a temporary residence for married men whose wives were confined during late pregnancy and immediately following childbirth. From 40 to 50 boys and men lived at a men's house at one time. Boys typically looked forward to living in the men's houses, where they would take part in such activities as fishing, hunting, swimming, or competitions with other men's houses (Spencer and Barrett 1948:473). Chungshan county, from which many of the Chinese who settled in the Sacramento delta and surrounding areas came, was noted for its tradition of men's houses. In other parts of the Canton delta, both boys' and/or girls' houses were common and served the same function, namely to segregate the sexes in crowded households during periods when unmarried children who had reached puberty were at home (Topley 1975:73).

This feature of south China's social organization, along with its emphasis on family goals, may have contributed to the successful functioning of communities of Chinese men at Woodland. It is very likely that the men who lived in the Chinese quarter drew on this

common knowledge and experience from their villages to find familiarity in their current all-male residences which provided them with companionship and community in a foreign land. Their shared pastimes, whether gambling or discussing local news, were certainly reminiscent of an expected passage in life which they had known within the context of village and family practices. Interestingly enough, half of the male Chinese at Woodland were between the ages of 15 and 26, exactly those years when young village men would have most likely taken up residence at the men's houses.

In the sericulture (silk production) region of the Canton delta, which included parts of the three counties Shunde, Nanhai, and Panyu, it was common for men to live separately from women while dividing the labor of raising silkworms and processing raw silk. Men lived in individual farmhouses which were isolated from one another and scattered throughout the countryside. At their residences, men cared for silkworms which were in their early stages of growth and tended fish ponds and mulberry groves. Women and small children lived in villages where houses were clustered together. In the villages, women cared for silkworms in matsheds while also reeling and spinning silk thread. Men and women visited each other in their repective abodes but spent days at a time in separate quarters (Topley 1975:71). This arrangement was acceptable because it facilitated the productivity and financial well-being of the family. Many men emigrated from south China in the 1870s, when the preference for unmarried women workers in the new silk filatures which utilized steam machinery resulted in exclusion of men from the silkworks and consequent widespread male unemployment (Topley 1975:72).

Some of the Woodland Chinese may have come from the silk production counties or from the areas where men's houses were common. From these settings they would have brought a patience both for separation from family and for living in sex-segregated communities which, although more extreme in their foreign surroundings, still served the social and family purpose of enhancing family goals.

Chinese Women at Woodland: Prostitutes or Independent Daughters?

The five women who had joined the Woodland Chinese community by 1880 present an interesting puzzle. One woman, aged 30 and unnamed in the census report, was married to a Woodland Chinese merchant. She had probably been sent for after her husband had established himself in business. Another woman, Soy Ti, listed as 22 years old and married, was recorded as a boarder without a spouse in her place of residence, suggesting, if the record is accurate, that her husband was in China or elsewhere in California. Sing Hay, aged 35, Tah Ah, age 32, and Fow Ah, age 26, all unmarried boarders in separate residences, were listed as "keeping house." In general, unmarried women would have left China for the United States only if they had been sold into prostitution, for which "keeping house" may have been a euphemism (DuFault 1959:166). A newspaper article of 1878, however, provides a valuable clue to an alternative interpretation of the circumstances of their emigration. During a conversation with a reporter, Ah Wah, keeper of a Chinese lodging house in Woodland, mentioned that the

three women sitting with him in his front room had just arrived from China. He referred to them as "having immigrated hither by money earned by their own exertions" (Woodland Daily Democrat Oct. 14, 1878). How and why would women from a culture with extreme restrictive attitudes towards their sex leave their home villages and venture to California?

The sericulture region of the Canton delta was the only place in nineteenth- century south China where women as a socioeconomic group could have earned an independent living and thus been able to purchase a passage ticket with "money earned of their own exertions." A unique cultural feature of the sericulture region at that time was the practice of marriage resistance by some women. Able to earn cash at the silk filatures, many girls in this area joined lay Buddhist vegetarian sisterhoods and vowed never to marry, or in some cases to marry, bear only one child, and then live apart from both husband and family. Such arrangements were acceptable to the girl's parents or to her husband's family because the girl could earn money which contributed to the family's support. With a potential income-producing status, female children in the sericulture region were not considered "goods on which the family loses." Female infanticide was rare, and mothers did not bind their daughters' feet. By the end of the nineteenth century, each family in the marriage-resistance area tried to keep at least one daughter as a nonmarrying woman (Topley 1975:81).

While nonmarrying women did not emigrate in large numbers until the 1930s, and then primarily to Malaysia, where they re-established their vegetarian halls, it is conceivable that some of the Chinese women at Woodland were forerunners of this group. The three unmarried women in the census would have been 33, 30, and 24 repectively at the time of their emigration. Thirty was a relatively late age at which to be sold into prostitution. Also, under the terms of such a sale, these women would not have earned their own travel expenses. A possible interpretation is that even for women the job market in the Canton area was becoming crowded, and these women left to seek employment elsewhere. It is interesting to note that when women engaged in marriage resistance did emigrate in the 1930s, they generally found employment as housekeepers and domestic servants, exactly the kind of work reportedly done by the Chinese women at Woodland. It is possible that Ah Wah, who referred to the three women as his "sisters," as was common practice among people from the same locale, may have indeed been from the same area and acted as a contact for these women, who most likely knew each other and traveled together. Without further evidence, however, this scenario must remain only an intriguing possibility, and the origins and occupations of these women must remain open questions.

Occupations:
Servants, Cooks, Launderers, and Gardeners

The Chinese in Woodland performed a variety of jobs, many of which drew on skills and attitudes which they had brought from their village culture.

In addition to the Chinese women who worked as housekeepers, 10% of the male Chinese in 1880 did similar work, living in non-Chinese residences and performing duties as servants. Only 20% of the men worked as cooks in 1880, a decrease from 50% in the 1870 census--presumably the result of anti-Chinese agitation which encouraged some restaurant owners to dismiss their Chinese cooks and advertise this change as a selling point with customers (Woodland Daily Democrat Jan. 21, 1878; Sept. 20, 1878; March 14, 1879; Yolo Mail, Aug. 15, 1885). Chinese-managed laundries provided almost a third of the men with jobs. Laborers, railroad workers, and gardeners formed smaller occupational groups, with one woodchopper and one vegetable peddler also appearing in the 1880 census.

It has become commonplace to think of Chinese as cooks and laundrymen. This association began early in the history of Chinese immigration to California:

> During the initial three years of emigration (1850-1853), Chinese were tolerated, even welcomed into San Francisco, where they settled freely in every part of the city. In the labor-short boomtown, they were readily accepted to perform basic services such as cooking and laundering, desperately needed by men who left wives and families to seek a quick fortune in the gold fields (Nee and Nee 1974:33).

As clearly identifiable outsiders, the Chinese were allowed to perform the most menial and lowest-status jobs -- jobs typically left for socially marginal ethnic groups and for women. The Chinese, however, must have initially at least welcomed these sources of employment. Within a short time, many practices and attitudes brought from life in southern Chinese villages combined with the opportunities and realities of life in California to distinguish the work habits of the Chinese.

Over centuries of careful conservation of resources, the Chinese developed habits of doing virtually everything, including food preparation, with minimum waste. Many western observers resident in China noted the industry and economy which the Chinese applied to their tasks. Arthur H. Smith, an American missionary who spent 22 years in China during the last half of the nineteenth century, commented that:

> Even in famine times, thousands of persons have been kept alive for months on an allowance of not more than a cent and a half a day. This implies the general existence in China of a high degree of skill in the preparation of food...
>
> There is very little waste in the preparation of Chinese food, and everything is made to do as much duty as possible... The populations of new countries are proverbially wasteful, and we have not the least doubt that it would be possible to support 50 millions of Asiatics in comparative luxury with the materials daily wasted in a land like the United States, where a living is easily to be had. But we should like to see how many human beings could be fattened from what there is left

> after as many Chinese have "eaten to repletion," and the servants or children have all had their turn at the remains. Even the tea left in the cups is poured back into the teapot to be heated again (Smith 1894:19-21).

With regard to cooking experience itself, J. Dyer Ball, familiar primarily with south China in the late nineteenth century, observed that:

> The Chinese, as far as their own food is concerned, are born cooks. Among the lower classes almost any man can turn his hand to preparing the simple dishes, and in workmen's messes it is the youngest hand (the apprentice) who has the drudgery of cooking to do (Ball 1888:290).

Although no detailed descriptions exist of the cooking and laundering techniques used by the Woodland Chinese, it is probable that their methods displayed high levels of efficiency resulting in a more frugal use of materials. Accounts of other activities, such as the lucrative enterprise to separate solder from tin in old cans for sale to Sacramento junk dealers (Woodland Daily Democrat Feb. 18, 1879), or the practice of damming up shallow places on Napa Creek so as to find basketfuls of fish waiting when the tide ran out (Yolo Weekly Mail Sept. 18, 1873), indicate how the Chinese applied principles of conservation to their new environment. Thoroughly imbued with the strategies of austerity, the immigrants saw possibilities in their new circumstances which others had not imagined. The efficiency and skill which they brought to their tasks did not overcome the racism of some employers, but it was probably considered an asset by most families and restaurant owners in Woodland, who kept Chinese on their payrolls even as anti-Chinese sentiment swelled in the late 1870s and early 1880s.

While most Woodland Chinese worked as servants, cooks, and launderers, a group of Chinese gardeners, numerically smaller than the other occupation groups, played an important role in the local economy and food-supply system. In Woodland, by 1875, Chinese gardeners had already leased land and established productive vegetable patches. One local reporter commented on "the Chinese gardens, which are always green and flourishing, and which produced fine vegetables" (Yolo Weekly Mail Mar. 11, 1875). Evidently, a number of horse-drawn Chinese vegetable wagons traveled the streets of Woodland. Because horses were not used in south China for transport, the Woodland gardeners had little experience in controlling their teams, and local newspapers carried occasional reports of runaway carts:

> A runaway occured yesterday which created considerable merriment among Caucasians, but produced much consternation among the Chinese, as it was one of their vegetable wagons (Woodland Daily Democrat July 30, 1878).

> Last Friday morning a team attached to a Chinese vegetable wagon ran away in the north part of town, and as they glided gracefully around the corner of Court and Railroad Street, one of the wheels struck a snubbing post, upsetting the vehicle and

> scattering the vegetables in wild confusion. The Celestial who was bringing up the rear, by exerting his athletic powers managed to head them off before they had run far, and then set to work gathering his wares (Yolo Democrat Jan. 8, 1880).

The Chinese gardeners must have done well financially to be able either to own or to rent their teams and wagons. In China, human labor would have transported the vegetables, which in this case were bound for such Woodland grocers as J. I. Eaton and A. D. Porter, both of whom advertised in local papers that they bought and sold country produce (Yolo Weekly Mail Jan. 15, 1875; Feb. 11, 1875).

By the late 1870s, Chinese gardeners had become a source of concern rather than merriment within Causcasian circles in Woodland. The high productivity of their gardens made them major suppliers of vegetables in the area. The Daily Democrat editorialized that, "There is one thing in which California farmers are particularly negligent and careless, and that is the planting of vegetables." The writer went on to argue that because farmers were cultivating only staples, wheat and barley, "they are compelled to purchase the vegetables necessary for home consumption from either stores or peddlers, the latter generally being Chinamen." Although California's soil was rich enough to produce a variety of vegetables, "our farmers do not profit by this knowledge..., but go on from year to year patronizing Chinamen, spending money, and oftimes going into debt for necessaries of life they might themselves raise" (Woodland Daily Democrat Oct. 11, 1878). This article was followed the next day by a column which enthusiastically proclaimed the benefits of gardening. "Digging in the ground is the most healthful as it is the most ancient kind of exercise..." Gardening would not only help eliminate Chinese participation in the local economy, but would also help to remedy current social ills among the Caucasians and produce a "happier and better generation" (Woodland Daily Democrat Oct. 12, 1878).

The Chinese who farmed and gardened in the Central Valley must have marveled at the rich, highly productive soil, which they were able to work with relative ease. The land of China had been cultivated for centuries, and its high productivity was a result of carefully developed techniques and abiding patience necessary to compensate for the long-lost nutrients and substances of virgin soil. An agricultural specialist who visited China in 1906 wrote that it was the golden rule of rural China that, "whenever an extra hour or day of labour can promise even a little larger return, it must be given, and nothing be permitted to cancel the obligation or defer its execution" (King 1927:25). With this attitude and the skill for working with soils and plants which the Chinese brought to their new environment, it is no wonder that Chinese gardeners succeeded in raising particularly handsome and abundant produce.

Soil fitting, heavy fertilization, and deep digging were but a few of the agricultural techniques used in south China which must also have proved beneficial in the Woodland area. Soil fitting involved grading fields and building narrow, raised rims around their outer edges. This method of soil preparation minimized erosion and conserved fertility by allowing runoff with its soluble matter to be applied to

the garden plots (King 1927:103, 105). Narrow beds also controlled surface drainage and made irrigation more efficient (Williams 1928:96). Heavy fertilization, timed to coincide with peak growth periods, made the most effective use of fertilizer and permitted intensive cultivation of the soil year-round (King 1927: 23-24). Recalling that one of the Chinese vegetable cart accidents took place in January, one can surmise that the Woodland Chinese were indeed utilizing techniques which made year-round cropping possible. The Chinese also knew how to make from human waste and other debris liquid fertilizer which they applied to growing plants, avoiding loss which resulted from direct application of fertilizers to the unplanted soil. Mud from canals and irrigation works was another economical source of fertilizer which the Chinese did not overlook (King 1927:74). Deep digging to allow dense planting of multiple crops in one field, and hand care for individual plants, were other highly labor-intensive methods which required little initial capital investment and which produced substantial yields once the harvest began. With these ingredients of success, the Chinese gardener was able to produce high yields at low cost. The American farmer in California, meanwhile, preferred to invest in equipment for wheat and barley production, where larger profits could be reaped.

Diet: Selections from a Cantonese Menu

Archeological work at the Woodland Opera House site revealed deposits which contained seeds from Chinese squash, winter melon, and bitter cucumber (Honeysett, this volume). All of these were common Chinese vegetables, whose seeds no doubt were imported by immigrants from the Canton area. Vegetables were the principal accompaniment to the rice diet of south China, where a great variety of vegetables were cultivated and collected. While Chinese continued to enjoy the yams, sweet potatoes, beans, and pumpkins, which could also be grown in the Central Valley, they had left behind many of the less easily transplantable vegetables and fruits common to the Canton delta. Bamboo sprouts and ginger root were widely cultivated in south China. Lotus roots were collected from those ponds which could not be easily drained for rice cultivation. A water caltrop known as "buffalo-horn" grew in the canals and produced a fruit which was popular among the south Chinese, as was the widely consumed water chestnut (King 1927:116-119). It is conceivable that the Chinese at Woodland discovered new food plants in the waterways of the Central Valley.

The opera house site deposits also contained bones from chickens (Simons, this volume), pigs, cattle, sheep, ground squirrels, and cats (Gust, this volume). All of the bones showed butcher marks from cleavers, hand saws, and knives, indicating that the animals had been used for human consumption. In south China, chicken was the most common meat at meals, with pork second. Beef and mutton were rarities, and a poor family might not see meat of any kind for months.

The Caucasian community at Woodland was particularly intrigued with the eating of cat and dog meat. Their knowledge, it appears, came not firsthand from the Woodland Chinese, but instead from missionary reports sent back from China. Casual references in local newspapers gave readers the impression that they routinely "cook puppies in

China" (Yolo Weekly Mail July 17, 1873; Yolo Democrat Jan. 15, 1880). While bits of exaggerated information to this effect fueled racist assumptions, in fact, cat and dog meat, while considered edible by the Cantonese, were not commonly served at meals. A late nineteenth-century British civil servant in south China observed that, "There are one or two restaurants in Canton where dogs' and cats' flesh can be bought. The writer has seen the former hung up for sale in a shop, but both are rarely consumed in comparison with other kinds of meat and food" (Ball 1888:287).

Chinese tastes in food, and those of the Cantonese in particular, had always been highly eclectic. Not only were a vast variety of plants and animals considered edible, but every digestible part of a food item was consumed. This was due in part to a tradition which out of necessity stressed economy and full utilization of resources. It has also been speculated that Taoism in its folk-religion form contributed to the variety in Chinese cuisine through its age-old experimentation, which combined and tested a vast array of animal and plant parts in search for the elixir of life, the key to longevity and immortality (Weber 1964:196-199; Needham 1980:52, 107, 246-247). In daily life, such animals as baby mice or rats might be prepared as delicacies for the wealthy, while, at the other end of the spectrum, rats became food for the poor family's table in times when scavenging was the only means of survival.

Clothing: Traditional Garments and Fabrics

The collection of textile fibers found at the Woodland Opera House site shows a high frequency of wool fibers recovered from non-Chinese features, and of silk from the Chinese deposits, but no evidence of cotton cloth (Pope, this volume). Since cotton was widely used by the Chinese, it is surprising that no fibers were found at the site. It may simply be that remnants of cotton cloth were to be found in areas not investigated or that these fibers were less resistant to decay than those of wool and silk.

Woolen items were both unfamiliar and unappealing to the Chinese in their native land. Farmers did not raise sheep in most parts of China. Instead, pasture land, which had more food value when cultivated, was turned into fields for growing crops. Not understanding that population density necessitated the cultivation of grazing land, one western observer in China expressed puzzlement over the apparent disinterest in raising sheep and weaving wool. He wrote, "It is one of the unaccountable phenomena of Chinese civilization that this people, which is supposed to have been originally pastoral, and which certainly shows a high degree of ingenuity in making use of the gifts of nature, has never learned to weave wool in such a way as to employ it as clothing" (Smith 1894:126). When presented with items made from wool, the Chinese were not especially impressed. Another westerner noted that "Woolen goods nowhere appeal to the Chinese" (Ball 1888:734).

Chinese clothing styles used cotton cloth in ingenious ways to create garments which were softer and lighter than wool but equal to a woolen vestment in warmth. Use of multiple cotton garments made it possible

not only to add and subtract layers in order to adjust one outfit to changes in temperature, but also in times of severe cold to build up pockets of air which acted as insulation, conserving body heat. In addition, the Chinese designed their clothing so that it could be belted at the waist and tied around ankles and wrists to prevent cold air from entering or warmth from escaping (King 1927: 125). The Woodland Chinese most likely purchased such clothing from Chinese-owned retail stores which imported goods from China and serviced local Chinese communities in California. The Chinese had long preferred such cotton garments. A westerner in China remarked on the widespread use of cotton: "So common has it (cotton) become now that it is the staple article for dress in China, especially amongst the poorer classes, as it can be more cheaply made than silk" (Ball 1888:185).

Silk, the second most common type of textile fiber found at the opera house site, was used by men as well as women in China (Ball 1888:623). One did not have to be wealthy to possess a few items either made from or decorated with silk, but the acquisition of silk goods indicated some financial means beyond subsistence. As noted above, silk was more expensive than cotton. Perhaps at least some of the Woodland Chinese came from families who had once been or had recently become moderately well-off. This is consistent with the information that Chungshan, the county of origin for many Sacramento Valley Chinese, was less impoverished than counties to the south. The Canton delta was, of course, one of the major silk-growing regions in China. As a local product, silk was available in its cheaper varieties to a large sector of the population.

Chinese Culture in Woodland: Festivities and Pastimes

According to Chinese village lore, the world was inhabited by a host of spirits, some of Taoist or Buddhist origin, some belonging to one's ancestors, and still others simply the spirits of the wind and water referred to as fengshui. The interaction between the spiritual and secular worlds was entirely reciprocal. The Chinese did not consider themselves to be at the mercy of their deities. People took care of the spirits, and the spirits took care of people. If, for example, a deity did not respond to prayers, his or her temple would be abandoned, only to be tried again after a passage of time to see if the deity had returned to the site and was cooperative. When a family selected a gravesite or when village members planned to construct a temple, they consulted the spirits of wind and water who inhabited the landscape. The consultation was intended to gain information from the spirits so that human-caused alterations of the landscape would not violate the natural dynamics. In this way also, the Chinese ensured that their new buildings or gravesites would be favored with good fortune by the spirits. Each village in rural China had at least one temple, and in some cases a temple manager with specialized knowledge of the spiritual world presided over rituals. When death occurred, villagers reported it both to the local secular authority and to his counterpart in the spiritual world. Balance and interdependence were the hallmarks of Chinese spiritual beliefs (Williams 1928:130-131).

Chinese attention to the spirits became most visible in Woodland during major annual celebrations to mark the passage of seasons and the renewal of family and community ties, which included living as well as deceased members. Various deities were a part of these festivities. The Chinese New Year celebration drew the greatest attention from non-Chinese in Woodland. Rounds of firecrackers announced the beginning of the festivities. Well-known for their cultivation of the Chinese lily, to which they gave great affection and care, the Woodland Chinese timed the planting of this beautiful flower so that it would bloom during their New Year, the most important of all festivals (Woodland Daily Democrat July 30, 1878). On New Year's day, Chinese made house calls to Chinese and non-Chinese alike, bringing gifts of flowers and wishes for prosperity and long life. Dressed in their new shirts, white stockings, and "most admirable sandals," the Woodland Chinese carried out this part of the annual festivities just as their relatives did in the villages of Guangdong. Ceremonies held at their temple altar called for the burning of incense and offering of prayers to the deities who would insure an auspicious new year. A local reporter described the ceremony in this way:

> ...candles are placed about their idols or images of great men and kept burning day and night, and the devil is supposed to flee in utter disgust and take no part in the celebration. The offering to the Gods is a fat rooster dressed and cooked whole, except the feet. The consecrated fowl is placed on a dish with head erect, surrounded with slices of pork and vegetables, and as he sits there on the table between the deities and the worshippers, the genuflections of the latter are made in true oriental style, bowing three times with the head nearly to the floor, repeating meanwhile the "By-Sin" prayer to Goik Yi, or chief god (Yolo Democrat Feb. 19, 1880).

Goik Yi was the warrior god, a popular deity among the rural people. The New Year's celebration lasted for about two weeks and included visiting, eating, and gambling, once one had cared for the spirits and paid one's financial debts from the previous year.

For all of the festivity which characterized the celebration, a note of sadness must also have touched its participants. More than anything, the Chinese New Year was a family event. At the beginning of the New Year celebration in villages across China, families worshipped the kitchen god with sweet foods and sent him forth from the family hearth to heaven where he would make his annual report on all members of the family. A thorough housecleaning freshened the family dwelling for the holidays and cleansed it to begin the new year. Most importantly, at this time of the year all persons who were not immediate members of the family were either sent away or were housed outside of the family compound. All family members who might be away on business or reside elsewhere returned home for a reunion. The festivities were oriented around the family, and exchanges of greetings went from the family and its ancestors out to the community of the village (Smith 1894:196-201). Although family relations at home may often have been less than idyllic and harmonious, the fact of separation from family members and relatives was a source of nostalgia

for many immigrants during the holidays. The Woodland Chinese recreated the New Year's festivities to entertain themselves as well as to reaffirm their familial bonds.

Features of other annual festivities also took on added significance among Chinese immigrants. The Feast for Hungry Ghosts was evidently celebrated by the Woodland Chinese. On August 22, 1878, the Daily Democrat noted that, "The Chinese festivities which have been held for the last few days are now concluded." Typically this celebration began on the fifteenth day of the seventh lunar month and lasted until the thirtieth day of that month. By the solar calendar, the dates of the festival would typically fall in mid-August. During the two-week period, villagers made offerings to the spirits of those who had died unhappy deaths or were "orphaned spirits" who lacked living descendants to make sacrifices to them (Williams 1928:217). Items sacrificed included paper representations of garments, money, houses, and servants, all of which would be needed by the dead. As the paper objects burned, it was believed that they made a transformation from the material world to the unseen, spiritual world of the dead. At this time spiritual leaders might also be consulted for advice on pressing problems. In China a part of the festivities included a pilgrimage to Clear Cool Mountain at Nanjing, where there were large ceremonies and a fair.

Although an important festival in China, the Feast for Hungry Ghosts was not one of the three major annual festivals. It must, however, have had special poignancy for those in Woodland who knew the hardships suffered by their fellow immigrants in America, where many died bitter deaths far from home and left no descendants to care for their needs in the afterlife. Those who performed the ceremonies for hungry ghosts acted as surrogate family members to the departed spirits. As they burned paper money and images of houses, many may have envisioned their own sonless fates.

Contemporary accounts of the Chinese in Woodland suggest that adaptation to new circumstances resulted in other modifications of cultural traditions as well. Some of the major holidays, such as the Harvest Festival, or the Ching-Ming ceremonies, at which family members repaired the ancestor's graves, were not easily practiced or as immediately meaningful to those who were separated from the family and village context of these affairs. The heavy public drinking which appears to have characterized Chinese festivities in Woodland (Yolo Democrat Feb. 19, 1880), and which would not have been a prominent part of such celebrations in China, also reflects a degree of cultural disorientation resulting from immigration.

Among the Woodland Chinese, gambling and opium use were regular pastimes which highlighted daily routines. While both activities were common to rural China, they may have been more prevalent among immigrants who had no family or community commitments otherwise to occupy their time. Men gambled among themselves during leisure time and holidays. Disputes often arose among the participants, sometimes resulting in fist fights and arrests by the local police. On occasion police broke up games and arrested Chinese players (Yolo Mail Aug. 15, 1885). A major case occurred when a man named Ah Yem was arrested,

along with several other Chinese in Woodland, for gambling. Found guilty by the local court, he hired a lawyer and appealed his case to the State Supreme Court, which decided the case in his favor, much to the surprise and chagrin of local citizens (Woodland Daily Democrat Nov. 21, 1878). While China was a society governed by culture far more than by law, it did not take the Chinese long to understand and make use of the fact that America was a society of laws. From contemporary accounts, it appears that many immigrants in the Woodland area had the financial means to hire lawyers. To the Chinese, who typically avoided formal court proceedings in China because of their arbitrary and ruinous nature, the American legal system may have seemed relatively fair.

Opium had long been used as a minor medicinal drug in China. It did not become a widespread addiction there until the British, seeking to offset the major trade imbalance resulting from their export of tea and silk from China, and the Chinese indifference to British goods, began exporting opium to Canton from India. Once addiction became widespread, particularly in the Canton delta in the early nineteenth century, huge profits could be made, and opium use spread among poverty-stricken peasants, high officials, and influential merchants alike.

Fragments of 25 opium pipe bowls, along with other opium paraphernalia, were unearthed at the Woodland Opera House site (Felton, Lortie and Schulz, this volume). Opium dens definitely operated in Woodland by the late 1870s, and Caucasians were among their clientele:

> Are our people aware that there are several places in Woodland where opium smoking is of nightly occurrence? Such is the case, and it is frequently asserted that among the habitues of these dens, white people of both sexes may be seen. If there is not an ordinance prohibiting opium smoking in this town there ought to be, and special pains should be taken by our police force to see that the dens are broken up (Woodland Daily Democrat Feb. 6, 1879).

There is evidence also that Chinese in Woodland smoked opium outside of the specified dens. One Chinese lodging-house manager reportedly even received the city tax assessor while indulging in a bit of opium in his front room (Woodland Daily Democrat Oct. 14, 1878). This, however, was the assumption of an observer who may have mistaken tobacco for opium.

While there were apparently no major moves to close the opium dens in Woodland, other reports make it clear that the dens were considered a disgrace because of the Caucasian men and women from "eminently respectable" backgrounds who were known to be regular frequenters of the opium rooms (Woodland Daily Democrat Aug. 25, 1878). One enterprising reporter filed this on-the-spot report:

> We arrived at one of the China Houses, and by exercising considerable caution we managed to secrete ourselves within view of one of the "smoking tables," but in such a position as

> to be concealed from sight. The room was nearly empty when we went in, but the opium smokers came slowly in, and in half an hour five mongols were lying around smoking the oriental drug. A few minutes elapsed and a young gentleman entered and, throwing down two bits, requested a Chinaman to "give him a smoke." The young gentleman stretched himself out upon the table a la mongol and was soon inhaling the vile narcotic. He smoked several pipes full and then left. That was proof No. 1. In the course of an hour four more gentlemen had done the same thing and retired. We were now convinced beyond a doubt, for had we not seen the crime? It is terrible, but too true. (Woodland Daily Democrat July 29, 1878).

These observations are confirmed by other nineteenth-century accounts of the cost of opium and of the amounts in which it was normally consumed. According to these accounts, opium was always sold in sums of 25 cents' worth. While an occasional smoker used 25 cents' worth a day, an habitual smoker might use four or five times this much. The gentleman described above who smoked "several pipes full" for "two bits" was by this standard a casual user.

Conclusion

In the evidence of food items, textile fragments, ceramic pieces, and contemporary accounts, the Woodland Chinese left clues to their ways of viewing and adapting to their Woodland environment. Non-Chinese residents of Woodland showed a definite interest in some aspects of Chinese culture but only a minimal concern for the Chinese who lived among them. Some newspaper columns devoted space to such bits of quotable Chinese wisdom as:

> The bright moon is not round for long;
> the brilliant cloud is easily scattered.
>
> The ancients saw not the modern moon;
> yet the modern moon shone on the ancients
> (Yolo Democrat Jan.15, 1880).

Other columns decried the actions of local hoodlums who periodically attacked Chinese residents (Woodland Daily Democrat Mar. 18, 1879; Yolo Democrat Jan. 8, 1880). Increasingly, however, the cultural gap widened and reports dwelled on the filth, opium addiction, and theft which became stereotyped characteristics used to identify all Chinese. For the most part, life in the township of Woodland in Gold Mountain, as the Cantonese referred to America, was difficult. Ah Wah, who had lived in California for over two decades and in Woodland for many years, summed up some of these sentiments. Recalling his homeland with a nostalgia magnified by recent disappointments, he remarked, "You may talk of California as you please, but it's no place for Chinamen. Give me the Flowery Kingdom" (Woodland Daily Democrat Oct. 14, 1878).

Anti-Chinese racism in California and the political policies which gave it formal expression after the late 1870s effectively hindered Chinese access to resources and opportunities which were the object of their emigration. With hopes for a better material life and a rich heritage on which to draw for experience and strength, most Chinese found only moderate success at best, and suffered many indignities. Like Ah Wah, many had deeply ambivalent feelings about their quest. Village life in rural China had been difficult, but the promise of America had also become a tarnished reality.

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TEXTILES RECOVERED FROM THE WOODLAND OPERA HOUSE SITE

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Introduction

The unusually dry and protected conditions at the Woodland Opera House site have allowed for the preservation of a relatively abundant number of textile specimens in good enough condition for specific identification of fiber types. However, most of the specimens are small fragments, making it difficult to speculate about the original items and their uses. Nonetheless, they furnish clues to the clothing and other textile articles used by the Chinese and Euro-American residents of Woodland during the 1870s and 1880s.

Materials and Methods

The majority of textile fragments (19 of 22) were recovered from Feature 6 and Feature 10 of the Woodland deposits (Table 1). Each of these deposits contained a mixture of material from a Chinese laundry and an Euro-American harness shop which occupied adjacent parcels on the site between about 1870 and 1885. The rest of the specimens were found around Footing 7, in material probably derived from Feature 6. All of these features were covered by the construction of the first Woodland Opera House in 1884 (Felton, Lortie and Schulz, this volume). In the following discussion, a sample refers to all of the similar specimens recovered from a specific provenience within the features.

All textiles were analyzed microscopically and portions were submitted to burn tests. Additionally, the silks were tested with lye to confirm their identification.

Results

Wool

Fragments of wool cloth comprise the majority (9 of 22 samples) of fiber types collected. These fragments fall into three categories, identified by a particular weave, color, and thread count.

Two samples from Feature 6, one from the Footing 7 area, and two from Feature 10 are brown wool cloth woven in a warp-dominant 2-1 twill

(warp count 64/in., weft count 40/in.) brushed on both sides to produce a nap. Both warp and weft are single-ply yarns and may have been handspun. One fragment has a small 1/4-in. hem and another a 1/2-in. hem.

One sample of brown wool cloth woven in a basket weave (warp count 64/in., weft count 40/in.) and brushed on one side was recovered from Feature 6. Again both warp and weft yarns are single ply and possibly handspun.

Light tan wool fragments woven in a 2-1 twill (warp and weft counts 40/in.) were found in three Feature 6 samples. The yarns are single ply. One fragment has 3/4 in. of buttonhole stitching in black silk along one edge.

These fragments were most likely clothing material, as indicated by the buttonhole stitching and brushed surfaces, or blanket material, also indicated by the brushed surfaces. Brushing enhances the insulating qualities of wool, a process useful for clothing and bedding, but nonfunctional in other possible uses such as upholstery.

Silk

The five silk fragments collected were found in Features 6 and 10.

Feature 6 yielded a specimen of black silk 3-ply thread knotted in a buttonhole stitch. The loops are 1/16 in. in diameter and form a definite circle, but no fragments of cloth are visible. The buttonhole loops are perfectly round; they may have been stitched around a ring or around a core of threads. The piece may have been part of a garment closure or perhaps a decorative detail on a tassel.

A small piece of black silk 3-ply buttonhole thread with one buttonhole loop intact was found in Feature 10. It probably served as part of a garment closure.

A mass of very fine black silk threads was recovered from Feature 6, as were two additional samples of similar threads. There is no direction or order to the threads except in places where they lie parallel and where a distinct pattern of alternating kinks shows that they were once woven in a warp-face plain weave. Oddly, there is no trace of the weft in this entire sample. There are four places where a row of machine stitching (interlocking stitch) is sewn into the threads, holding them parallel to each other and perpendicular to the machine stitching. In one place, the threads are turned back as for a hem. Where they are machine stitched, a warp count indicates 128/in. -- an extremely fine warp-face sett. The threads are loosely spun bundles of silk fibers. They break easily when handled, partly because they have been weighted with a metallic salt, probably iron tannate. This practice, which was intended to make the cloth hang better, added to its weight and thus also to its price.

There are six places where a brown silk 3-ply thread has been sewn into the mass of threads in buttonhole stitch, no more than 1/2 in. of stitching in any one place. The loops of this stitch are 1/16-in. in

diameter, very round, and larger than necessary for the amount of silk thread they enclose.

It is difficult to determine what this tangled mass of threads might have been. The warp threads show distinctive kinks from having been woven, yet no weft threads survive. One possibility is that the weft was a different material than the warp; combination fabrics woven of silk and other fibers, such as wool or cotton, were not uncommon (Liu 1940). In this particular sample, the weft was more likely to have been cotton because the closely set kinks in the warp indicate an extremely fine weft; cotton is capable of being spun into a much finer thread than is wool. So, if the weft was a fiber other than silk, it may have been attacked selectively by chemicals and soil bacteria found at the site. Acid, for example, destroys cotton while leaving silk intact; likewise, certain classes of bacteria digest cellulose material (e.g. cotton), while other bacteria act on protein (e.g. wool). By one or more of these processes, the weft threads could have been consumed.

Another possibility is that the threads in this sample were used as stuffing or padding for a garment such as the quilted jacket commonly worn by the Chinese. It is conceivable that wornout silk fabric would be used for stuffing, but hard to imagine why all the weft threads would have been pulled out first.

A third hypothesis is that these threads were part of a fringe. The regular wavy pattern of the threads can be explained by the fact that fringes were often made by unraveling weft threads at the end of a woven piece and then knotting the warp threads into groups to make a pattern. In this case the buttonhole stitching would have served a decorative purpose, perhaps on a tassel or as a covering on a ring. However, it is still puzzling that there is no evidence of weft in the machine-stitched hem; one would expect that the material would have been stitched before the weft threads were pulled, thus leaving a few wefts inside the hem.

Other Fibers

A bundle of golden yellow jute fibers, about 2-1/2 in. long and knotted in one overhand knot was found in Feature 6. It may have been part of a knotted bag or matting.

The Footing 7 area yielded two samples of dark brown, stiff fibers with lentil-shaped nodules, identified as Spanish moss (Tillandsia usneoides). These fibers are, and undoubtedly were, used solely for upholstery stuffing. Because they were found in a deposit associated with a harness and saddle-making business, they may have been stuffing for saddles or for carriage or wagon seats.

Three samples of white asbestos fibers were recovered from Feature 6 and two from Feature 10. These are insulating materials from the opera house heating ducts. Their age is uncertain, but asbestos was being widely used for this purpose by the time of the construction of the first opera house (Scientific American 1881:127, 130-131).

Discussion

The textile fragments analyzed here have no specific characteristics which identify them with a particular ethnic group. Nor does the archeological context help to identify them in this regard: the fragments were found in features associated with a mixture of both Chinese and Euro-American materials. Therefore, any assignment of textiles to one group or another must be based on information such as dress habits, preference for certain fibers, and textile production.

Contemporary observers noted that Chinese immigrants brought their clothing, bedding, and other belongings with them from their homeland. Immigrants disembarking from a ship in San Francisco in 1869 were described by one observer as "... a living stream of the blue coated men of Asia, bearing long bamboo poles across their shoulders, from which depend packages of bedding, matting, and clothing, and things of which we know neither the names nor the uses..." (Evans 1869). Additional articles needed by these immigrants were often purchased at stores which typically served the Chinese settlements and which stocked Chinese goods. J. D. Borthwick (1948:219) visited a Chinese mining camp near Nevada City in the 1850s and described one of these stores as "like other stores in the mines, inasmuch as it contained a higgledy-piggledy collection of provisions and clothing, but everything was Chinese excepting the boots. These are the only articles of barbarian costume which the Chinaman adopts..." Whether such a store was available in a small town like Woodland, where there was no major employer or large population, is unknown, but there were many in Sacramento. Thus, the dress habits of the Chinese immigrants did not change much after they settled in California; they kept their traditional costume and preferred to purchase Chinese-made goods.

The silk specimens from the Woodland site are an almost certain indicator of the Chinese presence there a hundred years ago; further, they are important as evidence of traditional Chinese clothing. Silk was a fabric which had been widely used in China for over 3,000 years. It was worn not only by the elite but to some degree by the peasantry as well, although the latter also made heavy use of cotton. Silk was valued for its opulence and for its practical aspects, notably high tensile strength and superior insulating qualities. In this description of a Chinese immigrant's costume, the inclusion of silk items is noteworthy: "Every man and boy has his queue of hair, as long as himself, nicely wrapped in silk braid, and generally rolled round the head. Their principal garment is a dark blue, close-fitting frock. Their shoes are of silk or cloth, with felt soles" (Peabody 1871:660).

It is highly unlikely that the silk articles worn by the Chinese in California were made in America. The American silk industry at this time was not well established; most attempts to start factories on the east coast had failed, and those in operation were not very productive (Brockett 1876). On the other hand, Chinese silk was exported widely, especially after 1850 when the Opium War treaties opened Chinese ports to international trade. These circumstances considerably substantiate

the likelihood of Chinese origin for the silk fragments from the Woodland site.

While silk fabric appeared prominently in Chinese attire, wool was rarely used. In descriptions of the typical costume worn by Chinese in their homeland as well as in California, wool is never mentioned; "woollen goods nowhere appeal to the Chinese" (Ball 1906). The wool fragments from the Woodland excavation, then, while they may represent foreign items of clothing used by the Woodland Chinese residents, are more probably derived from the site's Euro-American occupants.

In any case, the wool garments were probably American-made rather than of Chinese origin. During the latter half of the nineteenth century, wool growing was a very small industry in China, involving primarily one province and yielding inferior quality wool; exports of wool products from China were negligible (Ford 1894). In contrast, the western United States had good grazing land which supported large numbers of sheep. As early as 1848, with the establishment of a mill at Black Point, wool was processed and woven in California.

Cotton, on the other hand, was very familiar to the Chinese. Cultivated extensively in China since the thirteenth century, cotton became the most popular and widely used material for Chinese dress, especially for the peasantry because it was cheaper than silk. The Chinese peasant's costume was a versatile piece of clothing, made almost entirely of cotton and functional for all seasons. A farmer's winter dress consisted of an outer jacket, quilted, squarely cut, and belted at the waist; the pants were also quilted and tied around the waist and ankles (King 1927). The effect of these bulky, rather loose-fitting garments tied at the extremities was to trap a volume of air against the body, thereby conserving body heat and achieving great warmth with a minimum of weight. Underneath the jacket and pants were layers of undergarments of various thicknesses. The feet were covered in multiple layers of socks and cloth shoes. This arrangement of many layers made it possible for the wearer to adjust his clothing to varying temperatures.

The summer costume (cf. Fig. 1), therefore, contained fewer layers and was not as heavily padded. The "blue coated men of Asia" described by Evans (1869) and Peabody (1871) in San Francisco probably wore this lighter weight costume. Their muslin jackets, loose-fitting pants, and cloth shoes were all of cotton.

In light of the widespread and all-season use of cotton by the Chinese, this fiber is conspicuously absent from the Woodland collection. But rather than indicating an abandonment of traditional dress habits, the absence of cotton is probably due to other circumstances. First, the archeological sampling of the site was selective and by no means complete. Had the excavation been more extensive, cotton cloth might have been found. Second, if the first hypothesis regarding the disappearance of the weft in the silk sample from Feature 6 is correct, then we may assume that edaphic conditions did not favor survival of cotton fibers. The absence of cotton samples may be misleading when one tries to reconstruct Woodland Chinese dress during the 1870s.

The total collection of cloth fragments recovered from the Woodland site furnishes only a partial and tentative picture of the clothing and other textiles used by the Chinese and Euro-American residents. However, the silk fragments are significant as evidence of traditional Chinese dress, and the moss samples (upholstery stuffing) are interesting remains of the harness shop business. Also, this group of textile fragments has a particular distinction. In no other nineteenth-century overseas-Chinese site, described in published reports to date, have textiles been found; the Woodland Opera House textile collection is the first.

Acknowledgments

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TABLE 1

Provenience of Fabric Samples, Woodland Opera House Site

Provenience	Wool	Silk	Jute	Moss	Asbestos	Total
Feature 6	6	4	1	--	3	14
Footing 7	1	--	--	2	--	3
Feature 10	2	1	—	--	2	5
Total	9	5	1	2	5	22

Figure 1. A Chinese houseboy on the Swingle Ranch, southeast of Woodland (Davis Historical Resources Management Commission).

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CHINESE AND ANNAMESE COINS FOUND AT THE WOODLAND OPERA HOUSE SITE

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Seven Chinese coins and two from Annam (Viet Nam) were found during excavations of the Woodland Opera House, Woodland, California. These coins were associated with three deposits: Features 6, 8, and 10, all dating to the 1870s or very early 1880s (Felton, Lortie and Schulz, this volume). However, Feature 8 is the source of two-thirds of the pieces (Table 1). These were low- denomination coins known as "cash," ch'ien, or tsin in Chinese, and dong in Annamese. They are round with a square hole in the center. The Annamese dong are made of zinc; the Chinese coins are of brass.

Three imperial reigns are represented by the Chinese coins found: K'ang Hsi (1662-1723), Ch'ien Lung (1736-1795), and Chia Ch'ing (1796-1821). Coins from these reign periods are commonly found in Chinese sites in the western United States. In addition, four mints have been identified: Chih-li (Ho-pei), Kiang-si, Kweichow, and the Peking Board of Works mint.

These coins were worth 1/1000 of a Chinese tael or approximately 1/10 of an American cent. They were issued in the millions and, in the case of some of the long reigns (e.g., K'ang Hsi, Ch'ien Lung), billions were cast. The coins often were strung in quantities of one hundred or more and so did not receive the same individual pocket wear common to western coins. Cash were subject to being melted down when the price of copper rose enough, as when the Japanese imported and melted down several boatloads of ch'ien pieces during World War I (cf. Lee 1938:7).

Apart from their use as money (cf. Kleeb 1976:507; Farris 1979; Olsen 1983) the ch'iens came to be used in fortune-telling (as in the I Ching), and as talismans, but especially for games. In the game of fan t'an, in particular, these coins served both as counter chips (representing 10 cents) and as gaming pieces. The game involved laying out a handful of ch'iens and then raking four at a time off of the pile until there were only four or less remaining. Bets would be laid on how many coins would remain. This game was extremely popular among the Chinese in nineteenth-century California and it is reasonable that the paraphernalia involved in its play would be found in sites where Chinese people lived.

In addition to the use of ch'iens as chips worth 10 cents, there were also pak chu, "white pearls," representing $1; bak chu, "black pearls," $5; chessmen, $10; and dominoes, $50 (Culin 1891:4). In two of the three features (Features 6 and 8) where Chinese coins were found at the Woodland Opera House, white semi-spherical glass pieces, sometimes referred to as "go" pieces, were found which may well have been used as pak chu counters. Culin (1891:6) also stated that white buttons were sometimes used as counters. However, buttons are ubiquitous in historical sites, especially those representing Chinese laundries.

Culin (1891:5-6) comments further on the use of ch'iens:

> The coins used in playing fan t'an are those of the present dynasty (i.e., Ch'ing), such as are now current in China, and are imported expressly for gambling purposes in large quantities. Only perfect pieces, and preferably those of the same mintage, are selected, and these are cleaned with vinegar and afterward polished by being shaken with damp sawdust in a cotton bag. Those of the Kanghi (K'ang Hsi) period (A.D. 1661-1722), and of the Kienlung (Ch'ien Lung) period (A.D. 1735 to 1796), which constitute a large part of the present circulation in China, are generally used, but pieces representing all the emperors of the Manchu dynasty except the present ruler, may be found upon these strings of cash. Some of the strings of "cash" of the periods already referred to appear to be quite uncirculated, and are probably reproductions made expressly for gambling purposes. The brass cash are not used as counters upon the board, leaden pieces from Annam called nai ts'in, "dirt cash", being substituted to prevent confusion.

It is probable that the Annamese coins found in Feature 8 served as game counters. In the material recovered from Yreka Chinatown, Annamese coins were present, along with white and black "go" pieces, dominoes and even a chessman (Farris 1979: 48, 51; David L. Felton, personal communication).

At Ventura, California, the excavation of a trash pit (Feature 24) produced 72 Chinese cash and three Annamese dong, along with 111 go pieces. Despite the suggestion by Roberta Greenwood (in Kleeb 1976) that these artifacts may have been functionally related, Kleeb's (1976:504-505) statistical evaluation convinced him that "the data provide no evidence for a hypothesis that the coins and go markers are functionally related." Unfortunately, we are not told a) what the colors of the go pieces were, or b) whether any of the other counters used in fan t'an (i.e., checkers or chessmen) were found in the feature.

The collection of Asian coins from the Woodland Opera House site is too small to apply any statistical evaluation. However, since both Annamese and Chinese coins were represented, as well as go pieces, it is suggested that they were used in playing the popular game of fan t'an.

TABLE 1
Chinese and Annamese Coins from the Woodland Opera House Site

Reign	Mint: Peking Works Board	Mint: Kweichow	Mint: Kiang-Si	Mint: Chih-Li (Ho-Pei)	Unknown
K'ang Hsi					1
Ch'ien Lung	1	1	1*	1**	1
Chia Ch'ing		1***			
Minh-Mang (Annam)	—	—	—	—	2
Total	1	2	1	1	4

Provenience: *Feature 6; **Feature 10; ***Footing 7; all others from Feature 8.

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NINETEENTH-CENTURY SEEDS FROM WOODLAND, CALIFORNIA

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Archeological study of past environments or food usages is often made more difficult because plant remains, once deposited in the ground, usually are not preserved. The excavations at the old opera house site in Woodland, California, however, revealed an unusual situation. The opera house, constructed in 1884-85, was built over a series of trash features which had been deposited within the previous few years, and has covered them for the last century. In the resulting permanently dry and undisturbed deposits, a variety of organic remains were preserved, among them a large collection of seeds. These seeds provide information on the diet of Woodland's early Chinese and Euro-American residents, and on the operation of one of its businesses.

Materials and Methods

The floral remains were recovered from three features. A large pit, Feature 8/9, was possibly an old cesspool and was filled with debris from a Chinese laundry. Feature 6 was another pit, filled with mixed Chinese and Euro-American materials derived from a nearby harness shop. Feature 10 was apparently a privy for the harness shop, containing many broken Euro-American glass bottles but few Chinese artifacts. The material in all three features seems to have accumulated during the late 1870s; filling was apparently complete by 1880. In 1884, the deposits were covered by the construction of the first opera house (Felton, Lortie and Schulz, this volume).

Most of the material was obtained by flotation of soil samples, although some remains were separated out by hand during excavation. For flotation, soil was processed in 2,500 cm^3 lots. Soil was repeatedly immersed and the floatinjg organic material removed with a 0.5-mm mesh screen. A 10X dissecting microscope was used to sort each sample and to identify seeds. During identification, reference was made to comparative collections and to standard

sources in the literature (Bailey 1971; Herklots 1972; Martin and Barkley 1961; Munz 1968; Yamaguchi 1973; U.S. Department of Agriculture 1974).

Results

About 8,000 seeds of 25 varieties were recovered from the three features (Table 1). Feature 8/9 yielded five kinds of vegetables (three of them Chinese), six kinds of fruit, three kinds of weeds, and a tree seed. Feature 6 produced two vegetables and eight fruits. Feature 10 had one Chinese vegetable, six fruits, eight weeds, and a native flower. Most of the seeds appear weathered. A high percentage of the weed seeds are carbonized.

Weeds

Seeds of nine varieties of weeds (mayweed, yellow star thistle, pigweed, ryegrass, lupine, cheeseweed, bur-clover, knotweed, and cocklebur) are included in the Woodland samples, all but the lupines being exotic species introduced from Europe. All were common in the Sacramento Valley in the last half of the last century. These plants grew in pastures, grain fields, urban yards, or along roadways; and most occurred in several of these habitats.

Chinese Fruits and Vegetables

Seeds of four varieties of Chinese food plants were recovered, including three cucurbits and an olive. The winter melon (dung gwa) has a common and interesting place in southern Chinese cooking:

> The winter melons are huge, dark-skinned, hard-rinded, and used characteristically as soup kettles: filled with various ingredients and sometimes carved on the outside into lovely designs, they are steamed, adding to the finished soup their faintly spicy flavor and their tendency to absorb over greasy or over spicy tastes (Anderson and Anderson 1977:329).

The fruit is also used in other vegetable dishes and is prepared as candy. Chinese squash (jit gwa) is a variety of the same species.

The Woodland winter melon and squash seeds are probably from locally grown plants. By the mid-1850s, Chinese immigrants had established gardens of their native produce in the Sacramento area, and by the 1870s, such gardens were supplying the Woodland market (Oriental, or Tung-Ngai San-Luk Jan. 1856:3; Prazniak, this volume). Elsewhere, nineteenth-century accounts indicate that winter melons were included among the variety of Chinese cucurbits grown in America (Seitz 1893; Blasdale 1899:31). Winter melon seeds were also recovered from 1850s deposits in Sacramento (Honeysett 1982).

Bitter melon or leprosy gourd (fu gwa) is a cucumber-like fruit used in the immature form for salads, pickles, or curries, or fried with fish or poultry. The mature fruit is used in medicine (Porterfield 1951). Bitter cucumbers were grown by Chinese gardeners in the Sacramento Valley in the last century, and the seeds have been

previously reported from gold-rush Chinese deposits in Sacramento (Blasdale 1899:30; Honeysett 1982).

The Chinese olive (pak lam) was widely grown in Kwangtung and imported, either green or salted and dried, in large ceramic jars (Culin 1891:349; Blasdale 1899:43; Porterfield 1951:27). The seeds have been recovered from a nineteenth-century shrimp-fishing camp on San Francisco Bay (Schulz 1984).

Other Plant Remains

Other seeds present include two kinds of grain (barley and corn), which in the present context probably represent feed for horses. A single black locust seed was undoubtedly from a local ornamental tree. The remaining seeds, except for peanuts and one seed from an unidentified cucurbit, are all from fruits, seven species of which are represented.

Peanuts were not commonly consumed by most Americans until the very end of the last century. By the 1860s, Chinese gardeners in California had begun growing peanuts, and Yolo County was one of the most productive areas in the state. The crop was described as "a nut to be eaten in the theatres and rail-cars by the boy(i)sh element, and by almost every-body else when and where they get a good chance" (in Johnson 1964:81-82). Nonetheless, the major market was probably among Chinese immigrants, since peanuts were a common food item in Kwangtung in the last century. The shells have been reported from a gold-rush supply ship in San Francisco (Smith 1981) and from Chinese sites in Sacramento and on San Francisco Bay (Honeysett 1982; Schulz 1984). The last site also yielded numerous hull fragments of the coconut, which seems then to have been a fairly exotic food among Euro-Americans, but a more ordinary one among Chinese.

Most of the other fruits recovered cannot be ethnically categorized. Figs, peaches, grapes, and apricots were all grown in south China in the last century, as well as in the United States. The first three of these varieties have been recovered from gold-rush Chinese deposits in Sacramento (Honeysett 1982), and all four have been found in western Euro-American sites of the latter nineteenth century (Gasser 1982; Smith 1981; Honeysett and Schulz 1984). The two species of berries have no counterpart in Cantonese cuisine, and so may reflect Euro-American consumption; but as this would require no preparation at all, the ethnic association is less secure than where consumption entails patterned preparatory behavior.

Discussion

As previously noted, the archeological evidence suggests diverse ethnic connections for the Woodland features. Feature 8/9 was associated with a Chinese laundry; Feature 10 was a privy of a Euro-American harness shop; and Feature 6 contained a mixture of trash from both these operations. It is of interest, therefore, that the seed collection reflects these differences.

Considerable overlap exists in the seed varieties represented in the various features: of the 25 varieties present, six are found in all three features and another five are shared by two features. Nonetheless, the collection presents a strong impression of three discrete assemblages. Not only are a majority of the seed forms unique to a single feature, but they are associated in categorical clusters, which reflect clear functional distinctions between the three deposits.

Feature 8/9 contained all of the seeds of the three Chinese cucurbit varieties, which dominate the remains from this deposit. Also present are a scattering of weed, tree, and fruit seeds, but these do not obscure the implications that -- so far as the plant remains are concerned -- this feature is the only one clearly associated with Chinese occupation of the site.

The Chinese seed component of the Feature 6 remains is limited to a single Chinese olive pit. Numerically the collection is dominated by grape, blackberry, and fig seeds, but in terms of weight and of food originally represented, the 77 peach pits from the feature are clearly more important. In any case, the association is almost wholly of fruit seeds; notable in their absence are any of the weeds represented in the other deposits. This not only suggests a kitchen origin for the Feature 6 materials, but also indicates that the deposit was protected from weeds and other adventitious outdoor seeds.

Feature 10 produced even more of the tiny blackberry, fig, and grape seeds than did Feature 6, but its yield of other fruit and vegetable seeds was less impressive. Feature 10, on the other hand, contained the vast majority of the weed seeds recovered from the site, and all of the grain seeds. The connection here is almost certainly with the harness shop which operated on the site, since this implies a considerable horse traffic. Cocklebur has been noted as "especially obnoxious in pastures, the manes and tails of horses... being completely filled with the burs" (Smiley 1922:98), and several of the other seed types could have arrived on the site in the same fashion. The remaining weed species would have been common components of hay in the last century. The corn and barley grains recovered were surely remnants of feed, and we have previously noted ryegrass as a component of barley on the California market as early as the 1850s (Honeysett and Schulz 1984; Schulz 1982).

In spite of interpretive limitation resulting from the differences in collection techniques for the different features, trends are clearly evident in the Woodland floral remains. Viewed as assemblages, the seeds reflect the diverse human activities on the site about 1880.

TABLE 1

Floral Remains from Woodland Archeological Excavations

Scientific Name	Common Name	Features 6	8/9	10
Weeds				
Anthemis cotula	Maywood			50
Centaurea solstitialis	Yellow Star Thistle			2
Chenopdium sp.	Pigweed		10	20
Lolium sp.	Rygrass			2
Lupinus sp.	Lupine			1
Malva parviflora	Cheeseweed		1	±85
Medicago hispida	Bur-clover			10
Polygonum aviculare	Knotweed		10	10
Xanthim strumarium	Cocklebur			1
Trees				
Robinia pseudoacacia	Black Locust		1	
Grains				
Hordeum vulgare	Barley			40
Zea mays	Corn			7
Garden and Orchard Crops				
Arachis hypogaea	Peanut	4	1	
Benincasa hispida	Chinese Squash		33	
Benincasa hispida	Winter Melon		38	1
Canarium cf. album	Chinese Olive	1		
Cocosnucitera sp.	Coconut	10	2	10
Cucurbita sp.	Squash or Pumpkin		1	
Ficus carica	Fig	±400	10	±1,000
Mormordica charantia	Bitter Melon		15	
Prunus armeniaca	Apricot	2		
Prunus persica	Peach	77	1	9
Rubus ursinus	California Blackberry	±1,000	10	±6,000
Sambucus mexicana	Elderberry	±25	10	20
Vitis vinifera	Grape	±500	1	±600

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NINETEENTH-CENTURY FISH REMAINS FROM WOODLAND, CALIFORNIA

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During restoration of the old opera house in Woodland, California, several buried archeological features were found beneath the building. These features proved upon excavation to be trash or privy accumulations, primarily of Chinese origin, deposited prior to the erection of the original opera house in 1884. Included among the recovered materials were a variety of fish remains. Although the collection is not large, it provides an interesting perspective on California's fisheries and on use of fish among different segments of California's population, from a time when corresponding written accounts are scarce.

Deposits and Methods

The fish remains were recovered from three deposits. Feature 6 was a large pit, perhaps an old cellar, which contained a large quantity of food remains and artifacts of mixed Chinese and Euro-American origin. Features 8 and 9 formed another large pit complex, apparently a cesspool, containing cultural fill similar to that in Feature 6 but overwhelmingly of Chinese derivation. Feature 10 was apparently an old privy. It contained an appreciable amount of bottle glass, but few food remains or Chinese ceramics. All the features were roughly contemporaneous, and are dated (on the basis of their artifactual contents and relation to architectural features of known age) between the mid-1870s and the erection of the first opera house in 1884. The Chinese occupation of the site apparently ended early in 1880 (Felton, Lortie and Schulz, this volume).

Recovery methods employed on the site varied from feature to feature. Because of time and funding constraints, and the difficulties of working in the cramped quarters beneath the building, methods were sometimes less systematic than those usually employed on open sites. Soil from Feature 6 was passed through 1/4-in. mesh screen, while that from Feature 10 was passed through 1/8-in. mesh. Earth from Feature 9 was not screened. A variety of procedures were used on Feature 8: some soil was passed through 1/16-in. mesh; some through 1/8-in. mesh; and most was carefully trowel-excavated and picked over by hand without screening.

The recovered material was saved, cleaned, and sorted, and all fish remains were submitted to the author for identification.

Results

The great majority of the remains were obtained from the Chinese deposits (Feature 8/9); very few specimens were recovered from Features 6 or 10. A total of 331 specimens was examined, and 136 of these were identified at least to superfamily (Table 1). Most of the remaining material consists of ribs, spines, and other taxonomically unidentifiable elements; a very few specimens were not identified because of lack of relevant comparative specimens.

The identified remains represent at least 15 species of fish. The collection includes both freshwater and marine forms; although most are native species, at least two varieties were imported.

Sturgeon

Only a single sturgeon (*Acipenser* sp.) element was recovered. This fish once formed an important part of the fishery of the lower Sacramento River, the landings in 1872, for example, totalling about 25% of those of salmon (Stone 1874). Though common, sturgeon were then held in little regard by most consumers: they were widely served in restaurants, but usually disguised as "sea bass" or "tenderloin of sole" (Schulz 1980).

Traditional South Chinese attitudes toward sturgeon were mixed. Among fishermen of some groups they were regarded, because of their size and distinctive appearance, as dragons which should never be killed (Ting 1949; Anderson 1969). Among others, the fish was considered a delicacy and was the subject of an avid market (Davis 1840:325; Cooke 1858:241). Chinese fishermen in California appear to have had no objections to catching sturgeon; as early as 1853 they were including it among their landings and shipping it to their countrymen in the mines (*Chamber's Journal of Popular Literature* Jan. 21, 1854:48).

King Salmon

The King Salmon (*Oncorhynchus tshawytscha*) fishery of the Sacramento was the first commercial fishery established on the coast and the most important in the state. It was also the basis of the first canning operation on the coast, started in Yolo County at Washington (Broderick) in 1864. Adult fish moved up the Sacramento from the ocean to spawn in two major runs, the spring run then being larger than that of the fall and yielding fish of better flavor. Salmon were highly regarded, and their popularity was reflected in generally high market values.

Suckers and Minnows

This group of local freshwater species included the Sacramento sucker (*Catostomus occidentalis*), hitch (*Lavinia exilicauda*), squawfish (*Ptychocheilus grandis*), splittail (*Pogonichthys macrolepidotus*),

blackfish (Orthodon microlepidotus), and thicktail chub (Gila crassicanda). The last species is particularly interesting because it is now extinct. Bones of all of these fish occur commonly in Indian middens in the lower Sacramento valley, thicktail chub and hitch being represented in particular abundance (Schulz and Simons 1973; Schulz, Wagner, and Domning 1976; Schulz 1979). Among the Euro-American settlers, however, their gastronomic reputation was quite low; except perhaps for squawfish, they were bought for the lowest prices or disregarded altogether (Schulz 1980). A good market was nontheless maintained among the Chinese, by whom they were readily purchased (Dibble et al. 1884).

Sacramento Perch

The best-represented species in the present collection, and the only one present in all three deposits, was the Sacramento perch (Archoplites interruptus). This species was once extremely abundant in the lower Sacramento Valley and its remains often outnumber those of any other fishes in local prehistoric Indian middens (Schulz and Simons 1973; Schulz, Wagner, and Domning 1976). It was also the most ubiquitously represented of fish in historic deposits in Sacramento, having been recovered from nearly all the nineteenth-century features studied to date (Schulz n.d.; 1980; 1982). Unfortunately, these fish had little success in surviving the major habitat changes brought about by the reclamation of marshlands and the introduction of exotic fish species, which began in earnest in the 1870s. They disappeared from the market early in the present century, and are now rare thoughout most of their native range.

Sacramento perch had an excellent gastronomic reputation in the last century, being generally rated one of the finest food fishes available in California, though there are some indications that it was more popular among Chinese than among Euro-American consumers:

> This species...forms an important article of food not only to the white inhabitants of the district but also to the Chinese, who are particularly fond of it, catch it in immense numbers, and forward it to their countrymen along the railroad, as far as the boundary of the State, or even beyond it. It is usually taken in fyke-nets, which are most effective engines of destruction. It is a very good fish for the table, unless taken in sloughs that, by the falling of the water, have become disconnected with the river (Lockington 1879:21).

> This species is known only by the name of "Perch," ...large numbers being shipped to the market in San Francisco. It is there bought and consumed mainly by the Chinese, who value it highly, paying for it more than for any other fish which they consume (Jordan 1884:405).

California Marine Species

This group of fishes includes rockfish (Sebastes sp.), kelp greenling (Hexagrammos decagrammus), cabezon (Scorpaenichthys marmoratus), and rubberlip seaperch (Rhacochilus toxotes). Cabezon was considered an

acceptable market fish in the last century, though it was not often found there, being only occasionally taken by market fishermen (Lockington 1879:26). Rockfish and rubberlip seaperch were considerably more common, and also more highly rated (Lockington 1879:21-22, 31). The greenling was a common offering in the San Francisco market, and was rated as a fair food fish but inferior to rockfish (Jordan and Gilbert 1882:54-55).

Cod

The cod remains recovered at Woodland were unquestionably derived from imported preserved fish, but the ultimate source could be either the North Pacific or the North Atlantic. Salt cod from the Atlantic (Gadus morhua) were imported into California even before the gold rush and were a persistent market item thereafter. The large cod (G. macrocephalus) populations in the North Pacific were not commercially exploited until 1863, but then quickly became the basis of a thriving fishery based in San Francisco (Cobb 1927).

Puffer

The puffers (family Tetraodontidae) are represented in this collection by two jaw elements (Fig. 1), but the reason for any inclusion at all is unclear. Fish of this family are greatly prized as sashimi in Japan, but have the justified reputation of being highly poisonous if incorrectly prepared. In South China they are also eaten occasionally, but are accorded no special esteem, and are rather avoided because of poor flavor and the danger of poisoning (Anderson 1972:96). Three species of puffers have been reported off the coast of California. Of these, the Woodland bones do not represent the bullseye puffer (Sphoeroides annulatus). Comparisons have not yet been made with the longnose puffer (S. lobatus) or the oceanic puffer (Lagocephalus lagocephalus), but as the former has been reported from the state only once and the latter is so pelagic that it is rare even in biological collections, it is doubtful that these species are the source of the bones.

Discussion

Several aspects of this collection deserve discussion. Because of the varied collection methods employed on the different features, systematic comparison is not possible, but the general character of the assemblage permits interpretations of various topics.

Chronology

The species present in the samples offer little in the way of chronological information, except that the relative prominence of Sacramento perch and thicktail chub probably indicates that Feature 8/9 predated the turn of the century, by which time these species had been virtually eliminated from the commercial fishery.

More suggestive is the complete absence from the collection of any exotic freshwater species. In 1871 federal and state fish commissioners began introducing what was to become a long series of

exotic fishes. Many of these species -- particularly carp and catfish -- were extremely successful and rapidly dominated the state's inland waters and its freshwater commercial fishery. Catfish, for example, were first introduced into lakes near Sacramento in 1874; by 1877, they were already furnishing "an important addition to the fish food supply of the City of Sacramento and vicinity" (Redding et al. 1877:24). By 1888, landings of catfish at Sacramento were surpassed in weight only by those of salmon and exceeded the total of all other freshwater species combined (Collins 1892:169). It is not surprising then that, of the fish-bone bearing deposits thus far examined from Sacramento, all those dating after 1880 have yielded remains of catfish or carp (Schulz n.d.). In light of these data, it seems likely that deposition of the Woodland features predated 1880 -- a conclusion in line with the historical and artifactual evidence.

Ethnicity

Ethnic preferences for different varieties of fish in nineteenth-century California have already been mentioned. These distinctions are most marked where fishes disregarded or actively avoided by the dominant culture were valued by other consumers. Of the fishes in the Woodland collection, this preferential dichotomy is most clearly illustrated by the native cyprinoids -- the suckers and minnows -- of the Sacramento Valley. With the exception of squawfish, which was occasionally rated a good table fish, these species inspired from Euro-American observers little more than a history of deprecatory comment, being stigmatized as "all bones," "poor food," or "thrown back into the water;" yet they were in great demand among Chinese consumers, who by all accounts comprised their major market (Hittell 1863:146; Cronise 1868:495; Stone 1876:379; Dibble et al. 1884:7; Collins 1892:123; Grunsky 1959:54).

It is noteworthy that the Woodland collection, with those from other deposits in Sacramento, is in accord with these accounts. Fish remains have thus far been identified from three Chinese deposits: Feature 8/9 in Woodland, 1880s-1890s deposits on Front Street in Sacramento (Schulz n.d.), and 1850s features on I Street in the same city (Schulz 1982). Each of these collections contains the bones of at least five species of suckers and minnows. At each of three non-Chinese sites, located on I and K streets in Sacramento and dating between 1860 and the turn of the century, on the other hand, no more than a single variety of such fish was recovered (Schulz 1980; n.d.). The faunal record thus seems to be in close accord with historic accounts in reflecting this aspect of cultural selectivity in diet.

The Feature 6 assemblage differs from the Feature 8/9 material by the absence of any cyprinoid specimens. This may be due to either its mixed origin or to the smallness of the sample. The puffer bone among the Feature 6 material may constitute an item of Chinese disposition, since the fish has at least limited use in southeastern China, while it finds none among Euro-Americans. Clarification of this point, however, must await further comparative study.

TABLE 1

Woodland Fish Remains
Number of Elements/Minimum Individuals, by Feature

Common Name	Scientific Name	Feature 6	Feature 8/9	Feature 10
Sturgeon	Acipenser sp.	1/1		1/1
King Salmon	Oncorhynchus tshawytscha	1/1		
Minnows or Suckers	Cyprinoidea		48/	
Sacramento Sucker	Catostomus occidentalis		10/2	
Hitch	Lavinia exilicauda		4/1	
Sacramento Squawfish	Ptychocheilus grandis		12/4	
Splittail	Pogonichthys macrolepidotus		1/1	
Sacramento Blackfish	Orthodon microlepidotus		7/2	
Thicktail Chub	Gila crassicauda		5/1	
Cod	Gadus sp.	2/1		
Rockfish	Sebastes sp.		8/2	
Kelp Greenling	Hexagrammos decagrammus		3/1	
Cabezon	Scorpaenichthys marmoratus		2/1	
Sacramento Perch	Archoplites interruptus	5/2	18/4	1/1
Surfperch	Embiotocidae	1/		
Rubberlip Seaperch	Rhacochilus toxotes	1/1		
Puffer	Tetraodontidae	1/1	1/1	
Not Identified			5/	
Unidentifiable		3/	185/	5/
Total		15/7	309/21	7/2

Acknowledgments

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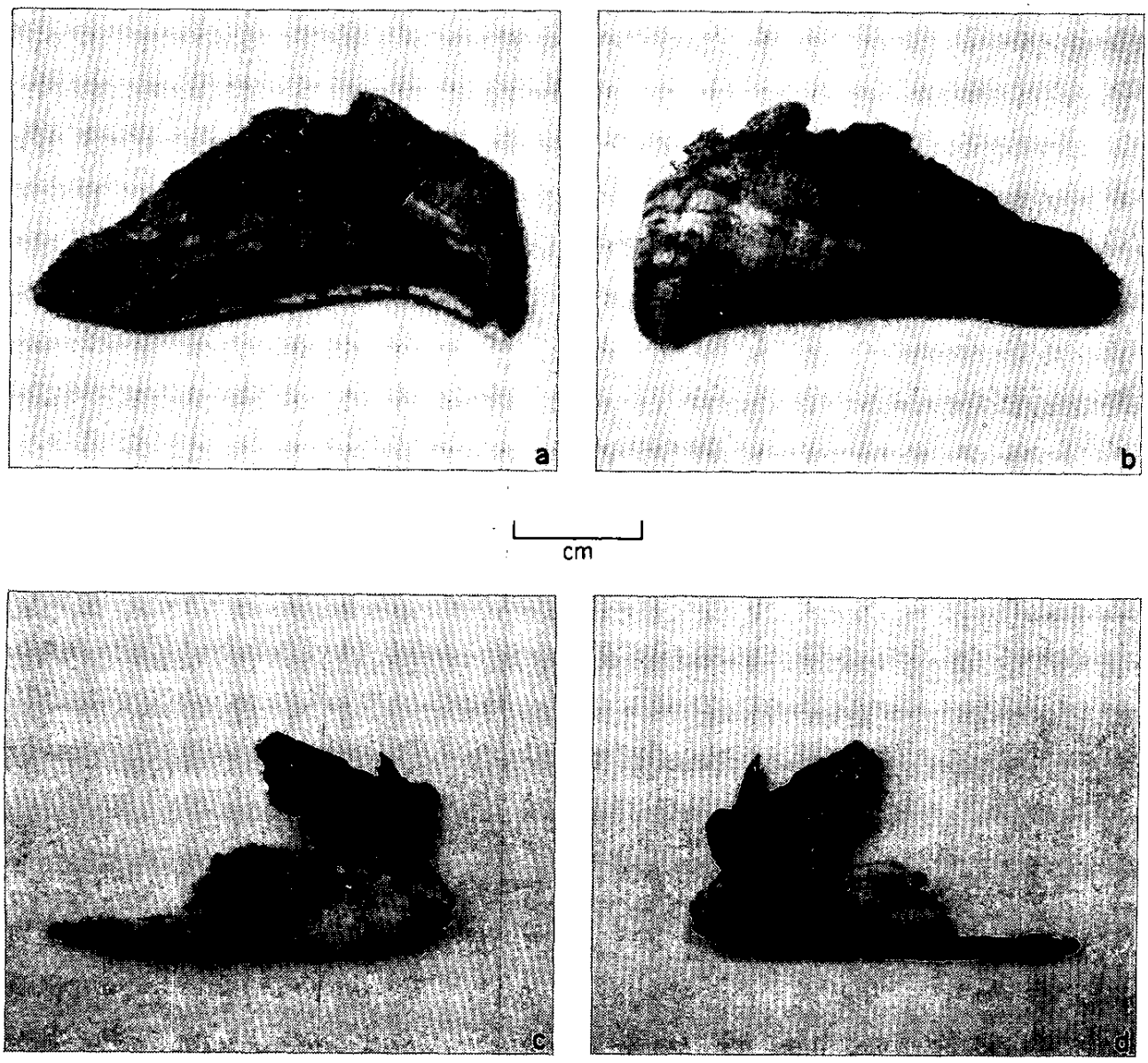

Figure 1. Puffer remains from Woodland: a-b) left premaxillary from Feature 6, lingual and labial views; c-d) right quadrate from Feature 8, lingual and buccal views.

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AVIFAUNAL REMAINS AT THE WOODLAND OPERA HOUSE SITE

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Recent research has addressed ethnicity in America as reflected in the archeological record. In the Far West, this work has focused mainly on the analysis of cultural materials found in overseas-Chinese deposits (cf. Schuyler 1980; Praetzellis et al. 1981). These studies have begun to document the persistence of distinctive foodway patterns among Chinese immigrants in both rural and urban areas. Archeological studies of dietary composition and butchering techniques have become particularly important in this regard, and they form the foundation for the analysis of the bird remains present in nineteenth-century cultural deposits from the opera house site in Woodland, California.

Materials and Methods

The bird remains studied come from deposits located directly under Woodland's historic opera house. On the basis of artifactual and documentary evidence, these deposits have been attributed to 1870-1880. Several features (Features 6, 8/9, and 10) were deposited between the mid-1870s and 1880, in part by Chinese working on the site. The material in Feature 8/9 represents a Chinese laundry which stood on the site from perhaps as early as 1870 until 1880. The Chinese artifacts in Feature 6, situated on an adjacent parcel, probably represent a secondary deposit also attributable to the laundry. Material representing the non-Chinese occupants of the parcel, however, is also present in the Feature 6 assemblage. Feature 10 appears to be associated with a contemporary Euro-American harness shop (Felton, Lortie and Schulz, this volume).

Both bird bones and pieces of eggshell were present. Since the eggshell remains were extremely fragmented, only their presence or absence was noted and recorded. The bird bones, however, were subjected to intensive analysis. They were first separated into identifiable and unidentifiable material; identifiable bones were labeled with their provenience data to unit and level whenever possible. Additional data on each identifiable bone (indications of burning, presence of butchering marks, degree of intactness, and attribution to an adult or a juvenile bird) were also recorded. Minimum numbers of individuals for each taxon were calculated by counting the most abundant skeletal element.

Results

A total of 478 bones was recovered, deriving from at least 48 individual birds belonging to 12 taxa (Table 1). All of the taxa represented are either native to central California or are domestic species introduced to California during the last 200 years. The majority of the bones were found in Features 6 and 8/9; most of these represented domestic chickens and turkeys. Various wild birds are also represented, including Canada geese, white-fronted geese, snow geese, dabbling ducks, California quail, American coots, American avocets, and mourning doves. Their presence was not surprising, since these two features date from the market-hunting era when large numbers of wild birds were sold in the marketplaces of California (Simons 1980a, 1980c, 1982). In Feature 8/9, parrot bones, probably from a pet, were encountered along with the remains of two apparently commensal birds, crow and an unidentified species of passeriform (song bird).

American avocet bones, not previously identified in historic deposits in central California, occurred in Feature 6. Common to very abundant throughout central California, avocets were once commercially hunted. Newberry (1857:99) noted that during the early 1850s, these birds were brought into the San Francisco market in considerable numbers. Grinnell, Bryant and Storer (1918:343) also have commented that the avocet was an important game bird in California, and that it was sold in large numbers in San Francisco and Stockton. The price range for avocets and other shorebirds sold in California markets during the last 30 years of the nineteenth century ranged from $0.35 to $1.50 per dozen birds (Welch 1927:183-184, 1931:257; Skinner 1962:210). As for palatability, some authorities thought that the bird's flesh was fairly good, but second class, while others claimed that it was hardly edible (Grinnell, Bryant and Storer 1918:343; Bent 1927:44).

Discussion

An intensive analysis of the bird bones present in Features 6 and 8/9 was conducted, because these deposits contained not only most of the bird remains, but also large numbers of Chinese artifacts. The investigation of ethnic diet and food preparation represented by the bird bones in these deposits has followed, as noted above, two approaches: faunal spectrum analysis and the study of butchering patterns.

Faunal spectrum, or dietary composition analysis, is the identification and calculation of the number of remains derived from different animals, with particular attention to species unique to, or especially characteristic of, the diet or medicine of relevant ethnic groups. The analysis of animal bones from cultural deposits associated with early twentieth-century American Chinese communities in Ventura, California, and Lovelock, Nevada, has revealed atypically large quantities of pig and chicken remains (Dansie 1979; Simons 1980b, 1981; Gust, unpublished data). Examination of the Lovelock faunal assemblage has also revealed the presence of specialty items associated with traditional Chinese cuisine and medicine, including cuttlefish, turtle, Asiatic pit viper, and bobcat (Dansie 1979).

Ethnicity can also be studied through the analysis of butchering patterns. Recent studies of chicken and duck remains from Ventura and Lovelock (Simons 1980b, 1981) have demonstrated the existence of butchering patterns directly comparable with present-day American Chinese poultry-butchering practices.

Faunal Spectrum Analysis

When the avifaunal assemblages present in Features 6 and 8/9 are compared to other overseas-Chinese assemblages, important similarities between them are evident. Quantitative comparison of assemblages from Woodland, Ventura, Sacramento, and Lovelock (Table 2) reveals that bones of domestic poultry, especially those of chickens, provide the majority of bird remains at all of these sites. The remains of wild ducks and geese are clearly of secondary importance at all the sites, while other wild birds are only incidentally present.

This, especially as regards the Woodland assemblages, contrasts sharply with the representation of bird remains at historic-period sites in downtown Sacramento (Table 2). The dominance of domestic poultry remains in the Woodland features is of particular significance since, prior to the 1880s, market hunting of wild birds provided the majority of the fowl in California markets. Domestic birds were relatively scarce and correspondingly expensive. Only after the 1880s did large-scale chicken and turkey production begin (Simons 1980a, 1980c, 1982). This is seen in the archeological record from Sacramento, where chicken remains comprise a minority of the bones recovered from deposits dating prior to the turn of the century. The representation of bird remains from the Woodland deposits thus differs greatly from those characterizing contemporaneous Euro-American deposits in Sacramento, since chicken remains are totally dominant in Woodland. It is apparent that the nineteenth-century Woodland Chinese went to considerable lengths to obtain this favored food over more readily available and cheaper wild game birds.

Numerous references on Chinese cooking stress the importance and popularity of chicken, emphasizing its role as a staple, basic food source (cf. Chao 1963; Sia 1964; Lin and Lin 1969; Chu 1975; Lo 1976, 1979a, 1979b). A detailed account is that of Lo (1979a:195-196):

> Chicken is one of the most versatile items of food in China; it is also one of the most convenient because of its widespread availability. Every village in China is roused by the crowing cock, and every farmyard or peasant holding in the land is alive with the sound of clucking chickens. A chicken dish on the table is associated with a feeling of occasion or festivity, and it is invariably augmented by a wide selection of side dishes and condiments. When extra food is needed on the unexpected arrival of guests or relatives, or when there is a celebration in the family, a chicken can always be killed to provide a special meat. In many dishes produced in China, chicken and pork are often interchangeable because of their many similarities... Chickens come in convenient unit sizes, and the meat is always ready for cooking, unlike the larger animals which cannot be killed and prepared for a meal with the

> same speed. Hence, although chicken is rather more of a delicacy than pork on the Chinese dinner table, it is nearly as extensively used. Chicken can be combined with almost every known vegetable by stir-frying and can also be cross-cooked with most meats, fish, and seafood. In China, chicken bones and chicken meat are the basic ingredients of high quality stocks (broths)... which are used in the preparation of numerous dishes, soups, and sauces... Typical of the Chinese sense of economy and variety, we frequently use one chicken to prepare two or three dishes... the total number of dishes which can be produced from chicken, including all the possible combinations and regional variations, certainly runs into many hundreds.

Given the importance of chicken in the Chinese diet, abundant chicken remains would be expected at overseas-Chinese archeological sites. It is probable that residents of the Woodland, Ventura, and Lovelock American Chinese communities kept small flocks of chickens at their homes or businesses, insuring a reasonably steady, abundant, and inexpensive supply of the birds. This would have been especially practical in Woodland, since the site was occupied at the time when chickens, as previously noted, were scarce and expensive in central California.

Butchering Pattern Analysis

The ethnic identities of the occupants of the Woodland site are evident in the analysis of poultry-butchering practices. Patterns of poultry butchering have been studied at several historic-period archeological sites. The representation of the major body parts of chickens and wild ducks found in the nineteenth-century deposits associated with the Golden Eagle Hotel and Cronin's Oyster Saloon in Sacramento, for example, indicate that both establishments served French/Franco-American meat dishes(Simons 1980c). Chicken-butchering patterns at Ventura and Lovelock, on the other hand, were directly comparable to modern techniques described in Cantonese cookbooks and used by chefs in Cantonese restaurants (Simons 1980b, 1981).

Based on the results of the Ventura and Lovelock studies and the large sample of chicken bones in the Woodland deposits, analysis of poultry butchering was restricted to chicken bones. The study encompasses three categories of data: age of utilized fowl, occurrence of butchered specimens, and body part representation (Table 3).

The Ventura and Lovelock deposits are characterized by identical percentages of juvenile and adult chicken bones, and of the major body parts. In addition, the percentages of whole and butchered bones from both sites are extremely similar. Occupants of both of these sites selectively consumed adult chickens, which were usually cut up in the preparation of various dishes. All parts of a chicken were used in these dishes, consistent with basic priciples of Chinese cuisine (Chao 1963; Sia 1964; Lin and Lin 1969; Claiborne and Lee 1972; Lo 1976, 1979a).

In the Woodland deposits, Feature 8/9, like the Ventura and Lovelock assemblages, contained a high percentage of adult chicken bones. Feature 6, however, had almost equal numbers of adult and juvenile specimens. Feature 8/9 had an extremely high percentage of butchered chicken bones, and, in this regard too, resembled Ventura and Lovelock. Feature 6, though, was characterized by a whole-to-butchered bone ratio of approximately 3:2. In the frequencies with which major body parts were represented among the remains, Features 6 and 8/9 differed from both the Ventura-Lovelock samples and from each other (Table 3). The people who deposited Feature 8/9 evidently consumed adult chickens which were cut up to prepare various dishes. All parts of a chicken were used. The "breast-upper wing" portion appears to have been preferred, while the "thigh-drumstick" was not. The people associated with the filling of Feature 6 used more young chickens, and apparently often cooked them either unbutchered or as whole, disjointed parts. The "breast-upper wing" was also preferred over other body parts.

The differences between the bird remains from Features 6 and 8/9 parallel differences in the ceramic assemblages: Feature 8/9 contains a higher frequency of both Chinese ceramics and indentifiably Chinese butchering patterns than does Feature 6. It is most likely that the differences between the assemblages are the results of secondary mixing, in Feature 6, of debris from the nearby Chinese dwelling with that attributable to the Euro-American occupants of the adjacent parcel.

Cookbook accounts and observations of the poultry-butchering techniques used by cooks in modern American Chinese restaurants were used as analogues for the chicken-butchering patterns characterizing Features 6 and 8/9. Cutting up chicken is described in these two typical recipes:

> To cut a chicken into segments and arrange on platter: Disjoint the chicken in the usual manner by cutting off the neck, removing the wings and legs at the joints, and cutting the body cavity into three pieces -- the breast, upper back, and lower back. Cut off the lower bony part of each drumstick. Using a sharp cleaver and cutting through the bones, divide the neck into 3 pieces, each wing at the joints into 3 pieces, each thigh into 2 pieces, each drumstick into 2 pieces, and the upper and lower back into 3 pieces each. Cut the breast in two lengthwise, then cut each half crosswise into 1-inch pieces... Arrange the chicken in a neat pile, using the bony portions as foundation and ending with the pieces of breast meat (Sia 1964:62).
>
> To chop chicken or duck: Use a heavy cleaver, and remove the wings and legs from the chicken body. Cut the chicken lengthwise through the breastbone and backbone. Cut each chicken in half lengthwise once more. Chop the backbone with meat crosswise into 3/4-inch pieces. Use the cleaver to transfer the chicken pieces to the center of a serving platter. Cut each wing into four pieces and put them at the upper corners of the platter. Cut each leg at the joint,

> separating the upper leg from the thigh, and remove the bones carefully without disturbing the skin. Cut the leg meat lengthwise into 2 x 3/4-inch pieces and arrange at the lower corners of the platter. Remove the breastbone and cut each breast crosswise at 3/4-inch intervals and place in the center with some pieces overlapping the leg meat. In this manner the original shape of the bird is reconstructed on the platter (Lin 1975:15-17; cf. Chao 1963:105; Claiborne and Lee 1972:42-43).

Many of the chicken bones from Features 6 and 8/9 were cut in a manner consistent with the cookbook descriptions. In addition, chicken bones from these deposits exhibit a high number of clean, straight cuts through the bones, consistent with butchering involving the use of a cleaver or heavy knife (Fig. 1a-c). Chicken bones from Feature 6 have 13 of these cuts, while those from Features 8/9 display 78.

The Chinese cookbook accounts also suggest that a consistent, ethnically influenced pattern of poultry butchering would be practiced by present-day American-Chinese cooks. As a comparison for the chicken remains from Features 6 and 8/9, chicken bones were obtained from dishes prepared at two modern American-Chinese restaurants. Both specialize in Cantonese-style food, which was until recently the principal form of Chinese cuisine in the Far West, since the great majority of nineteenth and early twentieth-century Chinese immigrants came from the Canton region.

A typical Cantonese chicken dish was selected, since it was assumed that its preparation would involve the use of regularly practiced butchering techniques. The dish was white cut/pure cut/boiled white chicken, thought by many to be the most "basic" Cantonese chicken dish (Cheng 1954; Chao 1963; Sia 1964; Lin and Lin 1969; Chu 1975). Chicken bones from this dish were cleaned for use as comparative material.

Butchered chicken breast bones, scapulas and coracoids, and humeri from Feature 8/9 were compared with the same bones from the restaurant samples (Fig. 1d). Close similarity between the modern bones and those from Feature 8/9 is apparent. Chicken bones from Feature 6 are also similar in many respects to the modern specimens. These results parallel those of a study conducted on butchered chicken remains from Ventura and Lovelock, which revealed a comparable degree of similarity between the modern and the archeological assemblages (Simons 1980b, 1981).

Summary and Conclusions

Studies of dietary composition and butchering techniques reflected in bird remains from historic American Chinese archeological sites have produced data that can profitably be used in the archeological study of ethnicity. Avifaunal assemblages from these sites are mainly composed of domestic poultry remains, especially those of chickens. Ethnically influenced butchering patterns, directly comparable to modern American-Chinese butchering techniques, also characterize these assemblages. A pattern of poultry utilization distinctively assignable to American Chinese has been demonstrated by these

studies. The Woodland avifauna contributes dramatically to the utility of the studies of late sites by extending the range of the work into the nineteenth century.

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TABLE 1
Number of Bones and Minimum Numbers of Individuals for Avian Taxa
Woodland Opera House Site

Common Name	Taxon	Bones/Minimum Individuals Feature 6	Feature 8/9	Feature 10
Canada Goose	Branta canadensis		1/1	
White-Fronted/ Snow/Ross' Goose	Anser spp.	2/1	1/1	
Dabbling Ducks	Anas spp.	11/2	35/3	
California Quail	Lophortyx californica		3/1	
Domestic Chicken	Gallus gallus	190/12	176/11	16/2
Domestic Turkey	Meleagris gallopavo	12/1		1/1
American Coot	Fulica americana	2/1		
American Avocet	Recurvirostra americana	7/2		
Mourning Dove	Zenaidura macroura		1/1	
Parrot	Psittacidae		2/1	
Common Crow	Corvus brachyrhynchos		1/1	
Perching Birds	Passeriformes		1/1	
Bone Totals		224/19	221/21	17/3
Eggshells		+	+	-

TABLE 2

Diversity of Bird Remains from Far West Historic Period Sites

Western Chinese Sites

	Woodland Feature 6 1870-1880		Woodland Feature 8/9 1870-1880		Sacramento 913 Front 1880-1900		Ventura Features 24/25 1890-1910		Lovelock Wells 1/2 1900-1940	
Ducks and Geese	13	(5.8%)	37	(16.7%)	26	(24.1%)	124	(40.7%)	13	(4.0%)
Domestic Chicken	190	(84.8%)	176	(79.6%)	80	(74.1%)	178	(58.4%)	308	(93.9%)
Domestic Turkey	12	(5.4%)	0	(0.0%)	0	(0.0%)	1	(0.3%)	7	(2.1%)
Other birds	9	(4.0%)	8	(3.6%)	2	(1.9%)	2	(1.7%)	0	(0.0%)
Total	224		221		108		305		328	

Sacramento Euro-American Sites

	Hotel de France 1849-1870		Golden Eagle Hotel 1860s		Hannan Saloon and Grant Oyster Saloon 1860s		Cronin Golden Eagle Oyster Saloon 1874-1878		Gruhler and Klebitz Saloons ca. 1885		Budd Residenc ca. 1900	
Ducks and Geese	313	(55.9%)	100	(25.0%)	105	(55.6%)	73	(40.0%)	91	(48.7%)	82	(22.3
Domestic Chicken	195	(34.8%)	35	(8.8%)	62	(32.8%)	111	(45.7%)	63	(33.7%)	249	(66.1
Domestic Turkey	22	(3.9%)	17	(4.3%)	9	(4.8%)	33	(13.6%)	29	(15.5%)	33	(8.8
Other birds	30	(5.4%)	248	(62.0%)	13	(6.9%)	26	(10.7%)	4	(2.1%)	11	(2.9
Total	560		400		189		243		187		377	

All identifications are by the author. For context of the Sacramento deposits, see Schulz, Hastings and Felton (1980), Praetzellis, Praetzellis and Brown (1980) and Schulz (1981); for Ventura, see Bente (1976); for Lovelock see Jensen and Rusco (1979).

TABLE 3

Characteristics of Chicken Bones from Four Overseas-Chinese Deposits

	Woodland Feature 6		Woodland Feature 8/9		Ventura Features 24/25		Lovelock Wells 1/2	
Frequency of Adult and Juvenile Chicken Bones								
Adult	102	54%	155	88%	170	95%	294	95%
Juvenile	88	46%	21	12%	8	5%	14	5%
Total	190	100%	176	100%	178	100%	308	100%
Whole and Butchered Chicken Bones:								
Whole	71	58%	16	12%	35	24%	54	21%
Butchered	52	42%	113	88%	109	76%	203	79%
Total	123	100%	129	100%	144	100%	257	100%
Frequencies of Major Chicken Body Parts								
Breast-Upper Wing[1]	64	41%	57	43%	54	32%	88	32%
Thigh-Drumstick[1]	45	29%	20	15%	43	25%	67	25%
Outer Wing-Lower Leg[1]	47	30%	57	43%	72	43%	117	43%
Totals	156	100%	134	101%	169	100%	272	101%

[1] Elements included in major body parts: Breast-upper wing = sternum, furcula, scapula, coracoid, humerus; Thigh-drumstick = femur, tibiotarsus; Outer wing-lower leg = ulna, carpometacarpus, tarsometatarsus.

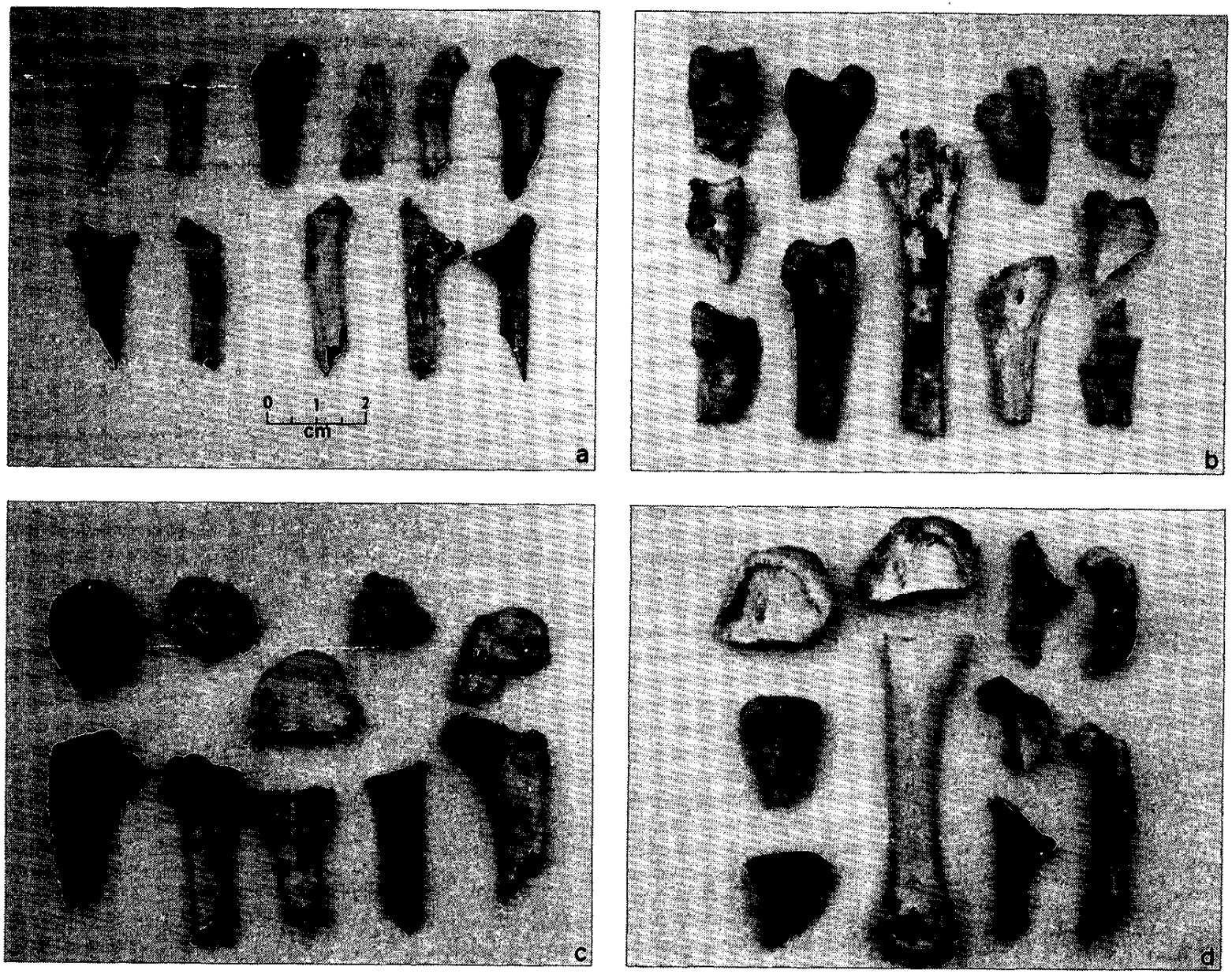

Figure 1. Comparison of butchered chicken bones: a) wing bones (scapulae and coracoids) from Features 6 and 8/9; b) wing bones (humeri) from Features 6 and 8/9; c) leg bones (femora, tibiotarsi, and tarsometatarsi) from Features 6 and 8/9; d) wing bones from modern Cantonese-American restaurants.

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MAMMALIAN FAUNA FROM THE WOODLAND OPERA HOUSE SITE

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During excavations at the Woodland Opera House site, mammal bones were found at four proveniences. Most of the bone was found in features sealed by construction of the opera house in 1884. The largest feature was a filled cesspool, Feature 8/9, associated with a Chinese laundry that stood on the site prior to 1880. Feature 6, now a furnace pit, was probably originally a cellar, while Feature 10 appears to have been an abandoned privy. Layer 6 was a restaurant deposit south of the building dating 1885-1892.

Methods

After recovery, the bones were returned to the laboratory and cleaned, and the mammal remains were submitted for analysis. Taxon, element, side, butchering marks, and condition of bone were recorded for each identifiable fragment. The conditions of the excavation were less than ideal, with the result that highly variable techniques were used in digging and processing materials from the different proveniences (Felton, Lortie and Schulz, this volume). Comparability within the assemblage -- at least for very small elements -- was greatly diminished by these factors.

Results

Food Preference and Variety

A total of 634 mammal bones was identified from the Woodland collection (Table 1). Feature 8/9 provided by far the largest sample. Pork composes a full 80% by count of the food mammal complement in this feature, while beef bones contribute 13%, and mutton bones 2%. Cat and ground squirrel make up the remaining 5%, and are identified as food by the presence of butchering marks. Among the Feature 6 remains, however, the small mammals show no evidence of butchering, and the proportions of the major meat animals contrast greatly; pork bones constitute 33% of the sample, beef bones 43%, and mutton bones 24%.

Skeletal elements were counted for beef and pork by feature (Table 2). Many parts of the animal are represented in Features 6 and

10, but the concentration in Layer 6 of beef vertebrae and ribs is notable. Only the pork bones from Feature 8/9 total more than 50 specimens.

The bone frequencies in Feature 8/9 indicate that elements from the hindlimb of pork were most abundant in the remains, followed by those of the loin, and then the forelimb. However, calculation of the minimum butchering units (cf. Lyman 1979) for the same data gives a different order of abundance. A minimum of nine picnic hams, five shoulders, four hams, and three loins were present. This more reliable estimate indicates that the forelimb was used most often. Pigs' feet and heads were also utilized.

Butchering

Due to sample size, butchering patterns have been studied only for the Feature 8/9 remains. Butchering marks include hand-saw cuts, cleaver cuts, cleaver scores, and knife scores (Gust 1983). The number of butchered over nonbutchered elements has been counted for the feature by species (Table 3).

The major elements of pork removed from Feature 8/9 show butchering patterns which generally represent the standard American style of the time. Wholesale cuts include the separation of the shoulder from the picnic ham, the forefoot from the picnic ham, the loin from the ham, and the hindfoot from the ham. Most of the specimens, however, show retail meat divisions (Figs. 1, 2). Exceptions to the American standard cuts are cleaver and knife scores placed to remove meat from the bone.

The beef bones were all hand-sawn into standard meat cuts. The sample includes the remains of four loin steaks, two rib steaks, a rump roast, a round steak, a chuck seven-bone steak, two arm steaks, a brisket section, and two soup bones.

Four of the five mutton bones were hand-sawn steaks: a rib steak, a sirloin steak, a shoulder seven-bone steak, and a shoulder blade steak. The other bone was a tibia cleaved at midshaft.

Two ground squirrel skulls had been butchered; one is split down the midline while the other is split and quartered. Of the two butchered cat bones, one is a cleaved portion of scapula and the other a cleaved section of pelvis.

Although the samples of butchered bones from the remaining proveniences are too small for detailed analysis, some aspects of these samples are noteworthy. In Feature 6, 20 of the 92 bones exhibited butchering marks. Five of the marks were cleaver cuts like those seen in Feature 8/9. In Feature 10, cleaver cuts were present on four of nine butchered bones out of a total of 23. Layer 6, in contrast, yielded 26 butchered bones in a total of 47; all are hand-sawn, and all but three of these are steaks.

Discussion

Feature 8/9

The meat of common usage of the people depositing this assemblage was overwhelmingly pork. It appears that large cuts were purchased (picnic hams and regular hams, most often) and subsequently cut up in the kitchen. These practices are shown by the standard wholesale butchering marks (cf. Gust 1982, 1983) and the distinctive collection of nicks and scores made by cleavers and knives in the process of removing meat from the bone. The beef and mutton in the sample are small retail cuts and probably added variety but little substance to the diet. A similar addition was the inclusion of cats and ground squirrels as food.

Other Features

The small samples recovered from Features 6 and 10 and Layer 6 are all dominated by beef bone, followed by pork and mutton. The excavation problems noted above make it difficult to interpret these results. Is the abundance of beef representative or merely a sampling bias? The apparent mixing of Chinese and non-Chinese deposits in Features 6 and 10 probably accounts for at least some of the differences between those assemblages and that recovered from Feature 8/9, a seemingly unmixed Chinese deposit. It is likely that the relatively high frequency of beef in Features 6 and 10 is attributable to the non-Chinese origin of part of the material.

While similar as regards faunal composition, Features 6 and 10 may be segregated from Layer 6 on the basis of butchering. Features 6 and 10 include beef and pork bones deriving from many parts of the animals and showing cleaver marks like the kitchen butchering of Feature 8/9. In contrast, Layer 6 yielded a concentration of bones from the beef rib and loin (T-bone), all cut as steaks. The character of the Layer 6 assemblage is probably attributable to its association with a restaurant on the site between 1885 and 1892.

Ethnicity

While beef, mutton, and pork are the standard items in historic faunal samples, the proportions of the meats represented may differ significantly according to the ethnic origin of the depositing population. Generally, late-nineteenth century Euro-American sites in the West produce faunas dominated by beef. Chinese sites differ in yielding large amounts of pork relative to beef and mutton (Table 4). The Woodland Feature 8/9 bone count frequencies of 86% pork to 14% beef fit well with the faunal composition of the Chinese assemblages. All these sites appear to reflect the meat utilization pattern of southeastern China, where pork was the overwhelming staple of the meat diet (Buck 1937).

Butchering marks can also be relevant to ethnicity. At least four comparative Chinese sites share with Feature 8/9 both the standard retail butchering on most bones and the distinctive cleaver and knife marks. This kitchen butchering is most evident in the early

Sacramento sample (Gust 1982), and its frequency seems to decrease through time. It is postulated that the marks result from cutting meat to portions appropriate for chopsticks. This kind of butchering is also seen in Features 6 and 10, but not at all in Layer 6.

Use of domestic cats as food was an acceptable practice in southeastern China (Ball 1906). The recovery of butchered cat remains from Feature 8/9, as well as their recovery from Tucson Chinatown (Gust, unpublished data), documents the occasional consumption of these animals by nineteenth-century Chinese immigrants in America.

Consumption of ground squirrels, on the other hand, was neither unusual in nineteenth-century California, nor confined to the Chinese. Many butchered remains of these rodents, from deposits dating between 1860 and 1880, were recovered archeologically from the dump of the prestigious Golden Eagle Hotel in nearby Sacramento, and written records from the period mention them as food (Gust with Schulz 1980). Butchering of ground squirrels at the Golden Eagle site did not include any use of the head, however.

Overall, similarities of species composition and butchering align Feature 8/9 with other western Chinese sites. Sampling problems limit the utility of Features 6 and 10 and Layer 6. On the basis of the butchering, however, Features 6 and 10 give some indications of Chinese deposition. Layer 6, on the other hand, resembles a purely Euro-American deposit. These findings are in line with the results of historical research and other archeological analyses, which indicate that Features 6 and 10 contain a mixture of Chinese and non-Chinese deposits, that Feature 8/9 is securely attributable to a Chinese laundry, and that Layer 6 was associated with a non-Chinese restaurant.

TABLE 1

Distribution of Mammal Remains by Feature
Woodland Opera House Site

Food Species	Bones/Minimum Individuals Feature 8/9	Feature 6	Feature 10	Layer 6
Pork (*Sus scrofa*)	304/11	30/2	11/1	11/1
Beef (*Bos taurus*)	48/3	40/3	9/1	32/1
Mutton (*Ovis aries*)	7/2	22/3	3/1	4/1
Cat (*Felis catus*)	3/1			
Ground Squirrel (*Citellus beechyi*)	3/1			
Total	365/18	92/8	23/3	47/3
Incidental Species				
Cat (*Felis catus*)		26/3	4/1	
Ground Squirrel (*Citellus beechyi*)		14/5		
Pocket gopher (*Thomomys bottae*)	4/1		1/1	
Rat (*Rattus* sp.)	5/1	4/1	11/1	35/5
Mouse (*Mus musculus*)	2/1	1/1		
Total	11/3	45/10	1/36	35/5
Grand Total	376/21	137/18	39/6	82/8

TABLE 2

Beef and Pork Distribution by Element Counts
Woodland Opera House Site

Element	Beef				Pork			
	-- Feature --			Layer	-- Feature --			Layer
	8/9	6	10	6	8/9	6	10	6
Scapula	1	4			8	2		1
Humerus	5				10			
Radius	2		1		6			
Ulna	1	1	1		10	1		
Radioulna		1						
Pelvis	1	4		1	12		1	1
Femur	3	5	1		19	2	1	1
Fibula					7			
Tibia	3	1	1		15	2		1
Atlas					6		1	
Axis					5			
Cervicals 3-7	3				14	4	1	
Thoracic vertebra	5	3		1	4	1		
Lumbar vertebra	8	7	1	15	13		1	1
Sacral vertebra					5			
Caudal vertebra				2	1			
Dorsal rib		6	1	2	3			
Mid rib	9	4		11	16	2		2
Ventral rib	1							
Patella					1			
Carpal	1	1	2		12			
Tarsal	5	3	1		16	2	1	1
Metapodial					44	4	3	3
Phalange					59	7		1
Skull					12	3	1	
Mandible					1		1	
Isolated teeth					5			
Total	48	40	9	32	304	30	11	13
Relative Beef/Pork Percentage	14%	57%	43	71%	86%	43%	57%	29%

Total Beef: 129 Total Pork: 358

TABLE 3

Number of Butchered Elements from Feature 8/9
Over Number of Elements Recovered
Woodland Opera House Site

Element	Pork	Beef	Mutton	Cat	Squirrel
Skull	3/12				2/3
Mandible	1/1				
Scapula	7/8	1/1	2/2	1/1	
Humerus	7/10	3/5		0/1	
Radius	5/6	0/1			
Ulna	9/10	0/2			
Vertebra	6/48	6/16	1/1		
Rib	9/19	1/10			
Pelvis	8/12	1/1	1/2	1/1	
Femur	8/19	1/3			
Tibia	8/15	1/3	1/2		
Fibula	1/7				
Tarsal	6/16	0/5			
Other	0/121	0/1			
Total	78/304	14/48	5/7	2/3	2/3

TABLE 4

Percent Pork Bones among Beef, Pork, and Mutton Elements in Western Sites

Chinese Deposits	Date	% Pork	Source
Sacramento, IJ56 Block	1850s	99	Gust 1982
Madera, Ah Sun Store	1865-1885	99	Langenwalter 1980
Woodland, Feature 8/9	ca. 1880	85	This report
Tucson, TUR Project	1880-1900	59	Gust n.d.
Ventura, Features 24, 25	ca. 1908	57	Gust n.d.
Lovelock, Wells 1, 2	1920-1930	63	Gust n.d.
Euro-American Deposits			
Monterey, Diaz Privy	ca. 1860	2	Felton and Schulz 1983
Sacramento, Hannan Saloon	ca. 1866	11	Schulz and Gust 1983, n.d.
Sacramento, Golden Eagle Hotel	1860s	33	Gust with Schulz 1980
Nevada, Sand Springs Station	1860-1870s	3	Hardesty 1979
Sacramento, Cronin Oyster Bar	1870s	35	Gust with Schulz 1980
Sacramento, City Jail	1870s	2	Schulz and Gust 1983, n.d.
Panamint City	1870s	4	Schulz 1979
Fort Laramie, Rustic Hotel	1876-1890	11	Ehrenhard 1973
Sacramento, Klebitz & Green	ca. 1885	9	Schulz and Gust 1983, n.d.
Ventura, Pit E	ca. 1910	0	Romani and Toren 1975

Figure 1. Pork bone cuts from Feature 8/9: scapula, humerus, radius, ulna. (See Figure 2 for key.)

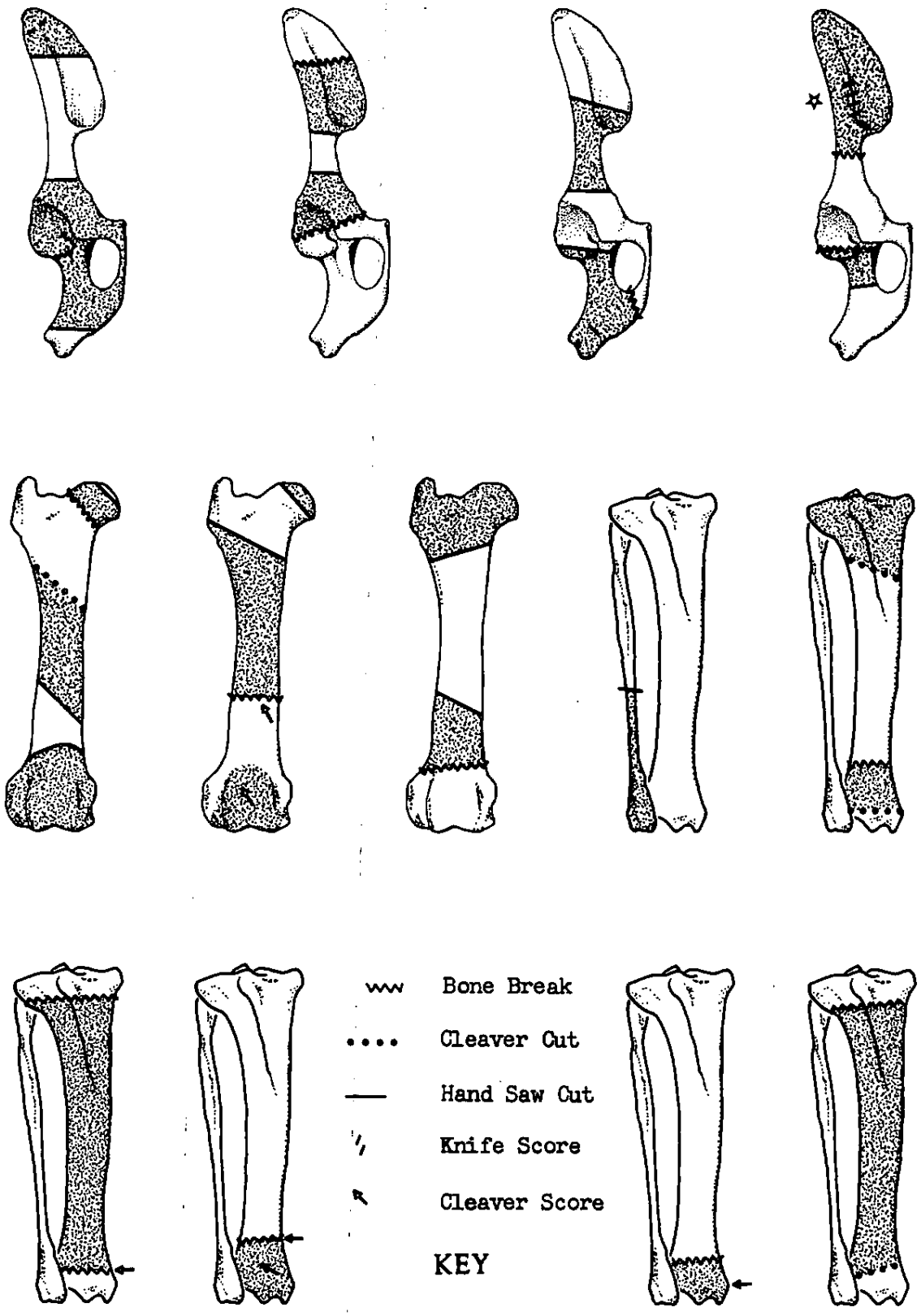

Figure 2. Pork bone cuts from Feature 8/9: pelvis, femur, tibia, fibula. (Star indicates marks on lateral surface.)

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